

### PM SERIES ▀ LOW HEIGHT TYPE

#### KEY FEATURES



- **SOLID CONDUCTIVE POLYMER** ▀ SMD type
- Low height for space critical applications
- Endurance: 105°C ▀ 2 000 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	$C_R$	4.7 ~ 560 $\mu$ 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

#### 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

**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	82	5.0	5.8	300	8	30	2100	PM820M2R5C058PTR
	100	6.3	5.8	300	8	22	2500	PM101M2R5E058PTR
	150	6.3	5.8	300	8	22	2500	PM151M2R5E058PTR
	180	5.0	5.8	300	8	25	2310	PM181M2R5C058PTR
	180	6.3	5.8	300	8	22	2500	PM181M2R5E058PTR
	220	5.0	5.8	300	8	25	2310	PM221M2R5C058PTR
	220	6.3	5.8	300	8	22	2800	PM221M2R5E058PTR
	270	5.0	5.8	300	8	22	2610	PM271M2R5C058PTR
	270	6.3	5.8	300	8	22	2800	PM271M2R5E058PTR
	330	6.3	5.8	300	8	15	3100	PM331M2R5E058PTRZ
	390	6.3	5.8	300	8	25	2610	PM391M2R5E058PTR
	390	6.3	5.8	300	8	15	3100	PM391M2R5E058PTRZ
	470	6.3	5.8	300	8	20	2800	PM471M2R5E058PTR
	470	6.3	7.7	300	8	15	3600	PM471M2R5E077PTR
	560	6.3	5.8	300	8	15	3100	PM561M2R5E058PTRZ
560	6.3	7.7	300	8	15	3600	PM561M2R5E077PTR	
4	47	5.0	5.8	300	8	25	2310	PM470M004C058PTR
	56	5.0	5.8	300	8	25	2310	PM560M004C058PTR
	68	5.0	5.8	300	8	25	2310	PM680M004C058PTR
	100	5.0	5.8	300	8	25	2310	PM101M004C058PTR
	100	6.3	5.8	300	8	22	2500	PM101M004E058PTR
	120	5.0	5.8	300	8	22	2500	PM121M004C058PTR
	120	6.3	5.8	300	8	22	2500	PM121M004E058PTR
	150	5.0	5.8	300	8	22	2500	PM151M004C058PTR
	150	6.3	5.8	300	8	22	2500	PM151M004E058PTR
	150	6.3	7.7	300	8	20	3100	PM151M004E077PTR
	180	6.3	5.8	300	8	22	2500	PM181M004E058PTR
	220	5.0	5.8	300	8	22	2610	PM221M004C058PTR
	220	6.3	5.8	300	8	22	2800	PM221M004E058PTR
	220	6.3	7.7	300	8	20	3100	PM221M004E077PTR
	270	6.3	5.8	300	8	22	2800	PM271M004E058PTR
	270	6.3	7.7	300	8	20	3100	PM271M004E077PTR
	330	6.3	5.8	300	8	20	2800	PM331M004E058PTR
	330	6.3	5.8	300	8	15	3100	PM331M004E058PTRZ
	330	6.3	7.7	300	8	15	3600	PM331M004E077PTR
	390	6.3	5.8	300	8	20	2800	PM391M004E058PTR
390	6.3	7.7	300	8	15	3600	PM391M004E077PTR	
470	6.3	7.7	300	8	15	3600	PM471M004E077PTR	
6.3	47	5.0	5.5	300	8	30	2000	PM470M6R3C055PTR
	56	5.0	5.5	300	8	30	2000	PM560M6R3C055PTR
	68	5.0	5.5	300	8	30	2000	PM680M6R3C055PTR
	68	6.3	5.8	300	8	22	2690	PM680M6R3E058PTR
	82	5.0	5.5	300	8	30	2000	PM820M6R3C055PTR
	82	6.3	5.8	300	8	22	2690	PM820M6R3E058PTR
	100	5.0	5.5	300	8	30	2000	PM101M6R3C055PTR
	100	5.0	5.8	300	8	25	2310	PM101M6R3C058PTR

