

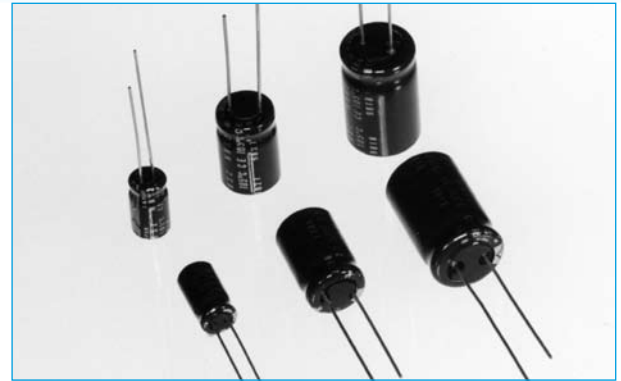


CAPACITORS

LOW IMPEDANCE AND LOW ESR DSHX

SECTION 1

- For high frequency
- Up to 6000 hours @ 105°C
- -40 to +105°C
- Suited for switching applications
- Other case sizes available on request



SPECIFICATION

| Item | Electrical Characteristics | | | | | | |
|---|--|--------------|------------------|------------|---------|----|----|
| Operating Temperature Range | -40° to +105°C | | | | | | |
| Rate Working Voltage Range | 6.3 to 50V | | | | | | |
| Rate Capacitance Range | 1 to 15000µF | | | | | | |
| Capacitance Tolerance | -20 to +20% | | | | | | |
| DC Current Leakage (µA) | I = 0.01 CV or 3(µA) whichever is greater. (Measurements shall be Made After a 2 Minute Charge at Rated Working Voltage) Dissipation Factor: at 120 Hz, 25°C | | | | | | |
| | WV (V) | 6.3 | 10 | 16 | 25 | 35 | |
| | D.F (%) | 22 | 19 | 16 | 14 | 10 | |
| | For capacitor whose capacitance exceeds 1000µF. The value of D.F.(%) is increased by 2% for every addition of 1000µF. | | | | | | |
| | WV (V) | 6.3 | 10 | 16 | 25 | 35 | 50 |
| | Impedance: Z-25°C / Z+20°C | 4 | 3 | 2 | 2 | 2 | 2 |
| | Impedance: Z-40°C / Z+20°C | 8 | 6 | 4 | 3 | 3 | 3 |
| Load Life | Dø: 5ø to 6.3ø | 8ø to 10øx12 | 10øx15 to 10øx30 | 12ø to 18ø | | | |
| | Life | 3000hrs | 4000hrs | 5000hrs | 6000hrs | | |
| If dimension is down size, Endurance will be less 1000hrs than standard. (a)Capacitance Change : Within 20% of Initial Value (b)Dissipation Factor : NotExceed200% of Initial Requirement (c)Leakage Current : NotExceed the Initial Requirement | | | | | | | |
| Shelf Life | Shelf Life : 500 Hours, No Voltage Applied, at 105°C | | | | | | |
| | (a)Capacitance Change : Within 25% of Initial Value | | | | | | |
| | (b)Dissipation Factor : Not Exceed 200% of Initial Requirement (c)Leakage Current : Not Exceed 200% Initial Requirement | | | | | | |

ORDERING INFORMATION

| | | | |
|-------------------------------------|-------------|-----------|------------|
| DSHX | 330 | 10 | /TA |
| Series | Capacitance | Voltage | Options |
| Blank = loose TA = Tape and Ammo | | | |

TA = 5mm pitch
For others add pitch eg. TA2mm = 2mm pitch



MAX IMPEDANCE at 20C & 100KHz

| UF/Volts | 6.3v | 10v | 16v | 25v | 35v | 50v |
|-----------------------------|-------|-------|-------|-------|-------|-------|
| 0.47uf | | | | | | |
| 1.0uf | | | | | | 40 |
| 2.2uf | | | | | | 2.5 |
| 3.3uf | | | | | | 2.2 |
| 4.7uf | | | | | | 1.9 |
| 10uf | | | | | | 1.5 |
| 22uf | | | | | 0.754 | 0.91 |
| 33uf | | | | | 0.754 | 0.39 |
| 47uf | | | 0.754 | 0.074 | 0.286 | 0.39 |
| 100uf | 0.754 | 0.754 | 0.286 | 0.286 | 0.169 | 0.17 |
| 220uf | 0.286 | 0.286 | 0.286 | 0.169 | 0.104 | 0.084 |
| 330uf | 0.286 | 0.169 | 0.169 | 0.104 | 0.078 | 0.055 |
| 470uf | 0.169 | 0.169 | 0.169 | 0.06 | 0.06 | 0.045 |
| 1000uf | 0.104 | 0.078 | 0.078 | 0.046 | 0.039 | 0.033 |
| 2200uf | 0.055 | 0.046 | 0.046 | 0.029 | 0.029 | 0.022 |
| 3300uf | 0.035 | 0.034 | 0.029 | 0.029 | 0.013 | |
| 4700uf | 0.034 | 0.036 | 0.029 | 0.025 | | |
| 6800uf | 0.036 | 0.029 | 0.022 | | | |
| 10000uf | 0.031 | 0.025 | 0.02 | | | |
| 15000uf | 0.025 | | | | | |
| Impedance (Max 25C/100KHz) | | | | | | |

