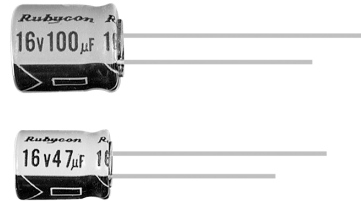


TWL SERIES

Low Leakage Current

RoHS
compliance



◆SPECIFICATIONS

Items	Characteristics																																					
Category Temperature Range	-40~+85℃																																					
Rated Voltage Range	6.3~50Vdc																																					
Capacitance Tolerance	±20% (20℃,120Hz)																																					
Leakage Current(MAX)	I=0.002CV or 0.4μA whichever is greater. (After 2 minutes application of rated voltage) I=Leakage Current(μA) C=Capacitance(μF) V=Rated Voltage(Vdc)																																					
Dissipation Factor(MAX) (tanδ)	〈L=7〉<table><tr><td>Rated Voltage (Vdc)</td><td>6.3</td><td>10</td><td>16</td><td>25</td><td>35</td><td>50</td></tr><tr><td>tanδ</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>(20℃,120Hz) 〈L≥11〉<table><tr><td>Rated Voltage (Vdc)</td><td>6.3</td><td>10</td><td>16</td><td>25</td><td>35</td><td>50</td></tr><tr><td>tanδ</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>(20℃,120Hz) When capacitance is over 1000μF, tanδ shall be added 0.02 to the listed value with increase of every 1000μF.										Rated Voltage (Vdc)	6.3	10	16	25	35	50	tanδ	0.24	0.20	0.16	0.14	0.12	0.10	Rated Voltage (Vdc)	6.3	10	16	25	35	50	tanδ	0.22	0.19	0.16	0.14	0.12	0.10
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tanδ	0.22	0.19	0.16	0.14	0.12	0.10																																
Endurance	After applying rated voltage with rated ripple current for specified time at 85℃, the capacitors shall meet the following requirements. <table><tr><td>Capacitance Change</td><td colspan="5">Within ±25% of the initial value.</td><td>Case Size</td><td>Life Time (hrs)</td></tr><tr><td>Dissipation Factor</td><td colspan="5">Not more than 200% of the specified value.</td><td>L=7</td><td>1000</td></tr><tr><td>Leakage Current</td><td colspan="5">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><tr><td>Rated Voltage (Vdc)</td><td>6.3</td><td>10</td><td>16</td><td>25</td><td>35</td><td>50</td></tr><tr><td>Z(-25℃)/Z(20℃)</td><td>4</td><td>3</td><td>2</td><td>2</td><td>2</td><td>2</td></tr><tr><td>Z(-40℃)/Z(20℃)</td><td>8</td><td>6</td><td>6</td><td>4</td><td>4</td><td>3</td></tr></table> (120Hz)										Rated Voltage (Vdc)	6.3	10	16	25	35	50	Z(-25℃)/Z(20℃)	4	3	2	2	2	2	Z(-40℃)/Z(20℃)	8	6	6	4	4	3							
Rated Voltage (Vdc)	6.3	10	16	25	35	50																																
Z(-25℃)/Z(20℃)	4	3	2	2	2	2																																
Z(-40℃)/Z(20℃)	8	6	6	4	4	3																																

◆MULTIPLIER FOR RIPPLE CURRENT

Frequency coefficient

Frequency(Hz)		60(50)	120	500	1k	10k≤
Coefficient	0.47~1μF	0.50	1.00	1.20	1.30	1.50
	2.2~4.7μF	0.65	1.00	1.20	1.30	1.50
	10~47μF	0.80	1.00	1.20	1.30	1.50
	100~1000μF	0.80	1.00	1.10	1.15	1.20
	2200μF	0.80	1.00	1.05	1.10	1.15

