

# F611 & F612 Series Metallized Polyester Film, 5 – 37.5 mm Lead Spacing, 50 – 1,000 VDC

## Overview

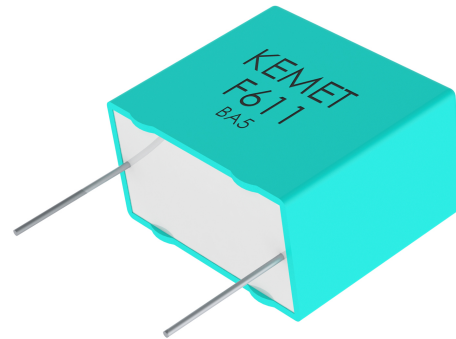
The F611 and F612 Series is constructed of metallized wound or stacked polyester film capacitor with radial leads of tinned wire. Radial leads are electrically welded to the contact metal layer on the ends of the capacitor winding. The capacitor is encapsulated in a self-extinguishing material meeting the requirements of UL 94 V-0.

## Applications

Typical applications include blocking, coupling, decoupling, bypassing and interference suppression in low voltage applications such as automotive. Not for use with the mains.

## Benefits

- Voltage range: 50 – 1,000 VDC
- Capacitance range: 0.001 – 180  $\mu\text{F}$
- Lead spacing: 5 – 37.5 mm
- Capacitance tolerance:  $\pm 10\%$ ,  $\pm 20\%$ ,  $\pm 5\%$  on request
- Climatic category: 55/105/56, IEC 60068–1
- Tape and reel packaging in accordance with IEC 60286–2
- RoHS Compliant and lead-free terminations
- Operating temperature range of  $-55^{\circ}\text{C}$  to  $+105^{\circ}\text{C}$



## Part Number System

| F               | 611                                                  | J                                                                            | F                   | 104                                                                                    | M                                                 | 050                                                                                                  | C                          |
|-----------------|------------------------------------------------------|------------------------------------------------------------------------------|---------------------|----------------------------------------------------------------------------------------|---------------------------------------------------|------------------------------------------------------------------------------------------------------|----------------------------|
| Capacitor Class | Series                                               | Lead Spacing (mm)                                                            | Size Code           | Capacitance Code (pF)                                                                  | Capacitance Tolerance                             | Rated Voltage (VDC)                                                                                  | Packaging                  |
| F = Film        | Metallized Polyester<br>611 = Wound<br>612 = Stacked | J = 5<br>K = 7.5<br>A = 10.0<br>B = 15.0<br>D = 22.5<br>F = 27.5<br>R = 37.5 | See Dimension Table | First two digits represent significant figures. Third digit specifies number of zeros. | J = $\pm 5\%$<br>K = $\pm 10\%$<br>M = $\pm 20\%$ | 050 = 50<br>063 = 63<br>100 = 100<br>160 = 160<br>250 = 250<br>400 = 400<br>630 = 630<br>1K0 = 1,000 | See Ordering Options Table |

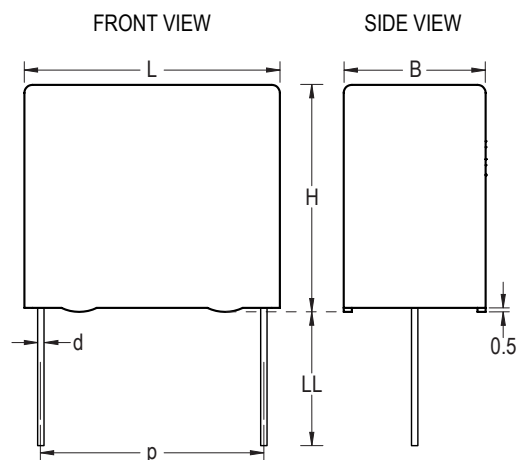
## Ordering Options Table

| Lead Spacing<br>Nominal (mm) | Type of Leads and Packaging                | Lead Length<br>(mm)          | Lead and<br>Packaging<br>Code |
|------------------------------|--------------------------------------------|------------------------------|-------------------------------|
| 5                            | <b>Standard Lead and Packaging Options</b> |                              |                               |
|                              | Bulk (Bag) – Short Leads                   | 4 +2/-0                      | C                             |
|                              | Bulk (Bag) – Long Leads                    | 17 +0/-1                     | A                             |
|                              | Tape & Reel (Standard Reel)                | H <sub>0</sub> = 18.5 +/-0.5 | L                             |
|                              | <b>Other Lead and Packaging Options</b>    |                              |                               |
|                              | Bulk (Bag) – Max Length Leads              | 20 +5/-0                     | ALL0L                         |
|                              | Ammo Pack                                  | H <sub>0</sub> = 18.5 +/-0.5 | R                             |
| 7.5                          | <b>Standard Lead and Packaging Options</b> |                              |                               |
|                              | Bulk (Bag) – Short Leads                   | 4 +2/-0                      | C                             |
|                              | Bulk (Bag) – Long Leads                    | 17 +0/-1                     | A                             |
|                              | Tape & Reel (Standard Reel)                | H <sub>0</sub> = 18.5 +/-0.5 | L                             |
|                              | <b>Other Lead and Packaging Options</b>    |                              |                               |
|                              | Bulk (Bag) – Max Length Leads              | 20 +5/-0                     | ALL0L                         |
|                              | Ammo Pack                                  | H <sub>0</sub> = 18.5 +/-0.5 | R                             |
| 10                           | <b>Standard Lead and Packaging Options</b> |                              |                               |
|                              | Bulk (Bag) – Short Leads                   | 4 +2/-0                      | C                             |
|                              | Bulk (Bag) – Long Leads                    | 17 +0/-1                     | A                             |
|                              | Tape & Reel (Standard Reel)                | H <sub>0</sub> = 18.5 +/-0.5 | L                             |
|                              | <b>Other Lead and Packaging Options</b>    |                              |                               |
|                              | Bulk (Bag) – Max Length Leads              | 20 +5/-0                     | ALL0L                         |
|                              | Ammo Pack                                  | H <sub>0</sub> = 18.5 +/-0.5 | R                             |
|                              | Tape & Reel (Large Reel)                   | H <sub>0</sub> = 18.5 +/-0.5 | P                             |
| 15                           | <b>Standard Lead and Packaging Options</b> |                              |                               |
|                              | Bulk (Bag) – Short Leads                   | 4 +2/-0                      | C                             |
|                              | Bulk (Bag) – Long Leads                    | 17 +0/-1                     | A                             |
|                              | Tape & Reel (Standard Reel)                | H <sub>0</sub> = 18.5 +/-0.5 | L                             |
|                              | Pizza Pack                                 | 4 +2/-0                      | Z                             |
|                              | <b>Other Lead and Packaging Options</b>    |                              |                               |
|                              | Bulk (Bag) – Max Length Leads              | 25 +5/-0                     | ALR0L                         |
|                              | Ammo Pack                                  | H <sub>0</sub> = 18.5 +/-0.5 | R                             |
|                              | Tape & Reel (Large Reel)                   | H <sub>0</sub> = 18.5 +/-0.5 | P                             |

## Ordering Options Table cont'd

| Lead Spacing<br>Nominal (mm) | Type of Leads and Packaging                | Lead Length<br>(mm)          | Lead and<br>Packaging<br>Code |
|------------------------------|--------------------------------------------|------------------------------|-------------------------------|
| 22.5                         | <b>Standard Lead and Packaging Options</b> |                              |                               |
|                              | Bulk (Tray) – Short Leads                  | 4 +2/-0                      | C                             |
|                              | Bulk (Tray) – Long Leads                   | 17 +0/-1                     | A                             |
|                              | Pizza Pack                                 | 4 +2/-0                      | Z                             |
|                              | <b>Other Lead and Packaging Options</b>    |                              |                               |
|                              | Tape & Reel (Standard Reel)                | H <sub>0</sub> = 18.5 +/-0.5 | L                             |
|                              | Tape & Reel (Large Reel)                   | H <sub>0</sub> = 18.5 +/-0.5 | P                             |
|                              | Ammo Pack                                  | H <sub>0</sub> = 18.5 +/-0.5 | R                             |
| 27.5                         | <b>Standard Lead and Packaging Options</b> |                              |                               |
|                              | Bulk (Tray) – Short Leads                  | 4 +2/-0                      | C                             |
|                              | Bulk (Tray) – Long Leads                   | 17 +0/-1                     | A                             |
|                              | Pizza Pack                                 | 4 +2/-0                      | Z                             |
| 37.5                         | <b>Standard Lead and Packaging Options</b> |                              |                               |
|                              | Bulk (Tray) – Short Leads                  | 4 +2/-0                      | C                             |
|                              | Bulk (Tray) – Long Leads                   | 17 +0/-1                     | A                             |
|                              | Pizza Pack                                 | 4 +2/-0                      | Z                             |

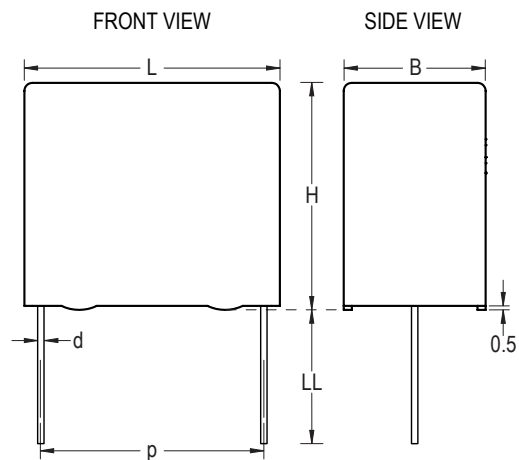
## Dimensions – Millimeters



| Size Code | p       |           | B       |           | H       |           | L       |           | d       |           |
|-----------|---------|-----------|---------|-----------|---------|-----------|---------|-----------|---------|-----------|
|           | Nominal | Tolerance | Nominal | Tolerance | Nominal | Tolerance | Nominal | Tolerance | Nominal | Tolerance |
| JF        | 5.0     | +/-0.4    | 2.5     | Maximum   | 6.5     | Maximum   | 7.2     | Maximum   | 0.5     | +/-0.05   |
| JG        | 5.0     | +/-0.4    | 3.5     | Maximum   | 7.5     | Maximum   | 7.2     | Maximum   | 0.5     | +/-0.05   |
| JM        | 5.0     | +/-0.4    | 4.5     | Maximum   | 9.5     | Maximum   | 7.2     | Maximum   | 0.5     | +/-0.05   |
| JQ        | 5.0     | +/-0.4    | 5.0     | Maximum   | 10.0    | Maximum   | 7.2     | Maximum   | 0.5     | +/-0.05   |
| JT        | 5.0     | +/-0.4    | 6.0     | Maximum   | 11.0    | Maximum   | 7.2     | Maximum   | 0.5     | +/-0.05   |
| JU        | 5.0     | +/-0.4    | 7.2     | Maximum   | 13.0    | Maximum   | 7.2     | Maximum   | 0.6     | +/-0.05   |
| KE        | 7.5     | +/-0.4    | 2.5     | Maximum   | 6.0     | Maximum   | 10.0    | Maximum   | 0.6     | +/-0.05   |
| KF        | 7.5     | +/-0.4    | 3.0     | Maximum   | 8.0     | Maximum   | 10.0    | Maximum   | 0.6     | +/-0.05   |
| KG        | 7.5     | +/-0.4    | 4.0     | Maximum   | 8.0     | Maximum   | 10.0    | Maximum   | 0.6     | +/-0.05   |
| KH        | 7.5     | +/-0.4    | 4.0     | Maximum   | 9.0     | Maximum   | 10.0    | Maximum   | 0.6     | +/-0.05   |
| KJ        | 7.5     | +/-0.4    | 5.0     | Maximum   | 10.5    | Maximum   | 10.0    | Maximum   | 0.6     | +/-0.05   |
| KM        | 7.5     | +/-0.4    | 6.0     | Maximum   | 12.0    | Maximum   | 10.5    | Maximum   | 0.6     | +/-0.05   |
| AG        | 10.0    | +/-0.4    | 4.0     | Maximum   | 9.0     | Maximum   | 13.0    | Maximum   | 0.6     | +/-0.05   |
| AK        | 10.0    | +/-0.4    | 5.0     | Maximum   | 11.0    | Maximum   | 13.0    | Maximum   | 0.6     | +/-0.05   |
| AP        | 10.0    | +/-0.4    | 6.0     | Maximum   | 12.0    | Maximum   | 13.0    | Maximum   | 0.6     | +/-0.05   |
| BB        | 15.0    | +/-0.4    | 4.0     | Maximum   | 10.0    | Maximum   | 18.0    | Maximum   | 0.8     | +/-0.05   |
| BC        | 15.0    | +/-0.4    | 5.0     | Maximum   | 11.0    | Maximum   | 18.0    | Maximum   | 0.8     | +/-0.05   |
| BE        | 15.0    | +/-0.4    | 5.5     | Maximum   | 12.5    | Maximum   | 18.0    | Maximum   | 0.8     | +/-0.05   |
| BG        | 15.0    | +/-0.4    | 6.0     | Maximum   | 12.0    | Maximum   | 18.0    | Maximum   | 0.8     | +/-0.05   |
| BK        | 15.0    | +/-0.4    | 7.5     | Maximum   | 13.5    | Maximum   | 18.0    | Maximum   | 0.8     | +/-0.05   |
| BP        | 15.0    | +/-0.4    | 8.5     | Maximum   | 14.5    | Maximum   | 18.0    | Maximum   | 0.8     | +/-0.05   |
| BS        | 15.0    | +/-0.4    | 10.0    | Maximum   | 16.0    | Maximum   | 18.0    | Maximum   | 0.8     | +/-0.05   |
| BY        | 15.0    | +/-0.4    | 11.0    | Maximum   | 19.0    | Maximum   | 18.0    | Maximum   | 0.8     | +/-0.05   |
| DB        | 22.5    | +/-0.4    | 6.0     | Maximum   | 14.5    | Maximum   | 26.0    | Maximum   | 0.8     | +/-0.05   |
| DI        | 22.5    | +/-0.4    | 7.0     | Maximum   | 16.0    | Maximum   | 26.0    | Maximum   | 0.8     | +/-0.05   |
| DH        | 22.5    | +/-0.4    | 8.0     | Maximum   | 16.0    | Maximum   | 26.0    | Maximum   | 0.8     | +/-0.05   |
| DJ        | 22.5    | +/-0.4    | 8.5     | Maximum   | 17.0    | Maximum   | 26.0    | Maximum   | 0.8     | +/-0.05   |
| DM        | 22.5    | +/-0.4    | 9.0     | Maximum   | 18.5    | Maximum   | 26.0    | Maximum   | 0.8     | +/-0.05   |
| DO        | 22.5    | +/-0.4    | 10.0    | Maximum   | 18.5    | Maximum   | 26.0    | Maximum   | 0.8     | +/-0.05   |

**Note:** See Ordering Options Table for lead length (LL) options.

## Dimensions – Millimeters cont'd



| Size Code | p       |           | B       |           | H       |           | L       |           | d       |           |
|-----------|---------|-----------|---------|-----------|---------|-----------|---------|-----------|---------|-----------|
|           | Nominal | Tolerance | Nominal | Tolerance | Nominal | Tolerance | Nominal | Tolerance | Nominal | Tolerance |
| DP        | 22.5    | +/-0.4    | 11.0    | Maximum   | 20.0    | Maximum   | 26.0    | Maximum   | 0.8     | +/-0.05   |
| DU        | 22.5    | +/-0.4    | 13.0    | Maximum   | 22.0    | Maximum   | 26.0    | Maximum   | 0.8     | +/-0.05   |
| DY        | 22.5    | +/-0.4    | 15.5    | Maximum   | 24.5    | Maximum   | 26.0    | Maximum   | 0.8     | +/-0.05   |
| FB        | 27.5    | +/-0.4    | 9.0     | Maximum   | 17.0    | Maximum   | 31.5    | Maximum   | 0.8     | +/-0.05   |
| FC        | 27.5    | +/-0.4    | 11.0    | Maximum   | 20.0    | Maximum   | 31.5    | Maximum   | 0.8     | +/-0.05   |
| FI        | 27.5    | +/-0.4    | 13.0    | Maximum   | 25.0    | Maximum   | 31.5    | Maximum   | 0.8     | +/-0.05   |
| FN        | 27.5    | +/-0.4    | 14.0    | Maximum   | 28.0    | Maximum   | 31.5    | Maximum   | 0.8     | +/-0.05   |
| FR        | 27.5    | +/-0.4    | 17.5    | Maximum   | 28.0    | Maximum   | 31.5    | Maximum   | 0.8     | +/-0.05   |
| FS        | 27.5    | +/-0.4    | 19.0    | Maximum   | 29.0    | Maximum   | 31.5    | Maximum   | 0.8     | +/-0.05   |
| FY        | 27.5    | +/-0.4    | 22.0    | Maximum   | 37.0    | Maximum   | 31.5    | Maximum   | 0.8     | +/-0.05   |
| RB        | 37.5    | +/-0.4    | 11.0    | Maximum   | 22.0    | Maximum   | 41.0    | Maximum   | 1       | +/-0.05   |
| RF        | 37.5    | +/-0.4    | 13.0    | Maximum   | 24.0    | Maximum   | 41.0    | Maximum   | 1       | +/-0.05   |
| RH        | 37.5    | +/-0.4    | 15.0    | Maximum   | 26.0    | Maximum   | 41.0    | Maximum   | 1       | +/-0.05   |
| RC        | 37.5    | +/-0.4    | 16.0    | Maximum   | 28.5    | Maximum   | 41.0    | Maximum   | 1       | +/-0.05   |
| RD        | 37.5    | +/-0.4    | 19.0    | Maximum   | 32.0    | Maximum   | 41.0    | Maximum   | 1       | +/-0.05   |
| RP        | 37.5    | +/-0.4    | 21.0    | Maximum   | 38.0    | Maximum   | 41.0    | Maximum   | 1       | +/-0.05   |
| RO        | 37.5    | +/-0.4    | 24.0    | Maximum   | 44.0    | Maximum   | 41.0    | Maximum   | 1       | +/-0.05   |
| RU        | 37.5    | +/-0.4    | 30.0    | Maximum   | 45.0    | Maximum   | 41.0    | Maximum   | 1       | +/-0.05   |

Note: See Ordering Options Table for lead length (LL) options.

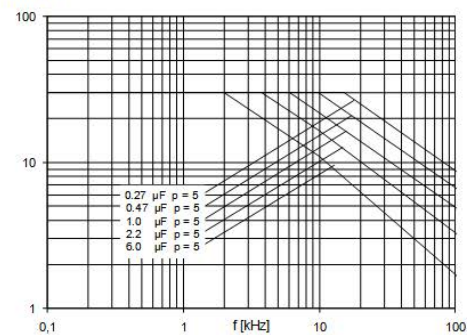
## Performance Characteristics

|                                    |                                                                                                                                                                                                           |             |             |                     |             |            |             |             |
|------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|-------------|---------------------|-------------|------------|-------------|-------------|
| Voltage Range V <sub>R</sub> (VDC) | 50                                                                                                                                                                                                        | 63          | 100         | 160                 | 250         | 400        | 630         | 1,000       |
| Voltage Range V <sub>R</sub> (VAC) | 30                                                                                                                                                                                                        | 40          | 63          | 90                  | 160/140     | 200/160    | 220         | 250         |
| Capacitance Range (μF)             | 0.27 – 15                                                                                                                                                                                                 | 0.1 – 180   | 0.001 – 180 | 0.18 – 120          | 0.0068 – 82 | 0.001 – 33 | 0.0012 – 12 | 0.001 – 5.6 |
| Capacitance Tolerance              | ±10%, ±20%, ±5% on request                                                                                                                                                                                |             |             |                     |             |            |             |             |
| Category Temperature Range         | -55°C to +105°C                                                                                                                                                                                           |             |             |                     |             |            |             |             |
| Voltage Derating                   | Above +85°C DC and AC voltage derating is 1.25%/°C                                                                                                                                                        |             |             |                     |             |            |             |             |
| Rated Temperature                  | +85°C                                                                                                                                                                                                     |             |             |                     |             |            |             |             |
| Climatic Category                  | IEC60068–1, 55/105/56                                                                                                                                                                                     |             |             |                     |             |            |             |             |
|                                    | –55 to +105°C (For +125°C, please consult KEMET)                                                                                                                                                          |             |             |                     |             |            |             |             |
|                                    | Average relative humidity ≤ 75%                                                                                                                                                                           |             |             |                     |             |            |             |             |
|                                    | RH = 95% for 30 days per year                                                                                                                                                                             |             |             |                     |             |            |             |             |
|                                    | RH = 85% for further days limited by average value per year                                                                                                                                               |             |             |                     |             |            |             |             |
| Test Voltage                       | 1.6 x V <sub>R</sub> VDC for 2 seconds                                                                                                                                                                    |             |             |                     |             |            |             |             |
| Capacitance Drift                  | Maximum 2% after a 2 year storage period at a temperature of +10°C to +40°C and a relative humidity of 40% to 60%                                                                                         |             |             |                     |             |            |             |             |
| Reliability                        | Operational life > 200,000 hours                                                                                                                                                                          |             |             |                     |             |            |             |             |
|                                    | Failure rate < 3 FIT, T = +40°C, V = 0.5 x V <sub>R</sub>                                                                                                                                                 |             |             |                     |             |            |             |             |
|                                    | Failure criteria: open circuit, short circuit, cap change > 10%, DF 2 times the catalog limits, IR < 50 MΩ                                                                                                |             |             |                     |             |            |             |             |
| Maximum Pulse Steepness            | dV/dt according to Table 1. For peak to peak voltages lower than rated voltage (V <sub>pp</sub> < V <sub>R</sub> ), the specified dV/dt can be multiplied by the factor V <sub>R</sub> /V <sub>pp</sub> . |             |             |                     |             |            |             |             |
| Temperature Coefficient            | +400 (±200) ppm/°C at 1 kHz                                                                                                                                                                               |             |             |                     |             |            |             |             |
| Self Inductance                    | Approximately 6 nH/cm for the total length of capacitor winding and the leads                                                                                                                             |             |             |                     |             |            |             |             |
| Dissipation Factor tanδ            | Maximum Values at +23°C                                                                                                                                                                                   |             |             |                     |             |            |             |             |
|                                    |                                                                                                                                                                                                           | C ≤ 0.1 μF  |             | 0.1 μF < C ≤ 1.0 μF |             | C > 1.0 μF |             |             |
| Lead Spacing 5 mm                  | 1 kHz                                                                                                                                                                                                     | 0.8%        |             | 0.8%                |             | 0.8%       |             |             |
|                                    | 10 kHz                                                                                                                                                                                                    | 1.2%        |             | 1.2%                |             | 1.5%       |             |             |
|                                    | 100 kHz                                                                                                                                                                                                   | 2.5%        |             |                     |             |            |             |             |
| Lead Spacing 7.5 – 37.5 mm         | 1 kHz                                                                                                                                                                                                     | 0.8%        |             | 0.8%                |             | 1.2%       |             |             |
|                                    | 10 kHz                                                                                                                                                                                                    | 1.5%        |             | 1.5%                |             |            |             |             |
|                                    | 100 kHz                                                                                                                                                                                                   | 3.0%        |             |                     |             |            |             |             |
| Insulation Resistance              | Measured at +20°C, according to IEC 60384–2                                                                                                                                                               |             |             |                     |             |            |             |             |
|                                    | Minimum Values Between Terminals                                                                                                                                                                          |             |             |                     |             |            |             |             |
|                                    |                                                                                                                                                                                                           | C ≤ 0.33 μF |             | C > 0.33 μF         |             |            |             |             |
|                                    | V <sub>R</sub> ≤ 100 VDC                                                                                                                                                                                  | 15,000 MΩ   |             | 5,000 MΩ • μF       |             |            |             |             |
|                                    | V <sub>R</sub> > 100 VDC                                                                                                                                                                                  | 30,000 MΩ   |             | 10,000 MΩ • μF      |             |            |             |             |

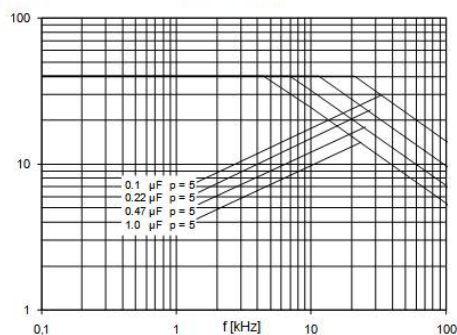
## Maximum Voltage ( $V_{rms}$ ) vs. Frequency (Sinusoidal Waveform/ $T \leq 40^\circ\text{C}$ )

