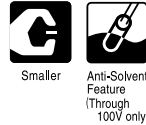


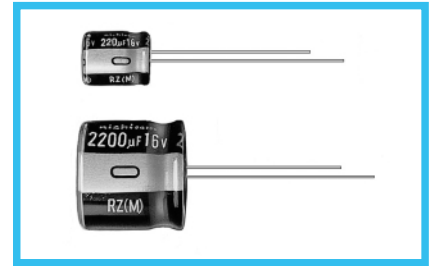
# RZ series

Compact & Low-Profile Sized, Wide Temperature Range



- Very small case sizes same as RS series, but operating over wide temperature range of  $-55$  ( $-40$ ) to  $+105^{\circ}\text{C}$ .
- Compliant to the RoHS directive (2002/95/EC).

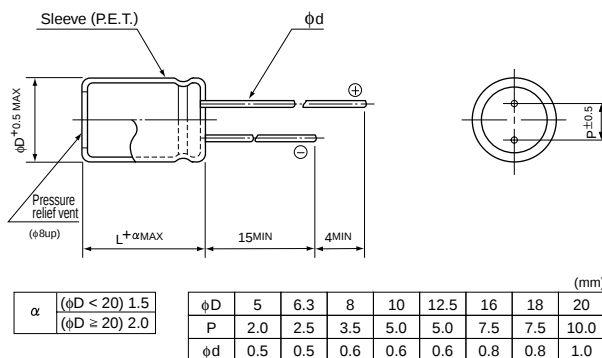
RZ



## Specifications

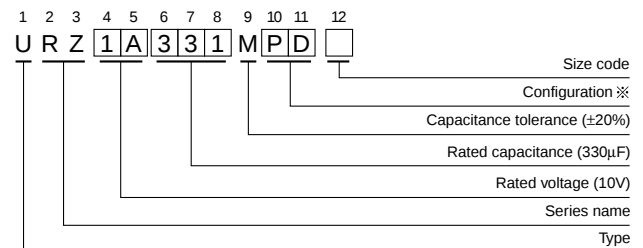
| Item                          | Performance Characteristics                                                                                                                                                                                                             |                                                                                                                                                                                                                                                    |      |      |      |      |      |                    |                                                                            |                                                   |      |      |      |     |
|-------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|------|------|------|------|--------------------|----------------------------------------------------------------------------|---------------------------------------------------|------|------|------|-----|
| Category Temperature Range    | -55 to +105°C (6.3 to 100V) , -40 to +105°C (160 to 400V)                                                                                                                                                                               |                                                                                                                                                                                                                                                    |      |      |      |      |      |                    |                                                                            |                                                   |      |      |      |     |
| Rated Voltage Range           | 6.3 to 400V                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                    |      |      |      |      |      |                    |                                                                            |                                                   |      |      |      |     |
| Rated Capacitance Range       | 0.1 to 10000μF                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                    |      |      |      |      |      |                    |                                                                            |                                                   |      |      |      |     |
| Capacitance Tolerance         | ±20% at 120Hz, 20°C                                                                                                                                                                                                                     |                                                                                                                                                                                                                                                    |      |      |      |      |      |                    |                                                                            |                                                   |      |      |      |     |
| Leakage Current               | Rated voltage (V)                                                                                                                                                                                                                       | 6.3 to 100                                                                                                                                                                                                                                         |      |      |      |      |      |                    | 160 to 400                                                                 |                                                   |      |      |      |     |
|                               | _____                                                                                                                                                                                                                                   | After 1 minute's application of rated voltage, leakage current is not more than 0.03CV or 4 (μA), whichever is greater.<br>After 2 minutes' application of rated voltage, leakage current is not more than 0.01CV or 3 (μA), whichever is greater. |      |      |      |      |      |                    | After 1 minute's application of rated voltage, I = 0.04CV+100 (μA) or less |                                                   |      |      |      |     |
| Tangent of loss angle (tan δ) | For capacitance of more than 1000μF, add 0.02 for every increase of 1000μF. Measurement frequency : 120Hz at 20°C                                                                                                                       |                                                                                                                                                                                                                                                    |      |      |      |      |      |                    |                                                                            |                                                   |      |      |      |     |
|                               | Rated voltage (V)                                                                                                                                                                                                                       | 6.3                                                                                                                                                                                                                                                | 10   | 16   | 25   | 35   | 50   | 63                 | 100                                                                        | 160                                               | 200  | 250  | 400  |     |