**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
6.3	100	6.3	5.8	300	8	22	2800	PM101M6R3E058PTR
	120	5.0	5.8	300	8	25	2310	PM121M6R3C058PTR
	120	6.3	5.8	300	8	22	2800	PM121M6R3E058PTR
	150	5.0	5.8	300	8	22	2610	PM151M6R3C058PTR
	150	6.3	5.8	300	8	22	2800	PM151M6R3E058PTR
	150	6.3	7.7	300	8	20	3100	PM151M6R3E077PTR
	180	5.0	5.8	300	8	22	2610	PM181M6R3C058PTR
	180	6.3	5.8	300	8	22	2800	PM181M6R3E058PTR
	180	6.3	7.7	300	8	20	3100	PM181M6R3E077PTR
	220	6.3	5.8	300	8	20	3000	PM221M6R3E058PTR
	220	6.3	5.8	300	8	15	3100	PM221M6R3E058PTRZ
	220	6.3	7.7	300	8	15	3600	PM221M6R3E077PTR
	270	6.3	5.8	300	8	20	3000	PM271M6R3E058PTR
	270	6.3	7.7	300	8	15	3600	PM271M6R3E077PTR
	330	6.3	5.8	300	8	20	3100	PM331M6R3E058PTR
	330	6.3	7.7	300	8	15	3600	PM331M6R3E077PTR
	330	6.3	7.7	300	8	10	4200	PM331M6R3E077PTRZ
390	6.3	7.7	300	8	15	3600	PM391M6R3E077PTR	
10	4.7	4.0	5.5	300	8	120	980	PM4R7M010B055PTR
	6.8	4.0	5.5	300	8	120	980	PM6R8M010B055PTR
	10	4.0	5.5	300	8	80	1200	PM100M010B055PTR
	15	4.0	5.5	300	8	80	1200	PM150M010B055PTR
	22	4.0	5.5	300	8	80	1200	PM220M010B055PTR
	33	5.0	5.5	300	8	30	2000	PM330M010C055PTR
	33	6.3	5.8	300	8	30	2200	PM330M010E058PTR
	39	5.0	5.5	300	8	30	2000	PM390M010C055PTR
	39	6.3	5.8	300	8	30	2200	PM390M010E058PTR
	47	5.0	5.5	300	8	30	2000	PM470M010C055PTR
	47	6.3	5.8	300	8	30	2200	PM470M010E058PTR
	47	6.3	7.7	300	8	20	2800	PM470M010E077PTR
	56	5.0	5.5	300	8	30	2000	PM560M010C055PTR
	56	6.3	5.8	300	8	30	2200	PM560M010E058PTR
	56	6.3	7.7	300	8	20	2800	PM560M010E077PTR
	68	5.0	5.5	300	8	30	2000	PM680M010C055PTR
	68	6.3	5.8	300	8	30	2200	PM680M010E058PTR
	68	6.3	7.7	300	8	20	2800	PM680M010E077PTR
	82	5.0	5.5	300	8	30	2000	PM820M010C055PTR
	82	6.3	5.8	300	8	30	2200	PM820M010E058PTR
	82	6.3	7.7	300	8	20	2800	PM820M010E077PTR
	100	5.0	5.5	300	8	30	2000	PM101M010C055PTR
	100	6.3	5.8	300	8	30	2200	PM101M010E058PTR
	100	6.3	7.7	300	8	20	2800	PM101M010E077PTR
120	6.3	5.8	300	8	25	2610	PM121M010E058PTR	
150	6.3	5.8	300	8	25	2610	PM151M010E058PTR	
150	6.3	7.7	300	8	20	3100	PM151M010E077PTR	
180	6.3	5.8	300	8	25	2610	PM181M010E058PTR	

