

## PD series SMD type & Large capacitance

### Features

- ◆ SMD type & Large capacitance
- ◆ Ultra low ESR at high frequency range & Large permissible ripple current.
- ◆ Long life and high reliability(reliability: 0.1% / 1000Hrs).



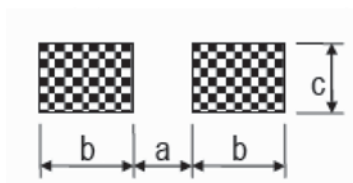
### Specifications

Item	Performance Characteristics	
Operating Temperature Range	-55~+105°C	
Rated Voltage Range	2.5~25 VDC	
Capacitance Range	39 to 3300 μ F	
Capacitance Tolerance	±20%(120Hz,+20°C)	
Leakage Current (+20°C,max.)	Not to exceed the value specified ( μ A, after 2 minutes)	
Dissipation Factor (tan δ , at 20°C , 120Hz)	Not to exceed the value specified	
ESR ( 100K~300KHz )	Not to exceed the value specified	
Endurance 105°C , 2000h , at rated voltage	Capacitance Change	Within ±20% of the value before test
	Leakage current	Not to exceed the value specified
	ESR	Not to exceed 150% of the value specified
	Dissipation Factor	Not to exceed 150% of the value specified
Moisture Resistance Stored at 60°C , RH90~95% , 1000h	Capacitance Change	Within ±20% of the value before test
	Leakage current	Not to exceed the value specified
	ESR	Not to exceed 150% of the value specified
	Dissipation Factor	Not to exceed 150% of the value specified

### Frequency Coefficient for Ripple Current

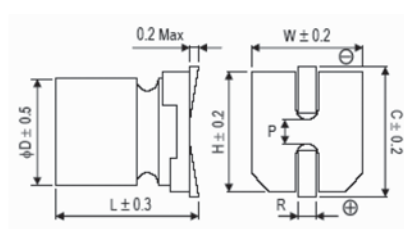
Frequency	120Hz ≤ freq. < 1KHz	1KHz ≤ freq. < 10KHz	10KHz ≤ freq. < 100KHz	100KHz ≤ freq. < 300KHz
Coefficient	0.05	0.3	0.7	1

### Recommended land pattern:(unit:mm)



φ D×L	a	b	c
8X11.7	2.8	4.2	1.9
10X12.4	4.3	4.4	1.9

### Diagram of Dimensions:(unit:mm)



φ D×L	W	H	C	R	P
8X11.7	8.3	8.3	9.0	0.8 to 1.1	3.2
10X12.4	10.3	10.3	11.0	0.8 to 1.1	4.6

## Dimensions & Characteristics

W.V. (V)	Capacitance ( $\mu$ F)	L.C. ( $\mu$ A,2min)	tg $\delta$ (120Hz,20°C)	ESR (m $\Omega$ ,100KHz)	Maximum Permissible Ripple Current(mA,r.m.s)	$\phi$ DxL(mm)
						Size $\Phi$ D $\times$ L(mm)
2.5	560	280	0.08	8	5200	8X11.7
	680	340	0.08	8	5200	8X11.7
	820	410	0.08	8	5200	8X11.7
	1000	500	0.08	8	5200	8X11.7
	1500	750	0.08	8	5200	8X11.7
	2000	1000	0.08	8	5500	10X12.4
	2500	1250	0.08	8	5500	10X12.4
	2700	1350	0.10	8	5500	10X12.4
	3000	1500	0.10	8	5500	10X12.4
	3300	1650	0.10	8	5500	10X12.4
4.0	560	448	0.08	8	5200	8X11.7
	680	544	0.08	8	5200	8X11.7
	820	656	0.08	8	5200	8X11.7
	1000	800	0.10	8	5200	8X11.7
	1200	960	0.10	8	5200	8X11.7
	1500	1200	0.10	8	5500	10X12.4
	2000	1600	0.10	8	5500	10X12.4
	2500	2000	0.10	8	5500	10X12.4
6.3	180	226.8	0.08	8	5200	8X11.7
	220	277.2	0.08	8	5200	8X11.7
	270	340.2	0.08	8	5200	8X11.7
	330	416	0.08	8	5200	8X11.7
	390	491	0.08	8	5200	8X11.7
	470	592	0.08	8	5200	8X11.7
	560	705.6	0.08	8	5200	8X11.7
	680	856	0.08	8	5200	8X11.7
	680	856	0.08	8	5500	10X12.4
	820	1033.2	0.10	8	5200	8X11.7
	820	1033.2	0.10	8	5500	10X12.4
	1000	1260	0.10	8	5200	8X11.7
	1000	1260	0.10	8	5500	10X12.4
	1200	1512	0.10	8	5500	10X12.4
	1500	1890	0.10	8	5500	10X12.4
	2000	2520	0.10	8	5500	10X12.4
10	180	360	0.08	8	5200	8 $\times$ 11.7
	220	440	0.08	8	5200	8 $\times$ 11.7
	270	540	0.08	8	5200	8 $\times$ 11.7
	330	660	0.08	8	5200	8 $\times$ 11.7
	390	780	0.08	8	5200	8 $\times$ 11.7
	470	940	0.08	8	5200	8 $\times$ 11.7
	560	1120	0.08	8	5200	8 $\times$ 11.7
	560	1120	0.08	8	5500	10 $\times$ 12.4
	680	1360	0.10	8	5200	8 $\times$ 11.7
	680	1360	0.10	8	5500	10 $\times$ 12.4
	820	1640	0.10	8	5500	10 $\times$ 12.4
	1000	2000	0.10	8	5500	10 $\times$ 12.4
1200	2400	0.10	8	5500	10 $\times$ 12.4	
16	180	576	0.08	10	4700	8 $\times$ 11.7
	220	704	0.08	10	4700	8 $\times$ 11.7
	220	704	0.08	10	5100	10 $\times$ 12.4
	270	864	0.08	10	4700	8 $\times$ 11.7
	270	864	0.08	10	5100	10 $\times$ 12.4
	330	1056	0.08	10	4700	8 $\times$ 11.7
	330	1056	0.08	10	5100	10 $\times$ 12.4
	470	1504	0.10	10	5100	10 $\times$ 12.4
680	2176	0.10	10	5100	10 $\times$ 12.4	
820	2624	0.10	10	5100	10 $\times$ 12.4	

