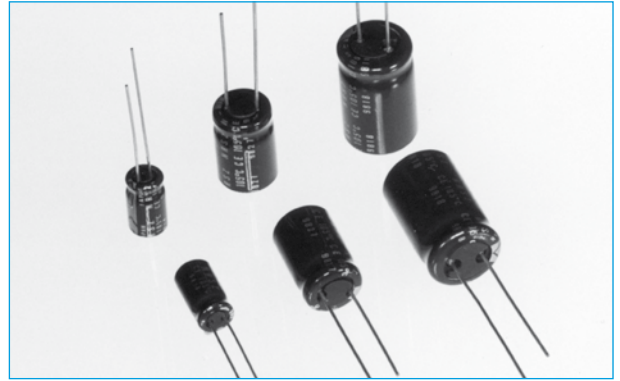


CAPACITORS

ULTRA LOW IMPEDANCE REDUCED SIZE DSHR

SECTION 1

- Very low impedance
- Up to 3000 hrs life
- -55° - 105°C
- Suited for power supply applications
- Smaller sizes than DSH



SPECIFICATION

| | | | | | | | |
|--|--------------------------------------|---|------|------|------|------|------|
| Rated Voltage Range | 6.3 ~ 50Vdc | | | | | | |
| Rated Capacitance Range | 22 ~ 15000F | | | | | | |
| Operating Temperature Range | -55° ~+105°C | | | | | | |
| Capacitance Tolerance | ±20% (M) | | | | | | |
| Maximum Leakage Current After 2 minutes At 20°C | 0.01CV, or 3µA, whichever is greater | | | | | | |
| Maximum Tanδ At 20°C & 120Hz | W.V. (Vdc) | 6.3 | 10 | 16 | 25 | 35 | 50 |
| | C ≤ 1,000 | 0.28 | 0.24 | 0.2 | 0.16 | 0.14 | 0.12 |
| | C = 2,200 | 0.3 | 0.26 | 0.22 | 0.18 | 0.16 | 0.14 |
| | C = 3,300 | 0.32 | 0.28 | 0.24 | 0.2 | 0.18 | |
| | C = 4,700 | 0.34 | 0.3 | 0.26 | 0.22 | | |
| | C = 6,800 | 0.38 | 0.34 | 0.3 | | | |
| | C = 10,000 | 0.56 | 0.42 | | | | |
| Low Temperature Stability (Impedance Ratio) | Z-40°C/Z+20°C | 3 | 3 | 2 | 2 | 2 | 2 |
| | Z-40°C/Z+20°C | 6 | 5 | 4 | 4 | 3 | 3 |
| Load Life Test at Rated W.V 105°C 1,000 Hrs. = 8ø & less 105°C 2,000 Hrs. - 10ø 105°C 3,000 Hrs. = 12.5ø & up | Capacitance Change | Within ±25% of initial measured value | | | | | |
| | Tan | Less than 200% of specified maximum value | | | | | |
| | Leakage Current | Less than specified value | | | | | |

RANGE & CASE SIZE DØ x Lmm

ORDERING INFORMATION

| Cap. (µF) | 6.3 | 10 | 16 | 25 | 35 | 50 |
|-----------|---------|---------|---------|---------|---------|---------|
| 22 | | | | | | 5x11 |
| 33 | | | | | 5x11 | 5x11 |
| 47 | | | | | 5x11 | 6.3x11 |
| 100 | | | 5x11 | 6.3x11 | 6.3x11 | 8x11.5 |
| 220 | 5x11 | 6.3x11 | 6.3x11 | 8x11.5 | 8x12.5 | 10x12.5 |
| 330 | 6.3x11 | 6.3x11 | 8x11.5 | 8x12.5 | 10x12.5 | 10x16 |
| 470 | 6.3x11 | 8x11.5 | 8x12.5 | 10x12.5 | 10x16 | 10x20 |
| 1000 | 8x11.5 | 10x12.5 | 10x16 | 10x20 | 12.5x20 | 12.5x25 |
| 2200 | 10x16 | 10x20 | 12.5x20 | 12.5x25 | 16x25 | 16x31.5 |
| 3300 | 10x20 | 12.5x20 | 12.5x25 | 16x25 | 16x35.5 | |
| 4700 | 12.5x20 | 12.5x25 | 16x25 | 16x31.5 | | |
| 6800 | 12.5x25 | 16x25 | 16x31.5 | | | |
| 10,000 | 16x25 | 16x31.5 | | | | |
| 15,000 | 16x35.5 | | | | | |

| DSHR | 330 | 10 | /TR |
|----------------|-------------------|---------|--|
| Series DSHR | Capacitance µF | Voltage | Options Blank = Loose TA = Tape Ammo TR = Tape Reel |