**STANDARD RATINGS**

Part number shows blister tape on paper reel

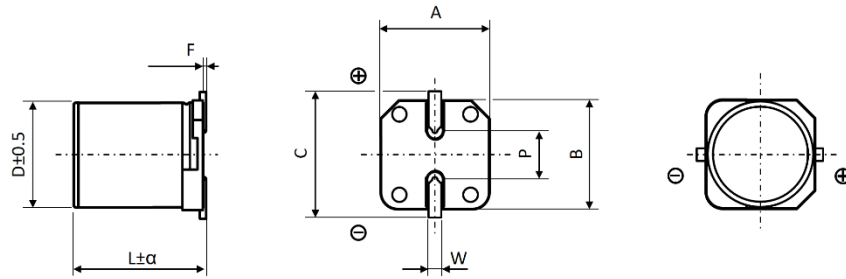
$V_R$ (V)	$C_R$ ( $\mu F$ )	$\phi D$ (mm)	L (mm)	$I_{LEAK}$ ( $\mu A$ , 2min)	$\tan\delta$ +20°C • 120Hz (%)	Max. ESR +20°C • 100kHz (m $\Omega$ )	$I_R$ - Max. Ripple Current +105°C • 100kHz (mA rms)	CapXon Part Number
10	180	6.3	7.7	300	8	20	3100	PM181M010E077PTR
	220	6.3	5.8	300	8	25	2610	PM221M010E058PTR
	220	6.3	7.7	300	8	20	3100	PM221M010E077PTR
	270	6.3	7.7	300	8	20	3100	PM271M010E077PTR
	330	6.3	7.7	300	8	20	3100	PM331M010E077PTR
16	10	5.0	5.8	400	8	40	2000	PM100M016C058PTR
	10	6.3	5.8	400	8	35	2200	PM100M016E058PTR
	10	6.3	7.7	400	8	30	2610	PM100M016E077PTR
	15	5.0	5.8	400	8	40	2000	PM150M016C058PTR
	15	6.3	5.8	400	8	35	2200	PM150M016E058PTR
	15	6.3	7.7	400	8	30	2610	PM150M016E077PTR
	22	5.0	5.8	400	8	40	2000	PM220M016C058PTR
	22	6.3	5.8	400	8	35	2200	PM220M016E058PTR
	22	6.3	7.7	400	8	30	2610	PM220M016E077PTR
	33	5.0	5.8	400	8	40	2000	PM330M016C058PTR
	33	6.3	5.8	400	8	35	2200	PM330M016E058PTR
	33	6.3	7.7	400	8	30	2610	PM330M016E077PTR
	39	5.0	5.8	400	8	40	2000	PM390M016C058PTR
	39	6.3	5.8	400	8	35	2200	PM390M016E058PTR
	39	6.3	7.7	400	8	30	2610	PM390M016E077PTR
	47	5.0	5.8	400	8	40	2000	PM470M016C058PTR
	47	6.3	5.8	400	8	35	2200	PM470M016E058PTR
	47	6.3	7.7	400	8	30	2610	PM470M016E077PTR
	56	5.0	5.8	400	8	40	2000	PM560M016C058PTR
	56	6.3	5.8	400	8	35	2200	PM560M016E058PTR
	56	6.3	7.7	400	8	30	2610	PM560M016E077PTR
	68	6.3	5.8	400	8	35	2200	PM680M016E058PTR
	68	6.3	7.7	400	8	25	2690	PM680M016E077PTR
	82	6.3	5.8	400	8	35	2200	PM820M016E058PTR
	82	6.3	7.7	400	8	25	2690	PM820M016E077PTR
	100	6.3	5.8	400	8	30	2490	PM101M016E058PTR
	100	6.3	7.7	400	8	25	2690	PM101M016E077PTR
150	6.3	7.7	400	8	25	2690	PM151M016E077PTR	
180	6.3	5.8	400	12	25	3200	PM181M016E058PTR	

