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- High Temperature Radial Type, 105°C, 2000 hours assured Load Life.
- Applications: Communications equipment, switching regulators, and industrial applications.

## Characteristics

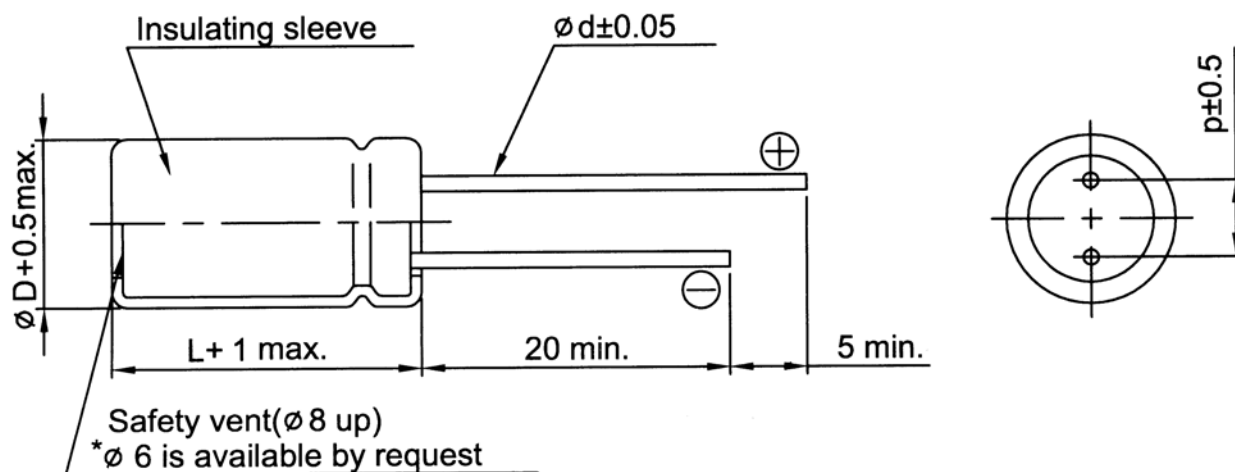
|                              |                                                                                                                                                      |                    |      |      |                                                                                |          |          |      |
|------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|------|------|--------------------------------------------------------------------------------|----------|----------|------|
| Voltage Range                | 6.3 to 100 VDC                                                                                                                                       |                    |      |      | 160 to 450 VDC                                                                 |          |          |      |
| Capacitance Range            | 0.47 to 10000uF                                                                                                                                      |                    |      |      | 0.47 to 220uF                                                                  |          |          |      |
| Temperature Range            | -40 to +105°C                                                                                                                                        |                    |      |      | -25 to +105°C                                                                  |          |          |      |
| Capacitance Tolerance        | +20% -20% (at 20°C, 120Hz)                                                                                                                           |                    |      |      |                                                                                |          |          |      |
| Leakage Current              | I≤0.01CV or 3uA, whichever is greater<br>2 minutes after Rated Voltage applied                                                                       |                    |      |      | I≤0.03CV or 3uA, whichever is greater<br>2 minutes after Rated Voltage applied |          |          |      |
| Dissipation Factor           | Rated Voltage (V)                                                                                                                                    | 6.3                | 10   | 16   | 25                                                                             | 35       | 50       | 63   |
|                              | Dissipation Factor( tanδ)max                                                                                                                         | 0.22               | 0.20 | 0.16 | 0.14                                                                           | 0.12     | 0.10     | 0.09 |
|                              |                                                                                                                                                      |                    |      |      |                                                                                |          |          |      |
|                              | Rated Voltage (V)                                                                                                                                    | 100                | 160  | 200  | 250                                                                            | 350      | 400      | 450  |
|                              | Dissipation Factor( tanδ)max                                                                                                                         | 0.08               | 0.15 | 0.15 | 0.20                                                                           | 0.20     | 0.24     | 0.24 |
|                              | For capacitance > 1000uF, add 0.02 for every 1000uF, (at 20°C, 120Hz)                                                                                |                    |      |      |                                                                                |          |          |      |
| Stability at Low Temperature | Impedance ration at 120Hz                                                                                                                            |                    |      |      |                                                                                |          |          |      |
|                              | Rated Voltage (V)                                                                                                                                    | 6.3V               | 10V  | 16V  | 25-100V                                                                        | 160-250V | 350-400V | 450V |
|                              | Z-25°C/Z 20°C                                                                                                                                        | 4                  | 3    | 2    | 2                                                                              | 3        | 6        | 15   |
|                              | Z-40°C/Z 20°C                                                                                                                                        | 8                  | 6    | 4    | 3                                                                              | —        | —        | —    |
| Load Life                    | After the rated voltage has been applied for 2000 hours at 105°C                                                                                     | Capacitance change |      |      | Within ±20% of initial value                                                   |          |          |      |
|                              |                                                                                                                                                      | D.F. tanδ          |      |      | 150% or less of initial specified value                                        |          |          |      |
|                              |                                                                                                                                                      | Leakage current    |      |      | Less than initial specified value                                              |          |          |      |
| Shelf Life                   | After storage for 1000 hours at 105°C, with no voltage applied and being stabilized at +20°C, Capacitor shall meet the limit specified in load life. |                    |      |      |                                                                                |          |          |      |