|                               | tan δ (MAX.)                                                                                                                                                                                                                            | 0.28                                                                                                                                                                                                                                               | 0.24 | 0.20 | 0.16 | 0.14 | 0.12 | 0.10               | 0.08                                                                       | 0.20                                              | 0.20 | 0.20 | 0.25 |     |
| Stability at Low Temperature  | Measurement frequency : 120Hz                                                                                                                                                                                                           |                                                                                                                                                                                                                                                    |      |      |      |      |      |                    |                                                                            |                                                   |      |      |      |     |
|                               | Rated voltage (V)                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                    | 6.3  | 10   | 16   | 25   | 35   | 50                 | 63                                                                         | 100                                               | 160  | 200  | 250  | 400 |
|                               | Impedance ratio ZT / Z20 (MAX.)                                                                                                                                                                                                         | Z-25°C / Z+20°C                                                                                                                                                                                                                                    | 5    | 4    | 3    | 2    | 2    | 2                  | 2                                                                          | 2                                                 | 3    | 3    | 3    | 6   |
|                               |                                                                                                                                                                                                                                         | Z-40°C / Z+20°C                                                                                                                                                                                                                                    | 10   | 8    | 6    | 4    | 3    | 3                  | 3                                                                          | 3                                                 | 4    | 4    | 6    | 10  |
| Endurance                     | The specifications listed at right shall be met when the capacitors are restored to 20°C after the rated voltage is applied for 1000 hours at 105°C.                                                                                    |                                                                                                                                                                                                                                                    |      |      |      |      |      | Capacitance change |                                                                            | Within ±20% of the initial capacitance value      |      |      |      |     |
|                               |                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                    |      |      |      |      |      | tan δ              |                                                                            | 200% or less than the initial specified value     |      |      |      |     |
|                               |                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                    |      |      |      |      |      | Leakage current    |                                                                            | Less than or equal to the initial specified value |      |      |      |     |
| Shelf Life                    | After storing the capacitors under no load at 105°C for 1000 hours and then performing voltage treatment based on JIS C 5101-4 clause 4.1 at 20°C, they shall meet the specified values for the endurance characteristics listed above. |                                                                                                                                                                                                                                                    |      |      |      |      |      |                    |                                                                            |                                                   |      |      |      |     |
| Marking                       | Printed with white color letter on black sleeve.                                                                                                                                                                                        |                                                                                                                                                                                                                                                    |      |      |      |      |      |                    |                                                                            |                                                   |      |      |      |     |

## Radial Lead Type



- Please refer to page 20 about the end seal configuration.

## Type numbering system (Example : 10V 330 $\mu\text{F}$ )



### ※ Configuration

| $\phi D$   | Pb-free leadwire<br>Pb-free PET sleeve |
|------------|----------------------------------------|
| 5 · 6.3    | DD                                     |
| 8 · 10     | PD                                     |
| 12.5 to 18 | HD                                     |
| 20         | RD                                     |

Please refer to page 20, 21, 22 about the formed or taped product spec.  
 Please refer to page 4 for the minimum order quantity.

• Dimension table in next page.

