

## RR series

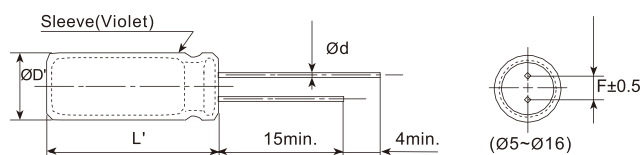
- High frequency, low impedance, high reliability
- Endurance: +105°C 2,000 hours
- Suitable for switching power, UPS, power sources, etc.
- RoHS Compliant



### SPECIFICATIONS

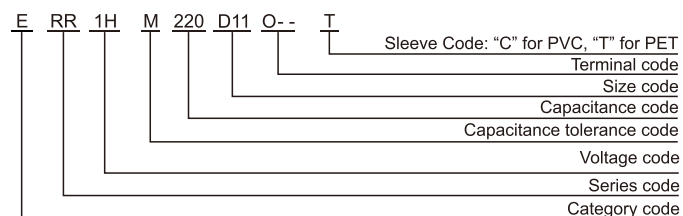
| Items                                                     | Characteristics                                                                                                                                                        |      |                                              |      |      |      |      |            |
|-----------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|----------------------------------------------|------|------|------|------|------------|
| Category Temperature Range                                | -40~+105°C                                                                                                                                                             |      |                                              |      |      |      |      |            |
| Rated Voltage Range                                       | 6.3~50 V <sub>dc</sub>                                                                                                                                                 |      |                                              |      |      |      |      |            |
| Capacitance Tolerance                                     | ±20%(M) (at 20°C,120Hz)                                                                                                                                                |      |                                              |      |      |      |      |            |
| Leakage Current                                           | I≤0.01CV or 3μA, whichever is greater.<br>Where, I:Max.leakage current (μA),C:Nominal capacitance (μF),V: Rated voltage (V) (at 20°C after 2 minutes)                  |      |                                              |      |      |      |      |            |
| Dissipation Factor (tanδ)                                 | Rated Voltage(V <sub>dc</sub> )                                                                                                                                        | 6.3  | 10                                           | 16   | 25   | 35   | 50   |            |
|                                                           | tanδ (max.)                                                                                                                                                            | 0.22 | 0.18                                         | 0.14 | 0.12 | 0.10 | 0.08 |            |
|                                                           | When nominal capacitance exceeds 1,000μF, add 0.02 to the value above for each 1,000μF increase. (at 20°C, 120Hz)                                                      |      |                                              |      |      |      |      |            |
| Low Temperature Characteristics<br>(Max. Impedance Ratio) | Rated Voltage(V <sub>dc</sub> )                                                                                                                                        | 6.3  | 10                                           | 16   | 25   | 35   | 50   |            |
|                                                           | Z(-25°C)/Z(+20°C)                                                                                                                                                      | 2    |                                              |      |      |      |      | (at 120Hz) |
| Endurance                                                 | The specifications listed below shall be met when the capacitors are restored to 20°C after DC voltage plus rated ripple current is applied for 2,000 hours at 105 °C. |      |                                              |      |      |      |      |            |
|                                                           | Capacitance Change                                                                                                                                                     |      | ≤±20% of the initial value (6.3, 10V: ≤±30%) |      |      |      |      |            |
|                                                           | D.F. (tanδ)                                                                                                                                                            |      | ≤200% of the initial specified value         |      |      |      |      |            |
|                                                           | Leakage Current                                                                                                                                                        |      | ≤The initial specified value                 |      |      |      |      |            |
| Shelf Life                                                | The following specifications shall be satisfied when the capacitors are restored to 20°C after leaving them under no load at 105°C for 1,000 hours.                    |      |                                              |      |      |      |      |            |
|                                                           | Capacitance Change                                                                                                                                                     |      | ≤±20% of the initial value (6.3, 10V: ≤±30%) |      |      |      |      |            |
|                                                           | D.F. (tanδ)                                                                                                                                                            |      | ≤200% of the initial specified value         |      |      |      |      |            |
|                                                           | Leakage Current                                                                                                                                                        |      | ≤200% of the initial specified value         |      |      |      |      |            |

