

### SM SERIES ▪ 7MM HEIGHT, STANDARD 85°C TYPE

#### KEY FEATURES

- ALUMINUM ELECTROLYTIC CAPACITOR ▪ THT type
- Endurance: 85°C ▪ 1 000 hours
- Optimized for high density insertion
- Low height ▪ 7mm
- Miniaturized for space critical applications



#### SPECIFICATIONS

Items		Performance Characteristics								
Operating Temperature Range		-40 ~ +85°C								
Rated Voltage Range	$V_R$	4 ~ 63V DC								
Surge Voltage	$V_S$	$V_S = 1.15 \cdot V_R$								
Capacitance Range	$C_R$	1 ~ 470 $\mu$ F								
Cap. Tolerance	$\Delta C$	$\pm 20\%$ (120Hz ▪ 20°C)								
Leakage Current (20°C ▪ $V_R$ applied)	$I_{LEAK}$	$\leq 0.01 \cdot C_R \cdot V_R$ or 3 $\mu$ A, whichever is greater ▪ After 1 minute [ $I_{LEAK}$ ( $\mu$ A) ; $C_R$ ( $\mu$ F) ; $V_R$ (V) ]								
Dissipation Factor % (20°C ▪ 120Hz)	$\tan\delta$	$V_R$ (V DC)	4	6.3	10	16	25	35	50	63
		$\tan\delta$ (%)	25	22	20	16	14	12	10	9
Low Temperature Characteristics at 120Hz	Z ratio max.	$V_R$ (V DC)	4	6.3	10	16	25	35	50	63
		Z-25°C/Z+20°C	7	4	3	2	2	2	2	2
		Z-40°C/Z+20°C	15	8	6	4	4	3	3	3

Lifetime Test			
Endurance 85°C ( $V_R$ applied)	Test	<b>1 000 hours</b>	
	$\Delta C/C_R$	$\leq \pm 20\%$ of initial measured value	6.3 ~ 63 V
		$\leq \pm 30\%$ of initial measured value	4V
	$\tan\delta$	$\leq 200\%$ of initial specified value	
$I_{Leak}$	$\leq$ the initial specified value		
Shelf Life 85°C ( $V_R = 0$ )	Test	<b>1 000 hours</b>	
	$\Delta C/C_R$	$\leq \pm 20\%$ of initial measured value	6.3 ~ 63 V
		$\leq \pm 30\%$ of initial measured value	4V
	$\tan\delta$	$\leq 200\%$ of initial specified value	
$I_{Leak}$	$\leq$ the initial specified value		
Before measurement: Restore capacitor to 20°C, apply $V_R$ for 30 min according JIS-C-5101-4			

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

$C_R$ ( $\mu$ F) / Frequency (Hz)	50/60	100/120	400	1k	10k	50k - 100k
$C_R \leq 10$	0.8	1	1.3	1.45	1.65	1.7
$10 < C_R \leq 100$	0.8	1	1.23	1.36	1.48	1.53
$100 < C_R \leq 470$	0.8	1	1.16	1.25	1.35	1.38

**STANDARD RATINGS**

Part number shows bulk version with straight leads

$V_R$ (V)	$C_R$ ( $\mu$ F)	$\phi$ D (mm)	L (mm)	$I_R$ - Max. Ripple Current +85°C • 120Hz (mA rms)	CapXon Part Number
4	33	4	7	33	SM330M004B070A
	47	4	7	35	SM470M004B070A
	68	4	7	42	SM680M004B070A
	100	4	7	55	SM101M004B070A
	100	5	7	61	SM101M004C070A
	150	5	7	72	SM151M004C070A
	220	6.3	7	110	SM221M004E070A
	330	6.3	7	120	SM331M004E070A
	330	8	7	165	SM331M004F070A
	470	8	7	235	SM471M004F070A
6.3	15	4	7	28	SM150M6R3B070A
	22	4	7	35	SM220M6R3B070A
	33	4	7	40	SM330M6R3B070A
	33	5	7	42	SM330M6R3C070A
	47	4	7	46	SM470M6R3B070A
	47	5	7	48	SM470M6R3C070A
	68	5	7	50	SM680M6R3C070A
	100	5	7	75	SM101M6R3C070A
	100	6.3	7	80	SM101M6R3E070A
	150	6.3	7	82	SM151M6R3E070A
	150	8	7	85	SM151M6R3F070A
	220	6.3	7	120	SM221M6R3E070A
	220	8	7	133	SM221M6R3F070A
	330	8	7	160	SM331M6R3F070A
10	15	4	7	32	SM150M010B070A
	22	4	7	36	SM220M010B070A
	22	5	7	38	SM220M010C070A
	33	4	7	43	SM330M010B070A
	33	5	7	45	SM330M010C070A
	47	4	7	50	SM470M010B070A
	47	5	7	58	SM470M010C070A
	68	5	7	60	SM680M010C070A
	100	5	7	82	SM101M010C070A
	100	6.3	7	90	SM101M010E070A
	150	6.3	7	95	SM151M010E070A
	220	6.3	7	136	SM221M010E070A
	220	8	7	140	SM221M010F070A
	330	8	7	182	SM331M010F070A
16	4.7	4	7	15	SM4R7M016B070A
	6.8	4	7	20	SM6R8M016B070A
	10	4	7	28	SM100M016B070A
	15	4	7	35	SM150M016B070A
	22	4	7	40	SM220M016B070A
	22	5	7	42	SM220M016C070A

