

EV SERIES ■ STANDARD, AUTOMOTIVE 105°C TYPE

KEY FEATURES



- ALUMINUM ELECTROLYTIC CAPACITOR • SMD type
- Endurance: 105°C ■ 1 000 hours
- Small dimensions
- Vibration-proof (VP) version (up to 30g) available upon request
- AEC-Q200 version available



SPECIFICATIONS

Items		Performance Characteristics						
Operating Temperature Range		-55 ~ +105°C						
Rated Voltage Range	V_R	6.3 ~ 50V DC						
Surge Voltage	V_S	$V_S = 1.15 \cdot V_R$						
Capacitance Range	C_R	1 ~ 1500 μ F						
Cap. Tolerance	ΔC	$\pm 20\%$ (120Hz ■ 20°C)						
Leakage Current (20°C ■ V_R applied)	I_{LEAK}	$\leq 0.01 \cdot C_R \cdot V_R$ or 3 μ A, whichever is greater ■ After 2 minutes [I_{LEAK} (μ A) ; C_R (μ F) ; V_R (V)]						
Dissipation Factor % (20°C ■ 120Hz)	tan δ	V_R (V DC)	6.3	10	16	25	35	50
		$\phi 4$ to 6.3	30	24	20	18	16	14
		$\phi 8$ to 10	35	28	24	18	16	14
Low Temperature Characteristics at 120Hz	Z ratio max.	V_R (V DC)	6.3	10	16	25	35	50
		Z-25°C/Z+20°C	4	3	2	2	2	2
		Z-40°C/Z+20°C	6	6	4	4	3	3
		Z-55°C/Z+20°C	8	8	6	4	3	3
Lifetime Test								
Endurance 105°C (V_R applied)	Test	1 000 hours						
	$\Delta C/C_R$	$\leq \pm 25\%$ of initial measured value						$\leq 16V$
		$\leq \pm 20\%$ of initial measured value						$\geq 25V$
	tan δ	$\leq 200\%$ of initial specified value						
I_{Leak}	\leq the initial specified value							
Shelf Life 105°C ($V_R = 0$)	Test	1 000 hours						
	$\Delta C/C_R$	$\leq \pm 25\%$ of initial measured value						$\leq 16V$
		$\leq \pm 20\%$ of initial measured value						$\geq 25V$
	tan δ	$\leq 200\%$ of initial specified value						
I_{Leak}	\leq the initial specified value							
		Before measurement: Restore capacitor to 20°C, apply V_R for 30 min acc. JIS-C-5101-4						
Resistance to Soldering Heat	The capacitors shall be kept on a hot plate maintained at 250°C for 30 seconds. After removing from the hot plate and restored at room temperature, they meet the characteristic requirements listed below							
	$\Delta C/C_R$	Within $\pm 10\%$ of initial value						
	tan δ	Less than specified value						
	I_{Leak}	Less than specified value						