Lead Spacing 5 mm

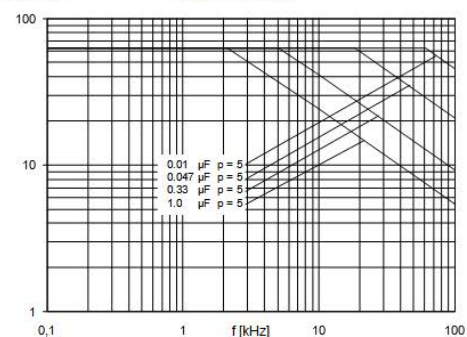
**50 Vdc / 30 Vac**



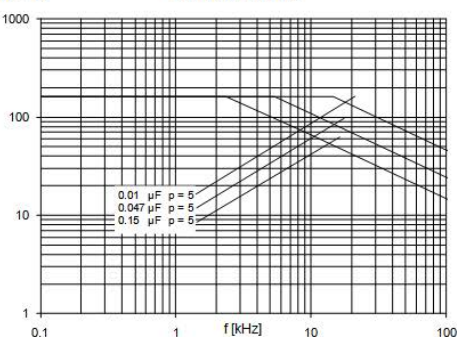
**63 Vdc / 40 Vac**



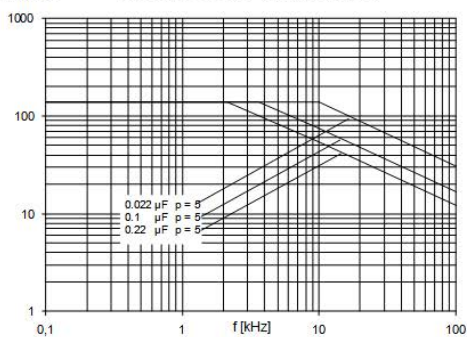
**100 Vdc / 63 Vac**



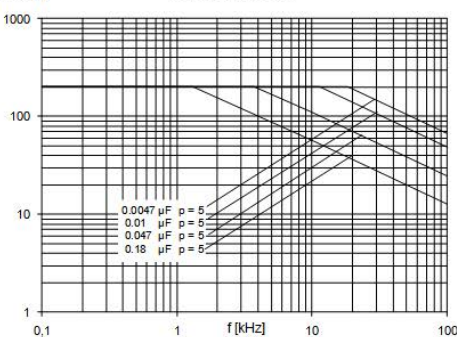
**250 Vdc / 160 Vac**



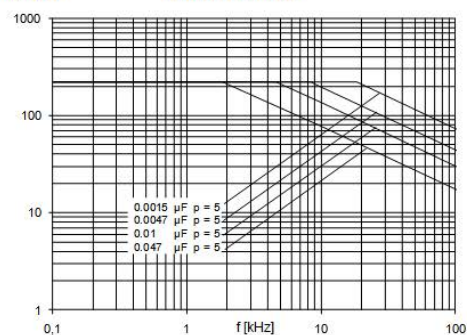
**250 Vdc / 140 Vac - Reduced Sizes**



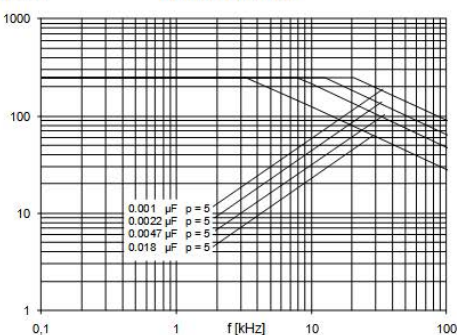
**400 Vdc / 200 Vac**



**630 Vdc / 220 Vac**

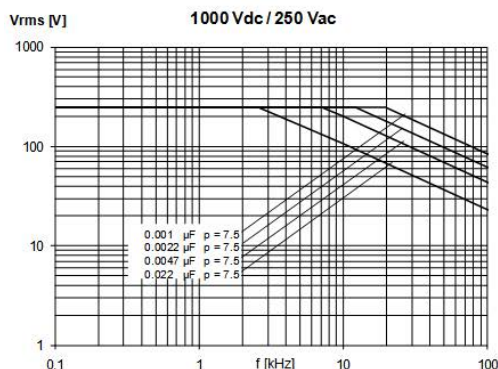
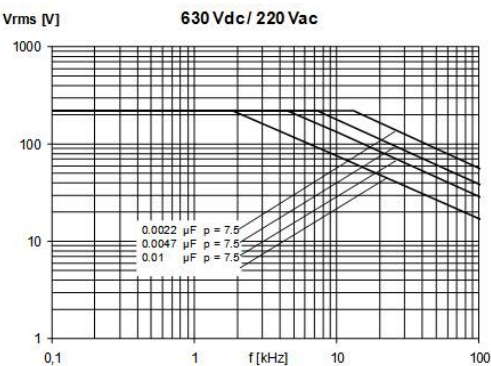
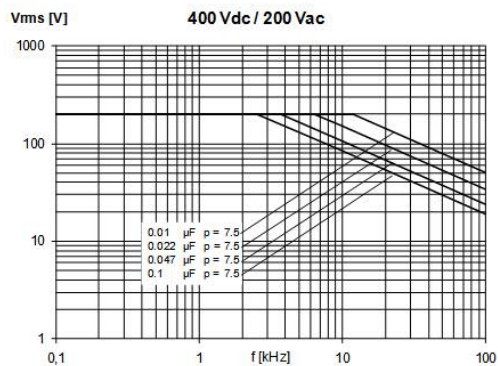
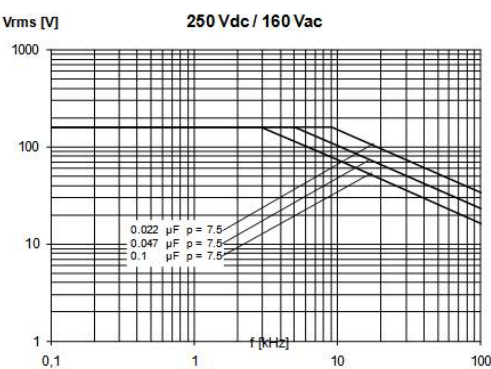
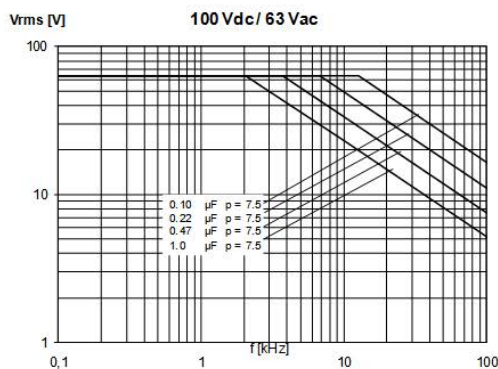
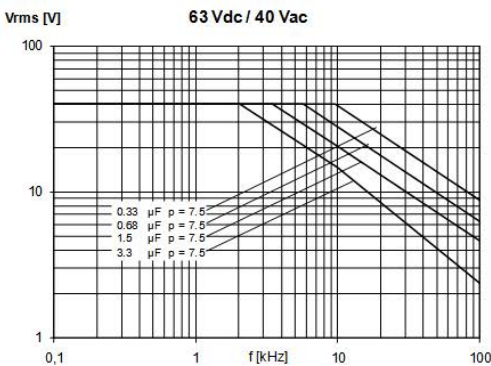
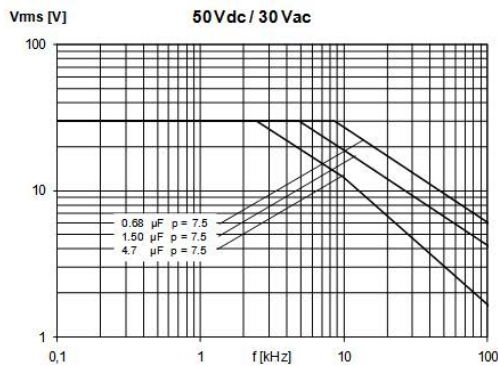


**1000 Vdc / 250 Vac**



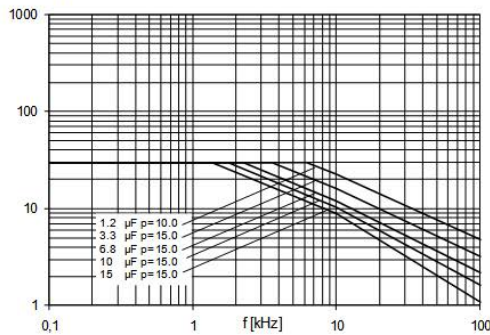
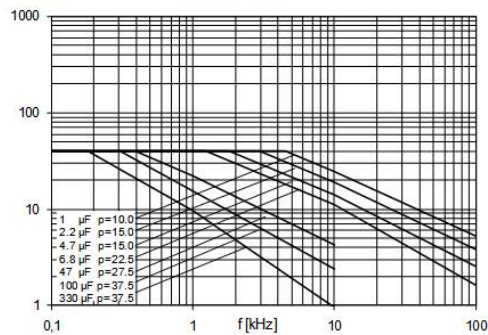
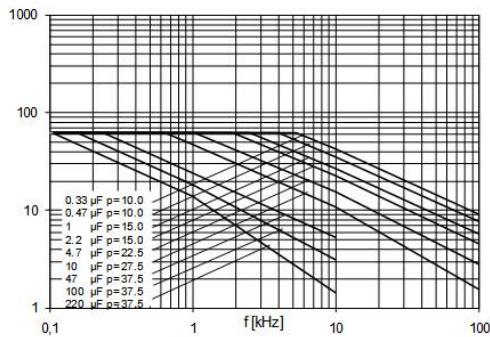
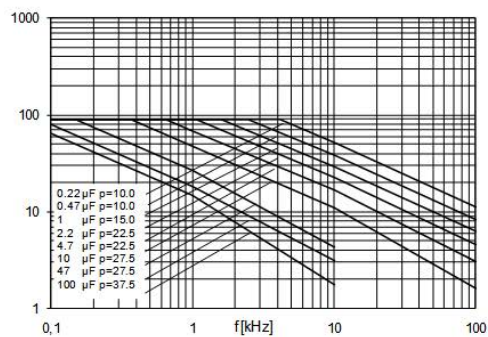
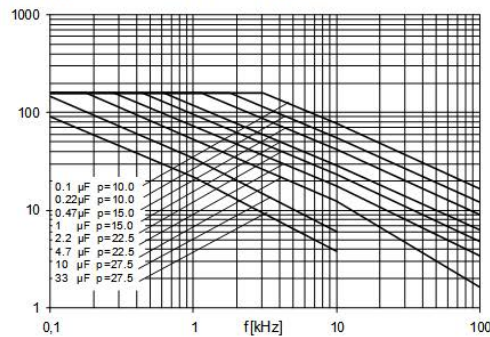
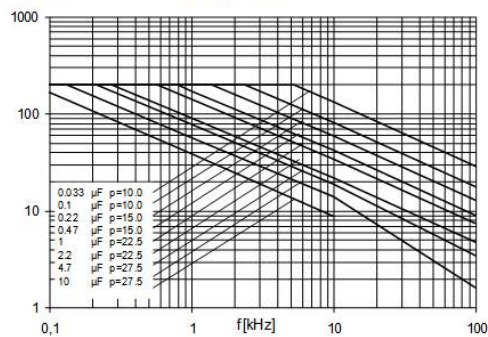
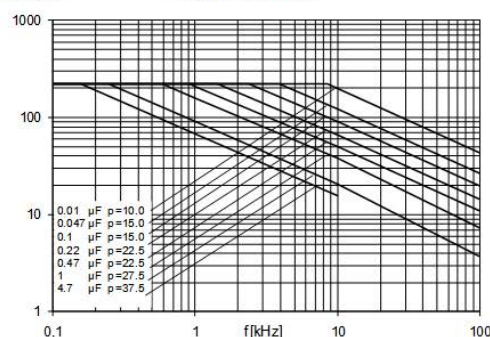
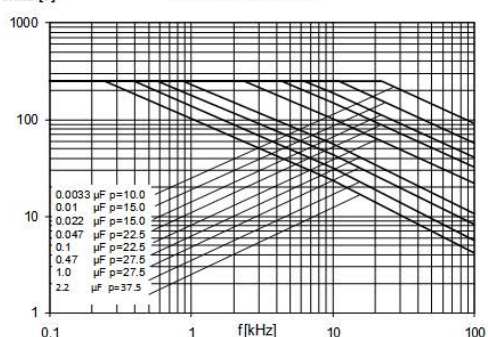
## Maximum Voltage ( $V_{rms}$ ) vs. Frequency (Sinusoidal Waveform/ $T \leq 40^\circ\text{C}$ )

Lead Spacing 7.5 mm



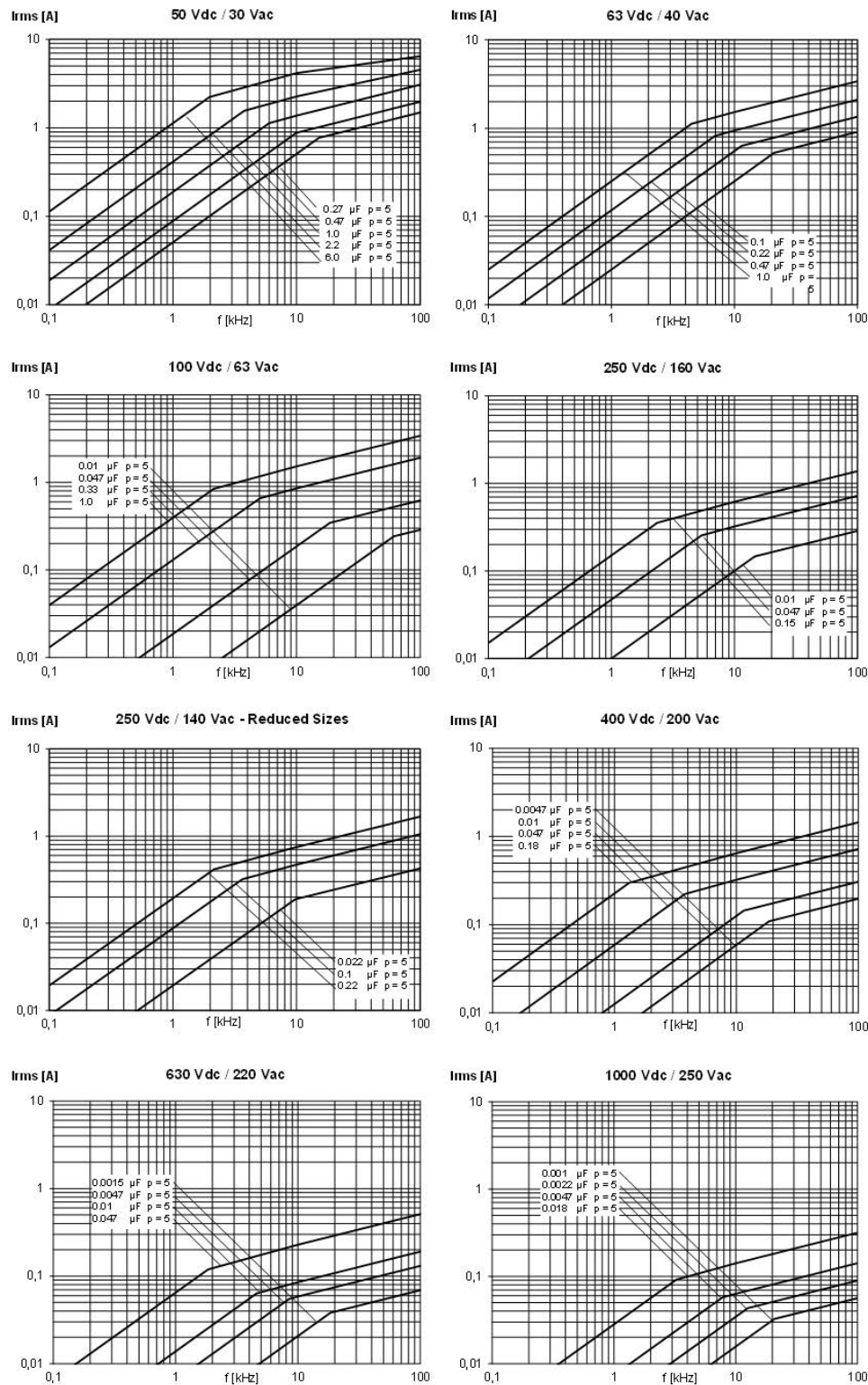
**Maximum Voltage ( $V_{rms}$ ) vs. Frequency (Sinusoidal Waveform/ $T \leq 40^\circ\text{C}$ )**

Lead Spacing 10 – 37.5 mm

**50 Vdc / 30 Vac****63 Vdc / 40 Vac****100 Vdc / 63 Vac****160 Vdc / 90 Vac****250 Vdc / 160 Vac****400 Vdc / 200 Vac****630 Vdc / 220 Vac****1000 Vdc / 250 Vac**

## Maximum Current ( $I_{rms}$ ) vs. Frequency (Sinusoidal Waveform/ $T \leq 40^\circ\text{C}$ )

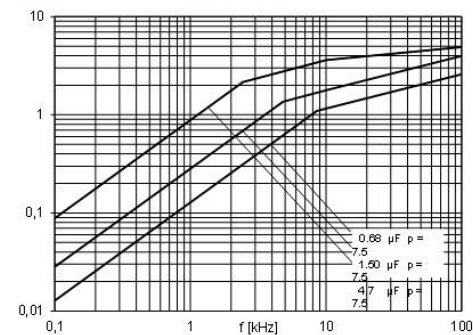
Lead Spacing 5 mm



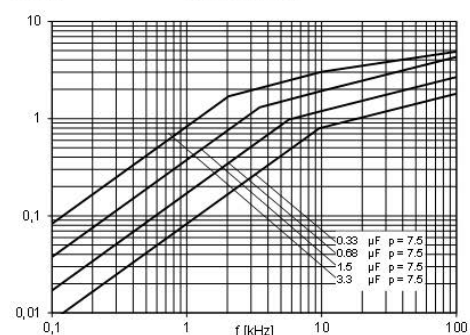
## Maximum Current ( $I_{rms}$ ) vs. Frequency (Sinusoidal Waveform/ $T \leq 40^\circ\text{C}$ )

Lead Spacing 7.5 mm

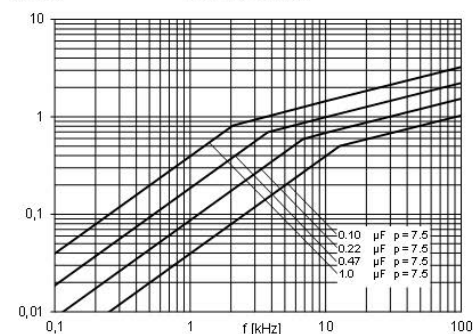
**50 Vdc / 30 Vac**



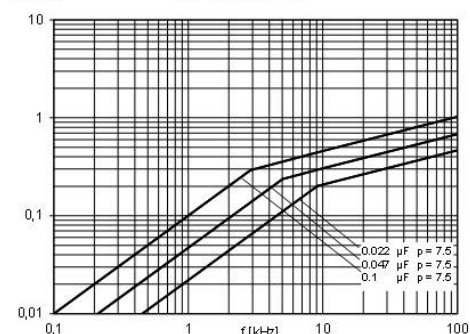
**63 Vdc / 40 Vac**



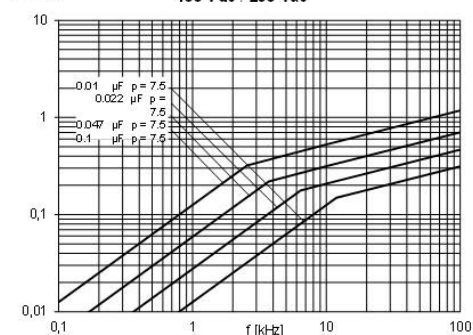
**100 Vdc / 63 Vac**



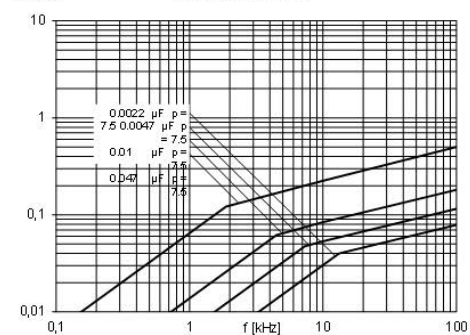
**250 Vdc / 160 Vac**



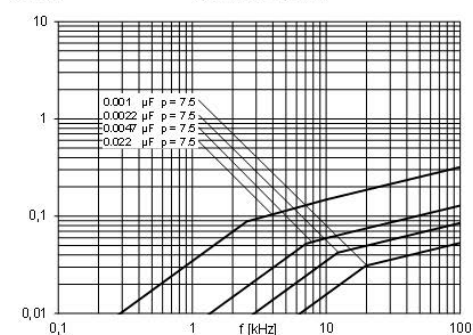
**400 Vdc / 200 Vac**



**630 Vdc / 220 Vac**

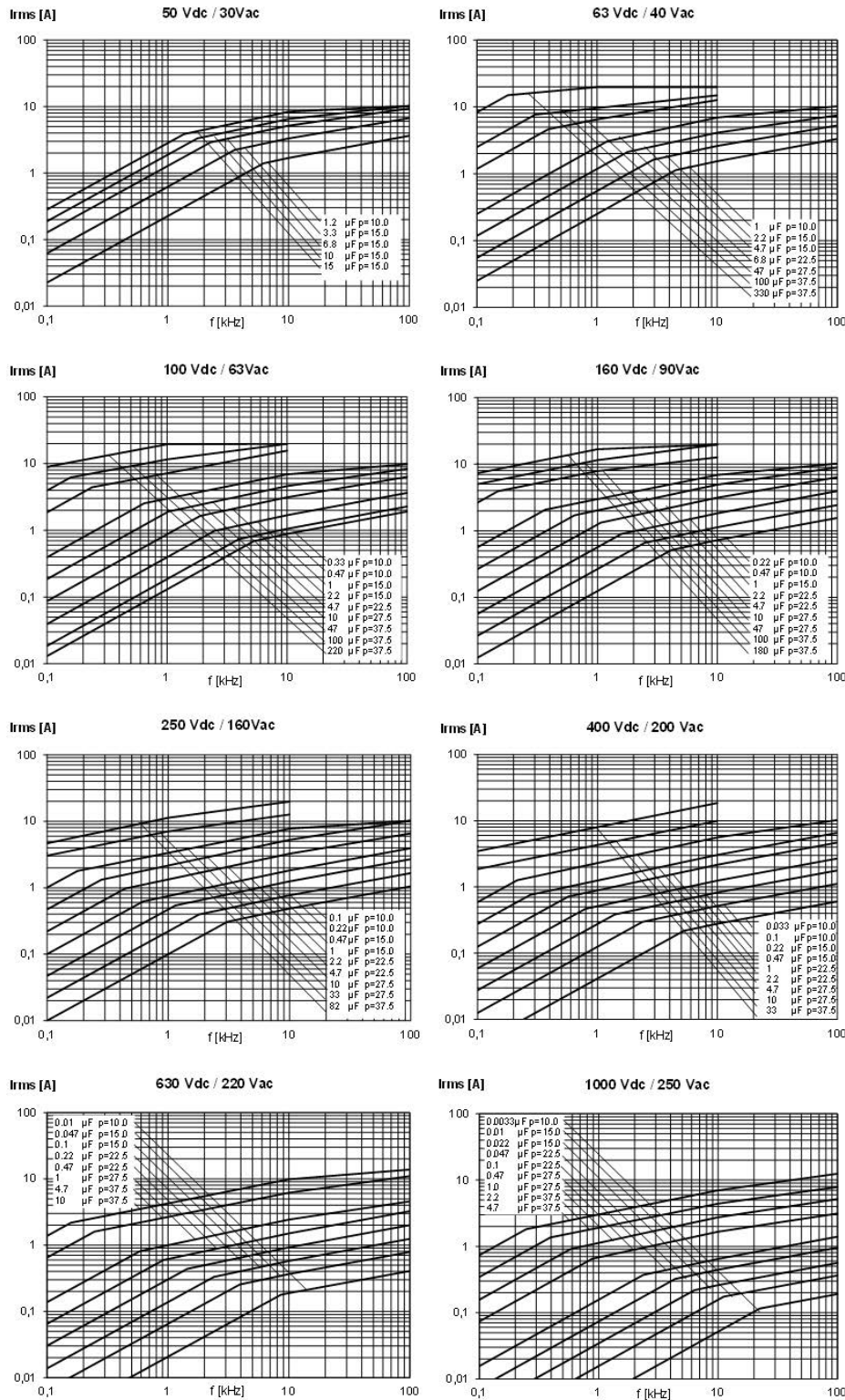


**1000 Vdc / 250 Vac**



## Maximum Current ( $I_{rms}$ ) vs. Frequency (Sinusoidal Waveform/ $T \leq 40^\circ\text{C}$ )

Lead Spacing 10 – 37.5 mm



## Environmental Test Data

| Damp Heat Test | Test Conditions | T = +40°C, RH = 93%, t = 56 days                                                                                                                                         |
|----------------|-----------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                | Test Criteria   | $\Delta C/C \leq \pm 5\%$<br>$\Delta \tan \delta \leq 0.005$ (1 kHz)<br>IR after test 0.5 x IR minimum                                                                   |
| Endurance Test | Test Conditions | T = +100°C, U = 1.25 x (0.8 x U <sub>R</sub> )                                                                                                                           |
|                | Test Criteria   | t = 2,000 hours<br>$\Delta C/C \leq \pm 5\%$ ,<br>$\Delta \tan \delta \leq 0.005$ (1 kHz)<br>$\Delta \tan \delta \leq 0.010$ (100 kHz)<br>IR after test 0.5 x IR minimum |

## Environmental Compliance

All KEMET MKT capacitors are RoHS Compliant and Halogen Free.