## Case Size of Standard Products & Maximum Ripple Current (mA rms 105°C 120Hz)

| Cap. WV | 6.3V           |            | 10V    |      | 16V            |            | 25V            |              | 35V            |              | 50V            |            | 63V    |      |
|---------|----------------|------------|--------|------|----------------|------------|----------------|--------------|----------------|--------------|----------------|------------|--------|------|
| uF      | Size           | R.C.       | Size   | R.C. | Size           | R.C.       | Size           | R.C.         | Size           | R.C.         | Size           | R.C.       | Size   | R.C. |
| 0.47    |                |            |        |      |                |            |                |              |                |              | 5x11           | 8          | 5x11   | 8    |
| 1       |                |            |        |      |                |            |                |              |                |              | 5x11           | 12         | 5x11   | 12   |
| 2.2     |                |            |        |      |                |            |                |              |                |              | 5x11           | 20         | 5x11   | 20   |
| 3.3     |                |            |        |      |                |            |                |              |                |              | 5x11           | 25         | 5x11   | 28   |
| 4.7     |                |            |        |      |                |            |                |              |                |              | 5x11           | 30         | 5x11   | 34   |
| 10      |                |            |        |      | 5x11           | 35         | 5x11           | 38           | 5x11           | 41           | 5x11           | 46         | 5x11   | 50   |
| 22      |                |            |        |      | 5x11           | 54         | 5x11           | 57           | 5x11           | 61           | 5x11           | 68         | 6.3x11 | 82   |
| 33      |                |            |        |      | 5x11           | 64         | 5x11           | 69           | 5x11           | 75           | 6.3x11         | 90         | 6.3x11 | 100  |
| 47      |                |            | 5x11   | 70   | 5x11           | 100        | 5x11           | 105          | 6.3x11         | 110          | 6.3x11         | 125        | 8x12   | 135  |
| 100     | 5x11           | 95         | 5x11   | 105  | 5x11           | 125        | 6.3x11         | 135          | 8x12           | 170          | 8x12           | 180        | 10x13  | 225  |
| 220     | 5x11           | 160        | 6.3x11 | 175  | 6.3x11         | 215        | 8x12           | 230          | 10x13          | 300          | 10x16          | 345        | 10x21  | 400  |
| 330     | 6.3x11         | 195        | 8x12   | 245  | 8x12           | 260        | 10x13          | 335          | 10x16          | 400          | 10x21          | 460        | 13x21  | 540  |
| 470     | 6.3x11<br>8x12 | 230<br>270 | 8x12   | 290  | 8x12<br>10x13  | 310<br>370 | 10x13<br>10x16 | 410<br>440   | 10x21          | 520          | 10x21<br>13x21 | 600<br>610 | 13x26  | 700  |
| 1000    | 10x13          | 460        | 10x13  | 550  | 10x16<br>10x21 | 590<br>640 | 10x21<br>13x21 | 710<br>770   | 13x26          | 920          | 16x26          | 1080       | 16x32  | 1210 |
| 2200    | 10x21          | 810        | 10x21  | 860  | 13x21          | 1000       | 13x26<br>16x26 | 1090<br>1170 | 16x26<br>16x32 | 1290<br>1350 | 16x36<br>16x32 | 1530       | 18x36  | 1610 |
| 3300    | 13x21          | 960        | 13x21  | 1100 | 16x26          | 1300       | 16x26          | 1460         | 16x36          | 1650         | 18x36          | 1750       |        |      |
| 4700    | 13x26          | 1330       | 13x26  | 1350 | 16x26          | 1600       | 16x36          | 1780         | 18x36          | 1900         | 22x41          | 2500       |        |      |
| 6800    | 13x26          | 1450       | 16x26  | 1670 | 16x32          | 1900       | 18x36          | 1950         |                |              |                |            |        |      |
| 10000   | 16x26          | 1680       | 16x36  | 1900 | 18x36          | 2060       |                |              |                |              |                |            |        |      |