RZ series

## ■Dimensions

| V        |      | 6.3     |      | 10      |      | 16        |      | 25      |      | 35        |      | 50                     |                 |
|----------|------|---------|------|---------|------|-----------|------|---------|------|-----------|------|------------------------|-----------------|
| Cap.(μF) | Code | 0J      |      | 1A      |      | 1C        |      | 1E      |      | 1V        |      | 1H                     |                 |
| 0.1      | 0R1  |         |      |         |      |           |      |         |      |           |      | 5×9                    | 1.1             |
| 0.22     | R22  |         |      |         |      |           |      |         |      |           |      | 5×9                    | 2.3             |
| 0.33     | R33  |         |      |         |      |           |      |         |      |           |      | 5×9                    | 3.5             |
| 0.47     | R47  |         |      |         |      |           |      |         |      |           |      | 5×9                    | 5               |
| 1        | 010  |         |      |         |      |           |      |         |      |           |      | 5×9                    | 12              |
| 2.2      | 2R2  |         |      |         |      |           |      |         |      |           |      | 5×9                    | 18              |
| 3.3      | 3R3  |         |      |         |      |           |      |         |      |           |      | 5×9                    | 25              |
| 4.7      | 4R7  |         |      |         |      |           |      | 5×9     | 20   | 5×9       | 25   | 5×9                    | 30              |
| 10       | 100  |         |      |         |      | 5×9       | 30   | 5×9     | 35   | 5×9       | 40   | 5×9                    | 46              |
| 22       | 220  | 5×9     | 25   | 5×9     | 40   | 5×9       | 50   | 5×9     | 55   | 5×9       | 60   | 5×9                    | 65              |
| 33       | 330  | 5×9     | 40   | 5×9     | 55   | 5×9       | 60   | 5×9     | 70   | 5×9       | 75   | 6.3×9                  | 85              |
| 47       | 470  | 5×9     | 55   | 5×9     | 65   | 5×9       | 70   | 5×9     | 80   | 6.3×9     | 95   | 6.3×9                  | 100             |
| 100      | 101  | 5×9     | 90   | 5×9     | 95   | 6.3×9     | 115  | 6.3×9   | 130  | 8×9       | 155  | 10×9                   | 170             |
| 220      | 221  | 6.3×9   | 145  | 6.3×9   | 155  | 8×9       | 205  | 10×9    | 220  | 10×9      | 235  | 10×12.5                | 290             |
| 330      | 331  | 6.3×9   | 180  | 8×9     | 210  | 10×9      | 240  | 10×9    | 270  | 10×12.5   | 340  | 12.5×12.5              | 370             |
| 470      | 471  | 8×9     | 235  | 8×9     | 275  | 10×9      | 290  | 10×12.5 | 370  | 12.5×12.5 | 420  | 16×15                  | 540             |
| 1000     | 102  | 10×9    | 370  | 10×12.5 | 450  | 12.5×12.5 | 520  | 12.5×15 | 590  | 16×15     | 720  | 18×20                  | 830             |
| 2200     | 222  | 12.5×15 | 635  | 12.5×15 | 690  | 16×15     | 830  | 18×15   | 970  | 18×20     | 1110 | 20×25                  | 1250            |
| 3300     | 332  | 16×15   | 860  | 16×15   | 940  | 18×15     | 1050 | 18×20   | 1220 | 20×25     | 1430 |                        |                 |
| 4700     | 472  | 16×15   | 1010 | 18×15   | 1120 | 18×20     | 1260 | 18×25   | 1470 |           |      |                        |                 |
| 6800     | 682  | 18×15   | 1200 | 18×20   | 1330 | 18×25     | 1560 |         |      |           |      |                        |                 |
| 10000    | 103  | 18×20   | 1450 | 18×25   | 1700 |           |      |         |      |           |      | Case size<br>φD×L (mm) | Rated<br>ripple |

