

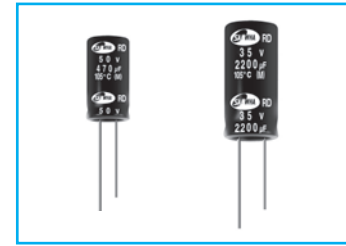
MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS

RD Wide Temperature Range Series

- Standard series for general purpose
- High CV value
- Wide operating temperature range of -55 ~ +105°C
- Complied to the RoHS directive

S
Solvent Proof
WV ≤ 100V

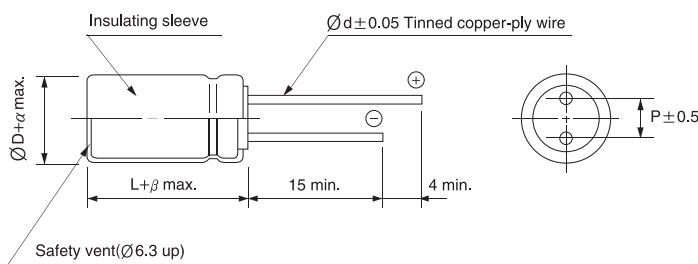
SD → **RD**
Wide temp.



| Item | Characteristics | | | | | | | | | | | |
|----------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|-----------------------------------|------|------|--------------|-------------------------------|------|---------|--------------|---------|--|
| Operating temperature range | WV | 6.3 ~ 100 | | | | 160 ~ 450 | | | | 500 | | |
| | Temperature range | -55 ~ +105°C | | | | -40 ~ +105°C | | | | -25 ~ +105°C | | |
| Leakage current max. | WV ≤ 100 | | | | | | WV > 100 | | | | | |
| | I = 0.01CV or 3µA whichever is greater (after 2 min) I = 0.03CV or 4µA whichever is greater (after 1 min) | | | | | | I = 0.02CV+15µA (after 5 min) | | | | | |
| Capacitance tolerance | ±20% at 120Hz, 20°C | | | | | | | | | | | |
| Dissipation factor max. (at 120Hz, 20°C) | Capacitance > 1000µF : tanδ increases by 0.02 for each 1000µF from below value. | | | | | | | | | | | |
| | WV | 6.3 | 10 | 16 | 25 | 35 | 50 | 63 | 100 | 160~250 | 350~500 | |
| tanδ | 0.28 | 0.24 | 0.20 | 0.16 | 0.14 | 0.12 | 0.10 | 0.08 | 0.15 | 0.20 | | |
| Low temperature characteristics (Impedance ratio at 120Hz) | WV | 6.3 | 10 | 16 | 25 | 35 | 50~100 | 160 | 200~350 | 400~450 | 500 | |
| | Z-25°C/Z+20°C | 5 | 4 | 3 | 2 | 2 | 2 | 4 | 6 | 10 | 12 | |
| | Z-40°C/Z+20°C | 12 | 10 | 8 | 5 | 4 | 3 | 6 | 8 | 12 | — | |
| Load life (after application of the rated voltage for 2000 hours at 105°C) | Leakage current | | Less than specified value | | | | | | | | | |
| | Capacitance change | | Within ±20% of initial value | | | | | | | | | |
| | tanδ | | Less than 200% of specified value | | | | | | | | | |
| | ∅D | | ∅D ≤ 8 | | | | ∅D ≥ 10 | | | | | |
| Life time | | 1000 hours | | | | 2000 hours | | | | | | |
| Shelf life (at 105°C) | After 1000 hours no load test, leakage current, capacitance and tanδ are same as load life value. The measurement shall be performed at 20°C by the KS C IEC 60384 - 4 | | | | | | | | | | | |

● DRAWING

Unit : mm



| ∅D | 5 | 6.3 | 8 | 10 | 12.5 | 16 | 18 | 22 |
|----|-----|-----|-----|-----|------|-----|-----|------|
| P | 2.0 | 2.5 | 3.5 | 5.0 | 5.0 | 7.5 | 7.5 | 10.0 |
| ∅d | 0.5 | 0.5 | 0.6 | 0.6 | 0.6 | 0.8 | 0.8 | 1.0 |
| α | 0.5 | | | | | | | 1.0 |
| β | 1.5 | | 2.0 | | | | 3.0 | |

