

### RU SERIES ▪ LONG LIFE 85°C TYPE

#### KEY FEATURES



- **ALUMINUM ELECTROLYTIC CAPACITOR** ▪ Screw terminal type
- Endurance: 85°C ▪ 2 000 hours, Useful life: 85°C ▪ 12 000 hours
- Wide capacitance range
- All-welded construction ensures highest reliability
- Bottom cooling possible due to the thermal construction



#### SPECIFICATIONS

Items		Performance Characteristics	
Operating Temperature Range		-40 ~ +85°C	-25 ~ +85°C
Rated Voltage Range	$V_R$	200 ~ 450V DC	500V DC
Surge Voltage	$V_S$	$(V_R \leq 315V): V_S = 1.15 \cdot V_R$ $(V_R > 315V): V_S = 1.10 \cdot V_R$	
Capacitance Range	$C_R$	1000 ~ 33000µF	820 ~ 10000µF
Cap. Tolerance	$\Delta C$	$\pm 20\%$ (120Hz ▪ 20°C)	
Leakage Current (20°C ▪ $V_R$ applied)	$I_{LEAK}$	$\leq 0.018 \cdot (C_R \cdot V_R)^{0.85} + 4$ (µA) or 5mA (whichever is smaller) ▪ After 5 minutes [ $I_{LEAK}$ (µA) ; $C_R$ (µF) ; $V_R$ (V) ]	
Dissipation Factor % (20°C ▪ 120Hz)	$\tan \delta$	$V_R$ (V DC)	160 ~ 450
		$\tan \delta$	15
Low Temperature Characteristics at 120Hz	Z ratio max.	$V_R$ (V DC)	500
		Z-25°C/Z+20°C	4
		Z-40°C/Z+20°C	10
			-

Lifetime Test	
Useful Life 85°C ( $V_R$ & $I_R$ applied)	Test <b>12 000 hours</b>
	$\Delta C/C_R$ $\leq \pm 15\%$ of initial measured value
	$\tan \delta$ $\leq 175\%$ of initial specified value
	$I_{Leak}$ $\leq$ the initial specified value
	Deviation Rate at Useful Life: 100 FIT = 0.01%/1000h with 60% confidence level ▪ parts show higher drift as test criteria
Endurance 85°C ( $V_R$ & $I_R$ applied)	Test <b>2 000 hours</b>
	$\Delta C/C_R$ $\leq \pm 10\%$ of initial measured value
	$\tan \delta$ $\leq 130\%$ of initial specified value
	$I_{Leak}$ $\leq$ the initial specified value
Shelf Life 85°C ( $V_R = 0$ )	Test <b>1 000 hours</b>
	$\Delta C/C_R$ $\leq \pm 10\%$ of initial measured value
	$\tan \delta$ $\leq 130\%$ 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
Vibration Resistance Test	Max. 10g force, $f_{RANGE}$ 10Hz ... 55Hz, amplitude 0.75mm; X/Y/Z-axis each 2h; capacitor rigidly clamped by body to surface ▪ IEC 60068-2-6

★ Remark: For **Halogen Free** products see chapter **SLEEVE AND PRINTING** selection.

