

### PD SERIES ▀ STANDARD TYPE



#### KEY FEATURES

- **SOLID CONDUCTIVE POLYMER** ▀ SMD type
- Low ESR at high frequency range
- Endurance: 105°C ▀ 2000 hours
- Large permissible ripple current
- No dry-out effect guarantees extremely long life

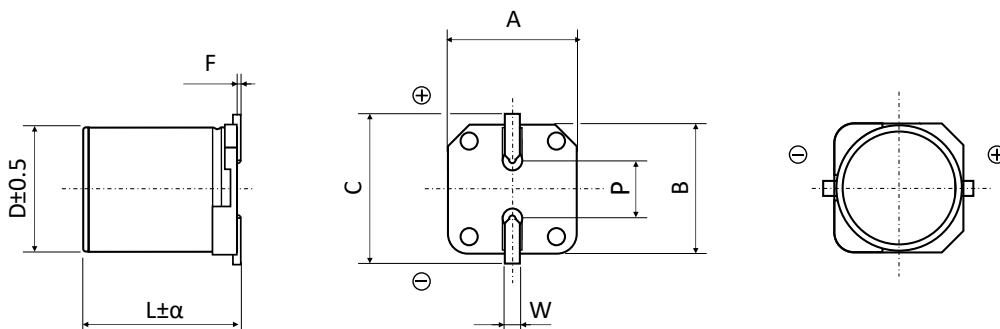


#### SPECIFICATIONS

Items		Performance Characteristics
Operating Temperature Range		-55 ~ +105°C
Rated Voltage Range	$V_R$	2.5 ~ 100V DC
Surge Voltage	$V_S$	( $V_R \leq 20V$ ): $V_S = 1.15 \cdot V_R$ ( $V_R \geq 25V$ ): $V_S = 1.10 \cdot V_R$
Capacitance Range	$C_R$	10 ~ 3300 $\mu$ F
Cap. Tolerance	$\Delta C$	$\pm 20\%$ (120Hz ▀ 20°C)
Leakage Current (20°C ▀ $V_R$ applied)	$I_{LEAK}$	Not to exceed the values shown in standard ratings After 2 minutes
Dissipation Factor % (20°C ▀ 120Hz)	$\tan \delta$	Not to exceed the values shown in standard ratings
Equivalent Series Resistance (20°C ▀ 100kHz)	ESR	Not to exceed the values shown in standard ratings

Lifetime Test		
Endurance 105°C ( $V_R$ applied)	Test	<b>2 000 hours</b>
	$\Delta C/C_R$	Within $\pm 20\%$ of the initial value
	$\tan \delta$	Not to exceed 150% of the value specified
	ESR	Not to exceed 150% of the value specified
	$I_{Leak}$	Less than the specified value
Moisture Resistance stored at 60°C (RH 90 ~ 95%)	Test	<b>1 000 hours</b>
	$\Delta C/C_R$	Within $\pm 20\%$ of the initial value
	$\tan \delta$	Not to exceed 150% of the value specified
	ESR	Not to exceed 150% of the value specified
	$I_{Leak}$	Less than the specified value

#### DIMENSIONS STANDARD PACKAGE ▀ All dimensions in mm



**DIMENSIONS STANDARD PACKAGE** ▪ All dimensions in mm

$\phi D$	L	$\alpha$	A $\pm 0.2$	B $\pm 0.2$	C $\pm 0.2$	F	P $\pm 0.2$	W
8.0	11.7	0.3	8.3	8.3	9.0	0.3 max.	3.1	0.7 to 1.1
10.0	12.4	0.3	10.3	10.3	11.0	0.3 max.	4.5	0.7 to 1.1