**Table 1 – Ratings & Part Number Reference**

| VDC | VAC | Capacitance Value (μF) | Size Code | Maximum Dimensions in mm |        |        | Lead Spacing (p) | dV/dt (V/μs) | Part Number        |
|-----|-----|------------------------|-----------|--------------------------|--------|--------|------------------|--------------|--------------------|
|     |     |                        |           | B                        | H      | L      |                  |              |                    |
| 50  | 30  | 0.27                   | JF        | 2.5                      | 6.5    | 7.2    | 5.0              | 12           | F611JF274(1)050(4) |
| 50  | 30  | 0.33                   | JF        | 2.5                      | 6.5    | 7.2    | 5.0              | 12           | F611JF334(1)050(4) |
| 50  | 30  | 0.39                   | JF        | 2.5                      | 6.5    | 7.2    | 5.0              | 12           | F611JF394(1)050(4) |
| 50  | 30  | 0.47                   | JF        | 2.5                      | 6.5    | 7.2    | 5.0              | 12           | F611JF474(1)050(4) |
| 50  | 30  | 0.56                   | JG        | 3.5                      | 7.5    | 7.2    | 5.0              | 12           | F611JG564(1)050(4) |
| 50  | 30  | 0.68                   | JG        | 3.5                      | 7.5    | 7.2    | 5.0              | 12           | F611JG684(1)050(4) |
| 50  | 30  | 0.82                   | JG        | 3.5                      | 7.5    | 7.2    | 5.0              | 12           | F611JG824(1)050(4) |
| 50  | 30  | 1                      | JG        | 3.5                      | 7.5    | 7.2    | 5.0              | 12           | F611JG105(1)050(4) |
| 50  | 30  | 1.2                    | JM        | 4.5                      | 9.5    | 7.2    | 5.0              | 12           | F611JM125(1)050(4) |
| 50  | 30  | 1.5                    | JM        | 4.5                      | 9.5    | 7.2    | 5.0              | 12           | F611JM155(1)050(4) |
| 50  | 30  | 1.8                    | JQ        | 5                        | 10     | 7.2    | 5.0              | 12           | F611JQ185(1)050(4) |
| 50  | 30  | 2.2                    | JQ        | 5                        | 10     | 7.2    | 5.0              | 12           | F611JQ225(1)050(4) |
| 50  | 30  | 2.7                    | JT        | 6                        | 11     | 7.2    | 5.0              | 12           | F611JT275(1)050(4) |
| 50  | 30  | 3.3                    | JT        | 6                        | 11     | 7.2    | 5.0              | 12           | F611JT335(1)050(4) |
| 50  | 30  | 3.9                    | JU        | 7.2                      | 13     | 7.2    | 5.0              | 12           | F611JU395(1)050(4) |
| 50  | 30  | 4.7                    | JU        | 7.2                      | 13     | 7.2    | 5.0              | 12           | F611JU475(1)050(4) |
| 50  | 30  | 5.6                    | JU        | 7.2                      | 13     | 7.2    | 5.0              | 12           | F611JU565(1)050(4) |
| 50  | 30  | 6                      | JU        | 7.2                      | 13     | 7.2    | 5.0              | 12           | F611JU605(1)050(4) |
| 50  | 30  | 0.68                   | KF        | 3                        | 8      | 10     | 7.5              | 100          | F612KF684(1)050(4) |
| 50  | 30  | 0.82                   | KF        | 3                        | 8      | 10     | 7.5              | 100          | F612KF824(1)050(4) |
| 50  | 30  | 1                      | KF        | 3                        | 8      | 10     | 7.5              | 100          | F612KF105(1)050(4) |
| 50  | 30  | 1.2                    | KH        | 4                        | 9      | 10     | 7.5              | 100          | F612KH125(1)050(4) |
| 50  | 30  | 1.5                    | KH        | 4                        | 9      | 10     | 7.5              | 100          | F612KH155(1)050(4) |
| 50  | 30  | 1.8                    | KJ        | 5                        | 10.5   | 10     | 7.5              | 100          | F612KJ185(1)050(4) |
| 50  | 30  | 2.2                    | KJ        | 5                        | 10.5   | 10     | 7.5              | 100          | F612KJ225(1)050(4) |
| 50  | 30  | 2.7                    | KJ        | 5                        | 10.5   | 10     | 7.5              | 100          | F612KJ275(1)050(4) |
| 50  | 30  | 3.3                    | KJ        | 5                        | 10.5   | 10     | 7.5              | 100          | F612KJ335(1)050(4) |
| 50  | 30  | 3.9                    | KM        | 6                        | 12     | 10.5   | 7.5              | 100          | F612KM395(1)050(4) |
| 50  | 30  | 4.7                    | KM        | 6                        | 12     | 10.5   | 7.5              | 100          | F612KM475(1)050(4) |
| 50  | 30  | 1.2                    | AG        | 4                        | 9      | 13     | 10.0             | 30           | F612AG125(1)050(4) |
| 50  | 30  | 1.5                    | AG        | 4                        | 9      | 13     | 10.0             | 30           | F612AG155(1)050(4) |
| 50  | 30  | 1.8                    | AG        | 4                        | 9      | 13     | 10.0             | 30           | F612AG185(1)050(4) |
| 50  | 30  | 2.2                    | AG        | 4                        | 9      | 13     | 10.0             | 30           | F612AG225(1)050(4) |
| 50  | 30  | 2.7                    | AK        | 5                        | 11     | 13     | 10.0             | 30           | F612AK275(1)050(4) |
| 50  | 30  | 3.3                    | AK        | 5                        | 11     | 13     | 10.0             | 30           | F612AK335(1)050(4) |
| 50  | 30  | 3.9                    | AK        | 5                        | 11     | 13     | 10.0             | 30           | F612AK395(1)050(4) |
| 50  | 30  | 4.7                    | AP        | 6                        | 12     | 13     | 10.0             | 30           | F612AP475(1)050(4) |
| 50  | 30  | 5.6                    | AP        | 6                        | 12     | 13     | 10.0             | 30           | F612AP565(1)050(4) |
| 50  | 30  | 1.8                    | BB        | 4                        | 10     | 18     | 15.0             | 3            | F611BB185(1)050(4) |
| 50  | 30  | 2.2                    | BC        | 5                        | 11     | 18     | 15.0             | 3            | F611BC225(1)050(4) |
| 50  | 30  | 2.7                    | BC        | 5                        | 11     | 18     | 15.0             | 3            | F611BC275(1)050(4) |
| 50  | 30  | 3.3                    | BE        | 5.5                      | 12.5   | 18     | 15.0             | 3            | F611BE335(1)050(4) |
| 50  | 30  | 3.9                    | BE        | 5.5                      | 12.5   | 18     | 15.0             | 3            | F611BE395(1)050(4) |
| 50  | 30  | 4.7                    | BK        | 7.5                      | 13.5   | 18     | 15.0             | 3            | F611BK475(1)050(4) |
| 50  | 30  | 5.6                    | BK        | 7.5                      | 13.5   | 18     | 15.0             | 3            | F611BK565(1)050(4) |
| 50  | 30  | 6.8                    | BP        | 8.5                      | 14.5   | 18     | 15.0             | 3            | F611BP685(1)050(4) |
| 50  | 30  | 8.2                    | BP        | 8.5                      | 14.5   | 18     | 15.0             | 3            | F611BP825(1)050(4) |
| 50  | 30  | 10                     | BS        | 10                       | 16     | 18     | 15.0             | 3            | F611BS106(1)050(4) |
| 50  | 30  | 12                     | BY        | 11                       | 19     | 18     | 15.0             | 3            | F611BY126(1)050(4) |
| 50  | 30  | 15                     | BY        | 11                       | 19     | 18     | 15.0             | 3            | F611BY156(1)050(4) |
| 63  | 40  | 0.1                    | JF        | 2.5                      | 6.5    | 7.2    | 5.0              | 160          | F612JF104(1)063(4) |
| 63  | 40  | 0.12                   | JF        | 2.5                      | 6.5    | 7.2    | 5.0              | 160          | F612JF124(1)063(4) |
| 63  | 40  | 0.15                   | JF        | 2.5                      | 6.5    | 7.2    | 5.0              | 160          | F612JF154(1)063(4) |
| 63  | 40  | 0.18                   | JF        | 2.5                      | 6.5    | 7.2    | 5.0              | 160          | F612JF184(1)063(4) |
| 63  | 40  | 0.22                   | JF        | 2.5                      | 6.5    | 7.2    | 5.0              | 160          | F612JF224(1)063(4) |
| 63  | 40  | 0.27                   | JG        | 3.5                      | 7.5    | 7.2    | 5.0              | 160          | F612JG274(1)063(4) |
| 63  | 40  | 0.33                   | JG        | 3.5                      | 7.5    | 7.2    | 5.0              | 160          | F612JG334(1)063(4) |
| VDC | VAC | Capacitance Value (μF) | Size Code | B (mm)                   | H (mm) | L (mm) | Lead Spacing (p) | dV/dt (V/μs) | Part Number        |

(1) K= ±10%, M = ±20%; J = ±5% on request

(2) K= ±10%, M = ±20%; J = ±5% not available

(3) M = ±20% (only available tolerance).

(4) Insert lead and packaging code. See Ordering Options Table for available options.

**Table 1 – Ratings & Part Number Reference cont'd**

| VDC | VAC | Capacitance Value (μF) | Size Code | Maximum Dimensions in mm |        |        | Lead Spacing (p) | dV/dt (V/μs) | Part Number        |
|-----|-----|------------------------|-----------|--------------------------|--------|--------|------------------|--------------|--------------------|
|     |     |                        |           | B                        | H      | L      |                  |              |                    |
| 63  | 40  | 0.39                   | JG        | 3.5                      | 7.5    | 7.2    | 5.0              | 160          | F612JG394(1)063(4) |
| 63  | 40  | 0.47                   | JG        | 3.5                      | 7.5    | 7.2    | 5.0              | 160          | F612JG474(1)063(4) |
| 63  | 40  | 0.56                   | JM        | 4.5                      | 9.5    | 7.2    | 5.0              | 160          | F612JM564(1)063(4) |
| 63  | 40  | 0.68                   | JM        | 4.5                      | 9.5    | 7.2    | 5.0              | 160          | F612JM684(1)063(4) |
| 63  | 40  | 0.82                   | JM        | 4.5                      | 9.5    | 7.2    | 5.0              | 160          | F612JM824(1)063(4) |
| 63  | 40  | 1                      | JQ        | 5                        | 10     | 7.2    | 5.0              | 160          | F612JQ105(1)063(4) |
| 63  | 40  | 1.2                    | JT        | 6                        | 11     | 7.2    | 5.0              | 160          | F612JT125(1)063(4) |
| 63  | 40  | 1.5                    | JT        | 6                        | 11     | 7.2    | 5.0              | 160          | F612JT155(1)063(4) |
| 63  | 40  | 0.33                   | KF        | 3                        | 8      | 10     | 7.5              | 120          | F612KF334(1)063(4) |
| 63  | 40  | 0.39                   | KF        | 3                        | 8      | 10     | 7.5              | 120          | F612KF394(1)063(4) |
| 63  | 40  | 0.47                   | KF        | 3                        | 8      | 10     | 7.5              | 120          | F612KF474(1)063(4) |
| 63  | 40  | 0.56                   | KH        | 4                        | 9      | 10     | 7.5              | 120          | F612KH564(1)063(4) |
| 63  | 40  | 0.68                   | KH        | 4                        | 9      | 10     | 7.5              | 120          | F612KH684(1)063(4) |
| 63  | 40  | 0.82                   | KH        | 4                        | 9      | 10     | 7.5              | 120          | F612KH824(1)063(4) |
| 63  | 40  | 1                      | KH        | 4                        | 9      | 10     | 7.5              | 120          | F612KH105(1)063(4) |
| 63  | 40  | 1.2                    | KJ        | 5                        | 10.5   | 10     | 7.5              | 120          | F612KJ125(1)063(4) |
| 63  | 40  | 1.5                    | KJ        | 5                        | 10.5   | 10     | 7.5              | 120          | F612KJ155(1)063(4) |
| 63  | 40  | 1.8                    | KM        | 6                        | 12     | 10.5   | 7.5              | 120          | F612KM185(1)063(4) |
| 63  | 40  | 2.2                    | KM        | 6                        | 12     | 10.5   | 7.5              | 120          | F612KM225(1)063(4) |
| 63  | 40  | 2.7                    | KM        | 6                        | 12     | 10.5   | 7.5              | 120          | F612KM275(1)063(4) |
| 63  | 40  | 3.3                    | KM        | 6                        | 12     | 10.5   | 7.5              | 120          | F612KM335(1)063(4) |
| 63  | 40  | 1                      | AG        | 4                        | 9      | 13     | 10.0             | 50           | F612AG105(1)063(4) |
| 63  | 40  | 1.2                    | AG        | 4                        | 9      | 13     | 10.0             | 50           | F612AG125(1)063(4) |
| 63  | 40  | 1.5                    | AK        | 5                        | 11     | 13     | 10.0             | 50           | F612AK155(1)063(4) |
| 63  | 40  | 1.8                    | AK        | 5                        | 11     | 13     | 10.0             | 50           | F612AK185(1)063(4) |
| 63  | 40  | 2.2                    | AK        | 5                        | 11     | 13     | 10.0             | 50           | F612AK225(1)063(4) |
| 63  | 40  | 2.7                    | AK        | 5                        | 11     | 13     | 10.0             | 50           | F612AK275(1)063(4) |
| 63  | 40  | 3.3                    | AP        | 6                        | 12     | 13     | 10.0             | 50           | F612AP335(1)063(4) |
| 63  | 40  | 3.9                    | AP        | 6                        | 12     | 13     | 10.0             | 50           | F612AP395(1)063(4) |
| 63  | 40  | 1.2                    | BB        | 4                        | 10     | 18     | 15.0             | 5            | F611BB125(1)063(4) |
| 63  | 40  | 1.5                    | BB        | 4                        | 10     | 18     | 15.0             | 5            | F611BB155(1)063(4) |
| 63  | 40  | 1.8                    | BC        | 5                        | 11     | 18     | 15.0             | 5            | F611BC185(1)063(4) |
| 63  | 40  | 2.2                    | BE        | 5.5                      | 12.5   | 18     | 15.0             | 5            | F611BE225(1)063(4) |
| 63  | 40  | 2.7                    | BE        | 5.5                      | 12.5   | 18     | 15.0             | 5            | F611BE275(1)063(4) |
| 63  | 40  | 3.3                    | BG        | 6                        | 12     | 18     | 15.0             | 5            | F611BG335(1)063(4) |
| 63  | 40  | 3.9                    | BK        | 7.5                      | 13.5   | 18     | 15.0             | 5            | F611BK395(1)063(4) |
| 63  | 40  | 4.7                    | BK        | 7.5                      | 13.5   | 18     | 15.0             | 5            | F611BK475(1)063(4) |
| 63  | 40  | 5.6                    | BP        | 8.5                      | 14.5   | 18     | 15.0             | 5            | F611BP565(1)063(4) |
| 63  | 40  | 6.8                    | BP        | 8.5                      | 14.5   | 18     | 15.0             | 5            | F611BP685(1)063(4) |
| 63  | 40  | 8.2                    | BS        | 10                       | 16     | 18     | 15.0             | 5            | F611BS825(1)063(4) |
| 63  | 40  | 10                     | BS        | 10                       | 16     | 18     | 15.0             | 5            | F611BS106(1)063(4) |
| 63  | 40  | 12                     | BY        | 11                       | 19     | 18     | 15.0             | 5            | F611BY126(1)063(4) |
| 63  | 40  | 4.7                    | DB        | 6                        | 14.5   | 26     | 22.5             | 3            | F611DB475(1)063(4) |
| 63  | 40  | 5.6                    | DB        | 6                        | 14.5   | 26     | 22.5             | 3            | F611DB565(1)063(4) |
| 63  | 40  | 6.8                    | DI        | 7                        | 16     | 26     | 22.5             | 3            | F611DI685(1)063(4) |
| 63  | 40  | 8.2                    | DI        | 7                        | 16     | 26     | 22.5             | 3            | F611DI825(1)063(4) |
| 63  | 40  | 10                     | DJ        | 8.5                      | 17     | 26     | 22.5             | 3            | F611DJ106(1)063(4) |
| 63  | 40  | 12                     | DM        | 9                        | 18.5   | 26     | 22.5             | 3            | F611DM126(1)063(4) |
| 63  | 40  | 15                     | DO        | 10                       | 18.5   | 26     | 22.5             | 3            | F611DO156(1)063(4) |
| 63  | 40  | 18                     | DP        | 11                       | 20     | 26     | 22.5             | 3            | F611DP186(1)063(4) |
| 63  | 40  | 22                     | DU        | 13                       | 22     | 26     | 22.5             | 3            | F611DU226(1)063(4) |
| 63  | 40  | 27                     | DY        | 15.5                     | 24.5   | 26     | 22.5             | 3            | F611DY276(1)063(4) |
| 63  | 40  | 33                     | DY        | 15.5                     | 24.5   | 26     | 22.5             | 3            | F611DY336(1)063(4) |
| 63  | 40  | 15                     | FB        | 9                        | 17     | 31.5   | 27.5             | 2            | F611FB156(3)063(4) |
| 63  | 40  | 18                     | FC        | 11                       | 20     | 31.5   | 27.5             | 2            | F611FC186(1)063(4) |
| 63  | 40  | 22                     | FC        | 11                       | 20     | 31.5   | 27.5             | 2            | F611FC226(3)063(4) |
| 63  | 40  | 27                     | FI        | 13                       | 25     | 31.5   | 27.5             | 2            | F611FI276(1)063(4) |
| VDC | VAC | Capacitance Value (μF) | Size Code | B (mm)                   | H (mm) | L (mm) | Lead Spacing (p) | dV/dt (V/μs) | Part Number        |

(1) K= ±10%, M = ±20%; J = ±5% on request

(2) K= ±10%, M = ±20%; J = ±5% not available

(3) M = ±20% (only available tolerance).

(4) Insert lead and packaging code. See Ordering Options Table for available options.

**Table 1 – Ratings & Part Number Reference cont'd**

| VDC | VAC | Capacitance Value (μF) | Size Code | Maximum Dimensions in mm |        |        | Lead Spacing (p) | dV/dt (V/μs) | Part Number        |
|-----|-----|------------------------|-----------|--------------------------|--------|--------|------------------|--------------|--------------------|
|     |     |                        |           | B                        | H      | L      |                  |              |                    |
| 63  | 40  | 33                     | FI        | 13                       | 25     | 31.5   | 27.5             | 2            | F611FI336(3)063(4) |
| 63  | 40  | 39                     | FN        | 14                       | 28     | 31.5   | 27.5             | 2            | F611FN396(2)063(4) |
| 63  | 40  | 47                     | FR        | 17.5                     | 28     | 31.5   | 27.5             | 2            | F611FR476(2)063(4) |
| 63  | 40  | 56                     | FS        | 19                       | 29     | 31.5   | 27.5             | 2            | F611FS566(2)063(4) |
| 63  | 40  | 68                     | FY        | 22                       | 37     | 31.5   | 27.5             | 2            | F611FY686(1)063(4) |
| 63  | 40  | 82                     | FY        | 22                       | 37     | 31.5   | 27.5             | 2            | F611FY826(1)063(4) |
| 63  | 40  | 100                    | FY        | 22                       | 37     | 31.5   | 27.5             | 2            | F611FY107(3)063(4) |
| 63  | 40  | 22                     | RB        | 11                       | 22     | 41     | 37.5             | 1            | F611RB226(1)063(4) |
| 63  | 40  | 27                     | RB        | 11                       | 22     | 41     | 37.5             | 1            | F611RB276(2)063(4) |
| 63  | 40  | 33                     | RF        | 13                       | 24     | 41     | 37.5             | 1            | F611RF336(1)063(4) |
| 63  | 40  | 39                     | RH        | 15                       | 26     | 41     | 37.5             | 1            | F611RH396(1)063(4) |
| 63  | 40  | 47                     | RH        | 15                       | 26     | 41     | 37.5             | 1            | F611RH476(2)063(4) |
| 63  | 40  | 56                     | RC        | 16                       | 28.5   | 41     | 37.5             | 1            | F611RC566(2)063(4) |
| 63  | 40  | 68                     | RD        | 19                       | 32     | 41     | 37.5             | 1            | F611RD686(1)063(4) |
| 63  | 40  | 82                     | RP        | 21                       | 38     | 41     | 37.5             | 1            | F611RP826(1)063(4) |
| 63  | 40  | 100                    | RP        | 21                       | 38     | 41     | 37.5             | 1            | F611RP107(2)063(4) |
| 63  | 40  | 120                    | RO        | 24                       | 44     | 41     | 37.5             | 1            | F611RO127(1)063(4) |
| 63  | 40  | 150                    | RO        | 24                       | 44     | 41     | 37.5             | 1            | F611RO157(2)063(4) |
| 63  | 40  | 180                    | RU        | 30                       | 45     | 41     | 37.5             | 1            | F611RU187(2)063(4) |
| 100 | 63  | 0.001                  | JF        | 2.5                      | 6.5    | 7.2    | 5.0              | 200          | F612JF102(1)100(4) |
| 100 | 63  | 0.0012                 | JF        | 2.5                      | 6.5    | 7.2    | 5.0              | 200          | F612JF122(1)100(4) |
| 100 | 63  | 0.0015                 | JF        | 2.5                      | 6.5    | 7.2    | 5.0              | 200          | F612JF152(1)100(4) |
| 100 | 63  | 0.0018                 | JF        | 2.5                      | 6.5    | 7.2    | 5.0              | 200          | F612JF182(1)100(4) |
| 100 | 63  | 0.0022                 | JF        | 2.5                      | 6.5    | 7.2    | 5.0              | 200          | F612JF222(1)100(4) |
| 100 | 63  | 0.0027                 | JF        | 2.5                      | 6.5    | 7.2    | 5.0              | 200          | F612JF272(1)100(4) |
| 100 | 63  | 0.0033                 | JF        | 2.5                      | 6.5    | 7.2    | 5.0              | 200          | F612JF332(1)100(4) |
| 100 | 63  | 0.0039                 | JF        | 2.5                      | 6.5    | 7.2    | 5.0              | 200          | F612JF392(1)100(4) |
| 100 | 63  | 0.0047                 | JF        | 2.5                      | 6.5    | 7.2    | 5.0              | 200          | F612JF472(1)100(4) |
| 100 | 63  | 0.0056                 | JF        | 2.5                      | 6.5    | 7.2    | 5.0              | 200          | F612JF562(1)100(4) |
| 100 | 63  | 0.0068                 | JF        | 2.5                      | 6.5    | 7.2    | 5.0              | 200          | F612JF682(1)100(4) |
| 100 | 63  | 0.0082                 | JF        | 2.5                      | 6.5    | 7.2    | 5.0              | 200          | F612JF822(1)100(4) |
| 100 | 63  | 0.01                   | JF        | 2.5                      | 6.5    | 7.2    | 5.0              | 200          | F612JF103(1)100(4) |
| 100 | 63  | 0.012                  | JF        | 2.5                      | 6.5    | 7.2    | 5.0              | 200          | F612JF123(1)100(4) |
| 100 | 63  | 0.015                  | JF        | 2.5                      | 6.5    | 7.2    | 5.0              | 200          | F612JF153(1)100(4) |
| 100 | 63  | 0.018                  | JF        | 2.5                      | 6.5    | 7.2    | 5.0              | 200          | F612JF183(1)100(4) |
| 100 | 63  | 0.022                  | JF        | 2.5                      | 6.5    | 7.2    | 5.0              | 200          | F612JF223(1)100(4) |
| 100 | 63  | 0.027                  | JF        | 2.5                      | 6.5    | 7.2    | 5.0              | 200          | F612JF273(1)100(4) |
| 100 | 63  | 0.033                  | JF        | 2.5                      | 6.5    | 7.2    | 5.0              | 200          | F612JF333(1)100(4) |
| 100 | 63  | 0.039                  | JF        | 2.5                      | 6.5    | 7.2    | 5.0              | 200          | F612JF393(1)100(4) |
| 100 | 63  | 0.047                  | JF        | 2.5                      | 6.5    | 7.2    | 5.0              | 200          | F612JF473(1)100(4) |
| 100 | 63  | 0.056                  | JF        | 2.5                      | 6.5    | 7.2    | 5.0              | 200          | F612JF563(1)100(4) |
| 100 | 63  | 0.068                  | JF        | 2.5                      | 6.5    | 7.2    | 5.0              | 200          | F612JF683(1)100(4) |
| 100 | 63  | 0.082                  | JF        | 2.5                      | 6.5    | 7.2    | 5.0              | 200          | F612JF823(1)100(4) |
| 100 | 63  | 0.1                    | JF        | 2.5                      | 6.5    | 7.2    | 5.0              | 200          | F612JF104(1)100(4) |
| 100 | 63  | 0.12                   | JF        | 2.5                      | 6.5    | 7.2    | 5.0              | 200          | F612JF124(1)100(4) |
| 100 | 63  | 0.15                   | JG        | 3.5                      | 7.5    | 7.2    | 5.0              | 200          | F612JG154(1)100(4) |
| 100 | 63  | 0.18                   | JG        | 3.5                      | 7.5    | 7.2    | 5.0              | 200          | F612JG184(1)100(4) |
| 100 | 63  | 0.22                   | JG        | 3.5                      | 7.5    | 7.2    | 5.0              | 200          | F612JG224(1)100(4) |
| 100 | 63  | 0.27                   | JG        | 3.5                      | 7.5    | 7.2    | 5.0              | 200          | F612JG274(1)100(4) |
| 100 | 63  | 0.33                   | JM        | 4.5                      | 9.5    | 7.2    | 5.0              | 200          | F612JM334(1)100(4) |
| 100 | 63  | 0.39                   | JM        | 4.5                      | 9.5    | 7.2    | 5.0              | 200          | F612JM394(1)100(4) |
| 100 | 63  | 0.47                   | JM        | 4.5                      | 9.5    | 7.2    | 5.0              | 200          | F612JM474(1)100(4) |
| 100 | 63  | 0.56                   | JQ        | 5                        | 10     | 7.2    | 5.0              | 200          | F612JQ564(1)100(4) |
| 100 | 63  | 0.68                   | JQ        | 5                        | 10     | 7.2    | 5.0              | 200          | F612JQ684(1)100(4) |
| 100 | 63  | 0.82                   | JT        | 6                        | 11     | 7.2    | 5.0              | 200          | F612JT824(1)100(4) |
| 100 | 63  | 1                      | JT        | 6                        | 11     | 7.2    | 5.0              | 200          | F612JT105(1)100(4) |
| 100 | 63  | 0.068                  | KF        | 3                        | 8      | 10     | 7.5              | 150          | F612KF683(1)100(4) |
| VDC | VAC | Capacitance Value (μF) | Size Code | B (mm)                   | H (mm) | L (mm) | Lead Spacing (p) | dV/dt (V/μs) | Part Number        |

(1) K= ±10%, M = ±20%; J = ±5% on request

(2) K= ±10%, M = ±20%; J = ±5% not available

(3) M = ±20% (only available tolerance).

