

## RR series

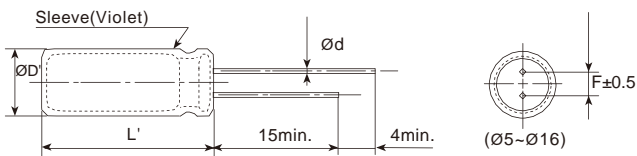


- High frequency, low impedance, high reliability
- Endurance: +105°C 2,000 hours
- Suitable for switching power, UPS, power sources, etc.
- RoHS Compliant

### SPECIFICATIONS

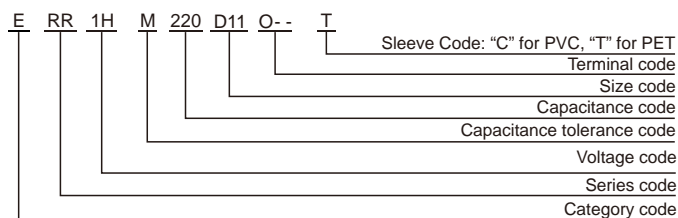
| Items  | Characteristics  |   |      |      |      |      |      |            |
|--|--|---|------|------|------|------|------|------------|
| Category Temperature Range                             | -40~+105°C   |   |      |      |      |      |      |            |
| Rated Voltage Range                                    | 6.3~50 V <sub>dc</sub>   |   |      |      |      |      |      |            |
| Capacitance Tolerance                                  | ±20%(M) <span style="float:right">(at 20°C, 120Hz)</span>  |   |      |      |      |      |      |            |
| 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) <span style="float:right">(at 20°C after 2 minutes)</span> |   |      |      |      |      |      |            |
| Dissipation Factor (tan $\delta$ )                     | Rated Voltage(V <sub>dc</sub> )  | 6.3                                       | 10   | 16   | 25   | 35   | 50   |            |
|  | tan (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. <span style="float:right">(at 20°C, 120Hz)</span>                                       |   |      |      |      |      |      |            |
| Low Temperature Characteristics (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. (tan $\delta$ )   | 200% of 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. (tan $\delta$ )   | 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 | 0.6 | 0.6  | 0.8 |
| 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 (Vdc) | Cap (μF) | Size DxDL(mm) | tan     | Impedance (max/20°C, 100kHz) | Rated ripple current (mArms/105°C, 100kHz) | Part Number    |
|----------|----------|---------------|---------|------------------------------|--|----------------|
| 6.3(OJ)  | 150      | 5x11          | 0.22    | 0.3                          | 250  | ERR0JM151D11OT |
|          |          | 6.3x7         | 0.22    | 0.3                          | 250  | ERR0JM151E07OT |
|          | 330      | 6.3x9         | 0.22    | 0.15                         | 350  | ERR0JM331E09OT |
|          |          | 6.3x11        | 0.22    | 0.13                         | 405  | ERR0JM331E11OT |
|          | 560      | 8x9           | 0.22    | 0.12                         | 605  | ERR0JM561F09OT |
|          |          | 8x12          | 0.22    | 0.072                        | 760  | ERR0JM561F12OT |
|          | 820      | 8x16          | 0.22    | 0.056                        | 995  | ERR0JM821F16OT |
|          |          | 10x9          | 0.22    | 0.085                        | 800  | ERR0JM821G09OT |
|          | 1000     | 10x12.5       | 0.22    | 0.053                        | 1030                                       | ERR0JM102G1BOT |
|          |          | 8x20          | 0.22    | 0.041                        | 1250                                       | ERR0JM122F20OT |
|          | 1200     | 10x16         | 0.22    | 0.038                        | 1430                                       | ERR0JM122G16OT |
|          |          | 1500          | 10x20   | 0.22                         | 0.023                                      | 1820           |
|          | 2200     | 10x25         | 0.24    | 0.022                        | 2150                                       | ERR0JM222G25OT |
|          |          | 3300          | 12.5x20 | 0.26                         | 0.021                                      | 2360           |
|          | 3900     | 12.5x25       | 0.26    | 0.018                        | 2770                                       | ERR0JM392W25OT |
|          |          | 4700          | 12.5x30 | 0.28                         | 0.016                                      | 3290           |
|          | 5600     | 12.5x35       | 0.30    | 0.015                        | 3400                                       | ERR0JM562W35OT |
|          |          | 16x20         | 0.30    | 0.018                        | 3140                                       | ERR0JM562L20OT |
|          | 6800     | 16x25         | 0.32    | 0.016                        | 3460                                       | ERR0JM682L25OT |
|          | 10(1A)   | 100           | 5x7     | 0.18                         | 1.38                                       | 185            |