**STANDARD RATINGS**

Part number shows blister tape on paper reel

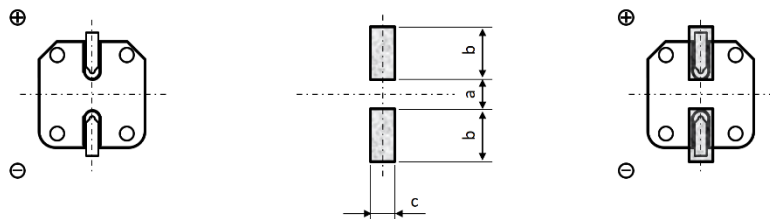
$V_R$ (V)	$C_R$ ( $\mu F$ )	$\phi D$ (mm)	L (mm)	$I_{LEAK}$ ( $\mu A$ , 2min)	$\tan\delta$ +20°C • 120Hz (%)	Max. ESR +20°C • 100kHz (m $\Omega$ )	$I_R$ - Max. Ripple Current +105°C • 100kHz (mA rms)	CapXon Part Number
20	10	5.0	5.8	600	8	40	2000	PM100M020C058PTR
	10	6.3	5.8	600	8	40	2200	PM100M020E058PTR
	15	6.3	5.8	600	8	35	2200	PM150M020E058PTR
	22	6.3	5.8	600	8	35	2200	PM220M020E058PTR
	22	6.3	7.7	600	8	30	2670	PM220M020E077PTR
	27	6.3	5.8	600	8	35	2200	PM270M020E058PTR
	33	6.3	5.8	600	8	35	2200	PM330M020E058PTR
	33	6.3	7.7	600	8	30	2670	PM330M020E077PTR
	39	6.3	7.7	600	8	30	2670	PM390M020E077PTR
	47	6.3	5.8	600	8	35	2200	PM470M020E058PTR
	47	6.3	7.7	600	8	30	2670	PM470M020E077PTR
	56	6.3	5.8	600	8	35	2200	PM560M020E058PTR
	56	6.3	7.7	600	8	30	2670	PM560M020E077PTR
120	6.3	5.8	600	12	25	3200	PM121M020E058PTR	
25	6.8	6.3	5.8	600	8	40	2000	PM6R8M025E058PTR
	10	6.3	5.8	600	8	35	2200	PM100M025E058PTR
	10	6.3	7.7	600	8	35	2670	PM100M025E077PTR
	15	6.3	5.8	600	8	35	2200	PM150M025E058PTR
	15	6.3	7.7	600	8	30	2670	PM150M025E077PTR
	22	6.3	5.8	600	8	35	2200	PM220M025E058PTR
	22	6.3	7.7	600	8	30	2670	PM220M025E077PTR
	33	6.3	5.8	600	8	35	2200	PM330M025E058PTR
	33	6.3	7.7	600	8	30	2670	PM330M025E077PTR
	39	6.3	7.7	600	8	30	2670	PM390M025E077PTR
47	6.3	5.8	600	8	35	2200	PM470M025E058PTR	
35	18	6.3	5.8	600	12	64	900	PM180M035E058PTR
	22	6.3	5.8	600	12	50	1300	PM220M035E058PTR
	27	6.3	5.8	600	12	50	1530	PM270M035E058PTR
	47	6.3	7.7	600	12	50	1600	PM470M035E077PTR
	56	6.3	7.7	600	12	35	2100	PM560M035E077PTR
50	8,2	6.3	5.8	600	12	80	800	PM8R2M050E058PTR
	12	6.3	5.8	600	12	80	800	PM120M050E058PTR
	15	6.3	5.8	600	12	80	800	PM150M050E058PTR
63	5.6	6.3	5.8	600	12	100	700	PM5R6M063E058PTR
	8.2	6.3	5.8	600	12	100	700	PM8R2M063E058PTR
100	4.7	6.3	7.7	600	12	100	1060	PM4R7M100E077PTR