### DIMENSIONS[mm]



| ØD  | 5          | 6.3 | 8   | 10  | 12.5 | 16  |
|-----|------------|-----|-----|-----|------|-----|
| Ød  | 0.45       | 0.5 | 0.5 | 0.5 | 0.6  | 0.6 |
| F   | 2.0        | 2.5 | 3.5 | 5.0 | 5.0  | 7.5 |
| ØD' | ØD+0.5max. |     |     |     |      |     |
| L'  | L+2max.    |     |     |     |      |     |

### PART NUMBERING SYSTEM



### RATED RIPPLE CURRENT MULTIPLIERS

Frequency correction factor for ripple current

| Freq.(Hz)      | 120  | 1k   | 10k  | 100k |
|----------------|------|------|------|------|
| Cap.<220       | 0.40 | 0.75 | 0.90 | 1.00 |
| 220≤Cap.<680   | 0.50 | 0.85 | 0.94 | 1.00 |
| 680≤Cap.<2200  | 0.60 | 0.87 | 0.95 | 1.00 |
| 2200≤Cap.<4700 | 0.75 | 0.90 | 0.95 | 1.00 |
| Cap.≥4700      | 0.85 | 0.95 | 0.98 | 1.00 |

## RR series

## ■ STANDARD RATINGS

| WV (V <sub>dc</sub> ) | Cap (μF) | Size ΦDxL(mm) | tanδ | Impedance (Ω <sub>max</sub> /20°C, 100kHz) | Rated ripple current (mA <sub>RMS</sub> /105°C, 100kHz) | Part Number    |
|-----------------------|----------|---------------|------|--------------------------------------------|---------------------------------------------------------|----------------|
| 6.3(0J)               | 150      | 5×11          | 0.22 | 0.3                                        | 250                                                     | ERR0JM151D11OT |
|                       |          | 6.3×7         | 0.22 | 0.3                                        | 250                                                     | ERR0JM151E07OT |
|                       | 330      | 6.3×9         | 0.22 | 0.15                                       | 350                                                     | ERR0JM331E09OT |
|                       |          | 6.3×11        | 0.22 | 0.13                                       | 405                                                     | ERR0JM331E11OT |
|                       | 560      | 8×9           | 0.22 | 0.12                                       | 605                                                     | ERR0JM561F09OT |
|                       |          | 8×12          | 0.22 | 0.072                                      | 760                                                     | ERR0JM561F12OT |
|                       | 820      | 8×16          | 0.22 | 0.056                                      | 995                                                     | ERR0JM821F16OT |
|                       |          | 10×9          | 0.22 | 0.085                                      | 800                                                     | ERR0JM821G09OT |
|                       | 1000     | 10×12.5       | 0.22 | 0.053                                      | 1030                                                    | ERR0JM102G1BOT |
|                       |          | 8×20          | 0.22 | 0.041                                      | 1250                                                    | ERR0JM122F20OT |
|                       | 1200     | 10×16         | 0.22 | 0.038                                      | 1430                                                    | ERR0JM122G16OT |
|                       |          | 10×20         | 0.22 | 0.023                                      | 1820                                                    | ERR0JM152G20OT |
|                       | 1500     | 10×25         | 0.22 | 0.022                                      | 2150                                                    | ERR0JM222G25OT |
|                       | 2200     | 10×25         | 0.24 | 0.022                                      | 2150                                                    | ERR0JM222G25OT |
|                       | 3300     | 12.5×20       | 0.26 | 0.021                                      | 2360                                                    | ERR0JM332W20OT |
|                       | 3900     | 12.5×25       | 0.26 | 0.018                                      | 2770                                                    | ERR0JM392W25OT |
|                       | 4700     | 12.5×30       | 0.28 | 0.016                                      | 3290                                                    | ERR0JM472W30OT |
|                       | 5600     | 12.5×35       | 0.30 | 0.015                                      | 3400                                                    | ERR0JM562W35OT |
|                       |          | 16×20         | 0.30 | 0.018                                      | 3140                                                    | ERR0JM562L20OT |
|                       | 6800     | 16×25         | 0.32 | 0.016                                      | 3460                                                    | ERR0JM682L25OT |
| 10(1A)                | 100      | 5×7           | 0.18 | 1.38                                       | 185                                                     | ERR1AM101D07OT |
|                       |          | 5×11          | 0.18 | 0.3                                        | 250                                                     | ERR1AM101D11OT |
|                       | 220      | 6.3×7         | 0.18 | 0.35                                       | 405                                                     | ERR1AM221E07OT |
|                       |          | 6.3×11        | 0.18 | 0.13                                       | 405                                                     | ERR1AM221E11OT |
|                       | 470      | 8×9           | 0.18 | 0.18                                       | 606                                                     | ERR1AM471F09OT |