| V        |      | 63        |     | 100     |     | 160    |     | 200    |     | 250    |     | 400                    |                 |
|----------|------|-----------|-----|---------|-----|--------|-----|--------|-----|--------|-----|------------------------|-----------------|
| Cap.(μF) | Code | 1J        |     | 2A      |     | 2C     |     | 2D     |     | 2E     |     | 2G                     |                 |
| 0.1      | 0R1  |           |     | 5×9     | 1.2 |        |     |        |     |        |     |                        |                 |
| 0.22     | R22  |           |     | 5×9     | 3   |        |     |        |     |        |     |                        |                 |
| 0.33     | R33  |           |     | 5×9     | 4.5 |        |     |        |     |        |     |                        |                 |
| 0.47     | R47  |           |     | 5×9     | 6.5 |        |     |        |     |        |     |                        |                 |
| 1        | 010  |           |     | 5×9     | 12  |        |     |        |     |        |     |                        |                 |
| 2.2      | 2R2  |           |     | 5×9     | 17  |        |     |        |     |        |     |                        |                 |
| 3.3      | 3R3  |           |     | 5×9     | 25  |        |     |        |     |        |     |                        |                 |
| 4.7      | 4R7  |           |     | 6.3×9   | 32  |        |     |        |     |        |     |                        |                 |
| 10       | 100  | 5×9       | 42  | 6.3×9   | 50  |        |     |        |     |        |     | 16×15                  | 100             |
| 22       | 220  | 6.3×9     | 71  | 8×9     | 93  |        |     |        |     | 16×15  | 200 | ●18×15                 | 200             |
| 33       | 330  | 8×9       | 100 | 10×9    | 130 |        |     | 16×15  | 250 | ●18×15 | 250 | 18×20                  | 250             |
| 47       | 470  | 8×9       | 120 | 10×12.5 | 165 | 16×15  | 300 | ●18×15 | 300 | △18×20 | 300 | ★18×25                 | 300             |
| 68       | 680  |           |     |         |     | ●18×15 | 350 | △18×20 | 350 | 18×20  | 350 | 20×25                  | 350             |
| 100      | 101  | 10×9      | 215 | 12.5×15 | 265 | △18×20 | 420 | ★18×25 | 420 | 18×25  | 420 |                        |                 |
| 150      | 151  |           |     |         |     | ★18×25 | 510 | 18×25  | 510 |        |     |                        |                 |
| 220      | 221  | 12.5×12.5 | 335 | 16×15   | 440 | 20×25  | 550 |        |     |        |     |                        |                 |
| 330      | 331  | 12.5×15   | 510 | 18×15   | 540 |        |     |        |     |        |     |                        |                 |
| 470      | 471  | 16×15     | 640 |         |     |        |     |        |     |        |     | Case size<br>φD×L (mm) | Rated<br>ripple |

Rated ripple current (mA rms) at 105°C 120Hz

Size φ16×20 is available for capacitors marked "●"

Size φ20×15 is available for capacitors marked "△"

Size φ20×20 is available for capacitors marked "★"

In this case, [6] will be put at 12th digit of type numbering system.

## ●Frequency coefficient of rated ripple current

| V          | Cap.(μF)      | Frequency | 50Hz | 120Hz | 300Hz | 1 kHz | 10kHz or more |
|------------|---------------|-----------|------|-------|-------|-------|---------------|
| 6.3 to 100 | 0.1 to 47     |           | 0.75 | 1.00  | 1.35  | 1.57  | 2.00          |
|            | 100 to 470    |           | 0.80 | 1.00  | 1.23  | 1.34  | 1.50          |
|            | 1000 to 10000 |           | 0.85 | 1.00  | 1.10  | 1.13  | 1.15          |
| 160 to 400 | 10 to 220     |           | 0.80 | 1.00  | 1.25  | 1.40  | 1.60          |



**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.

Благодаря сотрудничеству с мировыми поставщиками мы осуществляем комплексные и плановые поставки широчайшего спектра электронных компонентов.

Собственная эффективная логистика и склад в обеспечивает надежную поставку продукции в точно указанные сроки по всей России.

Мы осуществляем техническую поддержку нашим клиентам и предпродажную проверку качества продукции. На все поставляемые продукты мы предоставляем гарантию .

Осуществляем поставки продукции под контролем ВП МО РФ на предприятия военно-промышленного комплекса России , а также работаем в рамках 275 ФЗ с открытием отдельных счетов в уполномоченном банке. Система менеджмента качества компании соответствует требованиям ГОСТ ISO 9001.

Минимальные сроки поставки, гибкие цены, неограниченный ассортимент и индивидуальный подход к клиентам являются основой для выстраивания долгосрочного и эффективного сотрудничества с предприятиями радиоэлектронной промышленности, предприятиями ВПК и научно-исследовательскими институтами России.

С нами вы становитесь еще успешнее!

**Наши контакты:**

**Телефон:** +7 812 627 14 35

**Электронная почта:** [sales@st-electron.ru](mailto:sales@st-electron.ru)

**Адрес:** 198099, Санкт-Петербург,  
Промышленная ул, дом № 19, литера Н,  
помещение 100-Н Офис 331