## STANDARD RATINGS

□□□ see terminal code at dimensions table

V <sub>R</sub> (V)	C <sub>R</sub> (μF)	ø D (mm)	L (mm)	Typ. ESR +20°C • 120Hz (mΩ)	Max. ESR +20°C • 120Hz (mΩ)	I <sub>R</sub> • Max. Ripple Current +85°C • 120Hz (mA rms)	CapXon Part Number
200	3300	51	80	33	60	8590	RU332M200R800□□□
	3900	51	95	28	51	9780	RU392M200R950□□□
	4700	51	105	24	42	11300	RU472M200RA05□□□
	4700	63.5	80	24	42	11400	RU472M200S800□□□
	5600	51	115	20	36	12400	RU562M200RA15□□□
	5600	63.5	95	20	36	12900	RU562M200S950□□□
	6800	63.5	95	16	29	14000	RU682M200S950□□□
	8200	63.5	115	13	24	17600	RU822M200SA15□□□
	8200	76.2	95	13	24	18000	RU822M200T950□□□
	10000	63.5	130	11	20	19800	RU103M200SA30□□□
	10000	76.2	105	11	20	20000	RU103M200TA05□□□
	12000	76.2	115	9	17	22300	RU123M200TA15□□□
	15000	76.2	140	7	13	27800	RU153M200TA40□□□
	15000	89	120	7	13	28400	RU153M200XA20□□□
	18000	76.2	155	6	11	30500	RU183M200TA55□□□
	18000	89	140	6	11	31800	RU183M200XA40□□□
	22000	76.2	190	5	9	34600	RU223M200TA90□□□
	22000	89	170	5	9	35900	RU223M200XA70□□□
	27000	76.2	220	4	7	39400	RU273M200TB20□□□
	27000	89	195	4	7	40600	RU273M200XA95□□□
	33000	89	220	3	6	45900	RU333M200XB20□□□
250	2700	51	80	41	74	7280	RU272M250R800□□□
	3300	51	80	33	60	8900	RU332M250R800□□□
	3900	51	105	28	51	9930	RU392M250RA05□□□
	3900	63.5	80	28	51	10000	RU392M250S800□□□
	4700	51	130	24	42	11600	RU472M250RA30□□□
	4700	63.5	95	24	42	11700	RU472M250S950□□□
	5600	63.5	95	20	36	12300	RU562M250S950□□□
	6800	63.5	115	16	29	15400	RU682M250SA15□□□
	6800	76.2	95	16	29	15800	RU682M250T950□□□
	8200	63.5	130	13	24	17400	RU822M250SA30□□□
	8200	76.2	105	13	24	17600	RU822M250TA05□□□
	10000	76.2	115	11	20	20200	RU103M250TA15□□□
	10000	89	120	11	20	22500	RU103M250XA20□□□
	12000	76.2	140	9	17	24200	RU123M250TA40□□□
	12000	89	120	9	17	24700	RU123M250XA20□□□
	15000	76.2	160	7	13	27500	RU153M250TA60□□□
	15000	89	140	7	13	28300	RU153M250XA40□□□
	18000	76.2	190	6	11	30600	RU183M250TA90□□□
	18000	89	170	6	11	31700	RU183M250XA70□□□
	22000	76.2	220	5	9	34800	RU223M250TB20□□□
	22000	89	195	5	9	35900	RU223M250XA95□□□
	27000	89	220	4	7	40800	RU273M250XB20□□□

## STANDARD RATINGS

□□□ see terminal code at dimensions table

V <sub>R</sub> (V)	C <sub>R</sub> (μF)	ø D (mm)	L (mm)	Typ. ESR +20°C • 120Hz (mΩ)	Max. ESR +20°C • 120Hz (mΩ)	I <sub>R</sub> • Max. Ripple Current +85°C • 120Hz (mA rms)	CapXon Part Number
350	1500	51	80	72	130	6440	RU152M350R800□□□
	1800	51	80	61	110	9510	RU182M350R800□□□
	2200	51	80	50	90	9700	RU222M350R800□□□
	2200	51	95	50	90	10800	RU222M350R950□□□
	2200	63.5	80	50	90	11300	RU222M350S800□□□
	2700	51	95	41	74	12000	RU272M350R950□□□
	2700	63.5	80	41	74	12600	RU272M350S800□□□
	3300	51	115	33	60	14300	RU332M350RA15□□□
	3300	63.5	90	33	60	14500	RU332M350S900□□□
	3900	51	130	28	51	16200	RU392M350RA30□□□
	3900	63.5	95	28	51	16300	RU392M350S950□□□
	3900	63.5	105	28	51	16600	RU392M350SA05□□□
	4700	63.5	105	24	42	17900	RU472M350SA05□□□
	4700	76.2	95	24	42	19300	RU472M350T950□□□
	5600	63.5	120	20	36	19400	RU562M350SA20□□□
	5600	76.2	95	20	36	20200	RU562M350T950□□□
	6800	63.5	140	16	29	23200	RU682M350SA40□□□
	6800	76.2	105	16	29	23100	RU682M350TA05□□□
	6800	89	100	16	29	25000	RU682M350XA00□□□
	8200	76.2	115	13	24	25100	RU822M350TA15□□□
	8200	89	120	13	24	29600	RU822M350XA20□□□
	10000	76.2	140	11	20	32100	RU103M350TA40□□□
	10000	89	120	11	20	33200	RU103M350XA20□□□
	12000	76.2	170	9	17	35300	RU123M350TA70□□□
	12000	89	140	9	17	37300	RU123M350XA40□□□
	15000	76.2	190	7	13	41000	RU153M350TA90□□□
	15000	89	160	7	13	41900	RU153M350XA60□□□
	18000	89	195	6	11	48100	RU183M350XA95□□□
	22000	89	220	5	9	50500	RU223M350XB20□□□
400	1000	51	80	110	200	4600	RU102M400R800□□□
	1500	51	80	72	130	7000	RU152M400R800□□□
	1800	51	95	61	110	9980	RU182M400R950□□□
	2200	51	100	50	90	11200	RU222M400RA00□□□
	2200	63.5	80	50	90	11600	RU222M400S800□□□
	2700	51	115	41	74	13200	RU272M400RA15□□□
	2700	63.5	95	41	74	13900	RU272M400S950□□□
	3300	51	130	33	60	14600	RU332M400RA30□□□
	3300	63.5	105	33	60	15000	RU332M400SA05□□□
	3900	63.5	105	28	51	16100	RU392M400SA05□□□
	3900	76.2	95	28	51	18300	RU392M400T950□□□
	4700	63.5	130	24	42	20200	RU472M400SA30□□□
	4700	76.2	95	24	42	20000	RU472M400T950□□□
	5600	63.5	140	20	36	21500	RU562M400SA40□□□
	5600	76.2	115	20	36	21800	RU562M400TA15□□□