|                       |          | 8×11          | 0.18 | 0.072                                      | 760                                                     | ERR1AM471F11OT |
|                       | 680      | 8×16          | 0.18 | 0.056                                      | 995                                                     | ERR1AM681F16OT |
|                       |          | 10×9          | 0.18 | 0.085                                      | 760                                                     | ERR1AM681G09OT |
|                       | 1000     | 10×12.5       | 0.18 | 0.053                                      | 1030                                                    | ERR1AM681G1BOT |
|                       |          | 8×20          | 0.18 | 0.041                                      | 1250                                                    | ERR1AM102F20OT |
|                       | 1200     | 10×16         | 0.18 | 0.038                                      | 1430                                                    | ERR1AM102G16OT |
|                       |          | 10×20         | 0.18 | 0.023                                      | 1820                                                    | ERR1AM122G20OT |
|                       | 1500     | 10×25         | 0.18 | 0.022                                      | 2150                                                    | ERR1AM152G25OT |
|                       | 2200     | 12.5×20       | 0.20 | 0.021                                      | 2360                                                    | ERR1AM222W20OT |
|                       | 3300     | 12.5×25       | 0.22 | 0.018                                      | 2770                                                    | ERR1AM332W25OT |
|                       | 3900     | 12.5×30       | 0.22 | 0.016                                      | 3290                                                    | ERR1AM392W30OT |
|                       | 4700     | 16×20         | 0.22 | 0.018                                      | 3140                                                    | ERR1AM392L20OT |
|                       |          | 12.5×35       | 0.24 | 0.015                                      | 3400                                                    | ERR1AM472W35OT |
|                       | 5600     | 16×25         | 0.26 | 0.016                                      | 3460                                                    | ERR1AM562L25OT |
| 16(1C)                | 56       | 5×7           | 0.14 | 0.7                                        | 180                                                     | ERR1CM560D07OT |
|                       |          | 5×11          | 0.14 | 0.3                                        | 250                                                     | ERR1CM560D11OT |
|                       | 120      | 6.3×7         | 0.14 | 0.4                                        | 300                                                     | ERR1CM121E07OT |
|                       |          | 6.3×11        | 0.14 | 0.13                                       | 405                                                     | ERR1CM121E11OT |
|                       | 330      | 8×7           | 0.14 | 0.14                                       | 510                                                     | ERR1CM331F07OT |
|                       |          | 8×12          | 0.14 | 0.072                                      | 760                                                     | ERR1CM331F12OT |
|                       | 470      | 8×16          | 0.14 | 0.056                                      | 795                                                     | ERR1CM471F16OT |
|                       |          | 10×12.5       | 0.14 | 0.053                                      | 1030                                                    | ERR1CM471G1BOT |
|                       | 680      | 8×20          | 0.14 | 0.041                                      | 1250                                                    | ERR1CM681F20OT |
|                       |          | 10×16         | 0.14 | 0.038                                      | 1430                                                    | ERR1CM681G16OT |
|                       | 1000     | 10×20         | 0.14 | 0.023                                      | 1820                                                    | ERR1CM102G20OT |
|                       | 1200     | 10×25         | 0.14 | 0.022                                      | 2150                                                    | ERR1CM122G25OT |
|                       | 1500     | 12.5×20       | 0.14 | 0.021                                      | 2360                                                    | ERR1CM152W20OT |
|                       | 2200     | 12.5×25       | 0.16 | 0.018                                      | 2770                                                    | ERR1CM222W25OT |
|                       |          | 12.5×30       | 0.16 | 0.016                                      | 3290                                                    | ERR1CM272W30OT |
|                       | 2700     | 16×20         | 0.16 | 0.018                                      | 3140                                                    | ERR1CM272L20OT |
|                       |          | 12.5×35       | 0.18 | 0.015                                      | 3400                                                    | ERR1CM332W35OT |
|                       | 3900     | 16×25         | 0.18 | 0.016                                      | 3460                                                    | ERR1CM392L25OT |