CASE SIZE DØ X Lmm

| UF/Volts | 6.3v | 10v | 16v | 25v | 35v | 50v |
|----------|--------|--------|--------|--------|--------|--------|
| 0.47uf | | | | | | |
| 1.0uf | | | | | | 5x11 |
| 2.2uf | | | | | | 5x11 |
| 3.3uf | | | | | | 5x11 |
| 4.7uf | | | | | | 5x11 |
| 10uf | | | | | | 5x11 |
| 22uf | | | | | 5x11 | 5x11 |
| 33uf | | | | | 5x11 | 6.3x11 |
| 47uf | | | 5x11 | 5x11 | 6.3x11 | 6.3x11 |
| 100uf | 5x11 | 5x11 | 6.3x11 | 6.3x11 | 8x11 | 8x11 |
| 220uf | 6.3x11 | 6.3x11 | 8x11 | 8x11 | 10x12 | 10x15 |
| 330uf | 6.3x11 | 8x11 | 8x11 | 10x12 | 10x15 | 10x25 |
| 470uf | 8x11 | 8x11 | 10x12 | 10x15 | 10x19 | 13x20 |
| 1000uf | 10x12 | 10x15 | 10x20 | 13x20 | 13x25 | 16x25 |
| 2200uf | 10x25 | 13x20 | 13x25 | 13x35 | 16x32 | 18x36 |
| 3300uf | 13x20 | 13x25 | 13x35 | 16x32 | 16x40 | |
| 4700uf | 13x30 | 16x25 | 16x32 | 18x36 | | |
| 6800uf | 16x25 | 16x32 | 16x40 | | | |
| 10000uf | 18x25 | 18x36 | 18x40 | | | |
| 15000uf | 18x36 | | | | | |

FREQUENCY COEFFICIENT

| Frequency (Hz) | 120 | 1K | 10K | 100K |
|----------------|------|------|------|------|
| 22-180uF | 0.40 | 0.75 | 0.90 | 1.00 |
| 220-560uF | 0.50 | 0.85 | 0.94 | 1.00 |
| 680-1800uF | 0.60 | 0.87 | 0.95 | 1.00 |
| 2200-3900uF | 0.75 | 0.90 | 0.95 | 1.00 |
| 4700uF Higher | 0.85 | 0.95 | 0.98 | 1.00 |

MAX PERMISSABLE RIPPLE CURRENT

(mA at 105°C + 10Hz - 200KHz)

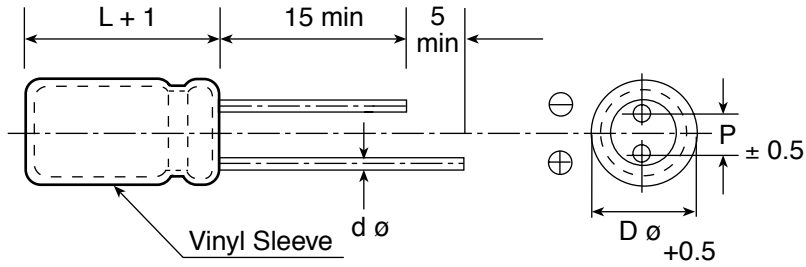
| UF/Volts | 6.3v | 10v | 16v | 25v | 35v | 50v |
|--------------------------------------|------|------|------|------|------|------|
| 0.47uf | | | | | | |
| 1.0uf | | | | | | 30 |
| 2.2uf | | | | | | 43 |
| 3.3uf | | | | | | 53 |
| 4.7uf | | | | | | 88 |
| 10uf | | | | | | 100 |
| 22uf | | | | | | 158 |
| 33uf | | | | | | 259 |
| 47uf | | | | | 298 | 259 |
| 100uf | 184 | 184 | 298 | 298 | 561 | 555 |
| 220uf | 298 | 298 | 561 | 561 | 759 | 1050 |
| 330uf | 298 | 561 | 561 | 759 | 1061 | 1440 |
| 470uf | 561 | 561 | 759 | 1210 | 1228 | 1660 |
| 1000uf | 759 | 1061 | 1228 | 1666 | 2151 | 2241 |
| 2200uf | 1447 | 1666 | 1863 | 2406 | 3068 | 3228 |
| 3300uf | 1900 | 2210 | 2406 | 2657 | 4080 | |
| 4700uf | 2214 | 2238 | 2657 | 3191 | | |
| 6800uf | 2238 | 2657 | 3408 | | | |
| 10000uf | 2430 | 3191 | 3316 | | | |
| 15000uf | 3191 | | | | | |
| Ripple current: (Ar.m.s 105C/100KHz) | | | | | | |

TEMPERATURE COEFFICIENT

| Temperature (C) | 65 | 85 | 105 |
|-----------------|------|------|------|
| Factor | 1.80 | 1.50 | 1.00 |



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 |