| 5x11     |          |               | 0.18    | 0.3                          | 250  | ERR1AM101D11OT |
| 220      |          | 6.3x7         | 0.18    | 0.35                         | 405  | ERR1AM221E07OT |
|          |          | 6.3x11        | 0.18    | 0.13                         | 405  | ERR1AM221E11OT |
| 470      |          | 8x9           | 0.18    | 0.18                         | 606  | ERR1AM471F09OT |
|          |          | 8x11          | 0.18    | 0.072                        | 760  | ERR1AM471F11OT |
| 680      |          | 8x16          | 0.18    | 0.056                        | 995  | ERR1AM681F16OT |
|          |          | 10x9          | 0.18    | 0.085                        | 760  | ERR1AM681G09OT |
| 1000     |          | 10x12.5       | 0.18    | 0.053                        | 1030                                       | ERR1AM681G1BOT |
|          |          | 8x20          | 0.18    | 0.041                        | 1250                                       | ERR1AM102F20OT |
| 1200     |          | 10x16         | 0.18    | 0.038                        | 1430                                       | ERR1AM102G16OT |
|          |          | 1500          | 10x20   | 0.18                         | 0.023                                      | 1820           |
| 2200     |          | 10x25         | 0.18    | 0.022                        | 2150                                       | ERR1AM152G25OT |
|          |          | 3300          | 12.5x20 | 0.20                         | 0.021                                      | 2360           |
| 3900     |          | 12.5x25       | 0.22    | 0.018                        | 2770                                       | ERR1AM332W25OT |
|          |          | 4700          | 12.5x30 | 0.22                         | 0.016                                      | 3290           |
| 5600     |          | 16x20         | 0.22    | 0.018                        | 3140                                       | ERR1AM392L20OT |
|          |          | 12.5x35       | 0.24    | 0.015                        | 3400                                       | ERR1AM472W35OT |
| 5600     |          | 16x25         | 0.26    | 0.016                        | 3460                                       | ERR1AM562L25OT |
| 16(1C)   |          | 56            | 5x7     | 0.14                         | 0.7  | 180            |
|          | 5x11     |               | 0.14    | 0.3                          | 250  | ERR1CM560D11OT |
|          | 120      | 6.3x7         | 0.14    | 0.4                          | 300  | ERR1CM121E07OT |
|          |          | 6.3x11        | 0.14    | 0.13                         | 405  | ERR1CM121E11OT |
|          | 330      | 8x7           | 0.14    | 0.14                         | 510  | ERR1CM331F07OT |
|          |          | 8x12          | 0.14    | 0.072                        | 760  | ERR1CM331F12OT |
|          | 470      | 8x16          | 0.14    | 0.056                        | 795  | ERR1CM471F16OT |
|          |          | 10x12.5       | 0.14    | 0.053                        | 1030                                       | ERR1CM471G1BOT |
|          | 680      | 8x20          | 0.14    | 0.041                        | 1250                                       | ERR1CM681F20OT |
|          |          | 10x16         | 0.14    | 0.038                        | 1430                                       | ERR1CM681G16OT |
|          | 1000     | 10x20         | 0.14    | 0.023                        | 1820                                       | ERR1CM102G20OT |
|          |          | 1200          | 10x25   | 0.14                         | 0.022                                      | 2150           |
|          | 1500     | 12.5x20       | 0.14    | 0.021                        | 2360                                       | ERR1CM152W20OT |
|          |          | 2200          | 12.5x25 | 0.16                         | 0.018                                      | 2770           |
|          | 2700     | 12.5x30       | 0.16    | 0.016                        | 3290                                       | ERR1CM272W30OT |
|          |          | 16x20         | 0.16    | 0.018                        | 3140                                       | ERR1CM272L20OT |
|          | 3300     | 12.5x35       | 0.18    | 0.015                        | 3400                                       | ERR1CM332W35OT |
|          | 3900     | 16x25         | 0.18    | 0.016                        | 3460                                       | ERR1CM392L25OT |