(4) Insert lead and packaging code. See Ordering Options Table for available options.

**Table 1 – Ratings & Part Number Reference cont'd**

| VDC | VAC | Capacitance Value (μF) | Size Code | Maximum Dimensions in mm |        |        | Lead Spacing (p) | dV/dt (V/μs) | Part Number        |
|-----|-----|------------------------|-----------|--------------------------|--------|--------|------------------|--------------|--------------------|
|     |     |                        |           | B                        | H      | L      |                  |              |                    |
| 100 | 63  | 0.082                  | KF        | 3                        | 8      | 10     | 7.5              | 150          | F612KF823(1)100(4) |
| 100 | 63  | 0.1                    | KF        | 3                        | 8      | 10     | 7.5              | 150          | F612KF104(1)100(4) |
| 100 | 63  | 0.12                   | KF        | 3                        | 8      | 10     | 7.5              | 150          | F612KF124(1)100(4) |
| 100 | 63  | 0.15                   | KF        | 3                        | 8      | 10     | 7.5              | 150          | F612KF154(1)100(4) |
| 100 | 63  | 0.18                   | KF        | 3                        | 8      | 10     | 7.5              | 150          | F612KF184(1)100(4) |
| 100 | 63  | 0.22                   | KF        | 3                        | 8      | 10     | 7.5              | 150          | F612KF224(1)100(4) |
| 100 | 63  | 0.27                   | KH        | 4                        | 9      | 10     | 7.5              | 150          | F612KH274(1)100(4) |
| 100 | 63  | 0.33                   | KH        | 4                        | 9      | 10     | 7.5              | 150          | F612KH334(1)100(4) |
| 100 | 63  | 0.39                   | KH        | 4                        | 9      | 10     | 7.5              | 150          | F612KH394(1)100(4) |
| 100 | 63  | 0.47                   | KH        | 4                        | 9      | 10     | 7.5              | 150          | F612KH474(1)100(4) |
| 100 | 63  | 0.56                   | KH        | 4                        | 9      | 10     | 7.5              | 150          | F612KH564(1)100(4) |
| 100 | 63  | 0.68                   | KH        | 4                        | 9      | 10     | 7.5              | 150          | F612KH684(1)100(4) |
| 100 | 63  | 0.82                   | KJ        | 5                        | 10.5   | 10     | 7.5              | 150          | F612KJ824(1)100(4) |
| 100 | 63  | 1                      | KJ        | 5                        | 10.5   | 10     | 7.5              | 150          | F612KJ105(1)100(4) |
| 100 | 63  | 1.5                    | KM        | 6                        | 12     | 10.5   | 7.5              | 150          | F612KM155(1)100(4) |
| 100 | 63  | 1.8                    | KM        | 6                        | 12     | 10.5   | 7.5              | 150          | F612KM185(1)100(4) |
| 100 | 63  | 0.33                   | AG        | 4                        | 9      | 13     | 10.0             | 75           | F612AG334(1)100(4) |
| 100 | 63  | 0.39                   | AG        | 4                        | 9      | 13     | 10.0             | 75           | F612AG394(1)100(4) |
| 100 | 63  | 0.47                   | AG        | 4                        | 9      | 13     | 10.0             | 75           | F612AG474(1)100(4) |
| 100 | 63  | 0.56                   | AG        | 4                        | 9      | 13     | 10.0             | 75           | F612AG564(1)100(4) |
| 100 | 63  | 0.68                   | AG        | 4                        | 9      | 13     | 10.0             | 75           | F612AG684(1)100(4) |
| 100 | 63  | 0.82                   | AG        | 4                        | 9      | 13     | 10.0             | 75           | F612AG824(1)100(4) |
| 100 | 63  | 1                      | AK        | 5                        | 11     | 13     | 10.0             | 75           | F612AK105(1)100(4) |
| 100 | 63  | 1.2                    | AK        | 5                        | 11     | 13     | 10.0             | 75           | F612AK125(1)100(4) |
| 100 | 63  | 1.5                    | AK        | 5                        | 11     | 13     | 10.0             | 75           | F612AK155(1)100(4) |
| 100 | 63  | 1.8                    | AP        | 6                        | 12     | 13     | 10.0             | 75           | F612AP185(1)100(4) |
| 100 | 63  | 0.56                   | BB        | 4                        | 10     | 18     | 15.0             | 8            | F611BB564(1)100(4) |
| 100 | 63  | 0.68                   | BB        | 4                        | 10     | 18     | 15.0             | 8            | F611BB684(1)100(4) |
| 100 | 63  | 0.82                   | BB        | 4                        | 10     | 18     | 15.0             | 8            | F611BB824(1)100(4) |
| 100 | 63  | 1                      | BB        | 4                        | 10     | 18     | 15.0             | 8            | F611BB105(1)100(4) |
| 100 | 63  | 1.2                    | BC        | 5                        | 11     | 18     | 15.0             | 8            | F611BC125(1)100(4) |
| 100 | 63  | 1.5                    | BC        | 5                        | 11     | 18     | 15.0             | 8            | F611BC155(1)100(4) |
| 100 | 63  | 1.8                    | BE        | 5.5                      | 12.5   | 18     | 15.0             | 8            | F611BE185(1)100(4) |
| 100 | 63  | 2.2                    | BG        | 6                        | 12     | 18     | 15.0             | 8            | F611BG225(1)100(4) |
| 100 | 63  | 2.7                    | BK        | 7.5                      | 13.5   | 18     | 15.0             | 8            | F611BK275(1)100(4) |
| 100 | 63  | 3.3                    | BK        | 7.5                      | 13.5   | 18     | 15.0             | 8            | F611BK335(1)100(4) |
| 100 | 63  | 3.9                    | BP        | 8.5                      | 14.5   | 18     | 15.0             | 8            | F611BP395(1)100(4) |
| 100 | 63  | 4.7                    | BP        | 8.5                      | 14.5   | 18     | 15.0             | 8            | F611BP475(1)100(4) |
| 100 | 63  | 5.6                    | BS        | 10                       | 16     | 18     | 15.0             | 8            | F611BS565(1)100(4) |
| 100 | 63  | 6.8                    | BY        | 11                       | 19     | 18     | 15.0             | 8            | F611BY685(1)100(4) |
| 100 | 63  | 8.2                    | BY        | 11                       | 19     | 18     | 15.0             | 8            | F611BY825(1)100(4) |
| 100 | 63  | 2.2                    | DB        | 6                        | 14.5   | 26     | 22.5             | 5            | F611DB225(1)100(4) |
| 100 | 63  | 2.7                    | DB        | 6                        | 14.5   | 26     | 22.5             | 5            | F611DB275(1)100(4) |
| 100 | 63  | 3.3                    | DB        | 6                        | 14.5   | 26     | 22.5             | 5            | F611DB335(1)100(4) |
| 100 | 63  | 3.9                    | DB        | 6                        | 14.5   | 26     | 22.5             | 5            | F611DB395(1)100(4) |
| 100 | 63  | 4.7                    | DI        | 7                        | 16     | 26     | 22.5             | 5            | F611DI475(1)100(4) |
| 100 | 63  | 5.6                    | DI        | 7                        | 16     | 26     | 22.5             | 5            | F611DI565(1)100(4) |
| 100 | 63  | 6.8                    | DH        | 8                        | 16     | 26     | 22.5             | 5            | F611DH685(1)100(4) |
| 100 | 63  | 8.2                    | DJ        | 8.5                      | 17     | 26     | 22.5             | 5            | F611DJ825(1)100(4) |
| 100 | 63  | 10                     | DM        | 9                        | 18.5   | 26     | 22.5             | 5            | F611DM106(1)100(4) |
| 100 | 63  | 12                     | DO        | 10                       | 18.5   | 26     | 22.5             | 5            | F611DO126(1)100(4) |
| 100 | 63  | 15                     | DP        | 11                       | 20     | 26     | 22.5             | 5            | F611DP156(1)100(4) |
| 100 | 63  | 18                     | DU        | 13                       | 22     | 26     | 22.5             | 5            | F611DU186(1)100(4) |
| 100 | 63  | 22                     | DY        | 15.5                     | 24.5   | 26     | 22.5             | 5            | F611DY226(1)100(4) |
| 100 | 63  | 27                     | DY        | 15.5                     | 24.5   | 26     | 22.5             | 5            | F611DY276(1)100(4) |
| 100 | 63  | 10                     | FB        | 9                        | 17     | 31.5   | 27.5             | 3            | F611FB106(1)100(4) |
| 100 | 63  | 12                     | FB        | 9                        | 17     | 31.5   | 27.5             | 3            | F611FB126(2)100(4) |
| VDC | VAC | Capacitance Value (μF) | Size Code | B (mm)                   | H (mm) | L (mm) | Lead Spacing (p) | dV/dt (V/μs) | Part Number        |

(1) K= ±10%, M = ±20%; J = ±5% on request

(2) K= ±10%, M = ±20%; J = ±5% not available

(3) M = ±20% (only available tolerance).

(4) Insert lead and packaging code. See Ordering Options Table for available options.

**Table 1 – Ratings & Part Number Reference cont'd**

| VDC | VAC | Capacitance Value (µF) | Size Code | Maximum Dimensions in mm |        |        | Lead Spacing (p) | dV/dt (V/µs) | Part Number        |
|-----|-----|------------------------|-----------|--------------------------|--------|--------|------------------|--------------|--------------------|
|     |     |                        |           | B                        | H      | L      |                  |              |                    |
| 100 | 63  | 15                     | FC        | 11                       | 20     | 31.5   | 27.5             | 3            | F611FC156(1)100(4) |
| 100 | 63  | 18                     | FC        | 11                       | 20     | 31.5   | 27.5             | 3            | F611FC186(2)100(4) |
| 100 | 63  | 22                     | FI        | 13                       | 25     | 31.5   | 27.5             | 3            | F611FI226(1)100(4) |
| 100 | 63  | 27                     | FI        | 13                       | 25     | 31.5   | 27.5             | 3            | F611FI276(2)100(4) |
| 100 | 63  | 33                     | FN        | 14                       | 28     | 31.5   | 27.5             | 3            | F611FN336(2)100(4) |
| 100 | 63  | 39                     | FR        | 17.5                     | 28     | 31.5   | 27.5             | 3            | F611FR396(2)100(4) |
| 100 | 63  | 47                     | FS        | 19                       | 29     | 31.5   | 27.5             | 3            | F611FS476(2)100(4) |
| 100 | 63  | 56                     | FY        | 22                       | 37     | 31.5   | 27.5             | 3            | F611FY566(1)100(4) |
| 100 | 63  | 68                     | FY        | 22                       | 37     | 31.5   | 27.5             | 3            | F611FY686(1)100(4) |
| 100 | 63  | 82                     | FY        | 22                       | 37     | 31.5   | 27.5             | 3            | F611FY826(3)100(4) |
| 100 | 63  | 22                     | RB        | 11                       | 22     | 41     | 37.5             | 2            | F611RB226(1)100(4) |
| 100 | 63  | 27                     | RB        | 11                       | 22     | 41     | 37.5             | 2            | F611RB276(2)100(4) |
| 100 | 63  | 33                     | RF        | 13                       | 24     | 41     | 37.5             | 2            | F611RF336(1)100(4) |
| 100 | 63  | 39                     | RH        | 15                       | 26     | 41     | 37.5             | 2            | F611RH396(1)100(4) |
| 100 | 63  | 47                     | RH        | 15                       | 26     | 41     | 37.5             | 2            | F611RH476(2)100(4) |
| 100 | 63  | 56                     | RC        | 16                       | 28.5   | 41     | 37.5             | 2            | F611RC566(2)100(4) |
| 100 | 63  | 68                     | RD        | 19                       | 32     | 41     | 37.5             | 2            | F611RD686(1)100(4) |
| 100 | 63  | 82                     | RP        | 21                       | 38     | 41     | 37.5             | 2            | F611RP826(1)100(4) |
| 100 | 63  | 100                    | RP        | 21                       | 38     | 41     | 37.5             | 2            | F611RP107(2)100(4) |
| 100 | 63  | 120                    | RO        | 24                       | 44     | 41     | 37.5             | 2            | F611RO127(1)100(4) |
| 100 | 63  | 150                    | RO        | 24                       | 44     | 41     | 37.5             | 2            | F611RO157(2)100(4) |
| 100 | 63  | 180                    | RU        | 30                       | 45     | 41     | 37.5             | 2            | F611RU187(2)100(4) |
| 160 | 90  | 0.18                   | AG        | 4                        | 9      | 13     | 10.0             | 100          | F612AG184(1)160(4) |
| 160 | 90  | 0.22                   | AG        | 4                        | 9      | 13     | 10.0             | 100          | F612AG224(1)160(4) |
| 160 | 90  | 0.27                   | AG        | 4                        | 9      | 13     | 10.0             | 100          | F612AG274(1)160(4) |
| 160 | 90  | 0.33                   | AG        | 4                        | 9      | 13     | 10.0             | 100          | F612AG334(1)160(4) |
| 160 | 90  | 0.39                   | AK        | 5                        | 11     | 13     | 10.0             | 100          | F612AK394(1)160(4) |
| 160 | 90  | 0.47                   | AK        | 5                        | 11     | 13     | 10.0             | 100          | F612AK474(1)160(4) |
| 160 | 90  | 0.56                   | AK        | 5                        | 11     | 13     | 10.0             | 100          | F612AK564(1)160(4) |
| 160 | 90  | 0.68                   | AP        | 6                        | 12     | 13     | 10.0             | 100          | F612AP684(1)160(4) |
| 160 | 90  | 0.82                   | AP        | 6                        | 12     | 13     | 10.0             | 100          | F612AP824(1)160(4) |
| 160 | 90  | 0.33                   | BB        | 4                        | 10     | 18     | 15.0             | 10           | F611BB334(1)160(4) |
| 160 | 90  | 0.39                   | BB        | 4                        | 10     | 18     | 15.0             | 10           | F611BB394(1)160(4) |
| 160 | 90  | 0.47                   | BC        | 5                        | 11     | 18     | 15.0             | 10           | F611BC474(1)160(4) |
| 160 | 90  | 0.56                   | BC        | 5                        | 11     | 18     | 15.0             | 10           | F611BC564(1)160(4) |
| 160 | 90  | 0.68                   | BC        | 5                        | 11     | 18     | 15.0             | 10           | F611BC684(1)160(4) |
| 160 | 90  | 0.82                   | BE        | 5.5                      | 12.5   | 18     | 15.0             | 10           | F611BE824(1)160(4) |
| 160 | 90  | 1                      | BG        | 6                        | 12     | 18     | 15.0             | 10           | F611BG105(1)160(4) |
| 160 | 90  | 1.2                    | BK        | 7.5                      | 13.5   | 18     | 15.0             | 10           | F611BK125(1)160(4) |
| 160 | 90  | 1.5                    | BK        | 7.5                      | 13.5   | 18     | 15.0             | 10           | F611BK155(1)160(4) |
| 160 | 90  | 1.8                    | BP        | 8.5                      | 14.5   | 18     | 15.0             | 10           | F611BP185(1)160(4) |
| 160 | 90  | 2.2                    | BS        | 10                       | 16     | 18     | 15.0             | 10           | F611BS225(1)160(4) |
| 160 | 90  | 2.7                    | BY        | 11                       | 19     | 18     | 15.0             | 10           | F611BY275(1)160(4) |
| 160 | 90  | 3.3                    | BY        | 11                       | 19     | 18     | 15.0             | 10           | F611BY335(1)160(4) |
| 160 | 90  | 3.9                    | BY        | 11                       | 19     | 18     | 15.0             | 10           | F611BY395(1)160(4) |
| 160 | 90  | 1.2                    | DB        | 6                        | 14.5   | 26     | 22.5             | 6            | F611DB125(1)160(4) |
| 160 | 90  | 1.5                    | DB        | 6                        | 14.5   | 26     | 22.5             | 6            | F611DB155(1)160(4) |
| 160 | 90  | 1.8                    | DB        | 6                        | 14.5   | 26     | 22.5             | 6            | F611DB185(1)160(4) |
| 160 | 90  | 2.2                    | DI        | 7                        | 16     | 26     | 22.5             | 6            | F611DI225(1)160(4) |
| 160 | 90  | 2.7                    | DI        | 7                        | 16     | 26     | 22.5             | 6            | F611DI275(1)160(4) |
| 160 | 90  | 3.3                    | DJ        | 8.5                      | 17     | 26     | 22.5             | 6            | F611DJ335(1)160(4) |
| 160 | 90  | 3.9                    | DM        | 9                        | 18.5   | 26     | 22.5             | 6            | F611DM395(1)160(4) |
| 160 | 90  | 4.7                    | DO        | 10                       | 18.5   | 26     | 22.5             | 6            | F611DO475(1)160(4) |
| 160 | 90  | 5.6                    | DP        | 11                       | 20     | 26     | 22.5             | 6            | F611DP565(1)160(4) |
| 160 | 90  | 6.8                    | DU        | 13                       | 22     | 26     | 22.5             | 6            | F611DU685(1)160(4) |
| 160 | 90  | 8.2                    | DU        | 13                       | 22     | 26     | 22.5             | 6            | F611DU825(1)160(4) |
| 160 | 90  | 10                     | DY        | 15.5                     | 24.5   | 26     | 22.5             | 6            | F611DY106(1)160(4) |
| VDC | VAC | Capacitance Value (µF) | Size Code | B (mm)                   | H (mm) | L (mm) | Lead Spacing (p) | dV/dt (V/µs) | Part Number        |

(1) K= ±10%, M = ±20%; J = ±5% on request

(2) K= ±10%, M = ±20%; J = ±5% not available

(3) M = ±20% (only available tolerance).

(4) Insert lead and packaging code. See Ordering Options Table for available options.

Table 1 – Ratings &amp; Part Number Reference cont'd

| VDC | VAC | Capacitance Value (μF) | Size Code | Maximum Dimensions in mm |        |        | Lead Spacing (p) | dV/dt (V/μs) | Part Number        |
|-----|-----|------------------------|-----------|--------------------------|--------|--------|------------------|--------------|--------------------|
|     |     |                        |           | B                        | H      | L      |                  |              |                    |
| 160 | 90  | 12                     | DY        | 15.5                     | 24.5   | 26     | 22.5             | 6            | F611DY126(1)160(4) |
| 160 | 90  | 5.6                    | FB        | 9                        | 17     | 31.5   | 27.5             | 4            | F611FB565(1)160(4) |
| 160 | 90  | 6.8                    | FB        | 9                        | 17     | 31.5   | 27.5             | 4            | F611FB685(1)160(4) |
| 160 | 90  | 8.2                    | FB        | 9                        | 17     | 31.5   | 27.5             | 4            | F611FB825(3)160(4) |
| 160 | 90  | 10                     | FC        | 11                       | 20     | 31.5   | 27.5             | 4            | F611FC106(1)160(4) |
| 160 | 90  | 12                     | FC        | 11                       | 20     | 31.5   | 27.5             | 4            | F611FC126(3)160(4) |
| 160 | 90  | 15                     | FI        | 13                       | 25     | 31.5   | 27.5             | 4            | F611FI156(1)160(4) |
| 160 | 90  | 18                     | FI        | 13                       | 25     | 31.5   | 27.5             | 4            | F611FI186(2)160(4) |
| 160 | 90  | 22                     | FN        | 14                       | 28     | 31.5   | 27.5             | 4            | F611FN226(2)160(4) |
| 160 | 90  | 27                     | FR        | 17.5                     | 28     | 31.5   | 27.5             | 4            | F611FR276(2)160(4) |
| 160 | 90  | 33                     | FS        | 19                       | 29     | 31.5   | 27.5             | 4            | F611FS336(2)160(4) |
| 160 | 90  | 39                     | FY        | 22                       | 37     | 31.5   | 27.5             | 4            | F611FY396(1)160(4) |
| 160 | 90  | 47                     | FY        | 22                       | 37     | 31.5   | 27.5             | 4            | F611FY476(2)160(4) |
| 160 | 90  | 56                     | FY        | 22                       | 37     | 31.5   | 27.5             | 4            | F611FY566(3)160(4) |
| 160 | 90  | 15                     | RB        | 11                       | 22     | 41     | 37.5             | 3            | F611RB156(1)160(4) |
| 160 | 90  | 18                     | RB        | 11                       | 22     | 41     | 37.5             | 3            | F611RB186(3)160(4) |
| 160 | 90  | 22                     | RF        | 13                       | 24     | 41     | 37.5             | 3            | F611RF226(2)160(4) |
| 160 | 90  | 27                     | RH        | 15                       | 26     | 41     | 37.5             | 3            | F611RH276(1)160(4) |
| 160 | 90  | 33                     | RH        | 15                       | 26     | 41     | 37.5             | 3            | F611RH336(3)160(4) |
| 160 | 90  | 39                     | RC        | 16                       | 28.5   | 41     | 37.5             | 3            | F611RC396(3)160(4) |
| 160 | 90  | 47                     | RD        | 19                       | 32     | 41     | 37.5             | 3            | F611RD476(2)160(4) |
| 160 | 90  | 56                     | RP        | 21                       | 38     | 41     | 37.5             | 3            | F611RP566(1)160(4) |
| 160 | 90  | 68                     | RP        | 21                       | 38     | 41     | 37.5             | 3            | F611RP686(1)160(4) |
| 160 | 90  | 82                     | RO        | 24                       | 44     | 41     | 37.5             | 3            | F611RO826(1)160(4) |
| 160 | 90  | 100                    | RO        | 24                       | 44     | 41     | 37.5             | 3            | F611RO107(3)160(4) |
| 160 | 90  | 120                    | RU        | 30                       | 45     | 41     | 37.5             | 3            | F611RU127(3)160(4) |
| 250 | 160 | 0.0068                 | JF        | 2.5                      | 6.5    | 7.2    | 5.0              | 250          | F612JF682(1)250(4) |
| 250 | 160 | 0.0082                 | JF        | 2.5                      | 6.5    | 7.2    | 5.0              | 250          | F612JF822(1)250(4) |
| 250 | 160 | 0.01                   | JF        | 2.5                      | 6.5    | 7.2    | 5.0              | 250          | F612JF103(1)250(4) |
| 250 | 160 | 0.012                  | JF        | 2.5                      | 6.5    | 7.2    | 5.0              | 250          | F612JF123(1)250(4) |
| 250 | 160 | 0.015                  | JF        | 2.5                      | 6.5    | 7.2    | 5.0              | 250          | F612JF153(1)250(4) |
| 250 | 160 | 0.018                  | JF        | 2.5                      | 6.5    | 7.2    | 5.0              | 250          | F612JF183(1)250(4) |
| 250 | 160 | 0.022                  | JG        | 3.5                      | 7.5    | 7.2    | 5.0              | 250          | F612JG223(1)250(4) |
| 250 | 160 | 0.027                  | JG        | 3.5                      | 7.5    | 7.2    | 5.0              | 250          | F612JG273(1)250(4) |
| 250 | 160 | 0.033                  | JG        | 3.5                      | 7.5    | 7.2    | 5.0              | 250          | F612JG333(1)250(4) |
| 250 | 160 | 0.039                  | JG        | 3.5                      | 7.5    | 7.2    | 5.0              | 250          | F612JG393(1)250(4) |
| 250 | 160 | 0.047                  | JM        | 4.5                      | 9.5    | 7.2    | 5.0              | 250          | F612JM473(1)250(4) |
| 250 | 160 | 0.056                  | JM        | 4.5                      | 9.5    | 7.2    | 5.0              | 250          | F612JM563(1)250(4) |
| 250 | 160 | 0.068                  | JM        | 4.5                      | 9.5    | 7.2    | 5.0              | 250          | F612JM683(1)250(4) |
| 250 | 160 | 0.082                  | JQ        | 5                        | 10     | 7.2    | 5.0              | 250          | F612JQ823(1)250(4) |
| 250 | 160 | 0.1                    | JQ        | 5                        | 10     | 7.2    | 5.0              | 250          | F612JQ104(1)250(4) |
| 250 | 160 | 0.12                   | JT        | 6                        | 11     | 7.2    | 5.0              | 250          | F612JT124(1)250(4) |
| 250 | 160 | 0.15                   | JT        | 6                        | 11     | 7.2    | 5.0              | 250          | F612JT154(1)250(4) |
| 250 | 140 | 0.022                  | JF        | 2.5                      | 6.5    | 7.2    | 5.0              | 130          | F612JF223(1)250(4) |
| 250 | 140 | 0.027                  | JF        | 2.5                      | 6.5    | 7.2    | 5.0              | 130          | F612JF273(1)250(4) |
| 250 | 140 | 0.047                  | JG        | 3.5                      | 7.5    | 7.2    | 5.0              | 130          | F612JG473(1)250(4) |
| 250 | 140 | 0.056                  | JG        | 3.5                      | 7.5    | 7.2    | 5.0              | 130          | F612JG563(1)250(4) |
| 250 | 140 | 0.068                  | JG        | 3.5                      | 7.5    | 7.2    | 5.0              | 130          | F612JG683(1)250(4) |
| 250 | 140 | 0.082                  | JM        | 4.5                      | 9.5    | 7.2    | 5.0              | 130          | F612JM823(1)250(4) |
| 250 | 140 | 0.1                    | JM        | 4.5                      | 9.5    | 7.2    | 5.0              | 130          | F612JM104(1)250(4) |
| 250 | 140 | 0.12                   | JM        | 4.5                      | 9.5    | 7.2    | 5.0              | 130          | F612JM124(1)250(4) |
| 250 | 140 | 0.15                   | JQ        | 5                        | 10     | 7.2    | 5.0              | 130          | F612JQ154(1)250(4) |
| 250 | 140 | 0.18                   | JT        | 6                        | 11     | 7.2    | 5.0              | 130          | F612JT184(1)250(4) |
| 250 | 140 | 0.22                   | JT        | 6                        | 11     | 7.2    | 5.0              | 130          | F612JT224(1)250(4) |
| 250 | 160 | 0.022                  | KF        | 3                        | 8      | 10     | 7.5              | 200          | F612KF223(1)250(4) |
| 250 | 160 | 0.027                  | KF        | 3                        | 8      | 10     | 7.5              | 200          | F612KF273(1)250(4) |
| 250 | 160 | 0.033                  | KF        | 3                        | 8      | 10     | 7.5              | 200          | F612KF333(1)250(4) |
| VDC | VAC | Capacitance Value (μF) | Size Code | B (mm)                   | H (mm) | L (mm) | Lead Spacing (p) | dV/dt (V/μs) | Part Number        |

(1) K= ±10%, M = ±20%; J = ±5% on request

(2) K= ±10%, M = ±20%; J = ±5% not available

(3) M = ±20% (only available tolerance).