**STANDARD RATINGS**

Part number shows blister tape on paper reel

$V_R$ (V)	$C_R$ ( $\mu F$ )	$\phi D$ (mm)	L (mm)	$I_{LEAK}$ ( $\mu A$ , 2min)	$\tan\delta$ +20°C - 120Hz (%)	Max. ESR +20°C - 100kHz (m $\Omega$ )	$I_R$ - Max. Ripple Current +105°C - 100kHz (mA rms)	CapXon Part Number
2.5	560	8	11.7	280	8	9	5200	PD561M2R5F117PTR
	680	8	11.7	340	8	9	5200	PD681M2R5F117PTR
	820	8	11.7	410	8	9	5400	PD821M2R5F117PTR
	1000	8	11.7	500	8	9	5400	PD102M2R5F117PTR
	1500	8	11.7	750	8	9	5400	PD152M2R5F117PTR
	1500	10	12.4	750	8	9	5600	PD152M2R5G124PTR
	2500	10	12.4	1250	8	9	5600	PD252M2R5G124PTR
	2700	10	12.4	1350	10	9	5600	PD272M2R5G124PTR
4	3300	10	12.4	1650	10	9	5600	PD332M2R5G124PTR
	560	8	11.7	448	8	9	5200	PD561M004F117PTR
	680	8	11.7	544	8	9	5200	PD681M004F117PTR
	820	8	11.7	656	8	9	5200	PD821M004F117PTR
	1000	8	11.7	800	10	9	5200	PD102M004F117PTR
	1200	8	11.7	960	10	9	5200	PD122M004F117PTR
	1200	10	12.4	960	10	9	5600	PD122M004G124PTR
	1500	8	11.7	1200	10	9	5200	PD152M004F117PTR
	1500	10	12.4	1200	10	9	5600	PD152M004G124PTR
	1800	10	12.4	1440	10	9	5600	PD182M004G124PTR
	2200	10	12.4	1760	10	9	5600	PD222M004G124PTR
6.3	2500	10	12.4	2000	10	9	5600	PD252M004G124PTR
	2700	10	12.4	2160	10	9	5600	PD272M004G124PTR
	180	8	11.7	227	8	9	5200	PD181M6R3F117PTR
	270	8	11.7	340	8	9	5200	PD271M6R3F117PTR
	330	8	11.7	416	8	9	5200	PD331M6R3F117PTR
	390	8	11.7	491	8	9	5200	PD391M6R3F117PTR
	470	8	11.7	592	8	9	5200	PD471M6R3F117PTR
	560	8	11.7	706	8	9	5200	PD561M6R3F117PTR
	680	10	12.4	856	8	9	5500	PD681M6R3G124PTR
	820	8	11.7	1033	10	9	5200	PD821M6R3F117PTR
	820	10	12.4	1033	10	9	5500	PD821M6R3G124PTR
	1000	8	11.7	1260	10	9	5200	PD102M6R3F117PTR
	1000	10	12.4	1260	10	9	5500	PD102M6R3G124PTR
1500	10	12.4	1890	10	9	5500	PD152M6R3G124PTR	
2000	10	12.4	2520	10	9	5500	PD202M6R3G124PTR	
2200	10	12.4	2772	10	9	5500	PD222M6R3G124PTR	

