

### DV SERIES - LOW IMPEDANCE, AUTOMOTIVE 105°C TYPE

#### KEY FEATURES



- ALUMINUM ELECTROLYTIC CAPACITOR - SMD type
- Endurance: 105°C - 2 000 hours up to 5 000 hours
- Low impedance type
- 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 ~ 100V DC									
Surge Voltage	$V_S$	$V_S = 1.15 \cdot V_R$									
Capacitance Range	$C_R$	1 ~ 6800 $\mu$ 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 2 minutes [ $I_{LEAK}$ ( $\mu$ A) ; $C_R$ ( $\mu$ F) ; $V_R$ (V) ]									
Dissipation Factor % (20°C - 120Hz)	$\tan\delta$	$V_R$ (V DC)	6.3	10	16	25	35	50	63	80	100
		$\tan\delta$	24	19	16	14	14	12	10	9	8
Low Temperature Characteristics at 120Hz	Z ratio max.	$V_R$ (V DC)	6.3	10	16	25	35	50	63	80	100
		Z-25°C/Z+20°C	2	2	2	2	2	2	2	2	2
		Z-40°C/Z+20°C	8	6	4	4	3	3	3	3	3
		Z-55°C/Z+20°C	12	10	6	6	4	4	4	4	4
Lifetime Test											
Endurance 105°C ( $V_R$ applied)	Test	5 000 hours								$\geq \varnothing 12.5$ mm	
	Test	2 000 hours								$< \varnothing 12.5$ mm	
	$\Delta C/C_R$	$\leq \pm 30\%$ of initial measured value									
	$\tan\delta$	$\leq 300\%$ of initial specified value									
	$I_{Leak}$	$\leq$ the initial specified value									
Shelf Life 105°C ( $V_R = 0$ )	Test	1 000 hours									
	$\Delta C/C_R$	$\leq \pm 30\%$ of initial measured value									
	$\tan\delta$	$\leq 300\%$ of initial specified value									
	$I_{Leak}$	$\leq$ the initial specified value									
Resistance to Soldering Heat	Before measurement: Restore capacitor to 20°C, apply $V_R$ for 30 min according JIS-C-5101-4										
	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									
	$\tan\delta$	Less than specified value									
	$I_{Leak}$	Less than specified value									

**STANDARD RATINGS**

Part number shows blister tape on paper reel

V <sub>R</sub> (V)	Standard	C <sub>R</sub> (µF)	ø D (mm)	L (mm)	Z - Max. Impedance +20°C - 100kHz (mΩ)	I <sub>R</sub> - Max. Ripple Current +105°C - 100kHz (mA rms)	CapXon Part Number	
	Vibration-proof							
6.3	•	22	4	5.5	2200	75	DV220M6R3B055ETR □□	
	•	27	4	5.5	1980	79	DV270M6R3B055ETR □□	
	•	33	4	5.5	1900	82	DV330M6R3B055ETR □□	
	•	33	5	5.5	1300	130	DV330M6R3C055ETR □□	
	•	47	4	5.5	1880	86	DV470M6R3B055ETR □□	
	•	47	5	5.5	1100	150	DV470M6R3C055ETR □□	
	•	56	5	5.5	1100	150	DV560M6R3C055ETR □□	
	•	68	5	5.5	900	160	DV680M6R3C055ETR □□	
	•	68	6.3	5.5	550	220	DV680M6R3E055ETR □□	
	•	100	5	5.5	800	170	DV101M6R3C055ETR □□	
	•	100	6.3	5.5	530	230	DV101M6R3E055ETR □□	
	•	150	6.3	5.5	510	235	DV151M6R3E055ETR □□	
	•	150	8	6.5	480	250	DV151M6R3F065ETR □□	
	•	•	220	6.3	7.7	450	260	DV221M6R3E077ETR □□
	•	•	220	6.3	5.5	480	240	DV221M6R3E055ETR □□
	•	•	330	6.3	7.7	360	275	DV331M6R3E077ETR □□
	•	•	330	8	6.5	340	290	DV331M6R3F065ETR □□
	•	•	470	8	10.5	280	450	DV471M6R3F105ETR □□
	•	•	680	8	10.5	250	500	DV681M6R3F105ETR □□
	10	•	•	1000	8	10.5	200	530
•		•	1000	10	10.5	170	570	DV102M6R3G105ETR □□
•		•	1200	10	10.5	160	600	DV122M6R3G105ETR □□
•		•	1500	10	10.5	130	650	DV152M6R3G105ETR □□
•		•	1800	10	10.5	80	860	DV182M6R3G105ETR □□
•		•	3300	12.5	14	80	1100	DV332M6R3Z140ETR □□
•		•	6800	16	17	52	1250	DV682M6R3J170ETR □□
•		•	22	4	5.5	2200	80	DV220M010B055ETR □□
•		•	27	5	5.5	1900	125	DV270M010C055ETR □□
•		•	33	4	5.5	1850	90	DV330M010B055ETR □□
•		•	33	5	5.5	1200	150	DV330M010C055ETR □□
•		•	47	5	5.5	1100	165	DV470M010C055ETR □□
•		•	47	6.3	5.5	590	180	DV470M010E055ETR □□
•		•	56	6.3	5.5	570	210	DV560M010E055ETR □□
•		•	68	6.3	5.5	550	220	DV680M010E055ETR □□
•		•	100	5	5.5	800	210	DV101M010C055ETR □□
•		•	100	6.3	5.5	530	240	DV101M010E055ETR □□
•		•	150	6.3	5.5	490	250	DV151M010E055ETR □□
•		•	150	8	6.5	470	260	DV151M010F065ETR □□
•		•	220	6.3	7.7	440	270	DV221M010E077ETR □□
•	•	220	8	6.5	400	285	DV221M010F065ETR □□	
•	•	330	8	10.5	250	500	DV331M010F105ETR □□	
•	•	470	8	10.5	250	550	DV471M010F105ETR □□	
•	•	680	10	10.5	200	680	DV681M010G105ETR □□	