● FREQUENCY COEFFICIENT OF PERMISSIBLE RIPPLE CURRENT

| WV | Frequency | | 60Hz | 120Hz | 1kHz | 10kHz | 50kHz | 100kHz ≤ |
|---------|-----------|--|------|-------|------|-------|-------|----------|
| | µF | | | | | | | |
| 6.3~100 | ~ 47 | | 0.75 | 1.00 | 1.55 | 2.00 | 2.00 | 2.00 |
| | 68 ~ 680 | | 0.80 | 1.00 | 1.35 | 1.50 | 1.62 | 1.75 |
| | 820 ~ | | 0.85 | 1.00 | 1.15 | 1.15 | 1.32 | 1.50 |
| 160~500 | ~ 220 | | 0.80 | 1.00 | 1.40 | 1.60 | 1.70 | 1.80 |
| | 330 ~ | | 0.90 | 1.00 | 1.13 | 1.15 | 1.32 | 1.50 |

RD series

● DIMENSIONS & MAXIMUM PERMISSIBLE RIPPLE CURRENT

| WV μF | WV | | | | | | | | | | | | | | |
|----------|-----------------|-----------------|-----------------|------------------------------------|-----------------|--------------------------------------------------------------------|-----------------|-----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|
| | 6.3 | 10 | 16 | 25 | 35 | 50 | 63 | 100 | 160 | 200 | 250 | 350 | 400 | 450 | 500 |
| 2.2 | | | | | | 5×11 24 | 5×11 26 | 5×11 26 | 6.3×11 23 | 6.3×11 23 | 6.3×11 23 | 8×11.5 28 | 8×11.5 28 | 10×12.5 27 | |
| 3.3 | | | | | | 5×11 29 | 5×11 32 | 5×11 32 | 6.3×11 29 | 6.3×11 29 | 8×11.5 34 | 8×11.5 34 | 10×12.5 39 | 10×16 36 | |
| 4.7 | | | | | | 5×11 35 | 5×11 38 | 5×11 38 | 6.3×11 34 | 8×11.5 40 | 8×11.5 40 | 10×12.5 47 | 10×12.5 47 | 10×16 43 | 10×16 59 |
| 6.8 | | | | | | 5×11 42 | 5×11 46 | 5×11 46 | 8×11.5 49 | 10×12.5 56 | 10×12.5 56 | 10×16 62 | 10×16 62 | 10×16 52 | 10×16 72 |
| 10 | | | | | | 5×11 51 | 5×11 56 | 5×11 56 | 10×12.5 68 | 10×12.5 68 | 10×12.5 68 | 10×16 75 | 10×16 82 | 12.5×20 80 | 12.5×25 88 |
| 15 | | | | | | 5×11 62 | 5×11 68 | 6.3×11 78 | 10×16 92 | 10×16 92 | 10×16 92 | 10×20 100 | 12.5×20 118 | 12.5×25 107 | 12.5×30 115 |
| 22 | | | | | | 5×11 75 | 5×11 83 | 6.3×11 95 | 10×16 111 | 10×16 111 | 10×20 121 | 12.5×20 143 | 12.5×25 155 | 16×25 144 | 16×25 159 |
| 33 | | | | | | 5×11 92 | 6.3×11 116 | 8×11.5 137 | 10×20 149 | 10×20 149 | 12.5×20 175 | 12.5×25 190 | 16×25 211 | 16×31.5 193 | 16×31.5 207 |
| 47 | | | | | ★ 5×11 96 | ★ 6.3×11 127 | 6.3×11 139 | 10×12.5 190 | 12.5×20 208 | 12.5×20 208 | 12.5×25 227 | 16×25 252 | 16×31.5 276 | 16×31.5 230 | 18×31.5 261 |
| 68 | | | | ★ 5×11 108 | 6.3×11 132 | 8×11.5 180 | 8×11.5 197 | 10×16 251 | 12.5×25 273 | 16×20 279 | 16×20 303 | 16×31.5 332 | 18×35.5 373 | 18×31.5 285 | 18×35.5 335 |