Conductive Polymer

Ripple Current ( mA, rms ) at 105°C, 100KHz

W.V. (V)	Capacitance ( $\mu$ F)	L.C. ( $\mu$ A,2min)	tg $\delta$ (120Hz,20°C)	ESR (m $\Omega$ ,100KHZ)	Maximum Permissible Ripple Current(mA,r.m.s)	Size $\Phi$ D $\times$ L(mm)
20	39	156	0.08	15	4210	8 $\times$ 11.7
	47	188	0.08	15	4210	8 $\times$ 11.7
	68	272	0.08	15	4210	8 $\times$ 11.7
	82	328	0.08	15	4210	8 $\times$ 11.7
	100	400	0.08	15	4210	8 $\times$ 11.7
				15	4800	10 $\times$ 12.4
	150	600	0.10	15	4800	10 $\times$ 12.4
	180	720	0.10	15	4800	10 $\times$ 12.4
	220	880	0.10	15	4800	10 $\times$ 12.4
	270	1080	0.10	15	4800	10 $\times$ 12.4
330	1320	0.10	15	4800	10 $\times$ 12.4	
25	39	195	0.08	15	4210	8 $\times$ 11.7
	47	235	0.08	15	4210	8 $\times$ 11.7
	68	340	0.08	15	4210	8 $\times$ 11.7
	82	410	0.08	15	4210	8 $\times$ 11.7
	100	500	0.10	15	4210	8 $\times$ 11.7
				15	4800	10 $\times$ 12.4
	150	750	0.10	15	4800	10 $\times$ 12.4
	180	900	0.10	15	4800	10 $\times$ 12.4
	220	1100	0.10	15	4800	10 $\times$ 12.4
270	1350	0.10	15	4800	10 $\times$ 12.4	

Ripple Current ( mA, rms ) at 105°C, 100KHz

## Size List

$\phi$  D $\times$ L(mm)

WV (SV) Cap( $\mu$ F)	2.5 (2.8)	4 (4.6)	6.3 (7.2)	10 (11.5)	16 (18.4)	20 (23)	25 (27.5)
39						8 $\times$ 11.7	8 $\times$ 11.7
47						8 $\times$ 11.7	8 $\times$ 11.7
68						8 $\times$ 11.7	8 $\times$ 11.7
82						8 $\times$ 11.7	10 $\times$ 12.4
100						8 $\times$ 11.7/10 $\times$ 12.4	10 $\times$ 12.4
150						10 $\times$ 12.4	10 $\times$ 12.4
180			8 $\times$ 11.7	8 $\times$ 11.7	8 $\times$ 11.7	10 $\times$ 12.4	10 $\times$ 12.4
220			8 $\times$ 11.7	8 $\times$ 11.7	8 $\times$ 11.7/10 $\times$ 12.4	10 $\times$ 12.4	10 $\times$ 12.4
270			8 $\times$ 11.7	8 $\times$ 11.7	8 $\times$ 11.7/10 $\times$ 12.4	10 $\times$ 12.4	10 $\times$ 12.4
330			8 $\times$ 11.7	8 $\times$ 11.7	8 $\times$ 11.7/10 $\times$ 12.4	10 $\times$ 12.4	
390			8 $\times$ 11.7	8 $\times$ 11.7	10 $\times$ 12.4		
470			8 $\times$ 11.7	8 $\times$ 11.7	10 $\times$ 12.4		
560	8 $\times$ 11.7	8 $\times$ 11.7	8 $\times$ 11.7	8 $\times$ 11.7/10 $\times$ 12.4	10 $\times$ 12.4		
680	8 $\times$ 11.7	8 $\times$ 11.7	8 $\times$ 11.7/10 $\times$ 12.4	8 $\times$ 11.7/10 $\times$ 12.4	10 $\times$ 12.4		
820	8 $\times$ 11.7	8 $\times$ 11.7	8 $\times$ 11.7/10 $\times$ 12.4	10 $\times$ 12.4	10 $\times$ 12.4		
1000	8 $\times$ 11.7	8 $\times$ 11.7	10 $\times$ 12.4	10 $\times$ 12.4			
1200	8 $\times$ 11.7	8 $\times$ 11.7	10 $\times$ 12.4	10 $\times$ 12.4			
1500	8 $\times$ 11.7	10 $\times$ 12.4	10 $\times$ 12.4				
2000	10 $\times$ 12.4	10 $\times$ 12.4	10 $\times$ 12.4				
2500	10 $\times$ 12.4	10 $\times$ 12.4					
2700	10 $\times$ 12.4						
3000	10 $\times$ 12.4						
3300	10 $\times$ 12.4						

Ripple Current ( mA, rms ) at 105°C 100KHz