## STANDARD RATINGS

□□□ see terminal code at dimensions table

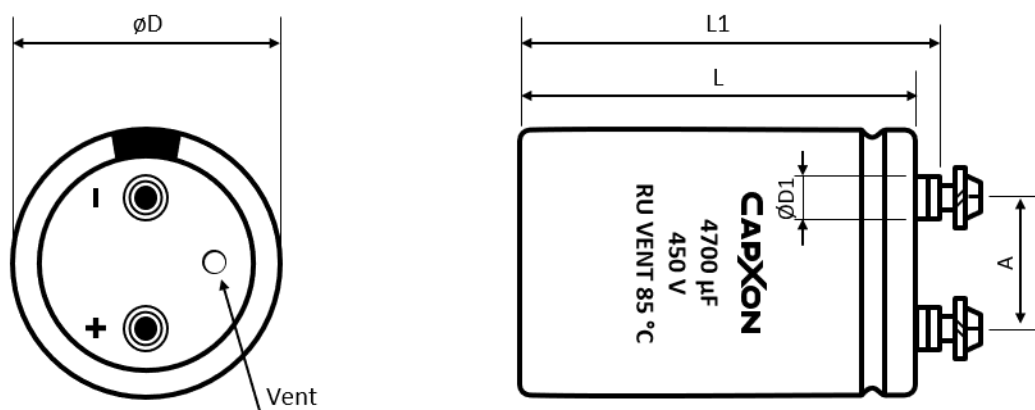
V <sub>R</sub> (V)	C <sub>R</sub> (μF)	ø D (mm)	L (mm)	Typ. ESR +20°C • 120Hz (mΩ)	Max. ESR +20°C • 120Hz (mΩ)	I <sub>R</sub> • Max. Ripple Current +85°C • 120Hz (mA rms)	CapXon Part Number
400	6800	76.2	130	16	29	25200	RU682M400TA30□□□
	6800	89	120	16	29	27300	RU682M400XA20□□□
	8200	76.2	155	13	24	29200	RU822M400TA55□□□
	8200	89	120	13	24	29100	RU822M400XA20□□□
	10000	76.2	165	11	20	32500	RU103M400TA65□□□
	10000	89	140	11	20	34700	RU103M400XA40□□□
	12000	76.2	220	8	17	39500	RU123M400TB20□□□
	12000	89	160	8	17	38000	RU123M400XA60□□□
	15000	76.2	230	7	13	42100	RU153M400TB30□□□
	15000	89	180	7	13	41600	RU153M400XA80□□□
	18000	89	220	6	11	46400	RU183M400XB20□□□
450	1200	51	80	94	170	7110	RU122M450R800□□□
	1500	51	80	72	130	7790	RU152M450R800□□□
	1800	51	105	61	110	9590	RU182M450RA05□□□
	1800	63.5	80	61	110	9770	RU182M450S800□□□
	2200	51	115	50	90	11000	RU222M450RA15□□□
	2200	63.5	95	50	90	11400	RU222M450S950□□□
	2700	63.5	95	41	74	12600	RU272M450S950□□□
	2700	76.2	95	41	74	14200	RU272M450T950□□□
	3300	63.5	115	33	60	14400	RU332M450SA15□□□
	3300	76.2	95	33	60	15000	RU332M450T950□□□
	3900	63.5	130	28	51	16200	RU392M450SA30□□□
	3900	76.2	105	28	51	16300	RU392M450TA05□□□
	4700	76.2	115	24	42	20400	RU472M450TA15□□□
	5600	76.2	130	20	36	22900	RU562M450TA30□□□
	5600	89	120	20	36	24200	RU562M450XA20□□□
	6800	76.2	155	16	29	27300	RU682M450TA55□□□
	8200	76.2	190	13	24	29600	RU822M450TA90□□□
	8200	89	170	13	24	30700	RU822M450XA70□□□
	10000	76.2	220	11	20	32600	RU103M450TB20□□□
	10000	89	170	11	20	33400	RU103M450XA70□□□
	12000	89	195	9	17	37700	RU123M450XA95□□□
500	820	51	80	180	320	5090	RU821M500R800□□□
	1000	51	95	150	270	5800	RU102M500R950□□□
	1200	51	95	120	220	6570	RU122M500R950□□□
	1200	63.5	80	120	220	7000	RU122M500S800□□□
	1500	51	115	100	180	7680	RU152M500RA15□□□
	1500	63.5	80	100	180	7790	RU152M500S800□□□
	1800	51	130	83	150	8770	RU182M500RA30□□□
	1800	63.5	95	83	150	8830	RU182M500S950□□□
	2200	63.5	105	67	120	10000	RU222M500SA05□□□
	2700	63.5	115	55	98	11500	RU272M500SA15□□□
	2700	76.2	95	55	98	11900	RU272M500T950□□□
	3300	63.5	140	45	80	13200	RU332M500SA40□□□