STANDARD RATINGS

Part number shows blister tape on paper reel

V _R (V)	Standard	C _R (μF)	ø D (mm)	L (mm)	I _R - Max. Ripple Current +105°C - 120Hz (mA rms)	CapXon Part Number	
	Vibration-proof						
6.3	•	22	4	5.5	22	EV220M6R3B055ETR □□	
	•	33	4	5.5	30	EV330M6R3B055ETR □□	
	•	47	4	5.5	36	EV470M6R3B055ETR □□	
	•	100	5	5.5	60	EV101M6R3C055ETR □□	
	•	150	6.3	5.5	86	EV151M6R3E055ETR □□	
	•	220	6.3	5.5	89	EV221M6R3E055ETR □□	
	•	•	220	6.3	7.7	102	EV221M6R3E077ETR □□
	•	•	220	8	6.5	102	EV221M6R3F065ETR □□
	•	•	330	6.3	7.7	105	EV331M6R3E077ETR □□
	•	•	330	8	6.5	105	EV331M6R3F065ETR □□
	•	•	470	8	10.5	210	EV471M6R3F105ETR □□
	•	•	1000	8	10.5	202	EV102M6R3F105ETR □□
	•	•	1000	10	10.5	230	EV102M6R3G105ETR □□
	•	•	1500	10	10.5	310	EV152M6R3G105ETR □□
10	•	22	4	5.5	27	EV220M010B055ETR □□	
	•	33	4	5.5	25	EV330M010B055ETR □□	
	•	33	5	5.5	40	EV330M010C055ETR □□	
	•	47	5	5.5	46	EV470M010C055ETR □□	
	•	100	5	5.5	52	EV101M010C055ETR □□	
	•	100	6.3	5.5	60	EV101M010E055ETR □□	
	•	150	6.3	5.5	86	EV151M010E055ETR □□	
	•	•	220	6.3	7.7	105	EV221M010E077ETR □□
	•	•	220	8	6.5	105	EV221M010F065ETR □□
	•	•	330	8	10.5	195	EV331M010F105ETR □□
	•	•	470	8	10.5	210	EV471M010F105ETR □□
	•	•	1000	10	10.5	310	EV102M010G105ETR □□
16	•	10	4	5.5	18	EV100M016B055ETR □□	
	•	22	4	5.5	30	EV220M016B055ETR □□	
	•	33	5	5.5	40	EV330M016C055ETR □□	
	•	47	5	5.5	51	EV470M016C055ETR □□	
	•	100	6.3	5.5	60	EV101M016E055ETR □□	
	•	•	150	6.3	7.7	95	EV151M016E077ETR □□
	•	•	150	8	6.5	95	EV151M016F065ETR □□
	•	•	220	6.3	7.7	105	EV221M016E077ETR □□
	•	•	330	8	10.5	195	EV331M016F105ETR □□
	•	•	470	8	10.5	210	EV471M016F105ETR □□
25	•	4.7	4	5.5	16	EV470M025B055ETR □□	
	•	10	4	5.5	26	EV100M025B055ETR □□	
	•	22	5	5.5	38	EV220M025C055ETR □□	
	•	33	5	5.5	48	EV330M025C055ETR □□	
	•	47	6.3	5.5	63	EV470M025E055ETR □□	
	•	•	100	6.3	7.7	91	EV101M025E077ETR □□
	•	•	100	8	6.5	91	EV101M025F065ETR □□
	•	•	150	8	10.5	140	EV151M025F105ETR □□