| WV (Vdc) | Cap (μF) | Size DxDL(mm) | tan     | Impedance (max/20°C, 100kHz) | Rated ripple current (mArms/105°C, 100kHz) | Part Number    |                |
|----------|----------|---------------|---------|------------------------------|--|----------------|----------------|
| 25(1E)   | 47       | 5x11          | 0.12    | 0.3                          | 250  | ERR1EM470D11OT |                |
|          |          | 6.3x7         | 0.12    | 1.1                          | 200  | ERR1EM470E07OT |                |
|          | 100      | 6.3x9         | 0.12    | 0.13                         | 405  | ERR1EM101E11OT |                |
|          |          | 8x7           | 0.12    | 0.3                          | 430  | ERR1EM101F07OT |                |
|          | 220      | 8x9           | 0.12    | 0.1                          | 600  | ERR1EM221F09OT |                |
|          |          | 8x12          | 0.12    | 0.072                        | 760  | ERR1EM221F12OT |                |
|          | 330      | 8x16          | 0.12    | 0.056                        | 995  | ERR1EM331F16OT |                |
|          |          | 470           | 8x20    | 0.12                         | 0.041                                      | 1250           | ERR1EM471F20OT |
|          | 680      | 10x12.5       | 0.12    | 0.053                        | 1030                                       | ERR1EM681G1BOT |                |
|          |          | 820           | 10x16   | 0.12                         | 0.038                                      | 1430           | ERR1EM821G16OT |
|          | 1000     | 10x20         | 0.12    | 0.023                        | 1820                                       | ERR1EM102G20OT |                |
|          |          | 1500          | 10x25   | 0.12                         | 0.022                                      | 2150           | ERR1EM152G25OT |
|          | 1800     | 12.5x20       | 0.12    | 0.021                        | 2360                                       | ERR1EM182W20OT |                |
|          |          | 12.5x30       | 0.12    | 0.016                        | 3290                                       | ERR1EM182W30OT |                |
|          | 2200     | 16x20         | 0.12    | 0.018                        | 3140                                       | ERR1EM182L20OT |                |
|          |          | 12.5x25       | 0.14    | 0.018                        | 2770                                       | ERR1EM222W25OT |                |
|          | 2700     | 12.5x35       | 0.14    | 0.015                        | 3400                                       | ERR1EM222W35OT |                |
|          |          | 16x25         | 0.14    | 0.016                        | 3460                                       | ERR1EM272L25OT |                |
|          | 35(1V)   | 33            | 5x7     | 0.10                         | 1.15                                       | 160            | ERR1VM330D07OT |
|          |          |               | 5x11    | 0.10                         | 0.3  | 250            | ERR1VM330D11OT |
| 56       |          | 6.3x11        | 0.10    | 0.13                         | 405  | ERR1VM560E11OT |                |
|          |          | 8x7           | 0.10    | 0.39                         | 405  | ERR1VM560F07OT |                |
| 150      |          | 8x9           | 0.10    | 0.17                         | 600  | ERR1VM151F09OT |                |
|          |          | 8x12          | 0.10    | 0.072                        | 760  | ERR1VM151F12OT |                |
| 220      |          | 8x16          | 0.10    | 0.056                        | 995  | ERR1VM221F16OT |                |
|          |          | 10x12.5       | 0.10    | 0.053                        | 1030                                       | ERR1VM221G1BOT |                |
| 270      |          | 8x20          | 0.10    | 0.041                        | 1250                                       | ERR1VM271F20OT |                |
|          |          | 330           | 10x16   | 0.10                         | 0.038                                      | 1430           | ERR1VM331G16OT |
| 470      |          | 10x20         | 0.10    | 0.023                        | 1820                                       | ERR1VM471G20OT |                |
|          |          | 560           | 10x25   | 0.10                         | 0.022                                      | 2150           | ERR1VM561G25OT |
| 680      |          | 12.5x20       | 0.10    | 0.021                        | 2360                                       | ERR1VM681W20OT |                |
|          |          | 1000          | 12.5x25 | 0.10                         | 0.018                                      | 2770           | ERR1VM102W25OT |
| 1200     |          | 12.5x30       | 0.10    | 0.016                        | 3290                                       | ERR1VM122W30OT |                |
|          |          | 1500          | 16x20   | 0.10                         | 0.018                                      | 3140           | ERR1VM122L20OT |
| 1800     |          | 12.5x35       | 0.10    | 0.015                        | 3400                                       | ERR1VM152W35OT |                |
|          |          | 16x25         | 0.10    | 0.016                        | 3460                                       | ERR1VM182L25OT |                |
| 50(1H)   |          | 22            | 5x11    | 0.08                         | 0.34                                       | 238            | ERR1HM220D11OT |
|          |          |               | 6.3x7   | 0.08                         | 0.52                                       | 200            | ERR1HM220E07OT |
|          | 56       | 6.3x12        | 0.08    | 0.14                         | 385  | ERR1HM560E12OT |                |
|          |          | 8x7           | 0.08    | 0.36                         | 320  | ERR1HM560F07OT |                |
|          | 100      | 8x9           | 0.08    | 0.2                          | 580  | ERR1HM101F09OT |                |
|          |          | 8x12          | 0.08    | 0.074                        | 724  | ERR1HM101F12OT |                |
|          | 120      | 8x16          | 0.08    | 0.061                        | 950  | ERR1HM121F16OT |                |
|          |          | 150           | 10x12.5 | 0.08                         | 0.061                                      | 979            | ERR1HM151G1BOT |
|          | 180      | 8x20          | 0.08    | 0.046                        | 1190                                       | ERR1HM181F20OT |                |
|          |          | 220           | 10x16   | 0.08                         | 0.042                                      | 1370           | ERR1HM221G16OT |
|          | 270      | 10x20         | 0.08    | 0.03                         | 1580                                       | ERR1HM271G20OT |                |
|          |          | 330           | 10x25   | 0.08                         | 0.028                                      | 1870           | ERR1HM331G25OT |
|          | 470      | 12.5x20       | 0.08    | 0.027                        | 2050                                       | ERR1HM471W20OT |                |
|          |          | 560           | 12.5x25 | 0.08                         | 0.023                                      | 2410           | ERR1HM561W25OT |
|          | 680      | 12.5x30       | 0.08    | 0.021                        | 2860                                       | ERR1HM681W30OT |                |
|          |          | 820           | 12.5x35 | 0.08                         | 0.019                                      | 2960           | ERR1HM821W35OT |
|          | 1000     | 16x20         | 0.08    | 0.023                        | 2730                                       | ERR1HM821L20OT |                |
|          |          | 16x25         | 0.08    | 0.021                        | 3010                                       | ERR1HM102L25OT |                |

Radial Type