□□ see description at end of standard ratings

**STANDARD RATINGS**

Part number shows blister tape on paper reel

V <sub>R</sub> (V)	Standard	Vibration-proof	C <sub>R</sub> (µF)	ø D (mm)	L (mm)	Z - Max. Impedance +20°C - 100kHz (mΩ)	I <sub>R</sub> - Max. Ripple Current +105°C - 100kHz (mA rms)	CapXon Part Number
10	•	•	1000	10	10.5	150	740	DV102M010G105ETR ☐☐
	•	•	2200	12.5	14	80	1100	DV222M010Z140ETR ☐☐
	•	•	4700	16	17	52	1250	DV472M010J170ETR ☐☐
16	•		10	4	5.5	2200	80	DV100M016B055ETR ☐☐
	•		15	4	5.5	2000	85	DV150M016B055ETR ☐☐
	•		22	4	5.5	1980	90	DV220M016B055ETR ☐☐
	•		22	5	5.5	1600	140	DV220M016C055ETR ☐☐
	•		27	5	5.5	740	170	DV270M016C055ETR ☐☐
	•		33	6.3	5.5	600	185	DV330M016E055ETR ☐☐
	•		47	5	5.5	1050	195	DV470M016C055ETR ☐☐
	•		47	6.3	5.5	580	210	DV470M016E055ETR ☐☐
	•		56	6.3	5.5	560	220	DV560M016E055ETR ☐☐
	•		68	6.3	5.5	540	230	DV680M016E055ETR ☐☐
	•		68	8	6.5	500	240	DV680M016F065ETR ☐☐
	•		100	6.3	5.5	520	255	DV101M016E055ETR ☐☐
	•	•	150	6.3	7.7	450	265	DV151M016E077ETR ☐☐
	•		150	8	6.5	440	270	DV151M016F065ETR ☐☐
	•	•	220	6.3	7.7	430	275	DV221M016E077ETR ☐☐
	•		220	8	6.5	410	285	DV221M016F065ETR ☐☐
	•	•	330	8	10.5	250	550	DV331M016F105ETR ☐☐
	•	•	470	8	10.5	220	590	DV471M016F105ETR ☐☐
	•	•	680	10	10.5	160	720	DV681M016G105ETR ☐☐
	•	•	1500	12.5	14	80	1100	DV152M016Z140ETR ☐☐
•	•	3300	16	17	52	1250	DV332M016J170ETR ☐☐	
25	•		6.8	4	5.5	2800	70	DV6R8M025B055ETR ☐☐
	•		10	4	5.5	2100	85	DV100M025B055ETR ☐☐
	•		15	5	5.5	1900	125	DV150M025C055ETR ☐☐
	•		22	5	5.5	1200	145	DV220M025C055ETR ☐☐
	•		22	6.3	5.5	1150	160	DV220M025E055ETR ☐☐
	•		27	6.3	5.5	620	200	DV270M025E055ETR ☐☐
	•		33	5	5.5	1050	160	DV330M025C055ETR ☐☐
	•		33	6.3	5.5	580	220	DV330M025E055ETR ☐☐
	•	•	47	6.3	7.7	540	230	DV470M025E077ETR ☐☐
	•		47	6.3	5.5	560	220	DV470M025E055ETR ☐☐
	•		56	6.3	5.5	540	230	DV560M025E055ETR ☐☐
	•		68	6.3	5.5	480	240	DV680M025E055ETR ☐☐
	•		68	8	6.5	450	260	DV680M025F065ETR ☐☐
	•	•	100	6.3	7.7	380	290	DV101M025E077ETR ☐☐
	•		100	8	6.5	360	300	DV101M025F065ETR ☐☐
	•	•	150	8	10.5	250	480	DV151M025F105ETR ☐☐
	•	•	220	8	10.5	220	530	DV221M025F105ETR ☐☐
	•	•	330	8	10.5	200	570	DV331M025F105ETR ☐☐
	•	•	470	10	10.5	150	650	DV471M025G105ETR ☐☐