□□ see description at end of standard ratings

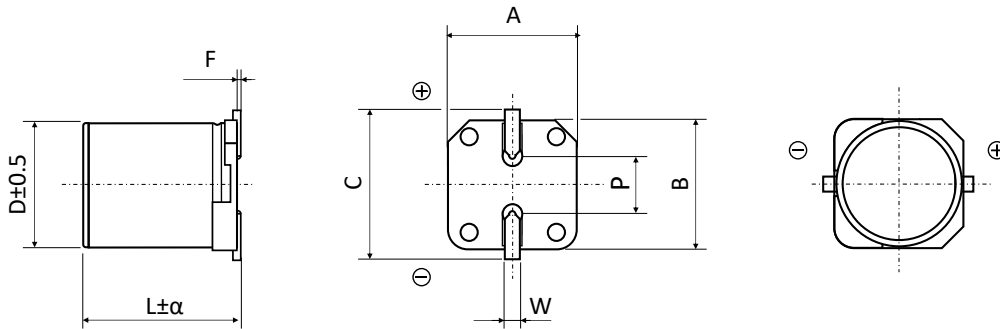
STANDARD RATINGS

Part number shows blister tape on paper reel

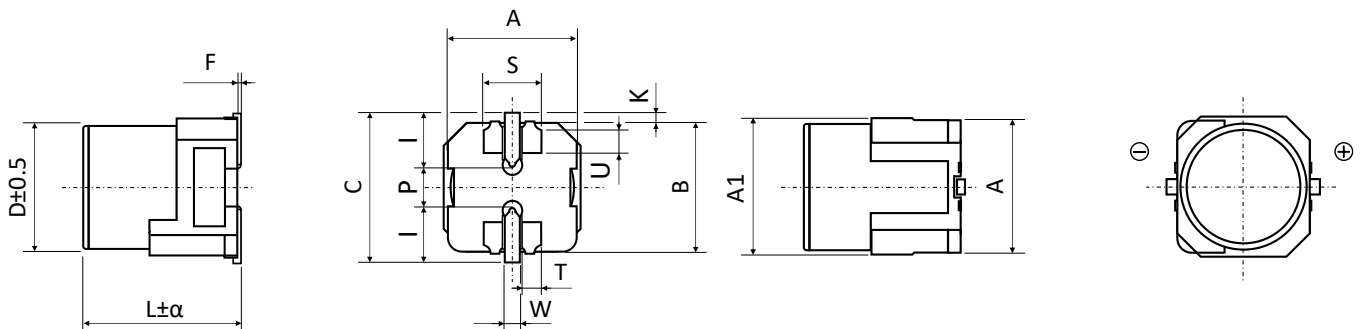
V _R (V)	Standard		C _R (μF)	ø D (mm)	L (mm)	I _R - Max. Ripple Current +105°C - 120Hz (mA rms)	CapXon Part Number	
	Standard	Vibration-proof						
25	•	•	220	8	10.5	155	EV221M025F105ETR □□	
	•	•	330	8	10.5	175	EV331M025F105ETR □□	
	•	•	330	10	10.5	198	EV331M025G105ETR □□	
	•	•	470	10	10.5	300	EV471M025G105ETR □□	
35	•		4.7	4	5.5	16	EV4R7M035B055ETR □□	
	•		10	4	5.5	27	EV100M035B055ETR □□	
	•		22	5	5.5	37	EV220M035C055ETR □□	
	•		22	6.3	5.5	42	EV220M035E055ETR □□	
	•		33	6.3	5.5	50	EV330M035E055ETR □□	
	•	•	33	6.3	7.7	58	EV330M035E077ETR □□	
	•		47	6.3	5.5	58	EV470M035E055ETR □□	
	•	•	47	6.3	7.7	66	EV470M035E077ETR □□	
	•	•	100	6.3	7.7	84	EV101M035E077ETR □□	
	•		100	8	6.5	84	EV101M035F065ETR □□	
	•	•	150	8	10.5	155	EV151M035F105ETR □□	
	•	•	220	8	10.5	167	EV221M035F105ETR □□	
	•	•	220	10	10.5	190	EV221M035G105ETR □□	
	•	•	330	10	10.5	300	EV331M035G105ETR □□	
	50	•		1	4	5.5	6.3	EV010M050B055ETR □□
		•		2.2	4	5.5	11	EV2R2M050B055ETR □□
•			3.3	4	5.5	14	EV3R3M050B055ETR □□	
•			4.7	4	5.5	19	EV4R7M050B055ETR □□	
•			4.7	5	5.5	22	EV4R7M050C055ETR □□	
•			10	5	5.5	29	EV100M050C055ETR □□	
•			10	6.3	5.5	33	EV100M050E055ETR □□	
•			22	6.3	5.5	51	EV220M050E055ETR □□	
•		•	33	6.3	7.7	60	EV330M050E077ETR □□	
•			33	8	6.5	60	EV330M050F065ETR □□	
•			47	6.3	7.7	66	EV470M050E077ETR □□	
•			47	8	6.5	66	EV470M050F065ETR □□	
•		•	100	8	10.5	140	EV101M050F105ETR □□	
•		•	150	10	10.5	180	EV151M050G105ETR □□	
•		•	220	10	10.5	220	EV221M050G105ETR □□	

□□: Enter **blank** for Standard package
 □□: Enter **W** for Vibration proof version

□□: Enter **X** for AEC-Q200
 □□: Enter **XW** for AEC-Q200 and Vibration proof version

