

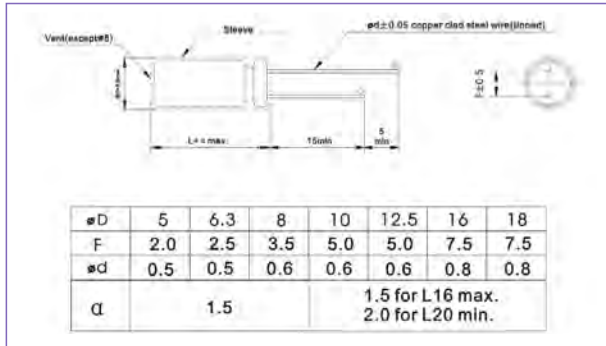
## KLF Aluminum Electrolytic Capacitors

### 105°C Use, Long Life Capacitors, Series KLF

Guarantees 5000-10000 hours at 105°C

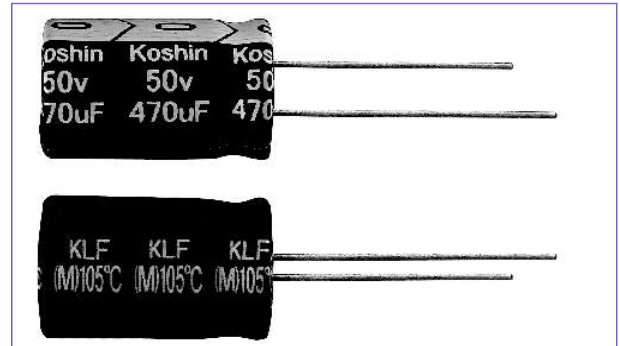
Outline Drawing

Unit: mm



Photo

ROSH



Marking color: black print on yellow sleeve

### Specifications

| No. | Item  | Performance   |  |      |      |   |      |         |         |             |
|-----|---|---|--|------|------|---|------|---------|---------|-------------|
| 1   | Temperature range (°C)                        | -40 to +105(10V ~ 50V)  |  |      |      | -25 to +105(160V ~ 450V)                                      |      |         |         |             |
| 2   | Leakage current (μA)                          | Less than 0.01CV or 3 whichever is larger (after one minutes) |  |      |      | Less than 0.03CV or 3 whichever is larger (after one minutes) |      |         |         |             |
|     |   | C: Rated Capacitance (μF). V: Rated voltage (V) 20°C          |  |      |      |   |      |         |         |             |
| 3   | Capacitance tolerance (%)                     | ±20 (20°C, 120Hz)   |  |      |      |   |      |         |         |             |
| 4   | Tangent of the loss angle (Tan δ)             | Rated voltage (V)   | 10   | 16   | 25   | 35  | 50   | 160-250 | 350-450 | 20°C, 120Hz |
|     |   | Tan δ (max)   | 0.19   | 0.16 | 0.14 | 0.12  | 0.10 | 0.15    | 0.15    |             |
|     |   | 0.02 is added to every 1000 μF increase over 1000 μF          |  |      |      |   |      |         |         |             |
| 5   | Low temperature characteristics               | Rated voltage (V)   | 10   | 16   | 25   | 35  | 50   | 160-250 | 350-450 | 120Hz       |
|     |   | Impedance ratio (max)   | Z <sub>(-25°C)</sub> /Z <sub>(+20°C)</sub>           | 4    | 3    | 2   | 2    | 2       | 3       |             |
| 6   | Endurance (105°C)<br>(Applied ripple current) | Test time   | D < Φ8:5000 hours, Φ8:8000 hours, D ≥ Φ10:10000hours |      |      |   |      |         |         |             |
|     |   | Leakage current   | The initial specified value or less                  |      |      |   |      |         |         |             |
|     |   | Percentage of capacitance change                              | Within ±20% of initial value                         |      |      |   |      |         |         |             |
|     |   | Tangent of the loss angle                                     | 200% or less of the initial specified value          |      |      |   |      |         |         |             |
| 7   | Shelf life (105°C)                            | Test time   | 1000hours  |      |      |   |      |         |         |             |
|     |   | Leakage current   | The initial specified value or less                  |      |      |   |      |         |         |             |
|     |   | Percentage of capacitance change                              | Within ±20% of initial value                         |      |      |   |      |         |         |             |
|     |   | Tangent of the loss angle                                     | 200% or less of the initial specified value          |      |      |   |      |         |         |             |
| 8   | Applicable standards                          | JIS-C-5102 and JIS-C-5141                                     |  |      |      |   |      |         |         |             |

### Coefficient of Frequency for Ripple Current

| Frequency (Hz) | 120  | 1K   | 10K  | 100K ~ |
|----------------|------|------|------|--------|
| Coefficient    | 0.50 | 0.80 | 0.85 | 1.00   |