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$V_R$ (V)	$C_R$ ( $\mu$ F)	$\phi$ D (mm)	L (mm)	$I_{LEAK}$ ( $\mu$ A, 2min)	$\tan\delta$ +20°C • 120Hz (%)	Max. ESR +20°C • 100kHz (m $\Omega$ )	$I_R$ - Max. Ripple Current +105°C • 100kHz (mA rms)	CapXon Part Number
10	180	8	11.7	360	8	9	5200	PD181M010F117PTR
	220	8	11.7	440	8	9	5200	PD221M010F117PTR
	270	8	11.7	540	8	9	5200	PD271M010F117PTR
	330	8	11.7	660	8	9	5200	PD331M010F117PTR
	390	8	11.7	780	8	9	5200	PD391M010F117PTR
	470	8	11.7	940	8	9	5200	PD471M010F117PTR
	470	10	12.4	940	8	9	5500	PD471M010G124PTR
	560	8	11.7	1120	8	9	5200	PD561M010F117PTR
	560	10	12.4	1120	8	9	5500	PD561M010G124PTR
	680	8	11.7	1360	10	9	5200	PD681M010F117PTR
	680	10	12.4	1360	10	9	5500	PD681M010G124PTR
	820	10	12.4	1640	10	9	5500	PD821M010G124PTR
	1000	10	12.4	2000	10	9	5500	PD102M010G124PTR
	1200	10	12.4	2400	10	9	5500	PD122M010G124PTR
	1500	10	12.4	3000	10	9	5500	PD152M010G124PTR
16	180	8	11.7	576	8	15	4700	PD181M016F117PTR
	220	8	11.7	704	8	15	4700	PD221M016F117PTR
	220	10	12.4	704	8	15	5100	PD221M016G124PTR
	270	8	11.7	864	8	15	4700	PD271M016F117PTR
	270	10	12.4	864	8	15	5100	PD271M016G124PTR
	330	8	11.7	1056	8	15	4700	PD331M016F117PTR
	330	10	12.4	1056	8	15	5100	PD331M016G124PTR
	390	8	11.7	1248	10	15	4700	PD391M016F117PTR
	470	10	12.4	1504	10	15	5100	PD471M016G124PTR
	560	8	11.7	1792	12	14	4950	PD561M016F117PTR
	680	10	12.4	2176	10	15	5100	PD681M016G124PTR
	820	10	12.4	2624	10	15	5100	PD821M016G124PTR
	1000	10	12.4	3200	12	14	5400	PD102M016G124PTR
20	39	8	11.7	156	8	20	4210	PD390M020F117PTR
	68	8	11.7	272	8	20	4210	PD680M020F117PTR
	82	8	11.7	328	8	20	4210	PD820M020F117PTR
	100	8	11.7	400	8	20	4210	PD101M020F117PTR
	100	10	12.4	400	8	20	4800	PD101M020G124PTR
	150	10	12.4	600	10	20	4800	PD151M020G124PTR
	180	10	12.4	720	10	20	4800	PD181M020G124PTR
	220	8	11.7	880	10	22	4000	PD221M020F117PTR
	220	10	12.4	880	10	20	4800	PD221M020G124PTR
	270	8	11.7	1080	10	22	4000	PD271M020F117PTR
	270	10	12.4	1080	10	20	4800	PD271M020G124PTR
	330	10	12.4	1320	10	20	4800	PD331M020G124PTR
	390	8	11.7	1560	12	14	4950	PD391M020F117PTR
	470	10	12.4	1880	12	20	4800	PD471M020G124PTR
	680	10	12.4	2720	12	16	5000	PD681M020G124PTR