(4) Insert lead and packaging code. See Ordering Options Table for available options.

Table 1 – Ratings &amp; Part Number Reference cont'd

| VDC | VAC | Capacitance Value (μF) | Size Code | Maximum Dimensions in mm |        |        | Lead Spacing (p) | dV/dt (V/μs) | Part Number        |
|-----|-----|------------------------|-----------|--------------------------|--------|--------|------------------|--------------|--------------------|
|     |     |                        |           | B                        | H      | L      |                  |              |                    |
| 250 | 160 | 0.039                  | KF        | 3                        | 8      | 10     | 7.5              | 200          | F612KF393(1)250(4) |
| 250 | 160 | 0.047                  | KF        | 3                        | 8      | 10     | 7.5              | 200          | F612KF473(1)250(4) |
| 250 | 160 | 0.056                  | KF        | 3                        | 8      | 10     | 7.5              | 200          | F612KF563(1)250(4) |
| 250 | 160 | 0.068                  | KF        | 3                        | 8      | 10     | 7.5              | 200          | F612KF683(1)250(4) |
| 250 | 160 | 0.082                  | KH        | 4                        | 9      | 10     | 7.5              | 200          | F612KH823(1)250(4) |
| 250 | 160 | 0.1                    | KH        | 4                        | 9      | 10     | 7.5              | 200          | F612KH104(1)250(4) |
| 250 | 160 | 0.12                   | KH        | 4                        | 9      | 10     | 7.5              | 200          | F612KH124(1)250(4) |
| 250 | 160 | 0.15                   | KH        | 4                        | 9      | 10     | 7.5              | 200          | F612KH154(1)250(4) |
| 250 | 160 | 0.18                   | KJ        | 5                        | 10.5   | 10     | 7.5              | 200          | F612KJ184(1)250(4) |
| 250 | 160 | 0.22                   | KJ        | 5                        | 10.5   | 10     | 7.5              | 200          | F612KJ224(1)250(4) |
| 250 | 160 | 0.27                   | KM        | 6                        | 12     | 10.5   | 7.5              | 200          | F612KM274(1)250(4) |
| 250 | 160 | 0.33                   | KM        | 6                        | 12     | 10.5   | 7.5              | 200          | F612KM334(1)250(4) |
| 250 | 160 | 0.39                   | KM        | 6                        | 12     | 10.5   | 7.5              | 200          | F612KM394(1)250(4) |
| 250 | 160 | 0.1                    | AG        | 4                        | 9      | 13     | 10.0             | 20           | F611AG104(1)250(4) |
| 250 | 160 | 0.12                   | AG        | 4                        | 9      | 13     | 10.0             | 20           | F611AG124(1)250(4) |
| 250 | 160 | 0.15                   | AG        | 4                        | 9      | 13     | 10.0             | 20           | F611AG154(1)250(4) |
| 250 | 160 | 0.18                   | AK        | 5                        | 11     | 13     | 10.0             | 20           | F611AK184(1)250(4) |
| 250 | 160 | 0.22                   | AK        | 5                        | 11     | 13     | 10.0             | 20           | F611AK224(1)250(4) |
| 250 | 160 | 0.27                   | AK        | 5                        | 11     | 13     | 10.0             | 20           | F611AK274(1)250(4) |
| 250 | 160 | 0.33                   | AP        | 6                        | 12     | 13     | 10.0             | 20           | F611AP334(1)250(4) |
| 250 | 160 | 0.39                   | AP        | 6                        | 12     | 13     | 10.0             | 20           | F611AP394(1)250(4) |
| 250 | 160 | 0.47                   | AP        | 6                        | 12     | 13     | 10.0             | 20           | F611AP474(1)250(4) |
| 250 | 160 | 0.18                   | BB        | 4                        | 10     | 18     | 15.0             | 12           | F611BB184(1)250(4) |
| 250 | 160 | 0.22                   | BB        | 4                        | 10     | 18     | 15.0             | 12           | F611BB224(1)250(4) |
| 250 | 160 | 0.27                   | BB        | 4                        | 10     | 18     | 15.0             | 12           | F611BB274(1)250(4) |
| 250 | 160 | 0.33                   | BC        | 5                        | 11     | 18     | 15.0             | 12           | F611BC334(1)250(4) |
| 250 | 160 | 0.39                   | BC        | 5                        | 11     | 18     | 15.0             | 12           | F611BC394(1)250(4) |
| 250 | 160 | 0.47                   | BE        | 5.5                      | 12.5   | 18     | 15.0             | 12           | F611BE474(1)250(4) |
| 250 | 160 | 0.56                   | BG        | 6                        | 12     | 18     | 15.0             | 12           | F611BG564(1)250(4) |
| 250 | 160 | 0.68                   | BK        | 7.5                      | 13.5   | 18     | 15.0             | 12           | F611BK684(1)250(4) |
| 250 | 160 | 0.82                   | BK        | 7.5                      | 13.5   | 18     | 15.0             | 12           | F611BK824(1)250(4) |
| 250 | 160 | 1                      | BK        | 7.5                      | 13.5   | 18     | 15.0             | 12           | F611BK105(1)250(4) |
| 250 | 160 | 1.2                    | BP        | 8.5                      | 14.5   | 18     | 15.0             | 12           | F611BP125(1)250(4) |
| 250 | 160 | 1.5                    | BS        | 10                       | 16     | 18     | 15.0             | 12           | F611BS155(1)250(4) |
| 250 | 160 | 1.8                    | BY        | 11                       | 19     | 18     | 15.0             | 12           | F611BY185(1)250(4) |
| 250 | 160 | 2.2                    | BY        | 11                       | 19     | 18     | 15.0             | 12           | F611BY225(1)250(4) |
| 250 | 160 | 0.82                   | DB        | 6                        | 14.5   | 26     | 22.5             | 8            | F611DB824(1)250(4) |
| 250 | 160 | 1                      | DB        | 6                        | 14.5   | 26     | 22.5             | 8            | F611DB105(1)250(4) |
| 250 | 160 | 1.2                    | DI        | 7                        | 16     | 26     | 22.5             | 8            | F611DI125(1)250(4) |
| 250 | 160 | 1.5                    | DI        | 7                        | 16     | 26     | 22.5             | 8            | F611DI155(1)250(4) |
| 250 | 160 | 1.8                    | DH        | 8                        | 16     | 26     | 22.5             | 8            | F611DH185(1)250(4) |
| 250 | 160 | 2.2                    | DJ        | 8.5                      | 17     | 26     | 22.5             | 8            | F611DJ225(1)250(4) |
| 250 | 160 | 2.7                    | DO        | 10                       | 18.5   | 26     | 22.5             | 8            | F611DO275(1)250(4) |
| 250 | 160 | 3.3                    | DP        | 11                       | 20     | 26     | 22.5             | 8            | F611DP335(1)250(4) |
| 250 | 160 | 3.9                    | DU        | 13                       | 22     | 26     | 22.5             | 8            | F611DU395(1)250(4) |
| 250 | 160 | 4.7                    | DU        | 13                       | 22     | 26     | 22.5             | 8            | F611DU475(1)250(4) |
| 250 | 160 | 5.6                    | DY        | 15.5                     | 24.5   | 26     | 22.5             | 8            | F611DY565(1)250(4) |
| 250 | 160 | 6.8                    | DY        | 15.5                     | 24.5   | 26     | 22.5             | 8            | F611DY685(1)250(4) |
| 250 | 160 | 2.2                    | FB        | 9                        | 17     | 31.5   | 27.5             | 5            | F611FB225(1)250(4) |
| 250 | 160 | 2.7                    | FB        | 9                        | 17     | 31.5   | 27.5             | 5            | F611FB275(1)250(4) |
| 250 | 160 | 3.3                    | FB        | 9                        | 17     | 31.5   | 27.5             | 5            | F611FB335(1)250(4) |
| 250 | 160 | 3.9                    | FB        | 9                        | 17     | 31.5   | 27.5             | 5            | F611FB395(1)250(4) |
| 250 | 160 | 4.7                    | FB        | 9                        | 17     | 31.5   | 27.5             | 5            | F611FB475(1)250(4) |
| 250 | 160 | 5.6                    | FC        | 11                       | 20     | 31.5   | 27.5             | 5            | F611FC565(1)250(4) |
| 250 | 160 | 6.8                    | FC        | 11                       | 20     | 31.5   | 27.5             | 5            | F611FC685(1)250(4) |
| 250 | 160 | 8.2                    | FI        | 13                       | 25     | 31.5   | 27.5             | 5            | F611FI825(1)250(4) |
| 250 | 160 | 10                     | FI        | 13                       | 25     | 31.5   | 27.5             | 5            | F611FI106(1)250(4) |
| VDC | VAC | Capacitance Value (μF) | Size Code | B (mm)                   | H (mm) | L (mm) | Lead Spacing (p) | dV/dt (V/μs) | Part Number        |

(1) K= ±10%, M = ±20%; J = ±5% on request

(2) K= ±10%, M = ±20%; J = ±5% not available

(3) M = ±20% (only available tolerance).

(4) Insert lead and packaging code. See Ordering Options Table for available options.

Table 1 – Ratings &amp; Part Number Reference cont'd

| VDC | VAC | Capacitance Value (μF) | Size Code | Maximum Dimensions in mm |        |        | Lead Spacing (p) | dV/dt (V/μs) | Part Number        |
|-----|-----|------------------------|-----------|--------------------------|--------|--------|------------------|--------------|--------------------|
|     |     |                        |           | B                        | H      | L      |                  |              |                    |
| 250 | 160 | 12                     | FI        | 13                       | 25     | 31.5   | 27.5             | 5            | F611FI126(2)250(4) |
| 250 | 160 | 15                     | FN        | 14                       | 28     | 31.5   | 27.5             | 5            | F611FN156(2)250(4) |
| 250 | 160 | 18                     | FR        | 17.5                     | 28     | 31.5   | 27.5             | 5            | F611FR186(1)250(4) |
| 250 | 160 | 22                     | FS        | 19                       | 29     | 31.5   | 27.5             | 5            | F611FS226(2)250(4) |
| 250 | 160 | 27                     | FY        | 22                       | 37     | 31.5   | 27.5             | 5            | F611FY276(1)250(4) |
| 250 | 160 | 33                     | FY        | 22                       | 37     | 31.5   | 27.5             | 5            | F611FY336(2)250(4) |
| 250 | 160 | 5.6                    | RB        | 11                       | 22     | 41     | 37.5             | 4            | F611RB565(1)250(4) |
| 250 | 160 | 6.8                    | RB        | 11                       | 22     | 41     | 37.5             | 4            | F611RB685(1)250(4) |
| 250 | 160 | 8.2                    | RB        | 11                       | 22     | 41     | 37.5             | 4            | F611RB825(1)250(4) |
| 250 | 160 | 10                     | RB        | 11                       | 22     | 41     | 37.5             | 4            | F611RB106(1)250(4) |
| 250 | 160 | 12                     | RB        | 11                       | 22     | 41     | 37.5             | 4            | F611RB126(2)250(4) |
| 250 | 160 | 15                     | RF        | 13                       | 24     | 41     | 37.5             | 4            | F611RF156(1)250(4) |
| 250 | 160 | 18                     | RH        | 15                       | 26     | 41     | 37.5             | 4            | F611RH186(1)250(4) |
| 250 | 160 | 22                     | RH        | 15                       | 26     | 41     | 37.5             | 4            | F611RH226(2)250(4) |
| 250 | 160 | 27                     | RC        | 16                       | 28.5   | 41     | 37.5             | 4            | F611RC276(3)250(4) |
| 250 | 160 | 33                     | RD        | 19                       | 32     | 41     | 37.5             | 4            | F611RD336(2)250(4) |
| 250 | 160 | 39                     | RP        | 21                       | 38     | 41     | 37.5             | 4            | F611RP396(1)250(4) |
| 250 | 160 | 47                     | RP        | 21                       | 38     | 41     | 37.5             | 4            | F611RP476(2)250(4) |
| 250 | 160 | 56                     | RO        | 24                       | 44     | 41     | 37.5             | 4            | F611RO566(1)250(4) |
| 250 | 160 | 68                     | RO        | 24                       | 44     | 41     | 37.5             | 4            | F611RO686(3)250(4) |
| 250 | 160 | 82                     | RU        | 30                       | 45     | 41     | 37.5             | 4            | F611RU826(2)250(4) |
| 400 | 200 | 0.001                  | JF        | 2.5                      | 6.5    | 7.2    | 5.0              | 400          | F612JF102(1)400(4) |
| 400 | 200 | 0.0012                 | JF        | 2.5                      | 6.5    | 7.2    | 5.0              | 400          | F612JF122(1)400(4) |
| 400 | 200 | 0.0015                 | JF        | 2.5                      | 6.5    | 7.2    | 5.0              | 400          | F612JF152(1)400(4) |
| 400 | 200 | 0.0018                 | JF        | 2.5                      | 6.5    | 7.2    | 5.0              | 400          | F612JF182(1)400(4) |
| 400 | 200 | 0.0022                 | JF        | 2.5                      | 6.5    | 7.2    | 5.0              | 400          | F612JF222(1)400(4) |
| 400 | 200 | 0.0027                 | JF        | 2.5                      | 6.5    | 7.2    | 5.0              | 400          | F612JF272(1)400(4) |
| 400 | 200 | 0.0033                 | JF        | 2.5                      | 6.5    | 7.2    | 5.0              | 400          | F612JF332(1)400(4) |
| 400 | 200 | 0.0039                 | JF        | 2.5                      | 6.5    | 7.2    | 5.0              | 400          | F612JF392(1)400(4) |
| 400 | 200 | 0.0047                 | JF        | 2.5                      | 6.5    | 7.2    | 5.0              | 400          | F612JF472(1)400(4) |
| 400 | 200 | 0.0056                 | JG        | 3.5                      | 7.5    | 7.2    | 5.0              | 400          | F612JG562(1)400(4) |
| 400 | 200 | 0.0068                 | JG        | 3.5                      | 7.5    | 7.2    | 5.0              | 400          | F612JG682(1)400(4) |
| 400 | 200 | 0.082                  | JG        | 3.5                      | 7.5    | 7.2    | 5.0              | 400          | F612JG823(1)400(4) |
| 400 | 200 | 0.01                   | JG        | 3.5                      | 7.5    | 7.2    | 5.0              | 400          | F612JG103(1)400(4) |
| 400 | 200 | 0.012                  | JG        | 3.5                      | 7.5    | 7.2    | 5.0              | 400          | F612JG123(1)400(4) |
| 400 | 200 | 0.015                  | JM        | 4.5                      | 9.5    | 7.2    | 5.0              | 400          | F612JM153(1)400(4) |
| 400 | 200 | 0.018                  | JM        | 4.5                      | 9.5    | 7.2    | 5.0              | 400          | F612JM183(1)400(4) |
| 400 | 200 | 0.022                  | JM        | 4.5                      | 9.5    | 7.2    | 5.0              | 400          | F612JM223(1)400(4) |
| 400 | 200 | 0.027                  | JQ        | 5                        | 10     | 7.2    | 5.0              | 400          | F612JQ273(1)400(4) |
| 400 | 200 | 0.033                  | JQ        | 5                        | 10     | 7.2    | 5.0              | 400          | F612JQ333(1)400(4) |
| 400 | 200 | 0.039                  | JT        | 6                        | 11     | 7.2    | 5.0              | 400          | F612JT393(1)400(4) |
| 400 | 200 | 0.047                  | JT        | 6                        | 11     | 7.2    | 5.0              | 400          | F612JT473(1)400(4) |
| 400 | 200 | 0.056                  | JT        | 6                        | 11     | 7.2    | 5.0              | 400          | F612JT563(1)400(4) |
| 400 | 160 | 0.0068                 | JF        | 2.5                      | 6.5    | 7.2    | 5.0              | 200          | F612JF682(1)400(4) |
| 400 | 160 | 0.0082                 | JF        | 2.5                      | 6.5    | 7.2    | 5.0              | 200          | F612JF822(1)400(4) |
| 400 | 160 | 0.015                  | JG        | 3.5                      | 7.5    | 7.2    | 5.0              | 200          | F612JG153(1)400(4) |
| 400 | 160 | 0.018                  | JG        | 3.5                      | 7.5    | 7.2    | 5.0              | 200          | F612JG183(1)400(4) |
| 400 | 160 | 0.033                  | JM        | 4.5                      | 9.5    | 7.2    | 5.0              | 200          | F612JM333(1)400(4) |
| 400 | 160 | 0.039                  | JM        | 4.5                      | 9.5    | 7.2    | 5.0              | 200          | F612JM393(1)400(4) |
| 400 | 160 | 0.047                  | JQ        | 5                        | 10     | 7.2    | 5.0              | 200          | F612JQ473(1)400(4) |
| 400 | 160 | 0.068                  | JT        | 6                        | 11     | 7.2    | 5.0              | 200          | F612JT683(1)400(4) |
| 400 | 200 | 0.0068                 | KF        | 3                        | 8      | 10     | 7.5              | 275          | F612KF682(1)400(4) |
| 400 | 200 | 0.0082                 | KF        | 3                        | 8      | 10     | 7.5              | 275          | F612KF822(1)400(4) |
| 400 | 200 | 0.01                   | KF        | 3                        | 8      | 10     | 7.5              | 275          | F612KF103(1)400(4) |
| 400 | 200 | 0.012                  | KF        | 3                        | 8      | 10     | 7.5              | 275          | F612KF123(1)400(4) |
| 400 | 200 | 0.015                  | KF        | 3                        | 8      | 10     | 7.5              | 275          | F612KF153(1)400(4) |
| 400 | 200 | 0.018                  | KF        | 3                        | 8      | 10     | 7.5              | 275          | F612KF183(1)400(4) |
| VDC | VAC | Capacitance Value (μF) | Size Code | B (mm)                   | H (mm) | L (mm) | Lead Spacing (p) | dV/dt (V/μs) | Part Number        |

(1) K = ±10%, M = ±20%; J = ±5% on request

(2) K = ±10%, M = ±20%; J = ±5% not available

(3) M = ±20% (only available tolerance).

(4) Insert lead and packaging code. See Ordering Options Table for available options.

**Table 1 – Ratings & Part Number Reference cont'd**

| VDC | VAC | Capacitance Value (µF) | Size Code | Maximum Dimensions in mm |        |        | Lead Spacing (p) | dV/dt (V/µs) | Part Number        |
|-----|-----|------------------------|-----------|--------------------------|--------|--------|------------------|--------------|--------------------|
|     |     |                        |           | B                        | H      | L      |                  |              |                    |
| 400 | 200 | 0.022                  | KF        | 3                        | 8      | 10     | 7.5              | 275          | F612KF223(1)400(4) |
| 400 | 200 | 0.027                  | KF        | 3                        | 8      | 10     | 7.5              | 275          | F612KF273(1)400(4) |
| 400 | 200 | 0.033                  | KH        | 4                        | 9      | 10     | 7.5              | 275          | F612KH333(1)400(4) |
| 400 | 200 | 0.039                  | KH        | 4                        | 9      | 10     | 7.5              | 275          | F612KH393(1)400(4) |
| 400 | 200 | 0.047                  | KH        | 4                        | 9      | 10     | 7.5              | 275          | F612KH473(1)400(4) |
| 400 | 200 | 0.056                  | KH        | 4                        | 9      | 10     | 7.5              | 275          | F612KH563(1)400(4) |
| 400 | 200 | 0.068                  | KJ        | 5                        | 10.5   | 10     | 7.5              | 275          | F612KJ683(1)400(4) |
| 400 | 200 | 0.082                  | KJ        | 5                        | 10.5   | 10     | 7.5              | 275          | F612KJ823(1)400(4) |
| 400 | 200 | 0.1                    | KM        | 6                        | 12     | 10.5   | 7.5              | 275          | F612KM104(1)400(4) |
| 400 | 200 | 0.12                   | KM        | 6                        | 12     | 10.5   | 7.5              | 275          | F612KM124(1)400(4) |
| 400 | 200 | 0.15                   | KM        | 6                        | 12     | 10.5   | 7.5              | 275          | F612KM154(1)400(4) |
| 400 | 200 | 0.033                  | AG        | 4                        | 9      | 13     | 10.0             | 30           | F611AG333(1)400(4) |
| 400 | 200 | 0.039                  | AG        | 4                        | 9      | 13     | 10.0             | 30           | F611AG393(1)400(4) |
| 400 | 200 | 0.047                  | AG        | 4                        | 9      | 13     | 10.0             | 30           | F611AG473(1)400(4) |
| 400 | 200 | 0.056                  | AG        | 4                        | 9      | 13     | 10.0             | 30           | F611AG563(1)400(4) |
| 400 | 200 | 0.068                  | AG        | 4                        | 9      | 13     | 10.0             | 30           | F611AG683(1)400(4) |
| 400 | 200 | 0.082                  | AG        | 4                        | 9      | 13     | 10.0             | 30           | F611AG823(1)400(4) |
| 400 | 200 | 0.1                    | AK        | 5                        | 11     | 13     | 10.0             | 30           | F611AK104(1)400(4) |
| 400 | 200 | 0.12                   | AK        | 5                        | 11     | 13     | 10.0             | 30           | F611AK124(1)400(4) |
| 400 | 200 | 0.15                   | AK        | 5                        | 11     | 13     | 10.0             | 30           | F611AK154(1)400(4) |
| 400 | 200 | 0.18                   | AP        | 6                        | 12     | 13     | 10.0             | 30           | F611AP184(1)400(4) |
| 400 | 200 | 0.22                   | AP        | 6                        | 12     | 13     | 10.0             | 30           | F611AP224(1)400(4) |
| 400 | 200 | 0.056                  | BB        | 4                        | 10     | 18     | 15.0             | 20           | F611BB563(1)400(4) |
| 400 | 200 | 0.068                  | BB        | 4                        | 10     | 18     | 15.0             | 20           | F611BB683(1)400(4) |
| 400 | 200 | 0.082                  | BB        | 4                        | 10     | 18     | 15.0             | 20           | F611BB823(1)400(4) |
| 400 | 200 | 0.1                    | BB        | 4                        | 10     | 18     | 15.0             | 20           | F611BB104(1)400(4) |
| 400 | 200 | 0.12                   | BB        | 4                        | 10     | 18     | 15.0             | 20           | F611BB124(1)400(4) |
| 400 | 200 | 0.15                   | BB        | 4                        | 10     | 18     | 15.0             | 20           | F611BB154(1)400(4) |
| 400 | 200 | 0.18                   | BC        | 5                        | 11     | 18     | 15.0             | 20           | F611BC184(1)400(4) |
| 400 | 200 | 0.22                   | BC        | 5                        | 11     | 18     | 15.0             | 20           | F611BC224(1)400(4) |
| 400 | 200 | 0.27                   | BE        | 5.5                      | 12.5   | 18     | 15.0             | 20           | F611BE274(1)400(4) |
| 400 | 200 | 0.33                   | BG        | 6                        | 12     | 18     | 15.0             | 20           | F611BG334(1)400(4) |
| 400 | 200 | 0.39                   | BK        | 7.5                      | 13.5   | 18     | 15.0             | 20           | F611BK394(1)400(4) |
| 400 | 200 | 0.47                   | BK        | 7.5                      | 13.5   | 18     | 15.0             | 20           | F611BK474(1)400(4) |
| 400 | 200 | 0.56                   | BK        | 7.5                      | 13.5   | 18     | 15.0             | 20           | F611BK564(1)400(4) |
| 400 | 200 | 0.68                   | BP        | 8.5                      | 14.5   | 18     | 15.0             | 20           | F611BP684(1)400(4) |
| 400 | 200 | 0.82                   | BS        | 10                       | 16     | 18     | 15.0             | 20           | F611BS824(1)400(4) |
| 400 | 200 | 1                      | BY        | 11                       | 19     | 18     | 15.0             | 20           | F611BY105(1)400(4) |
| 400 | 200 | 1.2                    | BY        | 11                       | 19     | 18     | 15.0             | 20           | F611BY125(1)400(4) |
| 400 | 200 | 1.5                    | BY        | 11                       | 19     | 18     | 15.0             | 20           | F611BY155(1)400(4) |
| 400 | 200 | 0.27                   | DB        | 6                        | 14.5   | 26     | 22.5             | 10           | F611DB274(1)400(4) |
| 400 | 200 | 0.33                   | DB        | 6                        | 14.5   | 26     | 22.5             | 10           | F611DB334(1)400(4) |
| 400 | 200 | 0.39                   | DB        | 6                        | 14.5   | 26     | 22.5             | 10           | F611DB394(1)400(4) |
| 400 | 200 | 0.47                   | DB        | 6                        | 14.5   | 26     | 22.5             | 10           | F611DB474(1)400(4) |
| 400 | 200 | 0.56                   | DB        | 6                        | 14.5   | 26     | 22.5             | 10           | F611DB564(1)400(4) |
| 400 | 200 | 0.68                   | DB        | 6                        | 14.5   | 26     | 22.5             | 10           | F611DB684(1)400(4) |
| 400 | 200 | 0.82                   | DI        | 7                        | 16     | 26     | 22.5             | 10           | F611DI824(1)400(4) |
| 400 | 200 | 1                      | DI        | 7                        | 16     | 26     | 22.5             | 10           | F611DI105(1)400(4) |
| 400 | 200 | 1.2                    | DJ        | 8.5                      | 17     | 26     | 22.5             | 10           | F611DJ125(1)400(4) |
| 400 | 200 | 1.5                    | DM        | 9                        | 18.5   | 26     | 22.5             | 10           | F611DM155(1)400(4) |
| 400 | 200 | 1.8                    | DO        | 10                       | 18.5   | 26     | 22.5             | 10           | F611DO185(1)400(4) |
| 400 | 200 | 2.2                    | DP        | 11                       | 20     | 26     | 22.5             | 10           | F611DP225(1)400(4) |
| 400 | 200 | 2.7                    | DU        | 13                       | 22     | 26     | 22.5             | 10           | F611DU275(1)400(4) |
| 400 | 200 | 3.3                    | DU        | 13                       | 22     | 26     | 22.5             | 10           | F611DU335(1)400(4) |
| 400 | 200 | 3.9                    | DY        | 15.5                     | 24.5   | 26     | 22.5             | 10           | F611DY395(1)400(4) |
| 400 | 200 | 4.7                    | DY        | 15.5                     | 24.5   | 26     | 22.5             | 10           | F611DY475(1)400(4) |
| 400 | 200 | 0.82                   | FB        | 9                        | 17     | 31.5   | 27.5             | 8.5          | F611FB824(1)400(4) |
| VDC | VAC | Capacitance Value (µF) | Size Code | B (mm)                   | H (mm) | L (mm) | Lead Spacing (p) | dV/dt (V/µs) | Part Number        |

(1) K= ±10%, M = ±20%; J = ±5% on request

(2) K= ±10%, M = ±20%; J = ±5% not available

(3) M = ±20% (only available tolerance).