| WV (V <sub>dc</sub> ) | Cap (μF) | Size ΦDxL(mm) | tanδ | Impedance (Ω <sub>max</sub> /20°C, 100kHz) | Rated ripple current (mA <sub>RMS</sub> /105°C, 100kHz) | Part Number    |
|-----------------------|----------|---------------|------|--------------------------------------------|---------------------------------------------------------|----------------|
| 25(1E)                | 47       | 5×11          | 0.12 | 0.3                                        | 250                                                     | ERR1EM470D11OT |
|                       |          | 6.3×7         | 0.12 | 1.1                                        | 200                                                     | ERR1EM470E07OT |
|                       | 100      | 6.3×11        | 0.12 | 0.13                                       | 405                                                     | ERR1EM101E11OT |
|                       |          | 8×7           | 0.12 | 0.3                                        | 430                                                     | ERR1EM101F07OT |
|                       | 220      | 8×9           | 0.12 | 0.1                                        | 600                                                     | ERR1EM221F09OT |
|                       |          | 8×12          | 0.12 | 0.072                                      | 760                                                     | ERR1EM221F12OT |
|                       | 330      | 8×16          | 0.12 | 0.056                                      | 995                                                     | ERR1EM331F16OT |
|                       | 470      | 8×20          | 0.12 | 0.041                                      | 1250                                                    | ERR1EM471F20OT |
|                       | 680      | 10×12.5       | 0.12 | 0.053                                      | 1030                                                    | ERR1EM681G1BOT |
|                       | 820      | 10×16         | 0.12 | 0.038                                      | 1430                                                    | ERR1EM821G16OT |
|                       | 1000     | 10×20         | 0.12 | 0.023                                      | 1820                                                    | ERR1EM102G20OT |
|                       | 1500     | 10×25         | 0.12 | 0.022                                      | 2150                                                    | ERR1EM152G25OT |
|                       | 1800     | 12.5×20       | 0.12 | 0.021                                      | 2360                                                    | ERR1EM182W20OT |
|                       |          | 12.5×30       | 0.12 | 0.016                                      | 3290                                                    | ERR1EM182W30OT |
|                       | 2200     | 16×20         | 0.12 | 0.018                                      | 3140                                                    | ERR1EM182L20OT |
|                       |          | 12.5×25       | 0.14 | 0.018                                      | 2770                                                    | ERR1EM222W25OT |
|                       | 2700     | 12.5×35       | 0.14 | 0.015                                      | 3400                                                    | ERR1EM222W35OT |
|                       |          | 16×25         | 0.14 | 0.016                                      | 3460                                                    | ERR1EM272L25OT |
| 35(1V)                | 33       | 5×7           | 0.10 | 1.15                                       | 160                                                     | ERR1VM330D07OT |
|                       |          | 5×11          | 0.10 | 0.3                                        | 250                                                     | ERR1VM330D11OT |
|                       | 56       | 6.3×11        | 0.10 | 0.13                                       | 405                                                     | ERR1VM560E11OT |
|                       |          | 8×7           | 0.10 | 0.39                                       | 405                                                     | ERR1VM560F07OT |
|                       | 150      | 8×9           | 0.10 | 0.17                                       | 600                                                     | ERR1VM151F09OT |
|                       |          | 8×12          | 0.10 | 0.072                                      | 760                                                     | ERR1VM151F12OT |
|                       | 220      | 8×16          | 0.10 | 0.056                                      | 995                                                     | ERR1VM221F16OT |
|                       |          | 10×12.5       | 0.10 | 0.053                                      | 1030                                                    | ERR1VM221G1BOT |
