

# WR Series

General purpose, 85°C 2000Hrs

普通品, 85°C 2000Hrs

Suit for use in electronic complete sets of high quality  
適用於高品質電子整機

General purpose, 105°C 1000Hrs

普通品, 105°C 1000Hrs

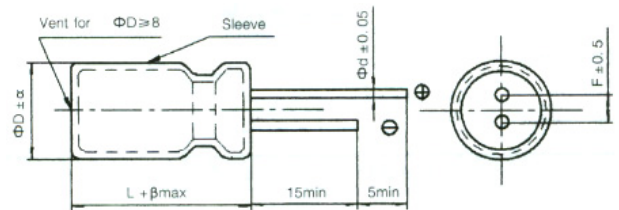
Suit for use in electronic complete sets of wide temperature  
適用於寬溫高品質電子整機

## Specifications

Items 項目	Characteristics 特性																			
Operating Temperature Range 使用溫度範圍 Rated Voltage Range 額定電壓範圍	-40 to +85°C 6.3 to 100VDC	-40 to +105°C 6.3 to 100VDC																		
Capacitance Tolerance 靜電容量容許差	±20%(M) (at 25°C, 120Hz)																			
Leakage Current 漏電流	I=0.01CV or 3 μA, whichever is greater (at 25°C, after 2 minutes) Where, I: Leakage current(μA), C: Nominal capacitance (μF), V: Rated voltage(V)																			
Dissipation Factor (tan δ) 損失角正切(tan δ)	<table border="1" style="width: 100%; text-align: center;"> <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>63</td> <td>100</td> </tr> <tr> <td>DF(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>0.10</td> <td>0.10</td> </tr> </table> <p>When the capacitance exceeds 1000 μF, 0.02 shall be added every 1000 μF increase. (at 25°C, 120Hz)</p>		Rated voltage (V)	6.3	10	16	25	35	50	63	100	DF(tan δ)	0.24	0.20	0.16	0.14	0.12	0.10	0.10	0.10
Rated voltage (V)	6.3	10	16	25	35	50	63	100												
DF(tan δ)	0.24	0.20	0.16	0.14	0.12	0.10	0.10	0.10												
Low Temperature Characteristics 低溫特性	<table border="1" style="width: 100%; text-align: center;"> <tr> <td>Rated voltage (V)</td> <td>6.3</td> <td>10</td> <td>16</td> <td>25</td> <td>35</td> <td>50~100</td> </tr> <tr> <td>Z(-25°C)/(25°C)</td> <td>12</td> <td>10</td> <td>8</td> <td>5</td> <td>4</td> <td>3</td> </tr> </table> <p style="text-align: right;">(at 120Hz)</p>		Rated voltage (V)	6.3	10	16	25	35	50~100	Z(-25°C)/(25°C)	12	10	8	5	4	3				
Rated voltage (V)	6.3	10	16	25	35	50~100														
Z(-25°C)/(25°C)	12	10	8	5	4	3														
Load Life 高溫負荷特性	<p>The following specifications shall be satisfied when the capacitors are restored to 25°C after the rated voltage is applied for 2000 hours at 85°C (for 1000 hours at 105°C)</p> <p>Capacitance change ≤ ±20% of the initial value DF(tan δ) ≤ 200% of the initial specified value Leakage current ≤ The initial specified value</p>																			
Shelf Life 高溫貯存特性	<p>The following specifications shall be satisfied when the capacitors are restored to 25°C after exposing them for 1000 hours at 85°C (or 105°C) without voltage applied. The rated voltage shall be applied to the capacitors for a minimum of 30 minutes, at least 24 hours and not more than 48 hours before the measurements.</p> <p>Capacitance change ≤ ±20% of the initial value DF(tan δ) ≤ 200% of the initial specified value Leakage current ≤ The initial specified value</p>																			

## Pitch Dimension (mm)

DΦ	5	6	8	10	12	13	16	18
F	2.0	2.5	3.5	5	5	5	7.5	7.5   10
d	0.5	0.5	0.5	0.6	0.6	0.6	0.8	0.8
α	0.5							
β	+1.5-0.5							