### STANDARD RATINGS

□□□ see terminal code at dimensions table

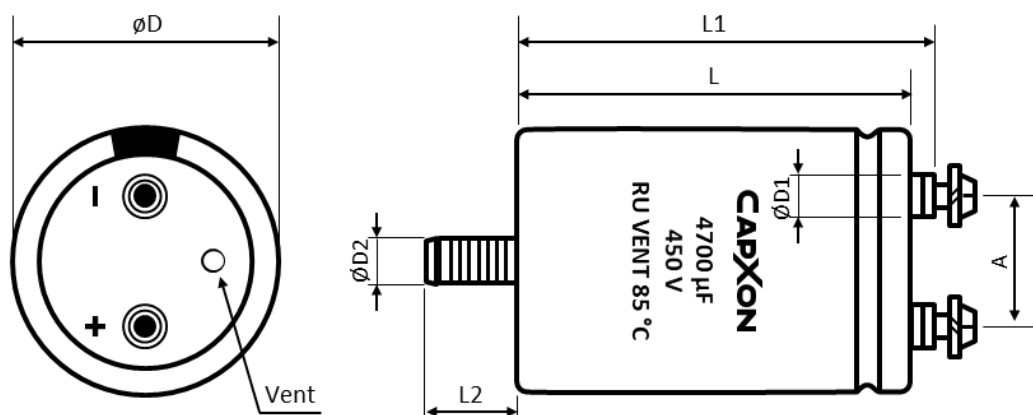
V <sub>R</sub> (V)	C <sub>R</sub> (μF)	ø D (mm)	L (mm)	Typ. ESR +20°C • 120Hz (mΩ)	Max. ESR +20°C • 120Hz (mΩ)	I <sub>R</sub> • Max. Ripple Current +85°C • 120Hz (mA rms)	CapXon Part Number
500	3300	76.2	115	45	80	13500	RU332M500TA15□□□
	3900	76.2	130	38	68	15100	RU392M500TA30□□□
	4700	76.2	120	31	56	18700	RU472M500TA20□□□
	5600	76.2	165	26	47	19900	RU562M500TA65□□□
	5600	89	140	26	47	20800	RU562M500XA40□□□
	6800	76.2	190	22	39	22800	RU682M500TA90□□□
	6800	89	170	22	39	23500	RU682M500XA70□□□
	8200	76.2	220	18	32	26200	RU822M500TB20□□□
	8200	89	195	18	32	26600	RU822M500XA95□□□
	10000	89	220	15	27	30400	RU103M500XB20□□□

