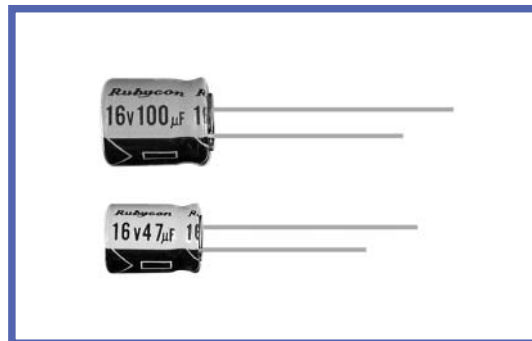


**TWL SERIES**
**Low Leakage Current**
**◆ FEATURES**

- 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)																																
(tanδ) Dissipation Factor(MAX)	<p>&lt;L = 7&gt;</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>(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> <td></td> </tr> </table> <p>&lt;L ≥ 11&gt;</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>(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> <td></td> </tr> </table> <p>When rated capacitance is over 1000 µF, tanδ 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	
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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																				
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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>(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> <td></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> <td></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									
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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