| 82 | | | | 6.3×11 137 | 6.3×11 145 | 8×11.5 198 | 8×11.5 216 | 10×20 290 | 12.5×25 302 | 16×25 333 | 16×31.5 364 | 18×35.5 369 | 18×40 387 | 18×31.5 327 | 18×40 370 |
| 100 | | | 5×11 119 | 6.3×11 151 | 6.3×11 160 | 8×11.5 218 | 8×11.5 239 | 10×20 332 | 12.5×25 331 | 16×25 368 | 16×31.5 402 | 18×35.5 407 | 18×40 427 | 18×40 486 | |
| 150 | | 5×11 134 | ★ 6.3×11 167 | 6.3×11 185 | 8×11.5 231 | 10×12.5 310 | 10×12.5 340 | 12.5×20 477 | 16×25 450 | 16×35.5 517 | 18×35.5 554 | 18×40 523 | 22×41 596 | | |
| 220 | 5×11 146 | ★ 5×11 162 | 6.3×11 203 | 8×11.5 264 | 8×11.5 280 | 10×12.5 376 | 10×16 451 | 12.5×25 630 | 16×31.5 596 | 18×35.5 671 | 18×40 694 | 22×41 721 | | | |
| 330 | ★ 6.3×11 206 | 6.3×11 228 | 8×11.5 293 | 8×11.5 324 | 10×12.5 399 | 10×16 504 | 10×20 603 | 16×25 856 | 18×35.5 822 | 18×40 850 | 22×41 968 | | | | |
| 470 | 6.3×11 246 | 6.3×11 272 | 8×11.5 349 | 10×12.5 449 | 10×16 521 | 10×20 657 | 12.5×20 844 | 16×25 1021 | 18×40 1015 | 22×41 1155 | | | | | |
| 680 | 8×11.5 348 | 10×12.5 449 | 10×12.5 488 | 10×16 591 | 12.5×16 740 | 12.5×20 927 | 12.5×25 1107 | 16×31.5 1344 | 22×41 1390 | | | | | | |
| 820 | 8×11.5 382 | 10×12.5 493 | 10×16 587 | 10×20 708 | 12.5×20 880 | 12.5×25 1050 | 16×25 1300 | 16×35.5 1627 | | | | | | | |
| 1000 | 8×11.5 422 | 10×12.5 544 | 10×16 648 | 10×20 820 | 12.5×20 974 | 12.5×25 1226 | 16×25 1490 | 18×40 1925 | | | | | | | |
| 1500 | 10×16 621 | 10×16 680 | 12.5×16 862 | 12.5×20 1017 | 16×20 1188 | 16×25 1442 | 16×35.5 1770 | | | | | | | | |
| 2200 | 10×20 778 | 10×20 844 | 12.5×20 1055 | 12.5×20 1100 12.5×25 1235 | 16×25 1426 | 16×31.5 1442 | 16×35.5 1770 | | | | | | | | |
| 3300 | 12.5×16 983 | 12.5×20 1148 | 12.5×25 1323 | 16×25 1562 | 16×35.5 1857 | 16×35.5 1794 | 18×40 2689 | | | | | | | | |
| 4700 | 12.5×20 1219 | 12.5×25 1421 | 16×25 1657 | 16×31.5 1916 | 18×35.5 2224 | ← Case size ØD×L (mm) ← Ripple current (mA rms) at 105°C, 120Hz | | | | | | | | | |
| 6800 | 12.5×25 1480 | 16×25 1737 | 16×31.5 1982 | 18×35.5 2335 | | | | | | | | | | | |
| 10000 | 16×25 1807 | 16×35.5 2172 | 18×35.5 2409 | | | | | | | | | | | | |
| 15000 | 16×35.5 2233 | 18×35.5 2482 | | | | | | | | | | | | | |
| 22000 | 18×40 2652 | | | | | | | | | | | | | | |