☐☐ see description at end of standard ratings

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Part number shows blister tape on paper reel

V <sub>R</sub> (V)			C <sub>R</sub> (µF)	ø D (mm)	L (mm)	Z - Max. Impedance +20°C - 100kHz (mΩ)	I <sub>R</sub> - Max. Ripple Current +105°C - 100kHz (mA rms)	CapXon Part Number
	Standard	Vibration-proof						
25	•	•	1000	12.5	14	80	1100	DV102M025Z140ETR ☐☐
	•	•	2200	16	17	52	1250	DV222M025J170ETR ☐☐
35	•		3.3	4	5.5	2800	80	DV3R3M035B055ETR ☐☐
	•		4.7	4	5.5	2500	85	DV4R7M035B055ETR ☐☐
	•		6.8	4	5.5	2200	88	DV6R8M035B055ETR ☐☐
	•		10	4	5.5	2000	90	DV100M035B055ETR ☐☐
	•		10	5	5.5	1400	125	DV100M035C055ETR ☐☐
	•		15	5	5.5	1200	140	DV150M035C055ETR ☐☐
	•		22	5	5.5	1100	155	DV220M035C055ETR ☐☐
	•		22	6.3	5.5	1050	170	DV220M035E055ETR ☐☐
	•		27	6.3	5.5	600	210	DV270M035E055ETR ☐☐
	•		33	6.3	5.5	540	230	DV330M035E055ETR ☐☐
	•		33	8	6.5	510	260	DV330M035F065ETR ☐☐
	•		47	6.3	5.5	530	240	DV470M035E055ETR ☐☐
	•		47	8	6.5	490	250	DV470M035F065ETR ☐☐
	•	•	56	6.3	7.7	490	250	DV560M035E077ETR ☐☐
	•	•	68	6.3	7.7	400	265	DV680M035E077ETR ☐☐
	•	•	100	6.3	7.7	380	300	DV101M035E077ETR ☐☐
	•	•	100	8	10.5	280	420	DV101M035F105ETR ☐☐
	•	•	150	8	10.5	240	510	DV151M035F105ETR ☐☐
	•	•	220	8	10.5	210	570	DV221M035F105ETR ☐☐
	•	•	330	10	10.5	150	650	DV331M035G105ETR ☐☐
50	•		1	4	5.5	4500	55	DV010M050B055ETR ☐☐
	•		2.2	4	5.5	4500	55	DV2R2M050B055ETR ☐☐
	•		3.3	4	5.5	4500	55	DV3R3M050B055ETR ☐☐
	•		4.7	4	5.5	4500	55	DV4R7M050B055ETR ☐☐
	•		6.8	5	5.5	3800	75	DV6R8M050C055ETR ☐☐
	•		10	5	5.5	2800	95	DV100M050C055ETR ☐☐
	•		10	6.3	5.5	2200	130	DV100M050E055ETR ☐☐
	•		15	6.3	5.5	1600	140	DV150M050E055ETR ☐☐
	•		22	6.3	5.5	1300	150	DV220M050E055ETR ☐☐
	•	•	27	6.3	7.7	1200	180	DV270M050E077ETR ☐☐
	•	•	33	6.3	7.7	710	190	DV330M050E077ETR ☐☐
	•		33	8	6.5	700	200	DV330M050F065ETR ☐☐
	•	•	47	6.3	7.7	700	230	DV470M050E077ETR ☐☐
	•		47	8	6.5	690	240	DV470M050F065ETR ☐☐
	•	•	56	8	10.5	520	300	DV560M050F105ETR ☐☐
	•	•	68	8	10.5	500	320	DV680M050F105ETR ☐☐
	•	•	100	8	10.5	460	350	DV101M050F105ETR ☐☐
	•	•	150	10	10.5	250	600	DV151M050G105ETR ☐☐