|                       | 270      | 8×20          | 0.10 | 0.041                                      | 1250                                                    | ERR1VM271F20OT |
|                       | 330      | 10×16         | 0.10 | 0.038                                      | 1430                                                    | ERR1VM331G16OT |
|                       | 470      | 10×20         | 0.10 | 0.023                                      | 1820                                                    | ERR1VM471G20OT |
|                       | 560      | 10×25         | 0.10 | 0.022                                      | 2150                                                    | ERR1VM561G25OT |
|                       | 680      | 12.5×20       | 0.10 | 0.021                                      | 2360                                                    | ERR1VM681W20OT |
|                       | 1000     | 12.5×25       | 0.10 | 0.018                                      | 2770                                                    | ERR1VM102W25OT |
|                       | 1200     | 12.5×30       | 0.10 | 0.016                                      | 3290                                                    | ERR1VM122W30OT |
|                       |          | 16×20         | 0.10 | 0.018                                      | 3140                                                    | ERR1VM122L20OT |
|                       | 1500     | 12.5×35       | 0.10 | 0.015                                      | 3400                                                    | ERR1VM152W35OT |
|                       | 1800     | 16×25         | 0.10 | 0.016                                      | 3460                                                    | ERR1VM182L25OT |
| 50(1H)                | 22       | 5×11          | 0.08 | 0.34                                       | 238                                                     | ERR1HM220D11OT |
|                       |          | 6.3×7         | 0.08 | 0.52                                       | 200                                                     | ERR1HM220E07OT |
|                       | 56       | 6.3×12        | 0.08 | 0.14                                       | 385                                                     | ERR1HM560E12OT |
|                       |          | 8×7           | 0.08 | 0.36                                       | 320                                                     | ERR1HM560F07OT |
|                       | 100      | 8×9           | 0.08 | 0.2                                        | 580                                                     | ERR1HM101F09OT |
|                       |          | 8×12          | 0.08 | 0.074                                      | 724                                                     | ERR1HM101F12OT |
|                       | 120      | 8×16          | 0.08 | 0.061                                      | 950                                                     | ERR1HM121F16OT |
|                       | 150      | 10×12.5       | 0.08 | 0.061                                      | 979                                                     | ERR1HM151G1BOT |
|                       | 180      | 8×20          | 0.08 | 0.046                                      | 1190                                                    | ERR1HM181F20OT |
|                       | 220      | 10×16         | 0.08 | 0.042                                      | 1370                                                    | ERR1HM221G16OT |
|                       | 270      | 10×20         | 0.08 | 0.03                                       | 1580                                                    | ERR1HM271G20OT |
|                       | 330      | 10×25         | 0.08 | 0.028                                      | 1870                                                    | ERR1HM331G25OT |
|                       | 470      | 12.5×20       | 0.08 | 0.027                                      | 2050                                                    | ERR1HM471W20OT |
|                       | 560      | 12.5×25       | 0.08 | 0.023                                      | 2410                                                    | ERR1HM561W25OT |
|                       | 680      | 12.5×30       | 0.08 | 0.021                                      | 2860                                                    | ERR1HM681W30OT |
|                       | 820      | 12.5×35       | 0.08 | 0.019                                      | 2960                                                    | ERR1HM821W35OT |
|                       |          | 16×20         | 0.08 | 0.023                                      | 2730                                                    | ERR1HM821L20OT |
|                       | 1000     | 16×25         | 0.08 | 0.021                                      | 3010                                                    | ERR1HM102L25OT |