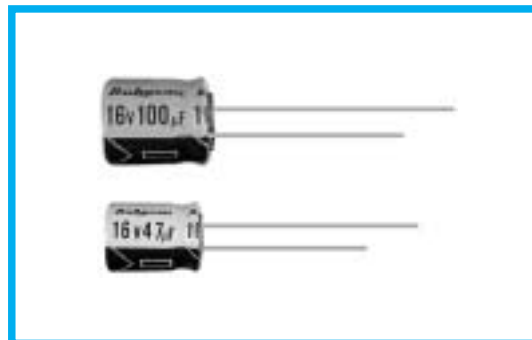


TWL SERIES
Low Leakage Current
◆FEATURES

- RoHS compliance.


◆SPECIFICATIONS

| Items | Characteristics | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|--|---|--------------------|-----------------------------------|-----------|-----------------|--------------------|--|-----|---------------|------------------|------------------------------------|------|------|------|------|------|-------------------|-----|----|----|----|----|----|---------------|-------|------|------|------|------|------|------|
| Category Temperature Range | -40~+85°C | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Rated Voltage Range | 6.3~50V.DC | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Capacitance Tolerance | ±20% (20°C, 120Hz) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Leakage Current(MAX) | I=0.002CV or 0.4 μA whichever is greater. (After 2 minutes application of rated voltage) I=Leakage Current(μA) C=Rated Capacitance(μF) V=Rated Voltage(V) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Dissipation Factor(MAX) (tan δ) | <p><L=7></p> <table border="1"> <tr> <td>Rated Voltage (V)</td> <td>6.3</td> <td>10</td> <td>16</td> <td>25</td> <td>35</td> <td>50</td> <td rowspan="2">(20°C, 120Hz)</td> </tr> <tr> <td>tan δ</td> <td>0.24</td> <td>0.20</td> <td>0.16</td> <td>0.14</td> <td>0.12</td> <td>0.10</td> </tr> </table> <p><L≥11></p> <table border="1"> <tr> <td>Rated Voltage (V)</td> <td>6.3</td> <td>10</td> <td>16</td> <td>25</td> <td>35</td> <td>50</td> <td rowspan="2">(20°C, 120Hz)</td> </tr> <tr> <td>tan δ</td> <td>0.22</td> <td>0.19</td> <td>0.16</td> <td>0.14</td> <td>0.12</td> <td>0.10</td> </tr> </table> <p>When rated capacitance is over 1000 μF, tan δ shall be added 0.02 to the listed value with increase of every 1000 μF.</p> | Rated Voltage (V) | 6.3 | 10 | 16 | 25 | 35 | 50 | (20°C, 120Hz) | tan δ | 0.24 | 0.20 | 0.16 | 0.14 | 0.12 | 0.10 | Rated Voltage (V) | 6.3 | 10 | 16 | 25 | 35 | 50 | (20°C, 120Hz) | tan δ | 0.22 | 0.19 | 0.16 | 0.14 | 0.12 | 0.10 |
| Rated Voltage (V) | 6.3 | 10 | 16 | 25 | 35 | 50 | (20°C, 120Hz) | | | | | | | | | | | | | | | | | | | | | | | | |
| tan δ | 0.24 | 0.20 | 0.16 | 0.14 | 0.12 | 0.10 | | | | | | | | | | | | | | | | | | | | | | | | | |
| Rated Voltage (V) | 6.3 | 10 | 16 | 25 | 35 | 50 | (20°C, 120Hz) | | | | | | | | | | | | | | | | | | | | | | | | |
| tan δ | 0.22 | 0.19 | 0.16 | 0.14 | 0.12 | 0.10 | | | | | | | | | | | | | | | | | | | | | | | | | |
| Endurance | <p>After life test with rated ripple current at conditions stated in the table below, the capacitors shall meet the following requirements.</p> <table border="1"> <tr> <td>Capacitance Change</td> <td>Within ±25% of the initial value.</td> <td>Case Size</td> <td>Life Time (hrs)</td> </tr> <tr> <td>Dissipation Factor</td> <td>Not more than 200% of the specified value.</td> <td>L=7</td> <td>1000</td> </tr> <tr> <td>Leakage Current</td> <td>Not more than the specified value.</td> <td>L≥11</td> <td>2000</td> </tr> </table> | Capacitance Change | Within ±25% of the initial value. | Case Size | Life Time (hrs) | Dissipation Factor | Not more than 200% of the specified value. | L=7 | 1000 | Leakage Current | Not more than the specified value. | L≥11 | 2000 | | | | | | | | | | | | | | | | | | |
| Capacitance Change | Within ±25% of the initial value. | Case Size | Life Time (hrs) | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Dissipation Factor | Not more than 200% of the specified value. | L=7 | 1000 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Leakage Current | Not more than the specified value. | L≥11 | 2000 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Low Temperature Stability Impedance Ratio(MAX) | <table border="1"> <tr> <td>Rated Voltage (V)</td> <td>6.3</td> <td>10</td> <td>16</td> <td>25</td> <td>35</td> <td>50</td> <td rowspan="3">(120Hz)</td> </tr> <tr> <td>Z(-25°C)/Z(20°C)</td> <td>4</td> <td>3</td> <td>2</td> <td>2</td> <td>2</td> <td>2</td> </tr> <tr> <td>Z(-40°C)/Z(20°C)</td> <td>8</td> <td>6</td> <td>6</td> <td>4</td> <td>4</td> <td>3</td> </tr> </table> | Rated Voltage (V) | 6.3 | 10 | 16 | 25 | 35 | 50 | (120Hz) | Z(-25°C)/Z(20°C) | 4 | 3 | 2 | 2 | 2 | 2 | Z(-40°C)/Z(20°C) | 8 | 6 | 6 | 4 | 4 | 3 | | | | | | | | |
| Rated Voltage (V) | 6.3 | 10 | 16 | 25 | 35 | 50 | (120Hz) | | | | | | | | | | | | | | | | | | | | | | | | |
| Z(-25°C)/Z(20°C) | 4 | 3 | 2 | 2 | 2 | 2 | | | | | | | | | | | | | | | | | | | | | | | | | |
| Z(-40°C)/Z(20°C) | 8 | 6 | 6 | 4 | 4 | 3 | | | | | | | | | | | | | | | | | | | | | | | | | |

◆MULTIPLIER FOR RIPPLE CURRENT

Frequency coefficient

| Frequency (Hz) | | 60(50) | 120 | 500 | 1k | 10k≤ |
|----------------|-------------|--------|------|------|------|------|
| Coefficient | 0.1~1 μF | 0.50 | 1.00 | 1.20 | 1.30 | 1.50 |
| | 2.2~4.7 μF | 0.65 | 1.00 | 1.20 | 1.30 | 1.50 |
| | 10~47 μF | 0.80 | 1.00 | 1.20 | 1.30 | 1.50 |
| | 100~1000 μF | 0.80 | 1.00 | 1.10 | 1.15 | 1.20 |
| | 2200 μF | 0.80 | 1.00 | 1.05 | 1.10 | 1.15 |

◆PART NUMBER

| | | | | | | |
|---------------|--------|-------------------|-----------------------|--------|--------------|-----------|
| □□□ | TWL | □□□□□ | □ | □□□ | □□ | DXL |
| Rated Voltage | Series | Rated Capacitance | Capacitance Tolerance | Option | Lead Forming | Case Size |