See "PACKAGING INFORMATION" to taped or formed products.

**STANDARD RATINGS**

Part number shows bulk version with straight leads

$V_R$ (V)	$C_R$ ( $\mu$ F)	$\phi$ D (mm)	L (mm)	$I_R$ - Max. Ripple Current +85°C • 120Hz (mA rms)	CapXon Part Number
16	33	4	7	45	SM330M016B070A
	33	5	7	55	SM330M016C070A
	47	5	7	65	SM470M016C070A
	47	6.3	7	68	SM470M016E070A
	68	6.3	7	70	SM680M016E070A
	100	6.3	7	98	SM101M016E070A
	100	8	7	105	SM101M016F070A
	150	8	7	111	SM151M016F070A
	220	8	7	152	SM221M016F070A
25	4.7	4	7	20	SM4R7M025B070A
	6.8	4	7	22	SM6R8M025B070A
	10	4	7	30	SM100M025B070A
	15	5	7	37	SM150M025C070A
	22	4	7	46	SM220M025B070A
	22	5	7	50	SM220M025C070A
	33	5	7	52	SM330M025C070A
	33	6.3	7	58	SM330M025E070A
	47	6.3	7	71	SM470M025E070A
	68	6.3	7	79	SM680M025E070A
	100	8	7	113	SM101M025F070A
35	3.3	4	7	18	SM3R3M035B070A
	4.7	4	7	22	SM4R7M035B070A
	6.8	5	7	25	SM6R8M035C070A
	10	4	7	31	SM100M035B070A
	10	5	7	33	SM100M035C070A
	15	5	7	37	SM150M035C070A
	22	5	7	47	SM220M035C070A
	22	6.3	7	55	SM220M035E070A
	33	6.3	7	65	SM330M035E070A
	33	8	7	68	SM330M035F070A
	47	8	7	85	SM470M035F070A
	68	8	7	88	SM680M035F070A
100	8	7	119	SM101M035F070A	
50	1	4	7	10	SM010M050B070A
	1.5	4	7	13	SM1R5M050B070A
	2.2	4	7	17	SM2R2M050B070A
	3.3	4	7	23	SM3R3M050B070A
	4.7	4	7	24	SM4R7M050B070A
	4.7	5	7	26	SM4R7M050C070A
	6.8	5	7	28	SM6R8M050C070A
	10	5	7	35	SM100M050C070A
	10	6.3	7	38	SM100M050E070A
	15	6.3	7	42	SM150M050E070A
	22	6.3	7	59	SM220M050E070A

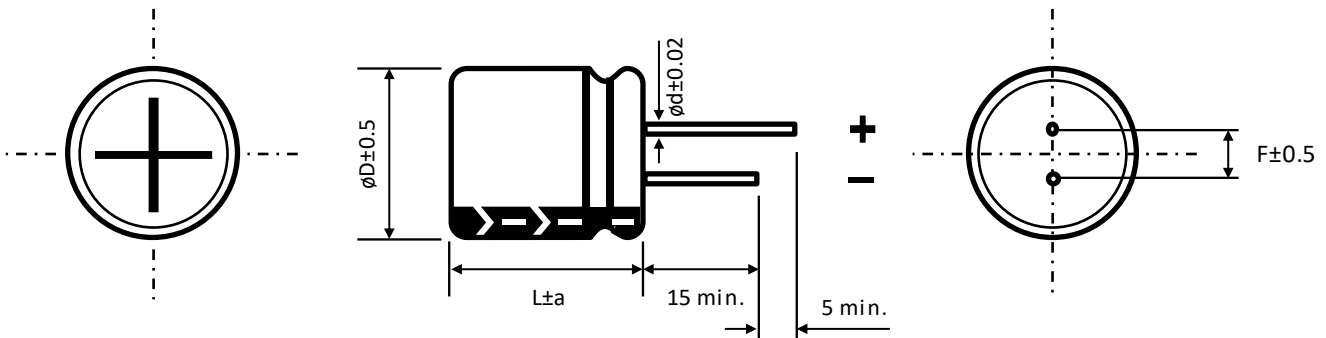
See "PACKAGING INFORMATION" to taped or formed products.