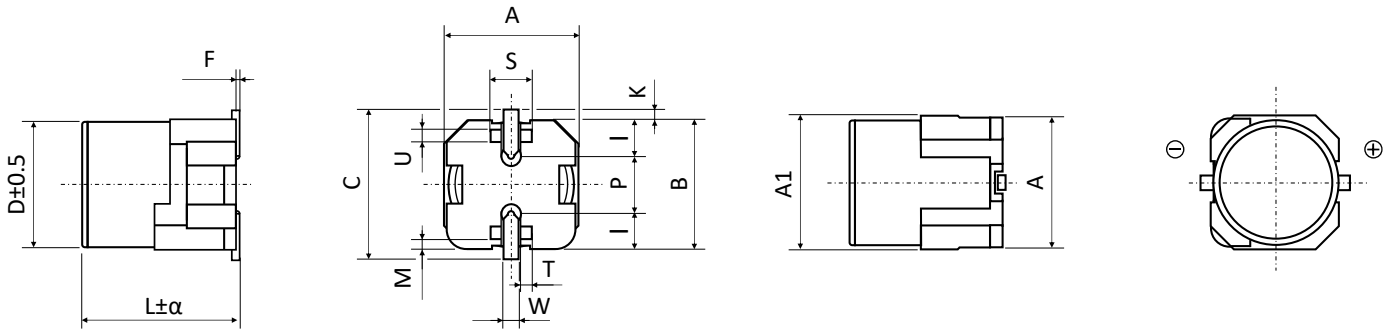
DIMENSIONS STANDARD PACKAGE ▪ All dimensions in mm


∅ D	L	α	A ± 0.2	B ± 0.2	C ± 0.2	F	P ± 0.2	W
4	5.5	Max	4.3	4.3	4.9	0.3 max.	1.0	0.5 to 0.8
5	5.5	Max	5.3	5.3	5.9	0.3 max.	1.4	0.5 to 0.8
6.3	5.5	0.2	6.6	6.6	7.2	0.3 max.	2.2	0.5 to 0.8
6.3	7.7	Max	6.6	6.6	7.2	0.3 max.	2.2	0.5 to 0.8
8	6.5	Max	8.3	8.3	9.0	0.3 max.	2.3	0.5 to 0.8
8	10.5	Max	8.3	8.3	9.0	0.3 max.	3.1	0.7 to 1.1
10	10.5	Max	10.3	10.3	11.0	0.3 max.	4.5	0.7 to 1.1

DIMENSIONS VP PACKAGE (VIBRATION-PROOF) Ø D6.3 ▪ All dimensions in mm


∅ D	L	α	A ± 0.2	A1 (max.)	B ± 0.2	C (max.)	F	K
6.3	8.0	0.3	6.6	7.1	6.6	7.8	0 to 0.15	0.35 +0.15/-0.2

∅ D	L	P ± 0.2	S ± 0.1	I ± 0.1	T ± 0.1	U ± 0.1	W ± 0.1
6.3	8.0	2.2	2.9	2.4	1.1	1.55	0.65

DIMENSIONS VP PACKAGE (VIBRATION-PROOF) Ø D8 and D10 ▪ All dimensions in mm


ϕD	L	α	$A \pm 0.2$	A1 (max.)	$B \pm 0.2$	C (max.)	F	$K \pm 0.2$
8	10.5	0.5	8.3	8.8	8.3	10.0	0 to 0.15	0.7
10	10.5	0.5	10.3	10.8	10.3	12.0	0 to 0.15	0.7

ϕD	L	$P \pm 0.2$	$S \pm 0.1$	$I \pm 0.1$	$T \pm 0.1$	$U \pm 0.1$	$W \pm 0.1$	$M \pm 0.1$
8	10.5	3.1	3	3.4	1.4	0.7	1.2	0.7
10	10.5	4.6	3.3	3.5	1.5	0.8	1.2	0.9