(4) Insert lead and packaging code. See Ordering Options Table for available options.

**Table 1 – Ratings & Part Number Reference cont'd**

| VDC | VAC | Capacitance Value (μF) | Size Code | Maximum Dimensions in mm |        |        | Lead Spacing (p) | dV/dt (V/μs) | Part Number        |
|-----|-----|------------------------|-----------|--------------------------|--------|--------|------------------|--------------|--------------------|
|     |     |                        |           | B                        | H      | L      |                  |              |                    |
| 400 | 200 | 1                      | FB        | 9                        | 17     | 31.5   | 27.5             | 8.5          | F611FB105(1)400(4) |
| 400 | 200 | 1.2                    | FB        | 9                        | 17     | 31.5   | 27.5             | 8.5          | F611FB125(1)400(4) |
| 400 | 200 | 1.5                    | FB        | 9                        | 17     | 31.5   | 27.5             | 8.5          | F611FB155(1)400(4) |
| 400 | 200 | 1.8                    | FB        | 9                        | 17     | 31.5   | 27.5             | 8.5          | F611FB185(1)400(4) |
| 400 | 200 | 2.2                    | FC        | 11                       | 20     | 31.5   | 27.5             | 8.5          | F611FC225(1)400(4) |
| 400 | 200 | 2.7                    | FC        | 11                       | 20     | 31.5   | 27.5             | 8.5          | F611FC275(1)400(4) |
| 400 | 200 | 3.3                    | FI        | 13                       | 25     | 31.5   | 27.5             | 8.5          | F611FI335(1)400(4) |
| 400 | 200 | 3.9                    | FI        | 13                       | 25     | 31.5   | 27.5             | 8.5          | F611FI395(1)400(4) |
| 400 | 200 | 4.7                    | FI        | 13                       | 25     | 31.5   | 27.5             | 8.5          | F611FI475(2)400(4) |
| 400 | 200 | 5.6                    | FN        | 14                       | 28     | 31.5   | 27.5             | 8.5          | F611FN565(2)400(4) |
| 400 | 200 | 6.8                    | FR        | 17.5                     | 28     | 31.5   | 27.5             | 8.5          | F611FR685(2)400(4) |
| 400 | 200 | 8.2                    | FR        | 17.5                     | 28     | 31.5   | 27.5             | 8.5          | F611FR825(3)400(4) |
| 400 | 200 | 10                     | FY        | 22                       | 37     | 31.5   | 27.5             | 8.5          | F611FY106(2)400(4) |
| 400 | 200 | 12                     | FY        | 22                       | 37     | 31.5   | 27.5             | 8.5          | F611FY126(2)400(4) |
| 400 | 200 | 15                     | FY        | 22                       | 37     | 31.5   | 27.5             | 8.5          | F611FY156(3)400(4) |
| 400 | 200 | 2.2                    | RB        | 11                       | 22     | 41     | 37.5             | 6            | F611RB225(1)400(4) |
| 400 | 200 | 2.7                    | RB        | 11                       | 22     | 41     | 37.5             | 6            | F611RB275(1)400(4) |
| 400 | 200 | 3.3                    | RB        | 11                       | 22     | 41     | 37.5             | 6            | F611RB335(1)400(4) |
| 400 | 200 | 3.9                    | RB        | 11                       | 22     | 41     | 37.5             | 6            | F611RB395(1)400(4) |
| 400 | 200 | 4.7                    | RB        | 11                       | 22     | 41     | 37.5             | 6            | F611RB475(2)400(4) |
| 400 | 200 | 5.6                    | RF        | 13                       | 24     | 41     | 37.5             | 6            | F611RF565(1)400(4) |
| 400 | 200 | 6.8                    | RF        | 13                       | 24     | 41     | 37.5             | 6            | F611RF685(3)400(4) |
| 400 | 200 | 8.2                    | RH        | 15                       | 26     | 41     | 37.5             | 6            | F611RH825(2)400(4) |
| 400 | 200 | 10                     | RC        | 16                       | 28.5   | 41     | 37.5             | 6            | F611RC106(2)400(4) |
| 400 | 200 | 12                     | RD        | 19                       | 32     | 41     | 37.5             | 6            | F611RD126(2)400(4) |
| 400 | 200 | 15                     | RP        | 21                       | 38     | 41     | 37.5             | 6            | F611RP156(1)400(4) |
| 400 | 200 | 18                     | RP        | 21                       | 38     | 41     | 37.5             | 6            | F611RP186(2)400(4) |
| 400 | 200 | 22                     | RO        | 24                       | 44     | 41     | 37.5             | 6            | F611RO226(1)400(4) |
| 400 | 200 | 27                     | RO        | 24                       | 44     | 41     | 37.5             | 6            | F611RO276(3)400(4) |
| 400 | 200 | 33                     | RU        | 30                       | 45     | 41     | 37.5             | 6            | F611RU336(3)400(4) |
| 630 | 220 | 0.0012                 | JF        | 2.5                      | 6.5    | 7.2    | 5.0              | 80           | F611JF122(1)630(4) |
| 630 | 220 | 0.0015                 | JF        | 2.5                      | 6.5    | 7.2    | 5.0              | 80           | F611JF152(1)630(4) |
| 630 | 220 | 0.0018                 | JF        | 2.5                      | 6.5    | 7.2    | 5.0              | 80           | F611JF182(1)630(4) |
| 630 | 220 | 0.0022                 | JF        | 2.5                      | 6.5    | 7.2    | 5.0              | 80           | F611JF222(1)630(4) |
| 630 | 220 | 0.0027                 | JF        | 2.5                      | 6.5    | 7.2    | 5.0              | 80           | F611JF272(1)630(4) |
| 630 | 220 | 0.0033                 | JF        | 2.5                      | 6.5    | 7.2    | 5.0              | 80           | F611JF332(1)630(4) |
| 630 | 220 | 0.0039                 | JF        | 2.5                      | 6.5    | 7.2    | 5.0              | 80           | F611JF392(1)630(4) |
| 630 | 220 | 0.0047                 | JG        | 3.5                      | 7.5    | 7.2    | 5.0              | 80           | F611JG472(1)630(4) |
| 630 | 220 | 0.0056                 | JG        | 3.5                      | 7.5    | 7.2    | 5.0              | 80           | F611JG562(1)630(4) |
| 630 | 220 | 0.0068                 | JG        | 3.5                      | 7.5    | 7.2    | 5.0              | 80           | F611JG682(1)630(4) |
| 630 | 220 | 0.0082                 | JG        | 3.5                      | 7.5    | 7.2    | 5.0              | 80           | F611JG822(1)630(4) |
| 630 | 220 | 0.01                   | JG        | 3.5                      | 7.5    | 7.2    | 5.0              | 80           | F611JG103(1)630(4) |
| 630 | 220 | 0.012                  | JM        | 4.5                      | 9.5    | 7.2    | 5.0              | 80           | F611JM123(1)630(4) |
| 630 | 220 | 0.015                  | JM        | 4.5                      | 9.5    | 7.2    | 5.0              | 80           | F611JM153(1)630(4) |
| 630 | 220 | 0.018                  | JM        | 4.5                      | 9.5    | 7.2    | 5.0              | 80           | F611JM183(1)630(4) |
| 630 | 220 | 0.022                  | JQ        | 5                        | 10     | 7.2    | 5.0              | 80           | F611JQ223(1)630(4) |
| 630 | 220 | 0.027                  | JT        | 6                        | 11     | 7.2    | 5.0              | 80           | F611JT273(1)630(4) |
| 630 | 220 | 0.033                  | JT        | 6                        | 11     | 7.2    | 5.0              | 80           | F611JT333(1)630(4) |
| 630 | 220 | 0.039                  | JU        | 7.2                      | 13     | 7.2    | 5.0              | 80           | F611JU393(1)630(4) |
| 630 | 220 | 0.047                  | JU        | 7.2                      | 13     | 7.2    | 5.0              | 80           | F611JU473(1)630(4) |
| 630 | 220 | 0.0018                 | KE        | 2.5                      | 6      | 10     | 7.5              | 60           | F611KE182(1)630(4) |
| 630 | 220 | 0.0022                 | KE        | 2.5                      | 6      | 10     | 7.5              | 60           | F611KE222(1)630(4) |
| 630 | 220 | 0.0027                 | KE        | 2.5                      | 6      | 10     | 7.5              | 60           | F611KE272(1)630(4) |
| 630 | 220 | 0.0033                 | KE        | 2.5                      | 6      | 10     | 7.5              | 60           | F611KE332(1)630(4) |
| 630 | 220 | 0.0039                 | KE        | 2.5                      | 6      | 10     | 7.5              | 60           | F611KE392(1)630(4) |
| 630 | 220 | 0.0047                 | KE        | 2.5                      | 6      | 10     | 7.5              | 60           | F611KE472(1)630(4) |
| 630 | 220 | 0.0056                 | KF        | 3                        | 8      | 10     | 7.5              | 60           | F611KF562(1)630(4) |
| VDC | VAC | Capacitance Value (μF) | Size Code | B (mm)                   | H (mm) | L (mm) | Lead Spacing (p) | dV/dt (V/μs) | Part Number        |

(1) K= ±10%, M = ±20%; J = ±5% on request

(2) K= ±10%, M = ±20%; J = ±5% not available

(3) M = ±20% (only available tolerance).

(4) Insert lead and packaging code. See Ordering Options Table for available options.

Table 1 – Ratings &amp; Part Number Reference cont'd

| VDC | VAC | Capacitance Value (μF) | Size Code | Maximum Dimensions in mm |        |        | Lead Spacing (p) | dV/dt (V/μs) | Part Number        |
|-----|-----|------------------------|-----------|--------------------------|--------|--------|------------------|--------------|--------------------|
|     |     |                        |           | B                        | H      | L      |                  |              |                    |
| 630 | 220 | 0.0068                 | KF        | 3                        | 8      | 10     | 7.5              | 60           | F611KF682(1)630(4) |
| 630 | 220 | 0.0082                 | KF        | 3                        | 8      | 10     | 7.5              | 60           | F611KF822(1)630(4) |
| 630 | 220 | 0.01                   | KF        | 3                        | 8      | 10     | 7.5              | 60           | F611KF103(1)630(4) |
| 630 | 220 | 0.012                  | KG        | 4                        | 8      | 10     | 7.5              | 60           | F611KG123(1)630(4) |
| 630 | 220 | 0.015                  | KG        | 4                        | 8      | 10     | 7.5              | 60           | F611KG153(1)630(4) |
| 630 | 220 | 0.018                  | KG        | 4                        | 8      | 10     | 7.5              | 60           | F611KG183(1)630(4) |
| 630 | 220 | 0.022                  | KJ        | 5                        | 10.5   | 10     | 7.5              | 60           | F611KJ223(1)630(4) |
| 630 | 220 | 0.027                  | KJ        | 5                        | 10.5   | 10     | 7.5              | 60           | F611KJ273(1)630(4) |
| 630 | 220 | 0.033                  | KJ        | 5                        | 10.5   | 10     | 7.5              | 60           | F611KJ333(1)630(4) |
| 630 | 220 | 0.039                  | KJ        | 5                        | 10.5   | 10     | 7.5              | 60           | F611KJ393(1)630(4) |
| 630 | 220 | 0.047                  | KM        | 6                        | 12     | 10.5   | 7.5              | 60           | F611KM473(1)630(4) |
| 630 | 220 | 0.056                  | KM        | 6                        | 12     | 10.5   | 7.5              | 60           | F611KM563(1)630(4) |
| 630 | 220 | 0.012                  | AG        | 4                        | 9      | 13     | 10.0             | 40           | F611AG123(1)630(4) |
| 630 | 220 | 0.015                  | AG        | 4                        | 9      | 13     | 10.0             | 40           | F611AG153(1)630(4) |
| 630 | 220 | 0.018                  | AG        | 4                        | 9      | 13     | 10.0             | 40           | F611AG183(1)630(4) |
| 630 | 220 | 0.022                  | AG        | 4                        | 9      | 13     | 10.0             | 40           | F611AG223(1)630(4) |
| 630 | 220 | 0.027                  | AG        | 4                        | 9      | 13     | 10.0             | 40           | F611AG273(1)630(4) |
| 630 | 220 | 0.033                  | AK        | 5                        | 11     | 13     | 10.0             | 40           | F611AK333(1)630(4) |
| 630 | 220 | 0.039                  | AK        | 5                        | 11     | 13     | 10.0             | 40           | F611AK393(1)630(4) |
| 630 | 220 | 0.047                  | AK        | 5                        | 11     | 13     | 10.0             | 40           | F611AK473(1)630(4) |
| 630 | 220 | 0.056                  | AP        | 6                        | 12     | 13     | 10.0             | 40           | F611AP563(1)630(4) |
| 630 | 220 | 0.068                  | AP        | 6                        | 12     | 13     | 10.0             | 40           | F611AP683(1)630(4) |
| 630 | 220 | 0.082                  | AP        | 6                        | 12     | 13     | 10.0             | 40           | F611AP823(1)630(4) |
| 630 | 220 | 0.022                  | BB        | 4                        | 10     | 18     | 15.0             | 25           | F611BB223(1)630(4) |
| 630 | 220 | 0.027                  | BB        | 4                        | 10     | 18     | 15.0             | 25           | F611BB273(1)630(4) |
| 630 | 220 | 0.033                  | BB        | 4                        | 10     | 18     | 15.0             | 25           | F611BB333(1)630(4) |
| 630 | 220 | 0.039                  | BB        | 4                        | 10     | 18     | 15.0             | 25           | F611BB393(1)630(4) |
| 630 | 220 | 0.047                  | BB        | 4                        | 10     | 18     | 15.0             | 25           | F611BB473(1)630(4) |
| 630 | 220 | 0.056                  | BC        | 5                        | 11     | 18     | 15.0             | 25           | F611BC563(1)630(4) |
| 630 | 220 | 0.068                  | BC        | 5                        | 11     | 18     | 15.0             | 25           | F611BC683(1)630(4) |
| 630 | 220 | 0.082                  | BC        | 5                        | 11     | 18     | 15.0             | 25           | F611BC823(1)630(4) |
| 630 | 220 | 0.1                    | BE        | 5.5                      | 12.5   | 18     | 15.0             | 25           | F611BE104(1)630(4) |
| 630 | 220 | 0.12                   | BG        | 6                        | 12     | 18     | 15.0             | 25           | F611BG124(1)630(4) |
| 630 | 220 | 0.15                   | BK        | 7.5                      | 13.5   | 18     | 15.0             | 25           | F611BK154(1)630(4) |
| 630 | 220 | 0.18                   | BK        | 7.5                      | 13.5   | 18     | 15.0             | 25           | F611BK184(1)630(4) |
| 630 | 220 | 0.22                   | BP        | 8.5                      | 14.5   | 18     | 15.0             | 25           | F611BP224(1)630(4) |
| 630 | 220 | 0.27                   | BS        | 10                       | 16     | 18     | 15.0             | 25           | F611BS274(1)630(4) |
| 630 | 220 | 0.33                   | BS        | 10                       | 16     | 18     | 15.0             | 25           | F611BS334(1)630(4) |
| 630 | 220 | 0.39                   | BY        | 11                       | 19     | 18     | 15.0             | 25           | F611BY394(1)630(4) |
| 630 | 220 | 0.47                   | BY        | 11                       | 19     | 18     | 15.0             | 25           | F611BY474(1)630(4) |
| 630 | 220 | 0.12                   | DB        | 6                        | 14.5   | 26     | 22.5             | 12           | F611DB124(1)630(4) |
| 630 | 220 | 0.15                   | DB        | 6                        | 14.5   | 26     | 22.5             | 12           | F611DB154(1)630(4) |
| 630 | 220 | 0.18                   | DB        | 6                        | 14.5   | 26     | 22.5             | 12           | F611DB184(1)630(4) |
| 630 | 220 | 0.22                   | DB        | 6                        | 14.5   | 26     | 22.5             | 12           | F611DB224(1)630(4) |
| 630 | 220 | 0.27                   | DI        | 7                        | 16     | 26     | 22.5             | 12           | F611DI274(1)630(4) |
| 630 | 220 | 0.33                   | DI        | 7                        | 16     | 26     | 22.5             | 12           | F611DI334(1)630(4) |
| 630 | 220 | 0.39                   | DH        | 8                        | 16     | 26     | 22.5             | 12           | F611DH394(1)630(4) |
| 630 | 220 | 0.47                   | DJ        | 8.5                      | 17     | 26     | 22.5             | 12           | F611DJ474(1)630(4) |
| 630 | 220 | 0.56                   | DM        | 9                        | 18.5   | 26     | 22.5             | 12           | F611DM564(1)630(4) |
| 630 | 220 | 0.68                   | DO        | 10                       | 18.5   | 26     | 22.5             | 12           | F611DO684(1)630(4) |
| 630 | 220 | 0.82                   | DP        | 11                       | 20     | 26     | 22.5             | 12           | F611DP824(1)630(4) |
| 630 | 220 | 1                      | DU        | 13                       | 22     | 26     | 22.5             | 12           | F611DU105(1)630(4) |
| 630 | 220 | 1.2                    | DY        | 15.5                     | 24.5   | 26     | 22.5             | 12           | F611DY125(1)630(4) |
| 630 | 220 | 1.5                    | DY        | 15.5                     | 24.5   | 26     | 22.5             | 12           | F611DY155(1)630(4) |
| 630 | 220 | 0.33                   | FB        | 9                        | 17     | 31.5   | 27.5             | 10           | F611FB334(1)630(4) |
| 630 | 220 | 0.39                   | FB        | 9                        | 17     | 31.5   | 27.5             | 10           | F611FB394(1)630(4) |
| 630 | 220 | 0.47                   | FB        | 9                        | 17     | 31.5   | 27.5             | 10           | F611FB474(1)630(4) |
| VDC | VAC | Capacitance Value (μF) | Size Code | B (mm)                   | H (mm) | L (mm) | Lead Spacing (p) | dV/dt (V/μs) | Part Number        |

(1) K= ±10%, M = ±20%; J = ±5% on request

(2) K= ±10%, M = ±20%; J = ±5% not available

(3) M = ±20% (only available tolerance).

(4) Insert lead and packaging code. See Ordering Options Table for available options.

Table 1 – Ratings &amp; Part Number Reference cont'd

| VDC  | VAC | Capacitance Value (μF) | Size Code | Maximum Dimensions in mm |        |        | Lead Spacing (p) | dV/dt (V/μs) | Part Number        |
|------|-----|------------------------|-----------|--------------------------|--------|--------|------------------|--------------|--------------------|
|      |     |                        |           | B                        | H      | L      |                  |              |                    |
| 630  | 220 | 0.56                   | FB        | 9                        | 17     | 31.5   | 27.5             | 10           | F611FB564(1)630(4) |
| 630  | 220 | 0.68                   | FB        | 9                        | 17     | 31.5   | 27.5             | 10           | F611FB684(2)630(4) |
| 630  | 220 | 0.82                   | FC        | 11                       | 20     | 31.5   | 27.5             | 10           | F611FC824(1)630(4) |
| 630  | 220 | 1                      | FC        | 11                       | 20     | 31.5   | 27.5             | 10           | F611FC105(2)630(4) |
| 630  | 220 | 1.2                    | FI        | 13                       | 25     | 31.5   | 27.5             | 10           | F611FI125(1)630(4) |
| 630  | 220 | 1.5                    | FI        | 13                       | 25     | 31.5   | 27.5             | 10           | F611FI155(2)630(4) |
| 630  | 220 | 1.8                    | FI        | 13                       | 25     | 31.5   | 27.5             | 10           | F611FI185(3)630(4) |
| 630  | 220 | 2.2                    | FN        | 14                       | 28     | 31.5   | 27.5             | 10           | F611FN225(3)630(4) |
| 630  | 220 | 2.2                    | FR        | 17.5                     | 28     | 31.5   | 27.5             | 10           | F611FR225(1)630(4) |
| 630  | 220 | 2.7                    | FR        | 17.5                     | 28     | 31.5   | 27.5             | 10           | F611FR275(3)630(4) |
| 630  | 220 | 3.3                    | FY        | 19                       | 29     | 31.5   | 27.5             | 10           | F611FY335(2)630(4) |
| 630  | 220 | 3.9                    | FY        | 22                       | 37     | 31.5   | 27.5             | 10           | F611FY395(1)630(4) |
| 630  | 220 | 4.7                    | FY        | 22                       | 37     | 31.5   | 27.5             | 10           | F611FY475(3)630(4) |
| 630  | 220 | 0.82                   | RB        | 11                       | 22     | 41     | 37.5             | 8            | F611RB824(1)630(4) |
| 630  | 220 | 1                      | RB        | 11                       | 22     | 41     | 37.5             | 8            | F611RB105(1)630(4) |
| 630  | 220 | 1.2                    | RB        | 11                       | 22     | 41     | 37.5             | 8            | F611RB125(1)630(4) |
| 630  | 220 | 1.5                    | RB        | 11                       | 22     | 41     | 37.5             | 8            | F611RB155(1)630(4) |
| 630  | 220 | 1.8                    | RB        | 11                       | 22     | 41     | 37.5             | 8            | F611RB185(3)630(4) |
| 630  | 220 | 2.2                    | RF        | 13                       | 24     | 41     | 37.5             | 8            | F611RF225(1)630(4) |
| 630  | 220 | 2.7                    | RH        | 15                       | 26     | 41     | 37.5             | 8            | F611RH275(1)630(4) |
| 630  | 220 | 3.3                    | RC        | 16                       | 28.5   | 41     | 37.5             | 8            | F611RC335(1)630(4) |
| 630  | 220 | 3.9                    | RD        | 19                       | 32     | 41     | 37.5             | 8            | F611RD395(1)630(4) |
| 630  | 220 | 4.7                    | RD        | 19                       | 32     | 41     | 37.5             | 8            | F611RD475(2)630(4) |
| 630  | 220 | 5.6                    | RP        | 21                       | 38     | 41     | 37.5             | 8            | F611RP565(1)630(4) |
| 630  | 220 | 6.8                    | RP        | 21                       | 38     | 41     | 37.5             | 8            | F611RP685(2)630(4) |
| 630  | 220 | 8.2                    | RO        | 24                       | 44     | 41     | 37.5             | 8            | F611RO825(1)630(4) |
| 630  | 220 | 10                     | RO        | 24                       | 44     | 41     | 37.5             | 8            | F611RO106(3)630(4) |
| 630  | 220 | 12                     | RU        | 30                       | 45     | 41     | 37.5             | 8            | F611RU126(3)630(4) |
| 1000 | 250 | 0.001                  | JF        | 2.5                      | 6.5    | 7.2    | 5.0              | 100          | F611JF102(1)1K0(4) |
| 1000 | 250 | 0.0012                 | JG        | 3.5                      | 7.5    | 7.2    | 5.0              | 100          | F611JG122(1)1K0(4) |
| 1000 | 250 | 0.0015                 | JG        | 3.5                      | 7.5    | 7.2    | 5.0              | 100          | F611JG152(1)1K0(4) |
| 1000 | 250 | 0.0018                 | JG        | 3.5                      | 7.5    | 7.2    | 5.0              | 100          | F611JG182(1)1K0(4) |
| 1000 | 250 | 0.0022                 | JG        | 3.5                      | 7.5    | 7.2    | 5.0              | 100          | F611JG222(1)1K0(4) |
| 1000 | 250 | 0.0027                 | JG        | 3.5                      | 7.5    | 7.2    | 5.0              | 100          | F611JG272(1)1K0(4) |
| 1000 | 250 | 0.0033                 | JG        | 3.5                      | 7.5    | 7.2    | 5.0              | 100          | F611JG332(1)1K0(4) |
| 1000 | 250 | 0.0039                 | JM        | 4.5                      | 9.5    | 7.2    | 5.0              | 100          | F611JM392(1)1K0(4) |
| 1000 | 250 | 0.0047                 | JM        | 4.5                      | 9.5    | 7.2    | 5.0              | 100          | F611JM472(1)1K0(4) |
| 1000 | 250 | 0.0056                 | JM        | 4.5                      | 9.5    | 7.2    | 5.0              | 100          | F611JM562(1)1K0(4) |
| 1000 | 250 | 0.0068                 | JQ        | 5                        | 10     | 7.2    | 5.0              | 100          | F611JQ682(1)1K0(4) |
| 1000 | 250 | 0.0082                 | JT        | 6                        | 11     | 7.2    | 5.0              | 100          | F611JT822(1)1K0(4) |
| 1000 | 250 | 0.01                   | JT        | 6                        | 11     | 7.2    | 5.0              | 100          | F611JT103(1)1K0(4) |
| 1000 | 250 | 0.012                  | JT        | 6                        | 11     | 7.2    | 5.0              | 100          | F611JT123(1)1K0(4) |
| 1000 | 250 | 0.015                  | JU        | 7.2                      | 13     | 7.2    | 5.0              | 100          | F611JU153(1)1K0(4) |
| 1000 | 250 | 0.001                  | KE        | 2.5                      | 6      | 10     | 7.5              | 80           | F611KE102(1)1K0(4) |
| 1000 | 250 | 0.0012                 | KE        | 2.5                      | 6      | 10     | 7.5              | 80           | F611KE122(1)1K0(4) |
| 1000 | 250 | 0.0015                 | KE        | 2.5                      | 6      | 10     | 7.5              | 80           | F611KE152(1)1K0(4) |
| 1000 | 250 | 0.0018                 | KF        | 3                        | 8      | 10     | 7.5              | 80           | F611KF182(1)1K0(4) |
| 1000 | 250 | 0.0022                 | KF        | 3                        | 8      | 10     | 7.5              | 80           | F611KF222(1)1K0(4) |
| 1000 | 250 | 0.0027                 | KF        | 3                        | 8      | 10     | 7.5              | 80           | F611KF272(1)1K0(4) |
| 1000 | 250 | 0.0033                 | KF        | 3                        | 8      | 10     | 7.5              | 80           | F611KF332(1)1K0(4) |
| 1000 | 250 | 0.0039                 | KG        | 4                        | 8      | 10     | 7.5              | 80           | F611KG392(1)1K0(4) |
| 1000 | 250 | 0.0047                 | KG        | 4                        | 8      | 10     | 7.5              | 80           | F611KG472(1)1K0(4) |
| 1000 | 250 | 0.0056                 | KG        | 4                        | 8      | 10     | 7.5              | 80           | F611KG562(1)1K0(4) |
| 1000 | 250 | 0.0068                 | KG        | 4                        | 8      | 10     | 7.5              | 80           | F611KG682(1)1K0(4) |
| 1000 | 250 | 0.0082                 | KJ        | 5                        | 10.5   | 10     | 7.5              | 80           | F611KJ822(1)1K0(4) |
| 1000 | 250 | 0.01                   | KJ        | 5                        | 10.5   | 10     | 7.5              | 80           | F611KJ103(1)1K0(4) |
| 1000 | 250 | 0.012                  | KJ        | 5                        | 10.5   | 10     | 7.5              | 80           | F611KJ123(1)1K0(4) |
| VDC  | VAC | Capacitance Value (μF) | Size Code | B (mm)                   | H (mm) | L (mm) | Lead Spacing (p) | dV/dt (V/μs) | Part Number        |