TA, TR = 5mm pitch
For others add pitch e.g. TA2MM = 2mm pitch

MAXIMUM E.S.R AT 20 °C & 100 KHz (Ω)

PERMISSIBLE RIPPLE CURRENT

| W.V. (Vdc /Cap. (μF) | 6.3 | 10 | 16 | 25 | 35 | 50 |
|----------------------|-------|-------|-------|-------|-------|-------|
| 22 | | | | | | 1.40 |
| 33 | | | | | 0.72 | 1.40 |
| 47 | | | | | 0.50 | 0.74 |
| 100 | | | 0.50 | 0.30 | 0.24 | 0.46 |
| 220 | 0.50 | 0.30 | 0.24 | 0.16 | 0.15 | 0.22 |
| 330 | 0.30 | 0.24 | 0.16 | 0.15 | 0.086 | 0.18 |
| 470 | 0.24 | 0.16 | 0.15 | 0.086 | 0.066 | 0.11 |
| 1000 | 0.15 | 0.086 | 0.066 | 0.047 | 0.042 | 0.072 |
| 2200 | 0.066 | 0.047 | 0.042 | 0.040 | 0.026 | 0.045 |
| 3300 | 0.047 | 0.042 | 0.040 | 0.026 | 0.022 | |
| 4700 | 0.042 | 0.031 | 0.026 | 0.022 | | |
| 6800 | 0.031 | 0.026 | 0.022 | | | |
| 10000 | 0.026 | 0.022 | | | | |
| 15000 | 0.022 | | | | | |

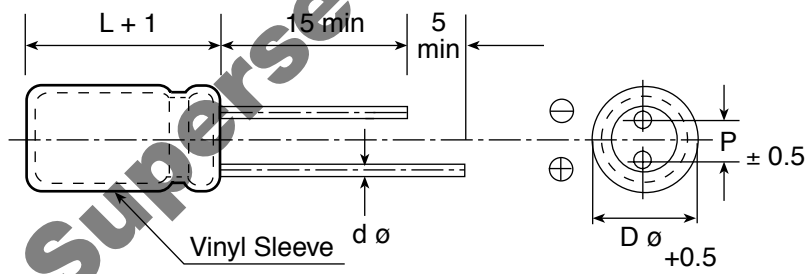
MAXIMUM (mA AT 105 °C & 10Hz-200KHz)

| W.V. (Vdc /Cap. (μF) | 6.3 | 10 | 16 | 25 | 35 | 50 |
|----------------------|------|------|------|------|------|------|
| 22 | | | | | | 120 |
| 33 | | | | | 180 | 130 |
| 47 | | | | | 180 | 190 |
| 100 | | | 180 | 280 | 280 | 320 |
| 220 | 180 | 280 | 280 | 410 | 560 | 520 |
| 330 | 280 | 280 | 410 | 510 | 710 | 670 |
| 470 | 280 | 410 | 560 | 710 | 950 | 820 |
| 1000 | 560 | 710 | 950 | 1150 | 1460 | 1200 |
| 2200 | 950 | 1150 | 1460 | 1650 | 2000 | 1750 |
| 3300 | 1150 | 1460 | 1650 | 2000 | 2200 | |
| 4700 | 1460 | 1780 | 2000 | 2200 | | |
| 6800 | 1780 | 2000 | 2200 | | | |
| 10000 | 2000 | 2200 | | | | |
| 15000 | 2200 | | | | | |

RIPPLE CURRENT CORRECTION FACTOR

| Frequency (Hz) | 100≤f≤1K | 1K≤f≤10K | 10K≤f |
|----------------|----------|----------|-------|
| 22≤C<100 | 0.55 | 0.8 | 1.0 |
| 100≤C≤1000 | 0.7 | 0.9 | 1.0 |
| 1000≤C | 0.9 | 0.95 | 1.0 |

OUTLINE DRAWING



Dimensions in mm

| | | | | | | | |
|----------------|-----|-----|-----|----|------|-----|----|
| Case Size (D) | 5 | 6.3 | 8 | 10 | 12.5 | 16 | 18 |
| Lead Space (P) | 2 | 2.5 | 3.5 | 5 | 7.5 | | |
| Lead Dia (d) | 0.5 | | 0.6 | | | 0.8 | |