☐☐ see description at end of standard ratings

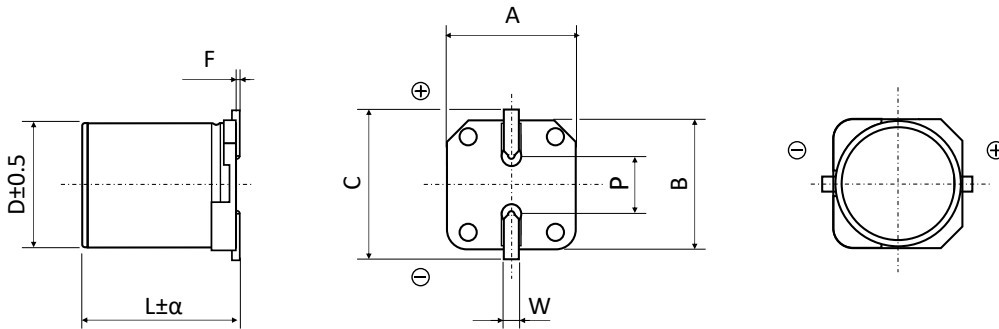
## STANDARD RATINGS

Part number shows blister tape on paper reel

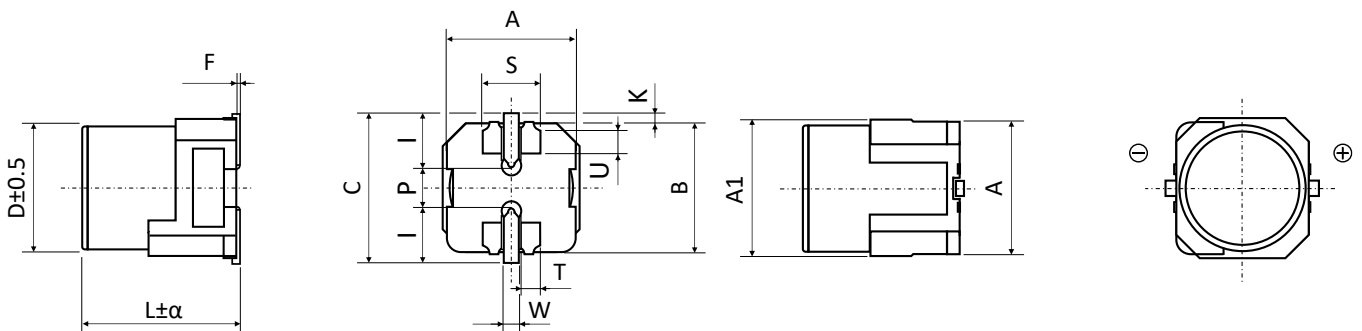
V <sub>R</sub> (V)	Vibration-proof		C <sub>R</sub> (μF)	ø D (mm)	L (mm)	Z - Max. Impedance +20°C - 100kHz (mΩ)	I <sub>R</sub> - Max. Ripple Current +105°C - 100kHz (mA rms)	CapXon Part Number
	Standard							
50	•	•	220	10	10.5	230	650	DV221M050G105ETR □□
	•	•	330	12.5	14	210	800	DV331M050Z140ETR □□
	•	•	1000	16	17	78	1000	DV102M050J170ETR □□
63	•		4.7	5	5.5	2800	45	DV4R7M063C055ETR □□
	•		10	6.3	5.5	1600	80	DV100M063E055ETR □□
	•	•	22	6.3	7.7	1100	150	DV220M063E077ETR □□
	•	•	33	8	10.5	800	230	DV330M063F105ETR □□
	•	•	47	8	10.5	550	260	DV470M063F105ETR □□
	•	•	68	10	10.5	400	380	DV680M063G105ETR □□
	•	•	100	10	10.5	280	400	DV101M063G105ETR □□
	•	•	100	12.5	14	260	520	DV101M063Z140ETR □□
	•	•	150	12.5	14	200	780	DV151M063Z140ETR □□
	•	•	220	12.5	14	180	810	DV221M063Z140ETR □□
	•	•	470	16	17	85	1390	DV471M063J170ETR □□
80	•		4.7	6.3	5.5	3800	50	DV4R7M080E055ETR □□
	•	•	10	6.3	7.7	3000	70	DV100M080E077ETR □□
	•	•	22	6.3	7.7	1700	110	DV220M080E077ETR □□
	•	•	33	8	10.5	1100	200	DV330M080F105ETR □□
	•	•	47	10	10.5	900	320	DV470M080G105ETR □□
	•	•	68	10	10.5	650	490	DV680M080G105ETR □□
	•	•	100	12.5	14	420	580	DV101M080Z140ETR □□
	•	•	220	16	17	260	930	DV221M080J170ETR □□
100	•	•	10	6.3	7.7	4000	65	DV100M100E077ETR □□
	•	•	22	8	10.5	2000	110	DV220M100F105ETR □□
	•	•	33	10	10.5	1300	180	DV330M100G105ETR □□
	•	•	47	10	10.5	1000	370	DV470M100G105ETR □□
	•	•	47	12.5	14	950	480	DV470M100Z140ETR □□
	•	•	68	12.5	14	600	580	DV680M100Z140ETR □□
	•	•	100	12.5	14	500	620	DV101M100Z140ETR □□
	•	•	220	16	17	280	1050	DV221M100J170ETR □□