| Cap.<br>uF | 100V           |            | 160V           |            | 200V           |            | 250V           |            | 350V           |            | 400V           |            | 450V           |            |
|------------|----------------|------------|----------------|------------|----------------|------------|----------------|------------|----------------|------------|----------------|------------|----------------|------------|
|            | Size           | R.C.       | Size           | R.C.       | Size           | R.C.       | Size           | R.C.       | Size           | R.C.       | Size           | R.C.       | Size           | R.C.       |
| 0.47       | 5x11           | 10         | 5x11           | 12         | 5x11           | 12         | 5x11           | 12         | 6.3x11         | 13         | 6.3x11         | 14         | 6.3x11         | 14         |
| 1          | 5x11           | 15         | 6.3x11         | 17         | 6.3x11         | 17         | 6.3x11         | 17         | 6.3x11         | 20         | 8x12           | 20         | 8x12           | 20         |
| 2.2        | 5x11           | 23         | 6.3x11         | 25         | 6.3x11         | 25         | 8x12           | 29         | 8x12           | 35         | 10x13          | 35         | 10x13          | 35         |
| 3.3        | 5x11           | 32         | 6.3x11         | 32         | 8x12           | 35         | 8x12           | 42         | 10x13          | 47         | 10x13          | 47         | 10x16          | 54         |
| 4.7        | 5x11           | 37         | 8x12           | 42         | 8x12           | 50         | 10x13          | 50         | 10x16          | 55         | 10x16          | 55         | 10x21          | 60         |
| 10         | 6.3x11         | 56         | 10x13          | 59         | 10x16          | 60         | 10x16          | 64         | 10x21          | 79         | 10x21<br>13x21 | 80<br>110  | 13x26          | 87         |
| 22         | 8x12           | 96         | 10x16          | 105        | 10x16<br>10x21 | 105<br>130 | 10x21<br>13x21 | 110<br>140 | 13x21<br>13x26 | 130<br>160 | 13x26<br>16x26 | 145<br>160 | 16x26<br>16x32 | 165        |
| 33         | 10x13          | 120        | 10x21          | 125        | 13x21          | 140        | 13x21          | 140        | 16x26          | 195        | 16x26          | 195        | 16x36          | 210        |
| 47         | 10x16          | 160        | 13x21          | 165        | 13x26          | 165        | 13x26<br>16x26 | 180<br>220 | 16x32          | 230        | 16x32<br>16x36 | 250<br>275 | 16x36<br>18x32 | 260<br>290 |
| 100        | 13x21          | 245        | 13x26<br>16x26 | 270<br>310 | 16x26          | 285        | 16x32          | 365        | 18x36          | 375        | 18x36          | 360        |                |            |
| 220        | 13x26<br>16x26 | 450<br>520 | 16x36          | 480        | 18x36          | 550        |                |            |                |            |                |            |                |            |
| 330        | 16x26          | 690        | 18x36          | 705        |                |            |                |            |                |            |                |            |                |            |
| 470        | 16x32          | 860        | 18x41          | 860        |                |            |                |            |                |            |                |            |                |            |

## Diagram of dimensions



|          |     |     |     |    |    |     |     |
|----------|-----|-----|-----|----|----|-----|-----|
| D $\phi$ | 5   | 6   | 8   | 10 | 13 | 16  | 18  |
| F        | 2.0 | 2.5 | 3.5 | 5  | 5  | 7.5 | 7.5 |
| d $\phi$ | 0.5 |     | 0.6 |    |    | 0.8 |     |