### Coefficient of Temperature for Ripple Current

| Temperature | 60 or less | 85   | 105  |
|-------------|------------|------|------|
| Coefficient | 2.00       | 1.40 | 1.00 |

# KLF Aluminum Electrolytic Capacitors

Dimension:  $\Phi \times DL$ (mm)

Ripple Current: mA/rms at 100KHz, 105°C

## DIMENSION & PERMISSIBLE RIPPLE CURRENT

| V.DC<br>Contents<br>$\mu F$ | 10V             |      | 16V             |      | 25V             |      | 35V             |      | 50V             |      |
|-----------------------------|-----------------|------|-----------------|------|-----------------|------|-----------------|------|-----------------|------|
|                             | $\Phi \times L$ | mA   | $\Phi \times L$ | mA   | $\Phi \times L$ | mA   | $\Phi \times L$ | mA   | $\Phi \times L$ | mA   |
| 6.8                         |                 |      |                 |      |                 |      |                 |      | 5X11            | 75   |
| 10                          |                 |      |                 |      |                 |      | 5X11            | 65   | 5X11            | 85   |
| 22                          |                 |      |                 |      | 5X11            | 105  | 5X11            | 120  | 6.3X11          | 130  |
| 33                          |                 |      | 5X11            | 100  | 5X11            | 125  | 6.3X11          | 155  | 8X11.5          | 210  |
| 47                          | 5X11            | 90   | 5X11            | 150  | 6.3X11          | 200  | 8X11.5          | 235  | 8X11.5          | 250  |
| 68                          | 5X11            | 115  | 6.3X11          | 190  | 8X11.5          | 255  | 8X11.5          | 280  | 10X12.5         | 310  |
| 100                         | 6.3X11          | 185  | 8X11.5          | 230  | 8X11.5          | 285  | 10X12.5         | 360  | 10X16           | 450  |
| 150                         | 6.3X11          | 245  | 8X11.5          | 260  | 10X12.5         | 400  | 10X16           | 550  | 10X20           | 650  |
| 220                         | 6.3X11          | 310  | 10X12.5         | 400  | 10X16           | 535  | 10X20           | 700  | 12.5X20         | 850  |
| 330                         | 8X11.5          | 415  | 10X16           | 510  | 10X20           | 700  | 12.5X20         | 900  | 12.5X25         | 1000 |
| 470                         | 10X12.5         | 500  | 10X20           | 700  | 12.5X20         | 950  | 12.5X25         | 1020 | 16X25           | 1350 |
| 1000                        | 10X16           | 920  | 12.5X20         | 1020 | 12.5X25         | 1350 | 16X31.5         | 1680 | 18X31.5         | 1820 |
| 2200                        | 12.5X20         | 1450 | 16X25           | 1820 | 16X31.5         | 2280 |                 |      |                 |      |
| 3300                        | 16X25           | 1800 |                 |      |                 |      |                 |      |                 |      |

| V.DC<br>Contents<br>$\mu F$ | 160V            |      | 200V            |      | 250V            |      | 350V            |     | 400V            |     | 450V            |     |
|-----------------------------|-----------------|------|-----------------|------|-----------------|------|-----------------|-----|-----------------|-----|-----------------|-----|
|                             | $\Phi \times L$ | mA   | $\Phi \times L$ | mA   | $\Phi \times L$ | mA   | $\Phi \times L$ | mA  | $\Phi \times L$ | mA  | $\Phi \times L$ | mA  |
| 6.8                         |                 |      |                 |      |                 |      | 10X20           | 180 | 10X20           | 180 | 12.5X20         | 120 |
| 10                          | 10X16           | 220  | 10X20           | 220  | 10X20           | 240  | 12.5X20         | 220 | 12.5X20         | 220 | 12.5X25         | 270 |
| 22                          | 10X20           | 350  | 10X20           | 350  | 12.5X20         | 420  | 12.5X25         | 300 | 16X25           | 370 | 16X25           | 460 |
| 33                          | 12.5X20         | 400  | 12.5X20         | 470  | 12.5X25         | 580  | 16X21           | 350 | 18X21           | 420 | 18X25           | 500 |
| 47                          | 12.5X20         | 520  | 12.5X20         | 520  | 16X21           | 650  | 18X21           | 500 | 18X25           | 600 | 18X31.5         | 630 |
| 68                          | 12.5X25         | 700  | 16X25           | 700  | 18X21           | 830  | 18X25           | 630 | 18X31.5         | 780 |                 |     |
| 100                         | 18X21           | 920  | 18X21           | 920  | 18X25           | 1020 |                 |     |                 |     |                 |     |
| 150                         | 18X25           | 1070 | 18X25           | 1070 | 18X31.5         | 1220 |                 |     |                 |     |                 |     |
| 220                         | 18X25           | 1130 | 18X31.5         | 1300 |                 |      |                 |     |                 |     |                 |     |