(1) K= ±10%, M = ±20%; J = ±5% on request

(2) K= ±10%, M = ±20%; J = ±5% not available

(3) M = ±20% (only available tolerance).

(4) Insert lead and packaging code. See Ordering Options Table for available options.

Table 1 – Ratings &amp; Part Number Reference cont'd

| VDC  | VAC | Capacitance Value (μF) | Size Code | Maximum Dimensions in mm |        |        | Lead Spacing (p) | dV/dt (V/μs) | Part Number        |
|------|-----|------------------------|-----------|--------------------------|--------|--------|------------------|--------------|--------------------|
|      |     |                        |           | B                        | H      | L      |                  |              |                    |
| 1000 | 250 | 0.015                  | KM        | 6                        | 12     | 10.5   | 7.5              | 80           | F611KM153(1)1K0(4) |
| 1000 | 250 | 0.018                  | KM        | 6                        | 12     | 10.5   | 7.5              | 80           | F611KM183(1)1K0(4) |
| 1000 | 250 | 0.022                  | KM        | 6                        | 12     | 10.5   | 7.5              | 80           | F611KM223(1)1K0(4) |
| 1000 | 250 | 0.001                  | AG        | 4                        | 9      | 13     | 10.0             | 60           | F611AG102(1)1K0(4) |
| 1000 | 250 | 0.0012                 | AG        | 4                        | 9      | 13     | 10.0             | 60           | F611AG122(1)1K0(4) |
| 1000 | 250 | 0.0015                 | AG        | 4                        | 9      | 13     | 10.0             | 60           | F611AG152(1)1K0(4) |
| 1000 | 250 | 0.0018                 | AG        | 4                        | 9      | 13     | 10.0             | 60           | F611AG182(1)1K0(4) |
| 1000 | 250 | 0.0022                 | AG        | 4                        | 9      | 13     | 10.0             | 60           | F611AG222(1)1K0(4) |
| 1000 | 250 | 0.0027                 | AG        | 4                        | 9      | 13     | 10.0             | 60           | F611AG272(1)1K0(4) |
| 1000 | 250 | 0.0033                 | AG        | 4                        | 9      | 13     | 10.0             | 60           | F611AG332(1)1K0(4) |
| 1000 | 250 | 0.0039                 | AG        | 4                        | 9      | 13     | 10.0             | 60           | F611AG392(1)1K0(4) |
| 1000 | 250 | 0.0047                 | AG        | 4                        | 9      | 13     | 10.0             | 60           | F611AG472(1)1K0(4) |
| 1000 | 250 | 0.0056                 | AG        | 4                        | 9      | 13     | 10.0             | 60           | F611AG562(1)1K0(4) |
| 1000 | 250 | 0.0068                 | AG        | 4                        | 9      | 13     | 10.0             | 60           | F611AG682(1)1K0(4) |
| 1000 | 250 | 0.0082                 | AG        | 4                        | 9      | 13     | 10.0             | 60           | F611AG822(1)1K0(4) |
| 1000 | 250 | 0.01                   | AG        | 4                        | 9      | 13     | 10.0             | 60           | F611AG103(1)1K0(4) |
| 1000 | 250 | 0.012                  | AG        | 4                        | 9      | 13     | 10.0             | 60           | F611AG123(1)1K0(4) |
| 1000 | 250 | 0.015                  | AK        | 5                        | 11     | 13     | 10.0             | 60           | F611AK153(1)1K0(4) |
| 1000 | 250 | 0.018                  | AK        | 5                        | 11     | 13     | 10.0             | 60           | F611AK183(1)1K0(4) |
| 1000 | 250 | 0.022                  | AP        | 6                        | 12     | 13     | 10.0             | 60           | F611AP223(1)1K0(4) |
| 1000 | 250 | 0.027                  | AP        | 6                        | 12     | 13     | 10.0             | 60           | F611AP273(1)1K0(4) |
| 1000 | 250 | 0.033                  | AP        | 6                        | 12     | 13     | 10.0             | 60           | F611AP333(1)1K0(4) |
| 1000 | 250 | 0.0082                 | BB        | 4                        | 10     | 18     | 15.0             | 30           | F611BB822(1)1K0(4) |
| 1000 | 250 | 0.01                   | BB        | 4                        | 10     | 18     | 15.0             | 30           | F611BB103(1)1K0(4) |
| 1000 | 250 | 0.012                  | BB        | 4                        | 10     | 18     | 15.0             | 30           | F611BB123(1)1K0(4) |
| 1000 | 250 | 0.015                  | BB        | 4                        | 10     | 18     | 15.0             | 30           | F611BB153(1)1K0(4) |
| 1000 | 250 | 0.018                  | BB        | 4                        | 10     | 18     | 15.0             | 30           | F611BB183(1)1K0(4) |
| 1000 | 250 | 0.022                  | BC        | 5                        | 11     | 18     | 15.0             | 30           | F611BC223(1)1K0(4) |
| 1000 | 250 | 0.027                  | BC        | 5                        | 11     | 18     | 15.0             | 30           | F611BC273(1)1K0(4) |
| 1000 | 250 | 0.033                  | BC        | 5                        | 11     | 18     | 15.0             | 30           | F611BC333(1)1K0(4) |
| 1000 | 250 | 0.039                  | BE        | 5.5                      | 12.5   | 18     | 15.0             | 30           | F611BE393(1)1K0(4) |
| 1000 | 250 | 0.047                  | BG        | 6                        | 12     | 18     | 15.0             | 30           | F611BG473(1)1K0(4) |
| 1000 | 250 | 0.056                  | BK        | 7.5                      | 13.5   | 18     | 15.0             | 30           | F611BK563(1)1K0(4) |
| 1000 | 250 | 0.068                  | BK        | 7.5                      | 13.5   | 18     | 15.0             | 30           | F611BK683(1)1K0(4) |
| 1000 | 250 | 0.082                  | BP        | 8.5                      | 14.5   | 18     | 15.0             | 30           | F611BP823(1)1K0(4) |
| 1000 | 250 | 0.1                    | BP        | 8.5                      | 14.5   | 18     | 15.0             | 30           | F611BP104(1)1K0(4) |
| 1000 | 250 | 0.12                   | BS        | 10                       | 16     | 18     | 15.0             | 30           | F611BS124(1)1K0(4) |
| 1000 | 250 | 0.15                   | BY        | 11                       | 19     | 18     | 15.0             | 30           | F611BY154(1)1K0(4) |
| 1000 | 250 | 0.18                   | BY        | 11                       | 19     | 18     | 15.0             | 30           | F611BY184(1)1K0(4) |
| 1000 | 250 | 0.033                  | DB        | 6                        | 14.5   | 26     | 22.5             | 15           | F611DB333(1)1K0(4) |
| 1000 | 250 | 0.039                  | DB        | 6                        | 14.5   | 26     | 22.5             | 15           | F611DB393(1)1K0(4) |
| 1000 | 250 | 0.047                  | DB        | 6                        | 14.5   | 26     | 22.5             | 15           | F611DB473(1)1K0(4) |
| 1000 | 250 | 0.056                  | DB        | 6                        | 14.5   | 26     | 22.5             | 15           | F611DB563(1)1K0(4) |
| 1000 | 250 | 0.068                  | DB        | 6                        | 14.5   | 26     | 22.5             | 15           | F611DB683(1)1K0(4) |
| 1000 | 250 | 0.082                  | DB        | 6                        | 14.5   | 26     | 22.5             | 15           | F611DB823(1)1K0(4) |
| 1000 | 250 | 0.1                    | DB        | 6                        | 14.5   | 26     | 22.5             | 15           | F611DB104(1)1K0(4) |
| 1000 | 250 | 0.12                   | DI        | 7                        | 16     | 26     | 22.5             | 15           | F611DI124(1)1K0(4) |
| 1000 | 250 | 0.15                   | DI        | 7                        | 16     | 26     | 22.5             | 15           | F611DI154(1)1K0(4) |
| 1000 | 250 | 0.18                   | DH        | 8                        | 16     | 26     | 22.5             | 15           | F611DH184(1)1K0(4) |
| 1000 | 250 | 0.22                   | DM        | 9                        | 18.5   | 26     | 22.5             | 15           | F611DM224(1)1K0(4) |
| 1000 | 250 | 0.27                   | DO        | 10                       | 18.5   | 26     | 22.5             | 15           | F611DO274(1)1K0(4) |
| 1000 | 250 | 0.33                   | DP        | 11                       | 20     | 26     | 22.5             | 15           | F611DP334(1)1K0(4) |
| 1000 | 250 | 0.39                   | DU        | 13                       | 22     | 26     | 22.5             | 15           | F611DU394(1)1K0(4) |
| 1000 | 250 | 0.47                   | DU        | 13                       | 22     | 26     | 22.5             | 15           | F611DU474(1)1K0(4) |
| 1000 | 250 | 0.56                   | DY        | 15.5                     | 24.5   | 26     | 22.5             | 15           | F611DY564(1)1K0(4) |
| 1000 | 250 | 0.68                   | DY        | 15.5                     | 24.5   | 26     | 22.5             | 15           | F611DY684(1)1K0(4) |
| 1000 | 250 | 0.15                   | FB        | 9                        | 17     | 31.5   | 27.5             | 12           | F611FB154(1)1K0(4) |
| VDC  | VAC | Capacitance Value (μF) | Size Code | B (mm)                   | H (mm) | L (mm) | Lead Spacing (p) | dV/dt (V/μs) | Part Number        |

(1) K = ±10%, M = ±20%; J = ±5% on request

(2) K = ±10%, M = ±20%; J = ±5% not available

(3) M = ±20% (only available tolerance).

(4) Insert lead and packaging code. See Ordering Options Table for available options.

**Table 1 – Ratings & Part Number Reference cont'd**

| VDC  | VAC | Capacitance Value (μF) | Size Code | Maximum Dimensions in mm |        |        | Lead Spacing (p) | dV/dt (V/μs) | Part Number        |
|------|-----|------------------------|-----------|--------------------------|--------|--------|------------------|--------------|--------------------|
|      |     |                        |           | B                        | H      | L      |                  |              |                    |
| 1000 | 250 | 0.18                   | FB        | 9                        | 17     | 31.5   | 27.5             | 12           | F611FB184(1)1K0(4) |
| 1000 | 250 | 0.22                   | FB        | 9                        | 17     | 31.5   | 27.5             | 12           | F611FB224(1)1K0(4) |
| 1000 | 250 | 0.27                   | FB        | 9                        | 17     | 31.5   | 27.5             | 12           | F611FB274(1)1K0(4) |
| 1000 | 250 | 0.33                   | FB        | 9                        | 17     | 31.5   | 27.5             | 12           | F611FB334(3)1K0(4) |
| 1000 | 250 | 0.39                   | FC        | 11                       | 20     | 31.5   | 27.5             | 12           | F611FC394(1)1K0(4) |
| 1000 | 250 | 0.47                   | FC        | 11                       | 20     | 31.5   | 27.5             | 12           | F611FC474(2)1K0(4) |
| 1000 | 250 | 0.56                   | FI        | 13                       | 25     | 31.5   | 27.5             | 12           | F611FI564(1)1K0(4) |
| 1000 | 250 | 0.68                   | FI        | 13                       | 25     | 31.5   | 27.5             | 12           | F611FI684(2)1K0(4) |
| 1000 | 250 | 0.82                   | FN        | 14                       | 28     | 31.5   | 27.5             | 12           | F611FN824(2)1K0(4) |
| 1000 | 250 | 1                      | FR        | 17.5                     | 28     | 31.5   | 27.5             | 12           | F611FR105(1)1K0(4) |
| 1000 | 250 | 1.2                    | FR        | 17.5                     | 28     | 31.5   | 27.5             | 12           | F611FR125(3)1K0(4) |
| 1000 | 250 | 1.5                    | FS        | 19                       | 29     | 31.5   | 27.5             | 12           | F611FS155(3)1K0(4) |
| 1000 | 250 | 1.8                    | FY        | 22                       | 37     | 31.5   | 27.5             | 12           | F611FY185(1)1K0(4) |
| 1000 | 250 | 2.2                    | FY        | 22                       | 37     | 31.5   | 27.5             | 12           | F611FY225(3)1K0(4) |
| 1000 | 250 | 0.47                   | RB        | 11                       | 22     | 41     | 37.5             | 10           | F611RB474(1)1K0(4) |
| 1000 | 250 | 0.56                   | RB        | 11                       | 22     | 41     | 37.5             | 10           | F611RB564(1)1K0(4) |
| 1000 | 250 | 0.68                   | RB        | 11                       | 22     | 41     | 37.5             | 10           | F611RB684(1)1K0(4) |
| 1000 | 250 | 0.82                   | RF        | 13                       | 24     | 41     | 37.5             | 10           | F611RF824(1)1K0(4) |
| 1000 | 250 | 1                      | RF        | 13                       | 24     | 41     | 37.5             | 10           | F611RF105(2)1K0(4) |
| 1000 | 250 | 1.2                    | RH        | 15                       | 26     | 41     | 37.5             | 10           | F611RH125(1)1K0(4) |
| 1000 | 250 | 1.5                    | RC        | 16                       | 28.5   | 41     | 37.5             | 10           | F611RC155(2)1K0(4) |
| 1000 | 250 | 1.8                    | RD        | 19                       | 32     | 41     | 37.5             | 10           | F611RD185(1)1K0(4) |
| 1000 | 250 | 2.2                    | RD        | 19                       | 32     | 41     | 37.5             | 10           | F611RD225(3)1K0(4) |
| 1000 | 250 | 2.7                    | RP        | 21                       | 38     | 41     | 37.5             | 10           | F611RP275(2)1K0(4) |
| 1000 | 250 | 3.3                    | RO        | 24                       | 44     | 41     | 37.5             | 10           | F611RO335(1)1K0(4) |
| 1000 | 250 | 3.9                    | RO        | 24                       | 44     | 41     | 37.5             | 10           | F611RO395(2)1K0(4) |
| 1000 | 250 | 4.7                    | RU        | 30                       | 45     | 41     | 37.5             | 10           | F611RU475(1)1K0(4) |
| 1000 | 250 | 5.6                    | RU        | 30                       | 45     | 41     | 37.5             | 10           | F611RU565(3)1K0(4) |
| VDC  | VAC | Capacitance Value (μF) | Size Code | B (mm)                   | H (mm) | L (mm) | Lead Spacing (p) | dV/dt (V/μs) | Part Number        |

(1) K= ±10%, M = ±20%; J = ±5% on request

(2) K= ±10%, M = ±20%; J = ±5% not available

(3) M = ±20% (only available tolerance).

(4) Insert lead and packaging code. See Ordering Options Table for available options.

## Soldering Process

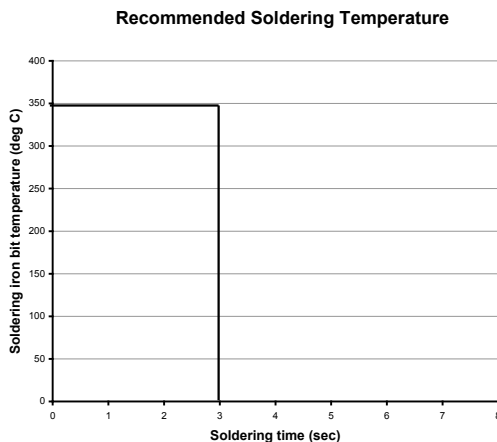
The implementation of the RoHS directive has resulted in the selection of SnAgCu (SAC) alloys or SnCu alloys as primary solder. This has increased the liquidus temperature from that of 183°C for SnPb eutectic alloy to 217 – 221°C for the new alloys. As a result, the heat stress to the components, even in wave soldering, has increased considerably due to higher pre-heat and wave temperatures. Polypropylene capacitors are especially sensitive to heat (the melting point of polypropylene is 160 – 170°C). Wave soldering can be destructive, especially for mechanically small polypropylene capacitors (with lead spacing of 5 mm to 15 mm), and great care has to be taken during soldering. The recommended solder profiles from KEMET should be used. Please consult KEMET with any questions. In general, the wave soldering curve from IEC Publication 61760-1 Edition 2 serves as a solid guideline for successful soldering. Please see Figure 1.

Reflow soldering is not recommended for through-hole film capacitors. Exposing capacitors to a soldering profile in excess of the above the recommended limits may result to degradation or permanent damage to the capacitors.

Do not place the polypropylene capacitor through an adhesive curing oven to cure resin for surface mount components. Insert through-hole parts after the curing of surface mount parts. Consult KEMET to discuss the actual temperature profile in the oven, if through-hole components must pass through the adhesive curing process. A maximum two soldering cycles is recommended. Please allow time for the capacitor surface temperature to return to a normal temperature before the second soldering cycle.

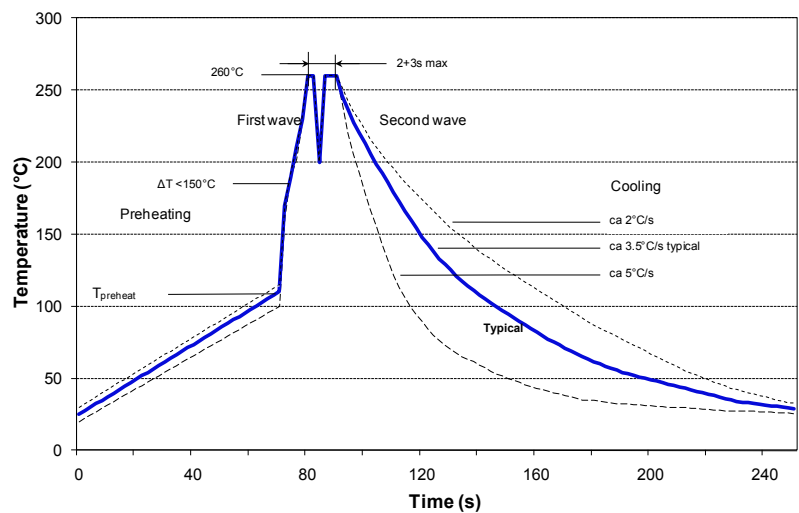
### Manual Soldering Recommendations

Following is the recommendation for manual soldering with a soldering iron.



The soldering iron tip temperature should be set at 350°C (+10°C maximum) with the soldering duration not to exceed more than 3 seconds.

### Wave Soldering Recommendations



## Soldering Process cont'd

### Wave Soldering Recommendations cont'd

1. The table indicates the maximum set-up temperature of the soldering process

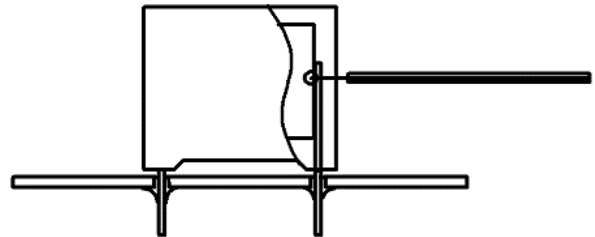
Figure 1

| Dielectric Film Material | Maximum Preheat Temperature |                         |                         | Maximum Peak Soldering Temperature |                         |
|--------------------------|-----------------------------|-------------------------|-------------------------|------------------------------------|-------------------------|
|                          | Capacitor Pitch ≤ 10 mm     | Capacitor Pitch = 15 mm | Capacitor Pitch > 15 mm | Capacitor Pitch ≤ 15 mm            | Capacitor Pitch > 15 mm |
| Polyester                | 130°C                       | 130°C                   | 130°C                   | 270°C                              | 270°C                   |
| Polypropylene            | 100°C                       | 110°C                   | 130°C                   | 260°C                              | 270°C                   |
| Paper                    | 130°C                       | 130°C                   | 140°C                   | 270°C                              | 270°C                   |
| Polyphenylene Sulphide   | 150°C                       | 150°C                   | 160°C                   | 270°C                              | 270°C                   |

2. The maximum temperature measured inside the capacitor:

Set the temperature so that inside the element the maximum temperature is below the limit:

| Dielectric Film Material | Maximum temperature measured inside the element |
|--------------------------|-------------------------------------------------|
| Polyester                | 160°C                                           |
| Polypropylene            | 110°C                                           |
| Paper                    | 160°C                                           |
| Polyphenylene sulphide   | 160°C                                           |



*Temperature monitored inside the capacitor.*

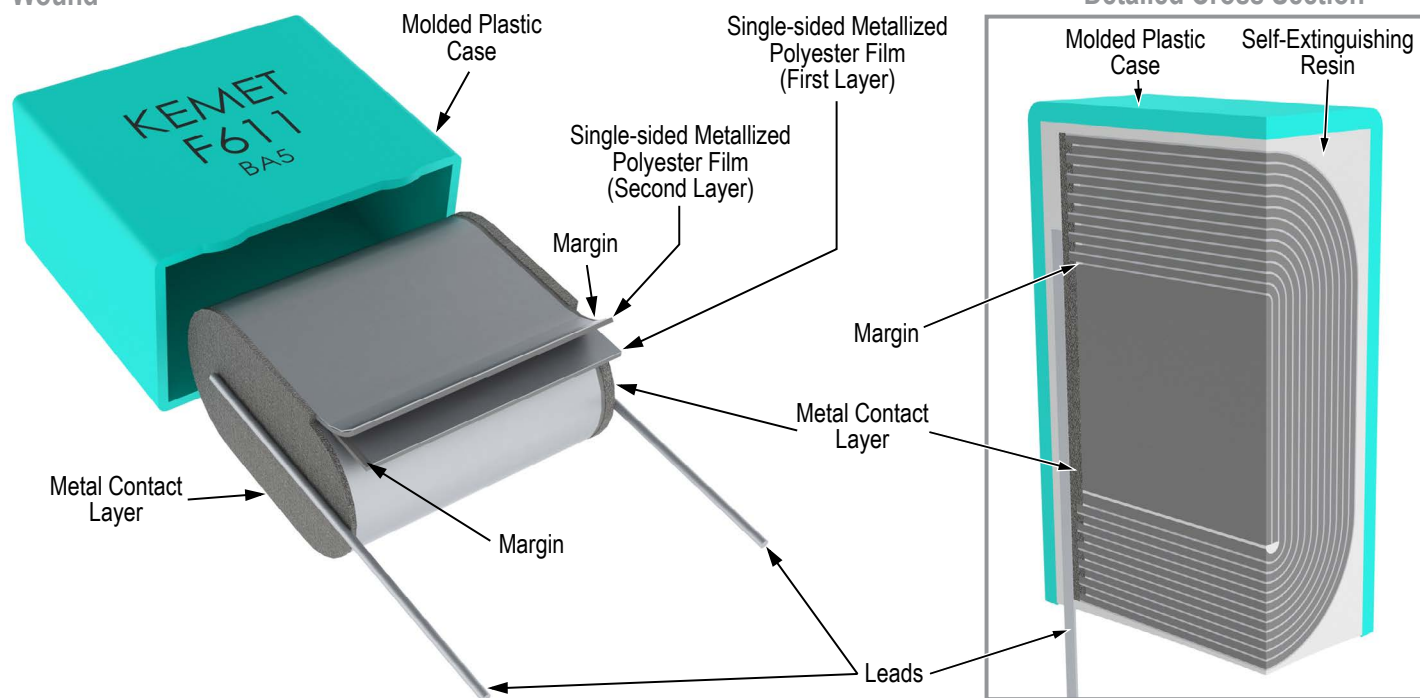
### Selective Soldering Recommendations

Selective dip soldering is a variation of reflow soldering. In this method, the printed circuit board with through-hole components to be soldered is preheated and transported over the solder bath as in normal flow soldering without touching the solder. When the board is over the bath, it is stopped and pre-designed solder pots are lifted from the bath with molten solder only at the places of the selected components, and pressed against the lower surface of the board to solder the components.