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$V_R$ (V)	$C_R$ ( $\mu$ F)	$\phi D$ (mm)	L (mm)	$I_{LEAK}$ ( $\mu$ A, 2min)	$\tan\delta$ +20°C • 120Hz (%)	Max. ESR +20°C • 100kHz (m $\Omega$ )	$I_R$ - Max. Ripple Current +105°C • 100kHz (mA rms)	CapXon Part Number
25	33	8	11.7	165	8	25	3800	PD330M025F117PTR
	47	8	11.7	235	8	20	4210	PD470M025F117PTR
	56	10	12.4	280	8	28	3800	PD560M025G124PTR
	82	8	11.7	410	8	20	4210	PD820M025F117PTR
	100	8	11.7	500	10	20	4210	PD101M025F117PTR
	100	10	12.4	500	10	20	4800	PD101M025G124PTR
	180	8	11.7	900	10	25	3800	PD181M025F117PTR
	180	10	12.4	900	10	20	4800	PD181M025G124PTR
	220	8	11.7	1100	10	25	3800	PD221M025F117PTR
	220	10	12.4	1100	10	20	4800	PD221M025G124PTR
	270	10	12.4	1350	10	20	4800	PD271M025G124PTR
	330	8	11.7	1650	12	20	4210	PD331M025F117PTR
	330	10	12.4	1650	12	22	4200	PD331M025G124PTR
	390	10	12.4	1950	12	22	4200	PD391M025G124PTR
470	10	12.4	2350	12	25	3800	PD471M025G124PTR	
35	39	8	11.7	273	12	32	2700	PD390M035F117PTR
	68	8	11.7	476	12	28	3300	PD680M035F117PTR
	82	8	11.7	574	12	28	3300	PD820M035F117PTR
	100	10	12.4	700	12	25	3800	PD101M035G124PTR
	120	8	11.7	840	12	25	3800	PD121M035F117PTR
	150	8	11.7	840	12	25	3800	PD151M035F117PTR
	150	10	12.4	1050	12	25	3800	PD151M035G124PTR
	180	10	12.4	1260	12	22	4100	PD181M035G124PTR
	220	10	12.4	1540	12	22	4100	PD221M035G124PTR
	270	10	12.4	1890	12	20	4400	PD271M035G124PTR
330	10	12.4	2310	12	20	4400	PD331M035G124PTR	
50	10	8	11.7	100	12	40	1800	PD100M050F117PTR
	22	8	11.7	220	12	40	1800	PD220M050F117PTR
	33	8	11.7	300	12	35	2000	PD330M050F117PTR
	39	8	11.7	390	12	30	2300	PD390M050F117PTR
	47	8	11.7	470	12	30	2300	PD470M050F117PTR
	56	8	11.7	560	12	30	2500	PD560M050F117PTR
	56	10	12.4	560	12	25	3000	PD560M050G124PTR
	68	10	12.4	680	12	25	3000	PD680M050G124PTR
63	100	10	12.4	1000	12	25	3000	PD101M050G124PTR
	22	8	11.7	277	12	35	1800	PD220M063F117PTR
	27	8	11.7	340	12	35	2200	PD270M063F117PTR
	33	8	11.7	416	12	35	2200	PD330M063F117PTR
	33	10	12.4	416	12	30	2500	PD330M063G124PTR
	39	8	11.7	491	12	35	2200	PD390M063F117PTR
	47	10	12.4	592	12	30	2500	PD470M063G124PTR
	56	10	12.4	706	12	30	2500	PD560M063G124PTR
68	10	12.4	857	12	30	2500	PD680M063G124PTR	

### STANDARD RATINGS

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$V_R$ (V)	$C_R$ ( $\mu F$ )	$\phi D$ (mm)	L (mm)	$I_{LEAK}$ ( $\mu A$ , 2min)	$\tan\delta$ +20°C - 120Hz (%)	Max. ESR +20°C - 100kHz (m $\Omega$ )	$I_R$ - Max. Ripple Current +105°C - 100kHz (mA rms)	CapXon Part Number
80	12	8	11.7	192	12	40	1800	PD120M080F117PTR
	22	10	12.4	352	12	38	2300	PD220M080G124PTR
	47	10	12.4	752	12	40	1800	PD470M080G124PTR
100	10	8	11.7	200	12	45	1700	PD100M100F117PTR
	18	10	12.4	360	12	40	2100	PD180M100G124PTR
	22	10	12.4	440	12	40	2100	PD220M100G124PTR