Size Ø8×9 is available for capacitors marked "★"

MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS

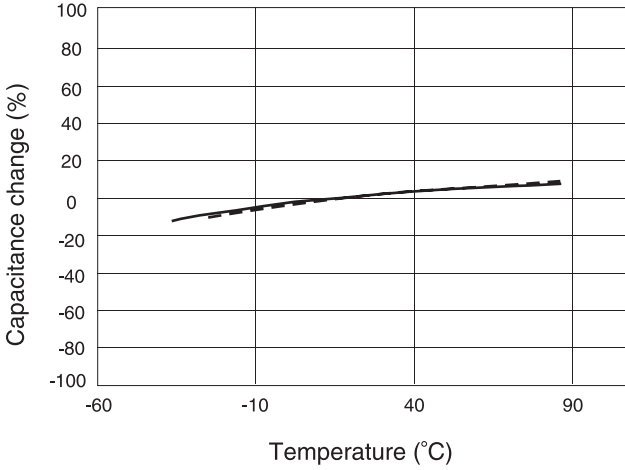
RD series

TYPICAL PERFORMANCE

— 16V 1000 μ F
 - - - 400V 10 μ F

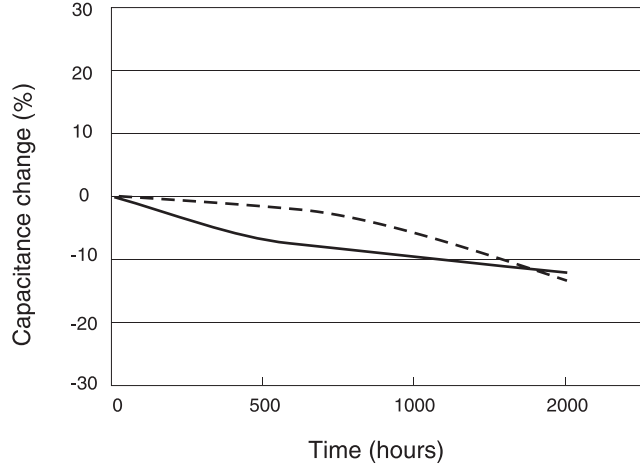
● TEMPERATURE CHARACTERISTICS

Capacitance change vs. temperature

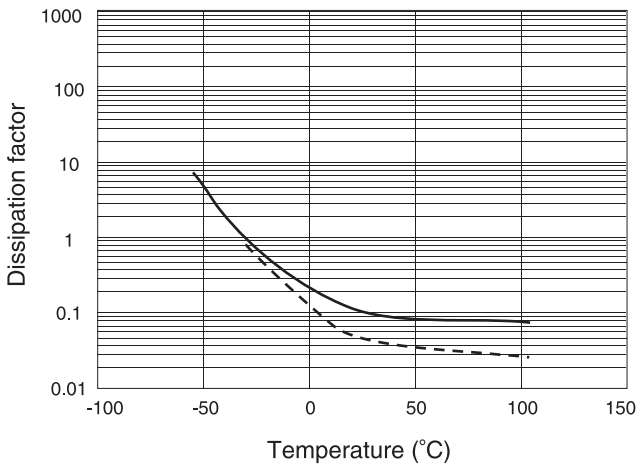


● LOAD LIFE (at +105°C)

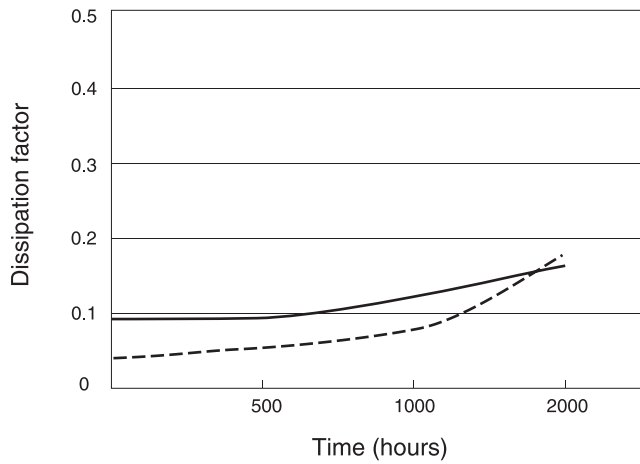
Capacitance change vs. time



Dissipation factor vs. temperature

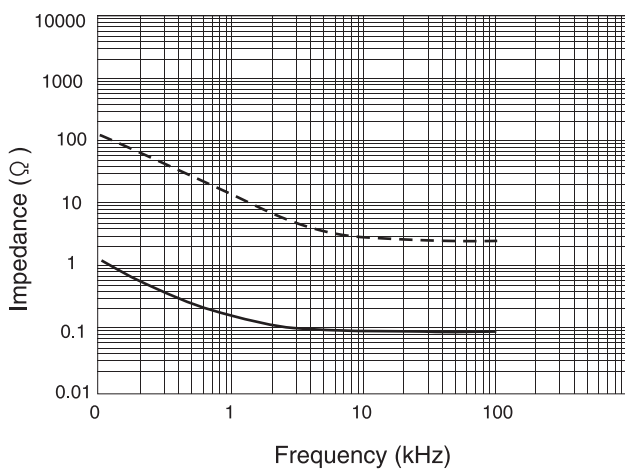


Dissipation factor vs. time



● FREQUENCY CHARACTERISTICS

Impedance vs. frequency



Leakage current vs. time