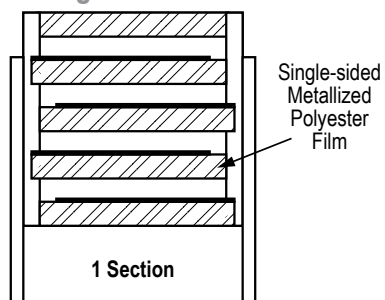
The temperature profile for selective soldering is similar to the double wave flow soldering outlined in this document, **however, instead of two baths, there is only one bath with a time from 3 to 10 seconds.** In selective soldering, the risk of overheating is greater than in double wave flow soldering, and great care must be taken so that the parts are not overheated.

## Construction

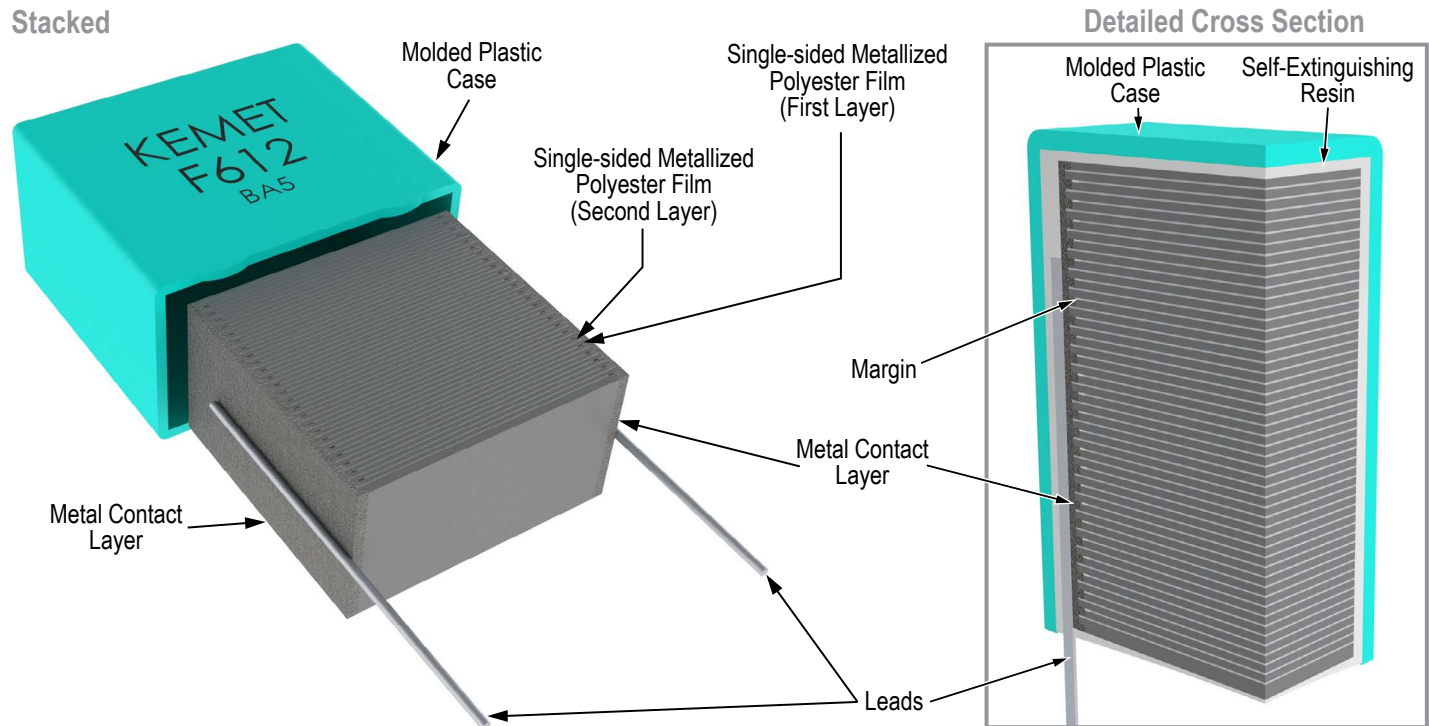
### Wound



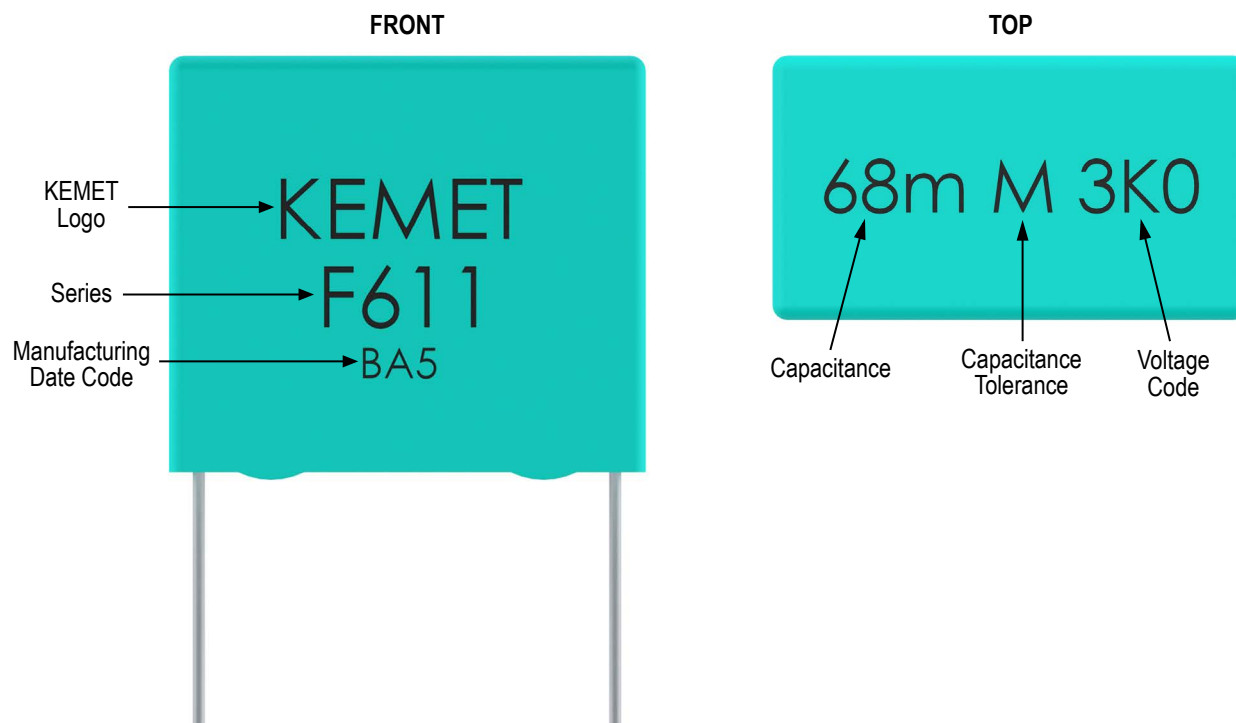
### Winding Scheme



## Construction cont'd



## Marking



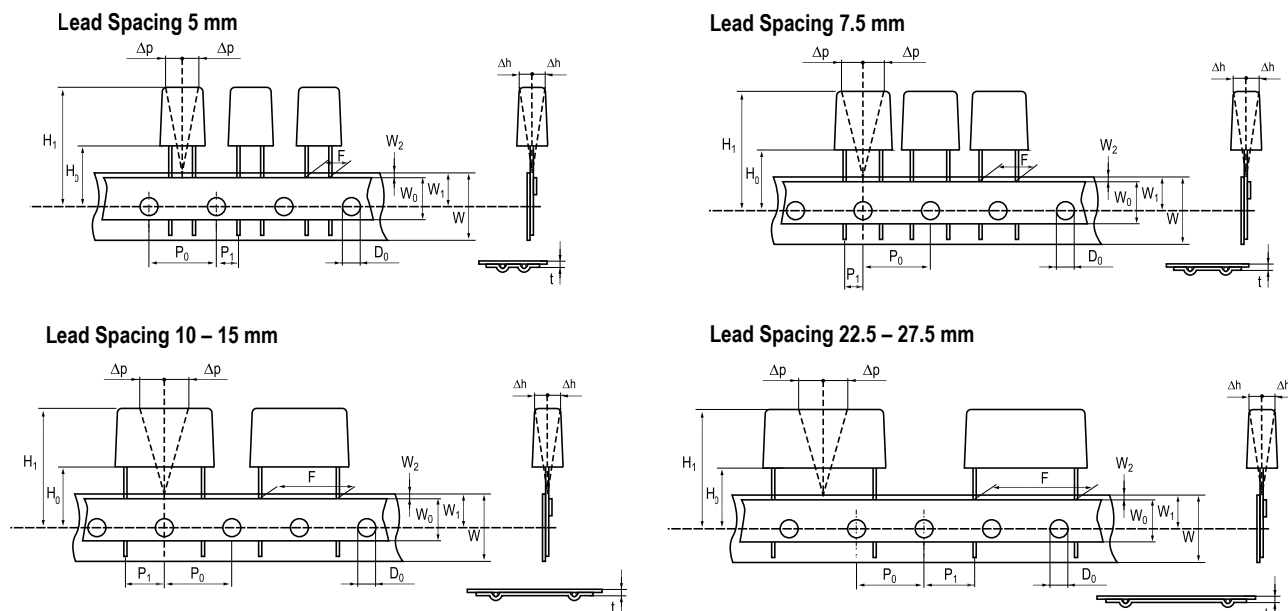
## Packaging Quantities

| Size Code | Lead Spacing | Thickness (mm) | Height (mm) | Length (mm) | Bulk Short Leads | Bulk Long Leads | Standard Reel<br>ø 355 mm | Large Reel<br>ø 500 mm | Ammo | Pizza |
|-----------|--------------|----------------|-------------|-------------|------------------|-----------------|---------------------------|------------------------|------|-------|
| JF        | 5            | 2.5            | 6.5         | 7.2         | 3000             | 4000            | 2500                      |                        | 3500 |       |
| JG        |              | 3.5            | 7.5         | 7.2         | 2000             | 3000            | 1800                      |                        | 2500 |       |
| JM        |              | 4.5            | 9.5         | 7.2         | 1500             | 2000            | 1400                      |                        | 1900 |       |
| JQ        |              | 5.0            | 10.0        | 7.2         | 1000             | 1500            | 1200                      |                        | 1700 |       |
| JT        |              | 6              | 11          | 7.2         | 2000             | 1000            | 1000                      |                        | 1400 |       |
| JU        |              | 7.2            | 13          | 7.2         | 1500             | 750             | 800                       |                        | 1150 |       |
| KE        | 7.5          | 2.5            | 6           | 10          | 2000             | 3000            | 2500                      |                        | 3500 |       |
| KF        |              | 3              | 8           | 10          | 1500             | 1750            | 2100                      |                        | 2800 |       |
| KG        |              | 4              | 8           | 10          | 2000             | 1500            | 1500                      |                        | 2100 |       |
| KJ        |              | 5              | 10.5        | 10          | 1500             | 1000            | 1200                      |                        | 1600 |       |
| KM        |              | 6              | 12          | 10.5        | 1000             | 800             | 1000                      |                        | 1350 |       |
| KH        |              | 4              | 9           | 10          | 2000             | 1500            | 1500                      |                        | 2100 |       |
| AN        | 10           | 3.5            | 9           | 13          | 2200             | 3200            | 850                       | 1700                   | 1150 |       |
| AG        |              | 4              | 9           | 13          | 2000             | 2200            | 750                       | 1500                   | 1000 |       |
| AK        |              | 5              | 11          | 13          | 1300             | 2000            | 600                       | 1250                   | 800  |       |
| AP        |              | 6              | 12          | 13          | 1000             | 1800            | 500                       | 1000                   | 680  |       |
| AO        |              | 7              | 17          | 13          | 600              | 900             | 450                       | 900                    | 580  |       |
| AL        |              | 9.5            | 7.5         | 13          | 1100             | 2000            | 300                       | 600                    | 430  |       |
| AE        |              | 4              | 8           | 13          | 2000             | 2200            | 750                       | 1500                   | 1000 |       |
| BB        | 15           | 4              | 10          | 18          | 1300             | 1500            | 750                       | 1500                   | 1000 | 1411  |
| BC        |              | 5              | 11          | 18          | 1000             | 1250            | 600                       | 1250                   | 800  | 1139  |
| BE        |              | 5.5            | 12.5        | 18          | 800              | 1100            | 550                       | 1100                   | 750  | 1020  |
| BG        |              | 6              | 12          | 18          | 1750             | 1000            | 500                       | 1000                   | 680  | 935   |
| BK        |              | 7.5            | 13.5        | 18          | 1000             | 800             | 350                       | 800                    | 500  | 748   |
| BI        |              | 6              | 17.5        | 18          | 1000             | 800             | 500                       | 1000                   | 680  | 935   |
| BP        |              | 8.5            | 14.5        | 18          | 1000             | 650             | 300                       | 700                    | 440  | 663   |
| BT        |              | 9              | 12.5        | 18          | 1000             | 700             | 270                       | 650                    | 410  | 629   |
| BO        |              | 7.5            | 18.5        | 18          | 900              | 600             | 350                       | 800                    | 500  | 748   |
| BS        |              | 10             | 16          | 18          | 750              | 550             | 300                       | 600                    | 380  | 561   |
| BR        |              | 13             | 12          | 18          | 750              | 520             | 200                       | 480                    | 280  | 425   |
| BY        |              | 11             | 19          | 18          | 450              | 400             | 250                       | 500                    | 340  | 510   |
| BA        |              | 8.5            | 12.5        | 18          | 1000             | 650             | 300                       | 700                    | 440  | 663   |
| BZ        |              | 12             | 20          | 18          | 350              | 300             | 220                       | 450                    | 330  | 459   |

## Packaging Quantities cont'd

| Size Code | Lead Spacing | Thickness (mm) | Height (mm) | Length (mm) | Bulk Short Leads | Bulk Long Leads | Standard Reel<br>ø 355 mm | Large Reel<br>ø 500 mm | Ammo | Pizza |
|-----------|--------------|----------------|-------------|-------------|------------------|-----------------|---------------------------|------------------------|------|-------|
| DB        | 22.5         | 6              | 14.5        | 26          | 1638             | 702             | 300                       | 700                    | 464  | 660   |
| DI        |              | 7              | 16          | 26          | 1188             | 594             | 250                       | 550                    | 380  | 564   |
| DH        |              | 8.0            | 16.0        | 26          | 1026             | 513             | 240                       | 500                    | 330  | 492   |
| DJ        |              | 8.5            | 17          | 26          | 972              | 486             | 250                       | 450                    | 280  | 468   |
| DM        |              | 9              | 18.5        | 26          | 918              | 459             | 200                       | 400                    | 300  | 444   |
| DO        |              | 10             | 18.5        | 26          | 810              | 405             | 160                       | 350                    | 235  | 396   |
| DP        |              | 11             | 20          | 26          | 756              | 378             | 190                       | 350                    | 217  | 360   |
| DU        |              | 13             | 22          | 26          | 540              | 324             | 150                       | 300                    | 200  | 300   |
| DY        |              | 15.5           | 24.5        | 26          | 450              | 270             | 120                       | 250                    | 170  | 252   |
| FB        | 27.5         | 9.0            | 17.0        | 31.5        | 816              | 408             |                           |                        |      | 370   |
| FC        |              | 11.0           | 20.0        | 31.5        | 672              | 336             |                           |                        |      | 300   |
| FI        |              | 13.0           | 25.0        | 31.5        | 480              | 288             |                           |                        |      | 250   |
| FN        |              | 14.0           | 28.0        | 31.5        | 352              | 176             |                           |                        |      | 230   |
| FO        |              | 17.0           | 40.0        | 31.5        | 216              | 144             |                           |                        |      | 190   |
| FR        |              | 17.5           | 28.0        | 31.5        | 256              | 128             |                           |                        |      | 190   |
| FS        |              | 19.0           | 29.0        | 31.5        | 256              | 128             |                           |                        |      | 170   |
| FY        |              | 22.0           | 37.0        | 31.5        | 168              | 112             |                           |                        |      | 150   |
| FH        |              | 21.0           | 12.5        | 31.5        | 392              | 168             |                           |                        |      | 150   |
| FQ        |              | 27.5           | 16.0        | 31.5        | 280              | 120             |                           |                        |      | 120   |
| FT        |              | 31.0           | 19.0        | 31.5        | 240              | 120             |                           |                        |      | 100   |
| RB        | 37.5         | 11.0           | 22.0        | 41.0        | 420              | 252             |                           |                        |      | 210   |
| RF        |              | 13.0           | 24.0        | 41.0        | 360              | 216             |                           |                        |      | 175   |
| RH        |              | 15.0           | 26.0        | 41.0        | 300              | 180             |                           |                        |      | 154   |
| RC        |              | 16.0           | 28.5        | 41.0        | 216              | 108             |                           |                        |      | 140   |
| RD        |              | 19.0           | 32.0        | 41.0        | 192              | 96              |                           |                        |      | 119   |
| RP        |              | 21.0           | 38.0        | 41.0        | 126              | 84              |                           |                        |      | 105   |
| RO        |              | 24.0           | 44.0        | 41.0        | 108              | 72              |                           |                        |      | 91    |
| RU        |              | 30.0           | 45.0        | 41.0        | 90               | 60              |                           |                        |      | 77    |
| RV        |              | 24.0           | 15.0        | 41.0        | 252              | 108             |                           |                        |      | 91    |
| RW        |              | 24.0           | 19.0        | 41.0        | 216              | 108             |                           |                        |      | 91    |

## Lead Taping & Packaging (IEC 60286–2)



## Taping Specification

| Dimensions in mm          |                       |                               |                        |                        |                        |                        |                        |                        | Standard IEC 60286–2    |
|---------------------------|-----------------------|-------------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|-------------------------|
| Lead spacing              | +6/-0.1               | F                             | 5                      | 7.5                    | 10                     | 15                     | 22.5                   | 27.5                   | F                       |
| Carrier tape width        | +1/-0.5               | W                             | 18                     | 18                     | 18                     | 18                     | 18                     | 18                     | 18 <sup>+1/-0.5</sup>   |
| Hold-down tape width      | Minimum               | W <sub>0</sub>                | 6                      | 6                      | 9                      | 10                     | 10                     | 10                     |                         |
| Position of sprocket hole | +/-0.5                | W <sub>1</sub>                | 9                      | 9                      | 9                      | 9                      | 9                      | 9                      | 9 <sup>+0.75/-0.5</sup> |
| Distance between tapes    | Maximum               | W <sub>2</sub>                | 3                      | 3                      | 3                      | 3                      | 3                      | 3                      | 3                       |
| Sprocket hole diameter    | +/-0.2                | D <sub>0</sub>                | 4                      | 4                      | 4                      | 4                      | 4                      | 4                      | 4                       |
| Feed hole lead spacing    | +/-0.2 <sup>(1)</sup> | P <sub>0</sub> <sup>(3)</sup> | 12.7                   | 12.7                   | 12.7                   | 12.7                   | 12.7                   | 12.7                   | 12.7                    |
| Distance lead – feed hole | +/-0.7                | P <sub>1</sub>                | 3.85                   | 3.75                   | 7.7                    | 5.2                    | 7.8                    | 5.3                    | P <sup>1</sup>          |
| Deviation tape – plane    | Maximum               | Δp                            | 1.3                    | 1.3                    | 1.3                    | 1.3                    | 1.3                    | 1.3                    | 1.3                     |
| Lateral deviation         | +/-2                  | Δh                            | 2                      | 2                      | 2                      | 2                      | 2                      | 2                      | 2                       |
| Total thickness           | +/-0.2                | t                             | 0.7                    | 0.7                    | 0.7                    | 0.7                    | 0.9 <sup>MAX</sup>     | 0.9 <sup>MAX</sup>     | 0.9 <sup>MAX</sup>      |
| Sprocket hole/cap body    | +/-0.5                | H <sub>0</sub> <sup>(2)</sup> | 18.5 <sup>+/-0.5</sup> | 18.5 <sup>+/-0.5</sup> | 18.5 <sup>+/-0.5</sup> | 18.5 <sup>+/-0.5</sup> | 18.5 <sup>+/-0.5</sup> | 18.5 <sup>+/-0.5</sup> | 18 <sup>+2/-0</sup>     |

(1) Maximum cumulative feed hole error, 1 mm per 20 parts.

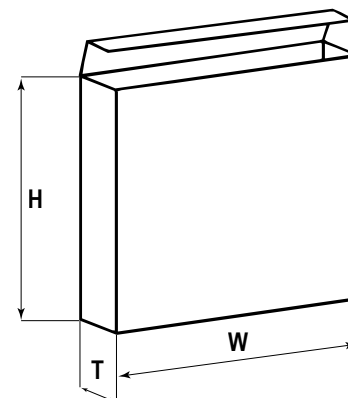
(2) 16.5 mm available on request.

(3) 15 mm available on request (F ≥ 10 mm).

## Lead Taping & Packaging (IEC 60286–2) cont'd

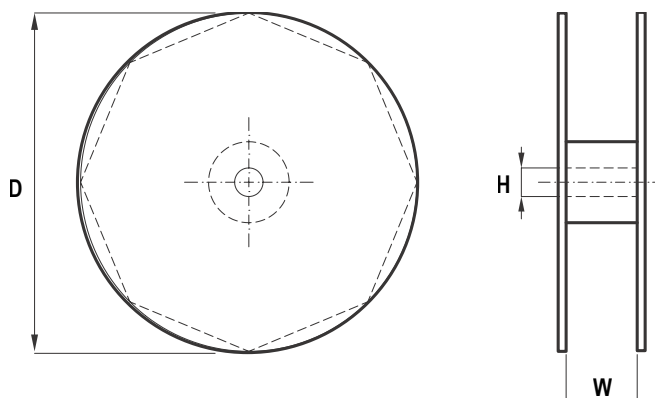
### Ammo Specifications

| Series                 | Dimensions (mm) |     |    |
|------------------------|-----------------|-----|----|
|                        | H               | W   | T  |
| R4x, R4x+R, R7x, RSB   | 360             | 340 | 59 |
| F5A, F5B, F5D          |                 |     |    |
| F6xx, F8xx             |                 |     |    |
| PHExxx, PMExxx, PMRxxx | 330             | 330 | 50 |



### Reel Specifications

| Series                 | Dimensions (mm) |    |          |
|------------------------|-----------------|----|----------|
|                        | D               | H  | W        |
| R4x, R4x+R, R7x, RSB   | 355<br>500      | 30 | 55 (Max) |
| F5A, F5B, F5D          |                 | 25 |          |
| F6xx, F8xx             |                 |    |          |
| PHExxx, PMExxx, PMRxxx | 360<br>500      | 30 | 46 (Max) |



### Manufacturing Date Code (IEC–60062)

| Y = Year, Z = Month |      |           |      |
|---------------------|------|-----------|------|
| Year                | Code | Month     | Code |
| 2000                | M    | January   | 1    |
| 2001                | N    | February  | 2    |
| 2002                | P    | March     | 3    |
| 2003                | R    | April     | 4    |
| 2004                | S    | May       | 5    |
| 2005                | T    | June      | 6    |
| 2006                | U    | July      | 7    |
| 2007                | V    | August    | 8    |
| 2008                | W    | September | 9    |
| 2009                | X    | October   | O    |
| 2010                | A    | November  | N    |
| 2011                | B    | December  | D    |
| 2012                | C    |           |      |
| 2013                | D    |           |      |
| 2014                | E    |           |      |
| 2015                | F    |           |      |
| 2016                | H    |           |      |
| 2017                | J    |           |      |
| 2018                | K    |           |      |
| 2019                | L    |           |      |
| 2020                | M    |           |      |

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Kamen, Germany  
Tel: 49-2307-438110

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Tel: 358-9-5406-5000

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