MULTIPLIER K_f for RIPPLE CURRENT vs. FREQUENCY

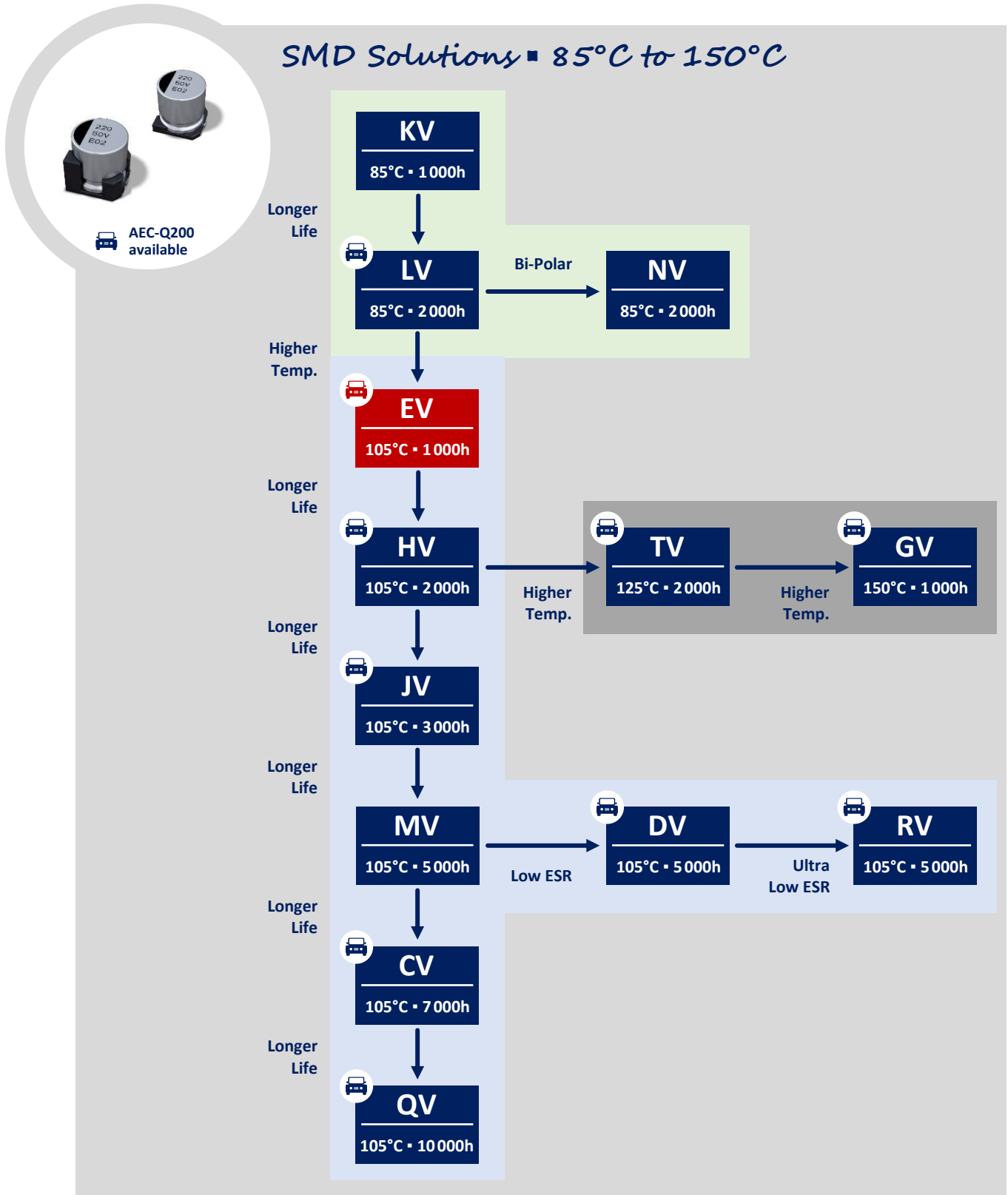
C_R (μF) / Frequency (Hz)	50/60	100/120	500	1k	$\geq 10k$
$1 \leq C_R \leq 100$	0.8	1	1.2	1.3	1.5
$100 < C_R \leq 1500$	0.8	1	1.1	1.15	1.2

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.

General Precautions & Guidelines	Packaging Information	Vibration Test Profiles	3D Models	Reliability Tests

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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