### DIMENSIONS • Ring clamp mounting • All dimensions in mm



Terminal	Dimensions (mm) with insulating sleeve					Min. Full Thread (mm)	Max. Torque (Nm)	Terminal code
	D ± 2	L ± 3	L1 ± 3	D1 max.	A ± 0.5			
M5	51	50 ~ 140	56.5 ~ 146.5	10.3	22	8	2	A50
M5	63.5	80 ~ 140	86.5 ~ 146.5	10.3	28.6	8	2	A50
M5	63.5	80 ~ 140	86.5 ~ 146.5	13	28.6	8	2	A53
M5	76.2	100 ~ 240	106.5 ~ 246.5	10.3	31.8	12	2.5	A50
M5	76.2	100 ~ 240	106.5 ~ 246.5	17.5	31.8	12	2.5	A57
M6	76.2	100 ~ 240	106.5 ~ 246.5	17.5	31.8	12	2.5	A67
M6	89	100 ~ 240	106.5 ~ 246.5	17.5	31.8	12	2.5	A67

### DIMENSIONS • Threaded stud mounting • All dimensions in mm



Terminal	Dimensions (mm) with insulating sleeve							Min. Full Thread (mm)	Max. Torque (Nm)	Terminal code
	$D \pm 2$	$L \pm 3$	$L1 \pm 3$	$L2 \pm 1$	$D1$ max.	$D2$	$A \pm 0.5$			
M5	51	50 ~ 140	56.5 ~ 146.5	16	10.3	M12	22	8	2	E50
M5	63.5	80 ~ 140	86.5 ~ 146.5	16	10.3	M12	28.6	8	2	E50
M5	63.5	80 ~ 140	86.5 ~ 146.5	16	13	M12	28.6	8	2	E53
M5	76.2	100 ~ 240	106.5 ~ 246.5	16	10.3	M12	31.8	12	2.5	E50
M5	76.2	100 ~ 240	106.5 ~ 246.5	16	17.5	M12	31.8	12	2.5	E57
M6	76.2	100 ~ 240	106.5 ~ 246.5	16	17.5	M12	31.8	12	2.5	E67
M6	89	100 ~ 240	106.5 ~ 246.5	16	17.5	M12	31.8	12	2.5	E67

### SLEEVE AND PRINTING SELECTION TABLE

Diameter $\varnothing D$ (mm)	Sleeve Material	Sleeve Printing	CapXon Standard	Halogen Free	Product Code Suffix	Product Code Example
> 35	PVC	Thermo	Yes	No	-	RU273M200TB20E50
> 35	PET	Thermo	No	No	(*) Note	RU273M200TB20E50*
> 35	PET	Ink	No	Yes	(**) Note	RU273M200TB20E50**

Note: (\*) and (\*\*) consult CapXon for further details.

### ACCESSORIES





- The capacitors are supplied with suitable screws, serrated washers and plain washers. Accessories are not fastened to the capacitor.
- Suitable ring clamps and further assembly material see packaging information "Accessories".

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

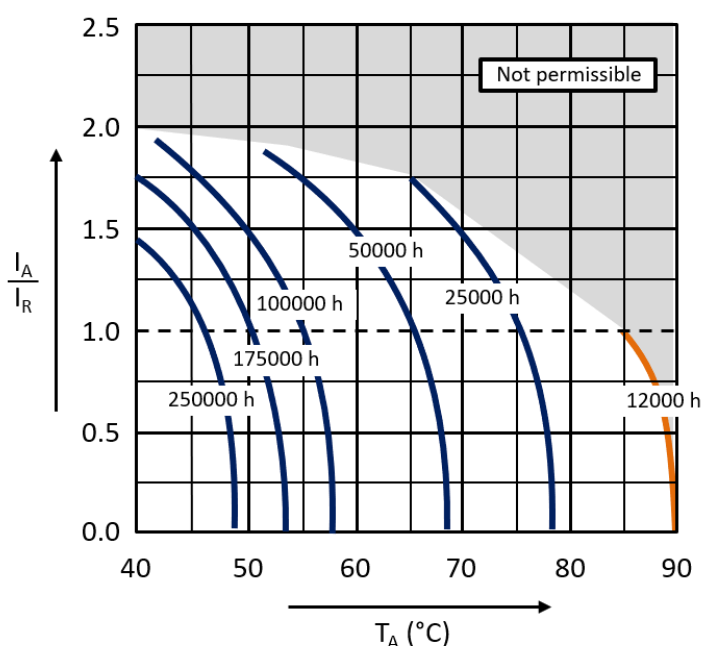
Frequency (Hz)	50/60	100/120	300	1k	$\geq 3k$
$K_f$	0.8	1	1.2	1.3	1.4

