

**F98**Resin-molded Chip,  
High Capacitance Series

FRAMELESS™



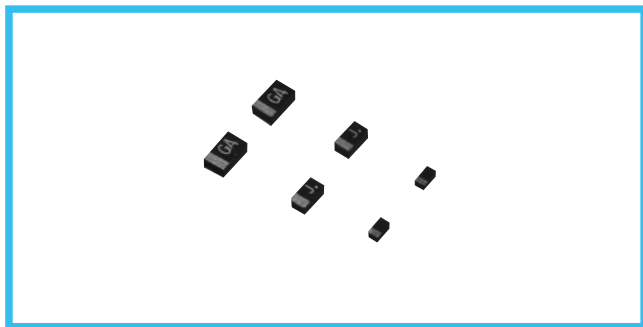
For SMD



Smaller

Upgrade

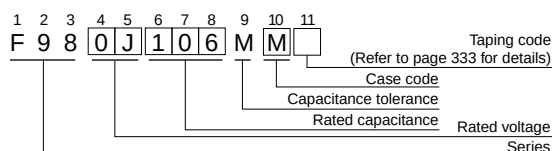
- Compliant to the RoHS directive (2002/95/EC).



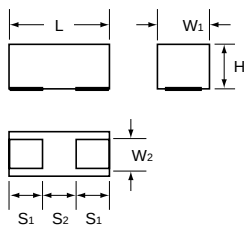
## ■ Applications

- Smartphone
- Wireless module
- Mobile phone
- Hearing aid

## ■ Type numbering system (Example : 6.3V 10μF)



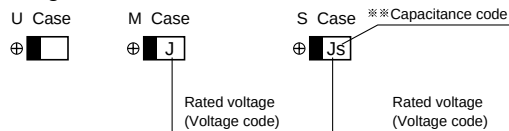
## ■ Drawing



(mm)

| Case Code | L                                   | W <sub>1</sub>                       | W <sub>2</sub> | H           | S <sub>1</sub> | S <sub>2</sub> |
|-----------|-------------------------------------|--------------------------------------|----------------|-------------|----------------|----------------|
| U         | 1.10 ± 0.05                         | 0.60 ± 0.05                          | 0.35 ± 0.05    | 0.55 ± 0.05 | 0.3 ± 0.05     | 0.5 ± 0.05     |
| M         | 1.6 <sup>+0.2</sup> <sub>-0.1</sub> | 0.85 <sup>+0.2</sup> <sub>-0.1</sub> | 0.65 ± 0.1     | 0.8 ± 0.1   | 0.5 ± 0.1      | 0.6 ± 0.1      |
| S         | 2.0 <sup>+0.2</sup> <sub>-0.1</sub> | 1.25 <sup>+0.2</sup> <sub>-0.1</sub> | 0.9 ± 0.1      | 0.8 ± 0.1   | 0.5 ± 0.1      | 1.0 ± 0.1      |

## ■ Marking



## ■ Standard Ratings

| V   | 4   | 6.3   | 10      | 16      | 20 | 25 | Cap. (μF) | Code | 0G | 0J | 1A | 1C | 1D | 1E | Capacitance code |
|-----|-----|-------|---------|---------|----|----|-----------|------|----|----|----|----|----|----|------------------|
| 1   | 105 |       |         |         | M  | M  | M         | —    |    |    |    |    |    |    | —                |
| 2.2 | 225 |       |         | U · M   | M  |    |           | —    |    |    |    |    |    |    | —                |
| 4.7 | 475 | U     | U · M   | (U) · M | M  |    |           | —    |    |    |    |    |    |    | —                |
| 10  | 106 | U     | (U) · M | M       | S  |    |           | a    |    |    |    |    |    |    |                  |
| 22  | 226 | M     | M       | (M) · S |    |    |           | J    |    |    |    |    |    |    |                  |
| 33  | 336 | M     | M       | (M) · S |    |    |           | n    |    |    |    |    |    |    |                  |
| 47  | 476 | M     | M · S   | S       |    |    |           | s    |    |    |    |    |    |    |                  |
| 68  | 686 | M · S |         |         |    |    |           | w    |    |    |    |    |    |    |                  |
| 100 | 107 | M · S | S       |         |    |    |           | A    |    |    |    |    |    |    |                  |
| 220 | 227 | S     |         |         |    |    |           | J    |    |    |    |    |    |    |                  |

( ) The series in parentheses are being developed.