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$V_R$ (V)	$C_R$ ( $\mu$ F)	$\phi D$ (mm)	L (mm)	$I_R$ - Max. Ripple Current +85°C - 120Hz (mA rms)	CapXon Part Number
50	22	8	7	63	SM220M050F070A
	33	8	7	75	SM330M050F070A
	47	8	7	88	SM470M050F070A
63	1	4	7	12	SM010M063B070A
	1.5	4	7	14	SM1R5M063B070A
	2.2	4	7	18	SM2R2M063B070A
	3.3	5	7	25	SM3R3M063C070A
	4.7	5	7	30	SM4R7M063C070A
	4.7	6.3	7	33	SM4R7M063E070A
	6.8	6.3	7	31	SM6R8M063E070A
	10	6.3	7	48	SM100M063E070A
	15	8	7	45	SM150M063F070A
	22	8	7	65	SM220M063F070A

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**DIMENSIONS** - All dimensions in mm


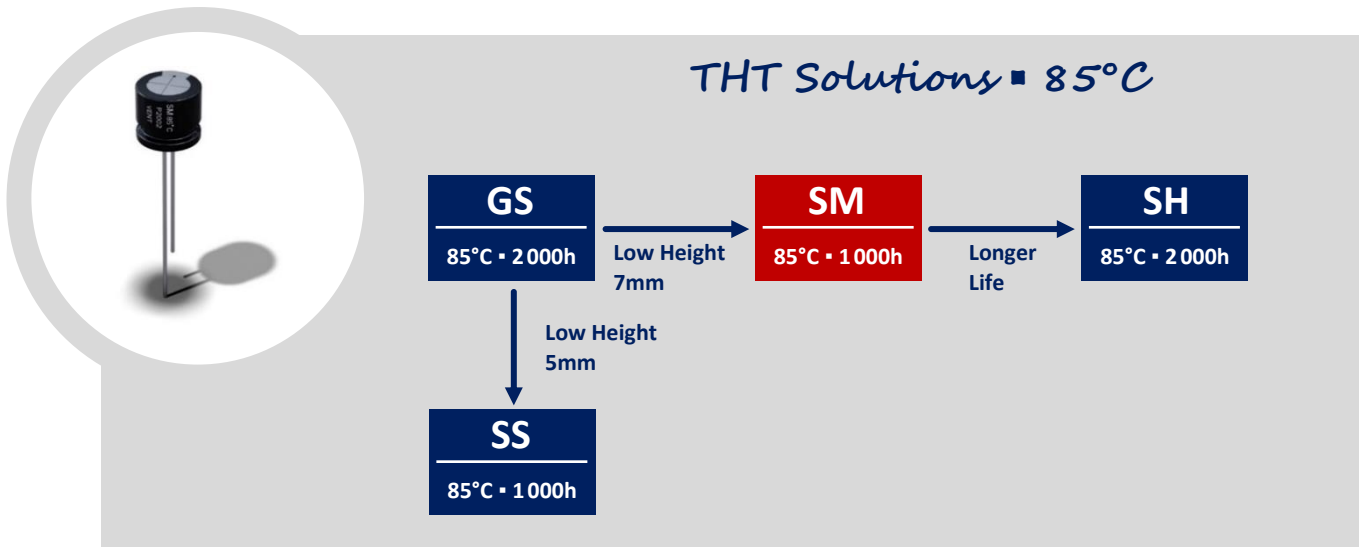
$\phi D$	4	5	6.3	8
F	1.5	2	2.5	3.5
$\phi d$	0.45	0.45	0.5	0.5
a	1	1	1	1

**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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