### MULTIPLIER $K_f$ for RIPPLE CURRENT vs. FREQUENCY

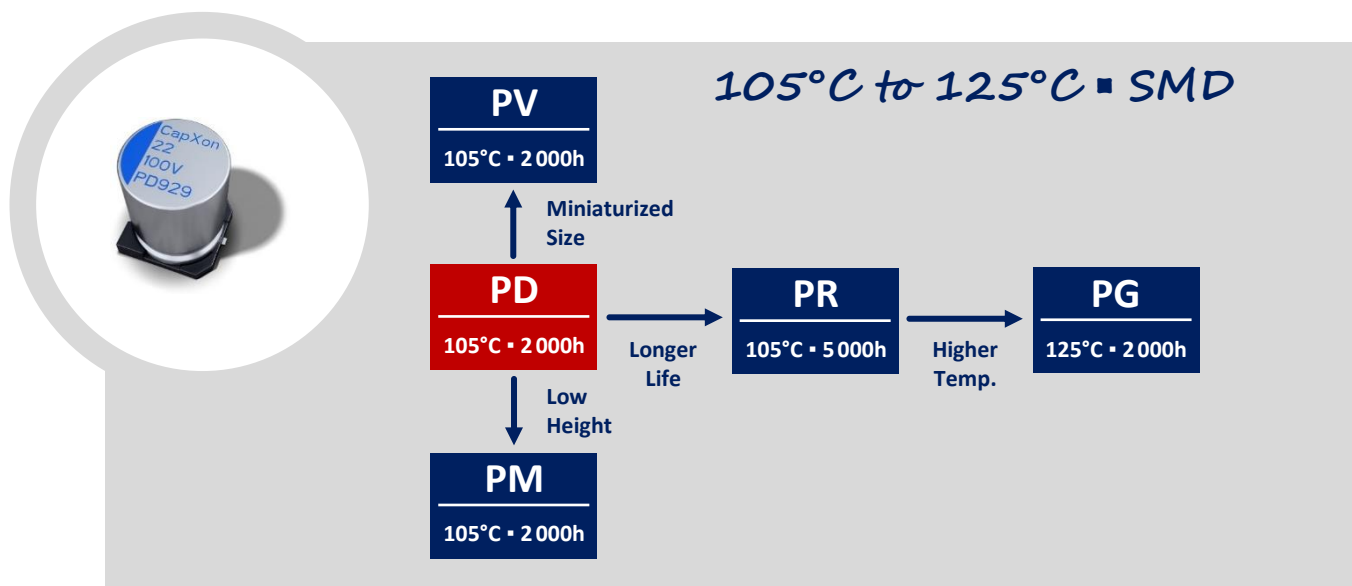
Frequency (Hz)	120 ≤ Freq. < 1k	1k ≤ Freq. < 10k	10k ≤ Freq. < 100k	100k ≤ Freq. < 300k
Coefficient $K_f$	0.05	0.3	0.7	1

### PRECAUTIONS, GUIDELINES AND PACKAGING INFORMATION

Unless otherwise agreed in individual specifications, all products are subject to our “General Precautions and Guidelines” as well as our “Packaging Information”. Please refer to the following links in the table.

			
<a href="#">General Precautions &amp; Guidelines</a>	<a href="#">Packaging Information</a>	<a href="#">3D Models</a>	<a href="#">Reliability Tests</a>

### GROUP CHART



### DISCLAIMER

All product related data (e.g. specification, statements and general information) are subject to change without any notice. It is necessary that the customer observes all product related technical / application information and handling instructions.

CapXon products are designed and manufactured according to severe quality and safety standards. Under no circumstance, CapXon warrants that any CapXon product is suitable for the purposes intended for your application, even CapXon knows the application. It is customer's duty and obligation to check and make sure that CapXon products are suitable for the purposes intended and select the correct and proper CapXon product. Customers are requested to perform a sufficient validation and reliability evaluation to assure needed safety level and reliability performance by suitable designs and to apply proper safeguards (e.g. redundancies, protective circuits).

Particular operating conditions (ambient temperature, ripple current, voltage, thermal resistance, etc.) as well as storage, production or assembly may affect the performance and the lifetime of the capacitor. Please consult CapXon for lifetime estimation, failure mode considerations or worst-case scenarios according to the product technology, product tolerances / deviations or change of the characteristics of the capacitor due to shipment, storage, handling, production and usage.

For aerospace or military application, life-saving, life-sustaining, safety critical applications or any application where failure may cause severe personal injury or death, please consult us before design-in the capacitor in your application.

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