Please contact to your local Nichicon sales office when these series are being designed in your application.

We can consider the type of compliance to AEC-Q200.  
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## ■ Specifications

| Item                         | Performance Characteristics                                                                                                                                                                                                                                                                                                                                                                                                             |
|------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Category                     | Temperature Range                                                                                                                                                                                                                                                                                                                                                                                                                       |
| Temperature Range            | −55 to +125°C (Rated temperature : +85°C)                                                                                                                                                                                                                                                                                                                                                                                               |
| Capacitance Tolerance        | ±20% (at 120Hz)                                                                                                                                                                                                                                                                                                                                                                                                                         |
| Dissipation Factor           | Refer to the table below                                                                                                                                                                                                                                                                                                                                                                                                                |
| ESR                          | Refer to the table below                                                                                                                                                                                                                                                                                                                                                                                                                |
| Leakage Current              | Refer to the table below<br>Provided that<br>• After 5 minute's application of rated voltage, leakage current at 85°C, 10 times or less than 20°C specified value.<br>• After 5 minute's application of rated voltage, leakage current at 125°C, 12.5 times or less than 20°C specified value.                                                                                                                                          |
| Damp Heat (Steady State)     | At 40°C, 90 to 95% R.H., For 500hours (No voltage applied)<br>Capacitance Change . . . Refer to the table below (* 1)<br>Dissipation Factor . . . . . 150% or less of initial specified value<br>Leakage Current . . . . . 200% or less of initial specified value                                                                                                                                                                      |
| Temperature Cycles           | At −55°C / +125°C, For 30 minutes each, 5 cycles<br>Capacitance Change . . . Refer to the table below (* 1)<br>Dissipation Factor . . . . . 150% or less than the initial specified value<br>Leakage Current . . . . . Initial specified value or less                                                                                                                                                                                  |
| Resistance to Soldering Heat | 10 seconds reflow at 260°C, 5 seconds immersion at 260°C<br>Capacitance Change . . . Refer to the table below (* 1)<br>Leakage Current . . . . . Initial specified value or less<br>Leakage Current . . . . . Initial specified value or less                                                                                                                                                                                           |
| Surge*                       | After application of surge in series with a 1kΩ resistor at the rate of 30 seconds ON, 30 seconds OFF, for 1000 successive test cycles at 85°C, capacitors shall meet the characteristic requirements listed below.<br>Capacitance Change . . . Refer to the table below (* 1)<br>Dissipation Factor . . . . . 150% or less than the initial specified value<br>Leakage Current . . . . . 200% or less than the initial specified value |
| Endurance*                   | After 1000 hours' application of rated voltage in series with a 3Ω resistor at 85°C, capacitors shall meet the characteristic requirements table below<br>Capacitance Change . . . Refer to the table below (* 1)<br>Dissipation Factor . . . . . 150% or less than the initial specified value<br>Leakage Current . . . . . 200% or less than the initial specified value                                                              |
| Shear Test                   | After applying the pressure load of 5N for 10±1 seconds horizontally to the center of capacitor side body which has no electrode and has been soldered beforehand on a substrate, there shall be found neither exfoliation nor its sign at the terminal electrode.<br>                                                                                                                                                                  |
| Terminal Strength            | Keeping a capacitor surface-mounted on a substrate upside down and supporting the substrate at both of the opposite bottom points 45mm apart from the center of capacitor, the pressure strength is applied with a specified jig at the center of the substrate so that substrate may bend by 1mm as illustrated. Then, there shall be found no remarkable abnormality on the capacitor terminals.<br>                                  |

\* As for the surge voltage, refer to page 332 for details.