### 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.

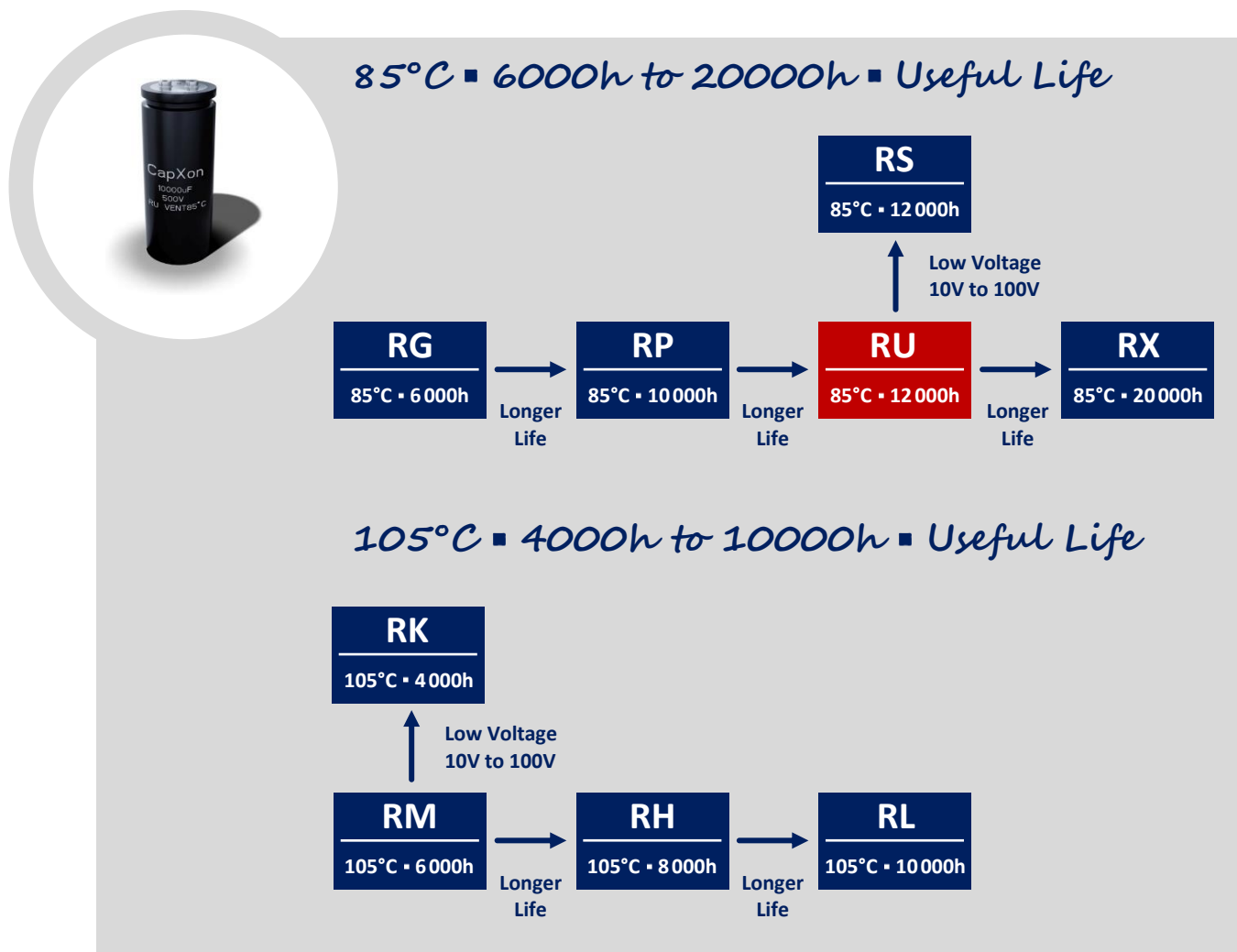
			
<a href="#">General Precautions &amp; Guidelines</a>	<a href="#">Packaging Information</a>	<a href="#">3D Models</a>	<a href="#">Reliability Tests</a>

### USEFUL LIFE



With:  $I_A$ : Actual application current  
 $I_R$ : Maximum permissible rated ripple current (A RMS)  
 $T_A$ : Ambient temperature of the capacitor

### 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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