# WR Series

## Standard Ratings

85°C

$\mu F$ \ V <sub>DC</sub>	6.3		10		16		25		35		50		63		100	
	0.1											5*11	3			
0.22											5*11	5				
0.33											5*11	6				
0.47											5*11	13	5*11	15	5*11	15
1											5*11	19	5*11	22	5*11	22
2.2											5*11	29	5*11	32	5*11	32
3.3											5*11	35	5*11	39	5*11	39
4.7									5*11	42	5*11	42	5*11	47	5*11	47
10							5*11	50	5*11	60	5*11	60	5*11	60	6*12	80
22							5*11	75	5*11	90	5*11	90	6.3*11	100	8*12	130
33							5*11	90	5*11	100	6*12	130	6.3*11	130	10*15	180
47							5*11 6*12	110	6*12	140	6*12	150	8*12	170	10*17	230
100	5*11	130	5*11	140	6*12	170	6*12	180	8*12	230	8*12	250	10*13	270	13*21	380
220	6*12	210	6*12	230	6*12 8*12	290	8*12	310	8*16	370	10*17	440	10*20	500	13*26	640
330	6*12	260	6*12 8*12	330	8*12	350	8*12	410	10*17	500	10*20	610	13*21	620	16*26	780
470	8*12	350	8*12	390	8*12	460	8*16	530	10*17	670	13*21	740	13*26	820	16*32	1040
1000	8*14	560	8*16	670	10*17	820	10*20	880	13*26	90	16*26	1220	16*32	1360		
2200	10*20	980	10*20 13*21	1080	13*21	1160	13*26	1350	18*27	1700						
3300	13*21	1180	10*25 13*21	1270	13*21	1490	16*26	1790								
4700	13*26	1460	16*32	1610	13*26	1900	16*32	2040								
6800	13*26	1700	16*32	2010												
10000	16*32	2100	18*36	2260												

↑ ↑  
Ripple current (mA rms/85°C,120Hz)  
Case size ΦD\*L(mm)

### Ripple Current Multipliers

#### Temperature Multipliers

Ambient temp.(°C)	85
Factor	1

### Frequency Multipliers

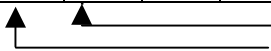
Cap.( $\mu F$ ) \ Freq.(Hz)	50	120	300	1K	10K	100K
	0.1-3.3	0.65	1	1.35	1.75	2.30
4.7~33	0.75	1	1.25	1.50	1.75	1.80
47-1000	0.80	1	1.15	1.30	1.40	1.50
2200~	0.85	1	1.03	1.05	1.08	1.08

# WR Series

## Standard Ratings

105°C

$\mu F$ \ V <sub>DC</sub>	6.3		10		16		25		35		50		63		100	
	0.1											5*11	1.8			
0.22											5*11	2.5				
0.33											5*11	4				
0.47											5*11	5	5*11	9	5*11	9
1											5*11	8	5*11	13	5*11	13
2.2											5*11	17	5*11	19	5*11	19
3.3											5*11	21	5*11	24	5*11	24
4.7									5*11	25	5*11	25	5*11	28	5*11	28
10							5*11	30	5*11	37	5*11	37	5*11	37	6*12	47
22							5*11	44	5*11	55	6*12	55	6*12	60	8*12	80
33							5*11	55	6*12	60	6*12	75	6*12	75	10*15	110
47					5*11	60	5*11 6*12	55 65	6*12	80	6*12	90	8*12	100	10*17	140
100	5*11	75	5*11	80	6*12	100	6*12	110	8*12	140	8*12 10*13	150 158	10*13	160	13*21	230
220	6.3*11	130	6*12	140	6*12 8*12	170	8*12	180	8*16	220	10*17	270	10*20	300	13*26	380
330	6*12	160	6*12 8*12	190	8*12	210	8*12	240	10*17	300	10*20	370	13*21	370	16*26	470
470	8*12	210	8*12 8*14	260 300	8*12 8*14	230 270	8*16 10*15 10*17	270 320 336	10*17 10*20	400 420	10*25 13*21 13*26	370 440	13*26	490	16*32	620
1000	8*14	400	8*16 10*17 10*20	350 400 420	8*16 10*17 10*20	390 440 490	10*20 13*21	450 530	10*25 13*21 13*26	520 590 630	16*26	730	16*32	810		
1500	10*20	470	10*20	520	10*20	560	13*26	620	16*32	680	16*32	730				
2200	10*20	590	10*20 13*21	550 650	10*25 13*21 13*26	630 700 740	13*21 13*26	690 810	13*26 13*30	740 820	18*36	900				
3300	13*21	700	10*25 13*26	760	13*26	890	16*26	1070	18*36	900	18*45	1000				
4700	13*26	880	10*30 13*26	790 880	13*26 16*32	960 1140	16*32	1220	18*36	1280						
6800	16*26	1200	16*32	1210	16*32	1270	18*36	1340								
10000	16*32	1260	18*36	1350												



Ripple current (mA rms/105°C, 120Hz)

Case size  $\Phi D * L$  (mm)

### Ripple Current Multipliers

Temperature Multipliers

Ambient temp.(°C)	85	105
Factor	1.7	1

Frequency Multipliers

Cap.( $\mu F$ ) \ Freq.(Hz)	Freq.(Hz)					
	50	120	300	1K	10K	100K
0.1-3.3	0.65	1	1.35	1.75	2.30	2.50
4.7~33	0.75	1	1.25	1.50	1.75	1.80
47-1000	0.80	1	1.15	1.30	1.40	1.50
2200~	0.85	1	1.03	1.05	1.08	1.08