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



∅ D	L	α	A ± 0.2	B ± 0.2	C ± 0.2	F	P ± 0.2	W
4.0	5.5	0.3	4.3	4.3	4.9	0.3 max.	1.0	0.5 to 0.8
5.0	5.5	0.3	5.3	5.3	5.9	0.3 max.	1.4	0.5 to 0.8
5.0	5.8	0.3	5.3	5.3	5.9	0.3 max.	1.4	0.5 to 0.8
6.3	5.8	0.3	6.6	6.6	7.2	0.3 max.	2.2	0.5 to 0.8
6.3	7.7	0.3	6.6	6.6	7.2	0.3 max.	2.2	0.5 to 0.8

**PAD LAYOUT STANDARD PACKAGE** ▪ All dimensions in mm



Bottom view

Recommended land patterns

Capacitor mounted on pads

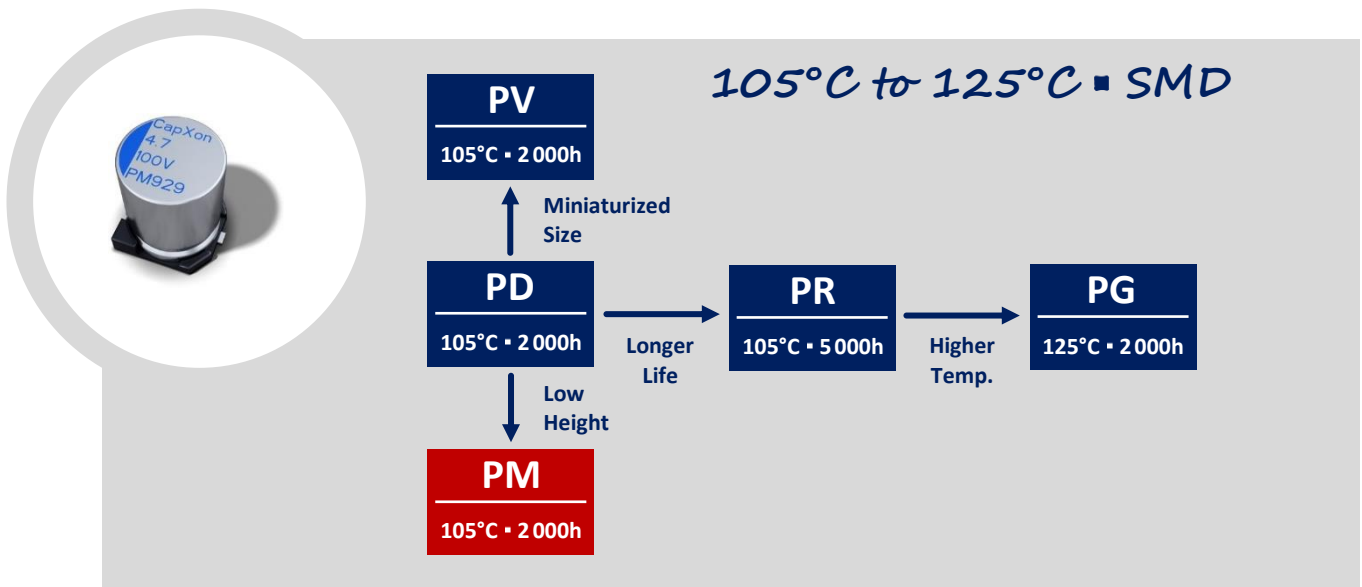
∅ D	L	a	b	c
4.0	5.5	1.0	2.6	1.6
5.0	5.5	1.4	3.0	1.6
5.0	5.8	1.4	3.0	1.6
6.3	5.8	2.1	3.5	1.6
6.3	7.7	2.1	3.5	1.6

**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.

Except for the written expressed warranties, CapXon does not impliedly, by assumption or whatever else, warrant, undertake, promise any other warranty or guaranty for any CapXon product.

For further information, please visit our website [www.capxongroup.com](http://www.capxongroup.com) or contact CapXon directly.