◆OPTION

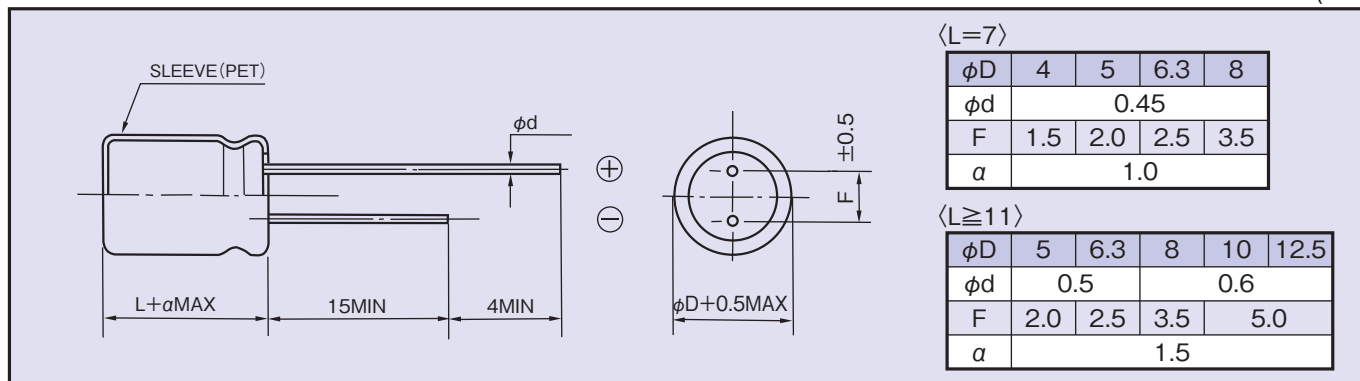
	Code
PET Sleeve	EFC

◆PART NUMBER

□□□	TWL	□□□□□	M	□□□	□□	D×L
Rated Voltage	Series	Capacitance	Capacitance Tolerance	Option	Lead Forming	Case Size

◆ **DIMENSIONS**

(mm)



◆ **STANDARD SIZE**

Size φD×L(mm), Rated Ripple Current (mA r.m.s./85°C, 120Hz)

Vdc Cap(μF)	6.3		10		16		25		35		50	
	Size	Ripple	Size	Ripple	Size	Ripple	Size	Ripple	Size	Ripple	Size	Ripple
1											4×7	10
											5×11	13
2.2											4×7	16
											5×11	23
3.3											4×7	19
											5×11	35
4.7							4×7	21	4×7	22	5×7	29
							5×11	30	5×11	35	5×11	41
10					4×7	28	5×7	33	5×7	32	6.3×7	44
					5×11	40	5×11	50	5×11	55	5×11	60
22	4×7	34	5×7	38	5×7	44	6.3×7	55	6.3×7	60	8×7	65
	5×11	48	5×11	55	5×11	70	5×11	87	5×11	95	6.3×11	110
33	5×7	42	5×7	47	6.3×7	62	6.3×7	65	8×7	73	6.3×11	140
	5×11	55	5×11	74	5×11	90	5×11	110	6.3×11	120		
47	5×7	50	6.3×7	66	6.3×7	73	8×7	80	6.3×11	145	8×11.5	190
	5×11	79	5×11	90	5×11	120	6.3×11	130				
100	6.3×7	87	8×7	99	8×7	110	8×11.5	210	8×11.5	250	10×12.5	300
	5×11	100	6.3×11	150	6.3×11	185						
220	8×7	133	8×11.5	280	8×11.5	310	10×12.5	370	10×16	420	10×20	490
	6.3×11	220										
330	8×11.5	310	8×11.5	360	10×12.5	410	10×16	480	10×20	540	12.5×20	680
470	8×11.5	400	10×12.5	460	10×16	530	10×20	600	12.5×20	730		
1000	10×16	660	10×20	760	12.5×20	900	12.5×25	1000				
2200	12.5×20	1050	12.5×25	1200								