| Rated Volt | Rated Capacitance (μF) | Case code   | Part Number | *2 Leakage Current (μA) | Dissipation Factor (%@120Hz) | ESR (Ω@100kHz) | *1 ΔC/C (%) |
|------------|------------------------|-------------|-------------|-------------------------|------------------------------|----------------|-------------|
| 4V         | 4.7                    | U           | F980G475MUA | 0.5                     | 20                           | 20             | ±30         |
|            | 10                     | U           | F980G106MUA | 0.8                     | 25                           | 20             | ±30         |
|            | 22                     | M           | F980G226MMA | 0.9                     | 15                           | 7.5            | ±30         |
|            | 33                     | M           | F980G336MMA | 1.3                     | 30                           | 4              | ±30         |
|            | 47                     | M           | F980G476MMA | 1.9                     | 40                           | 8              | ±30         |
|            | 68                     | M           | F980G686MMA | 27.2                    | 50                           | 10             | ±30         |
|            | 68                     | S           | F980G686MSA | 2.7                     | 30                           | 4              | ±30         |
|            | 100                    | M           | F980G107MMA | 80.0                    | 60                           | 10             | ±30         |
|            | 100                    | S           | F980G107MSA | 4.0                     | 35                           | 4              | ±30         |
| 220        | S                      | F980G227MSA | 132         | 80                      | 5                            | ±30            |             |
| 6.3V       | 4.7                    | U           | F980J475MUA | 0.6                     | 20                           | 20             | ±30         |
|            | 4.7                    | M           | F980J475MMA | 0.5                     | 20                           | 7.5            | ±30         |
|            | 10                     | M           | F980J106MMA | 0.6                     | 8                            | 6              | ±30         |
|            | 22                     | M           | F980J226MMA | 1.4                     | 20                           | 6              | ±30         |
|            | 33                     | M           | F980J336MMA | 4.2                     | 35                           | 8              | ±30         |
|            | 47                     | M           | F980J476MMA | 29.6                    | 45                           | 10             | ±30         |
|            | 47                     | S           | F980J476MSA | 3.0                     | 25                           | 6              | ±30         |
|            | 100                    | S           | F980J107MSA | 63.0                    | 50                           | 8              | ±30         |
| 10V        | 2.2                    | U           | F981A225MUA | 0.5                     | 15                           | 15             | ±30         |
|            | 2.2                    | M           | F981A225MMA | 0.5                     | 6                            | 7.5            | ±30         |
|            | 4.7                    | M           | F981A475MMA | 0.5                     | 6                            | 6              | ±30         |
|            | 10                     | M           | F981A106MMA | 1.0                     | 20                           | 7.5            | ±30         |
|            | 22                     | S           | F981A226MSA | 2.2                     | 20                           | 4              | ±20         |
|            | 33                     | S           | F981A336MSA | 3.3                     | 30                           | 6              | ±30         |
|            | 47                     | S           | F981A476MSA | 9.4                     | 35                           | 5              | ±30         |
| 16V        | 1                      | M           | F981C105MMA | 0.5                     | 6                            | 10             | ±30         |
|            | 2.2                    | M           | F981C225MMA | 0.5                     | 6                            | 10             | ±30         |
|            | 4.7                    | M           | F981C475MMA | 0.8                     | 12                           | 12             | ±30         |
|            | 10                     | S           | F981C106MSA | 1.6                     | 18                           | 4              | ±20         |
| 20V        | 1                      | M           | F981D105MMA | 0.5                     | 6                            | 10             | ±30         |
| 25V        | 1                      | M           | F981E105MMA | 0.5                     | 8                            | 10             | ±30         |

\*2 : Leakage Current

After 5 minute's application of rated voltage, leakage current at 20°C.

CAT.8100B



**Стандарт  
Электрон  
Связь**

Мы молодая и активно развивающаяся компания в области поставок электронных компонентов. Мы поставляем электронные компоненты отечественного и импортного производства напрямую от производителей и с крупнейших складов мира.

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