□□: 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

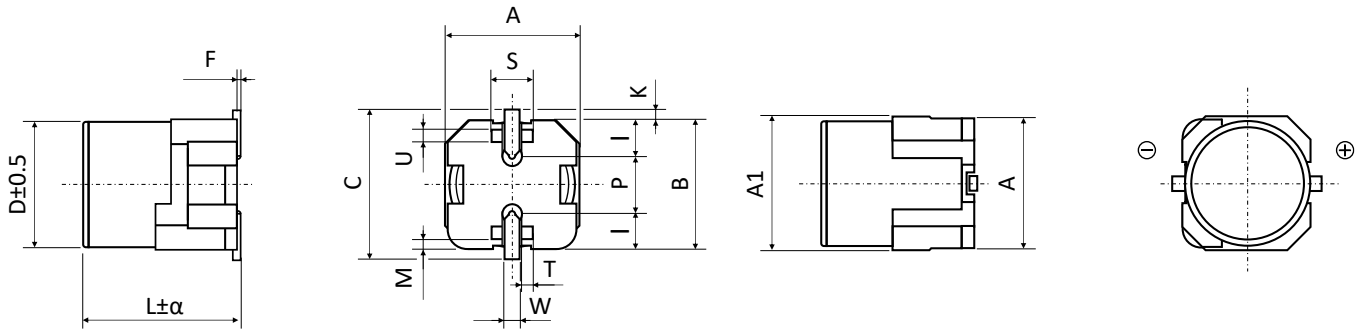
**DIMENSIONS STANDARD PACKAGE** ▪ All dimensions in mm


∅ D	L	α	A ± 0.2	B ± 0.2	C ± 0.2	F	P ± 0.2	W
4.0	5.5	Max	4.3	4.3	4.9	0.3 max.	1.0	0.5 to 0.8
5.0	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
8.0	6.5	Max	8.3	8.3	9.0	0.3 max.	2.3	0.5 to 0.8
8.0	10.5	Max	8.3	8.3	9.0	0.3 max.	3.1	0.7 to 1.1
10.0	10.5	Max	10.3	10.3	11.0	0.3 max.	4.5	0.7 to 1.1
12.5	14.0	Max	13.0	13.0	13.9	0.3 max.	4.5	1 to 1.4
16.0	17.0	0.5	17.0	17.0	18.0	0.3 max.	6.6	1 to 1.4

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


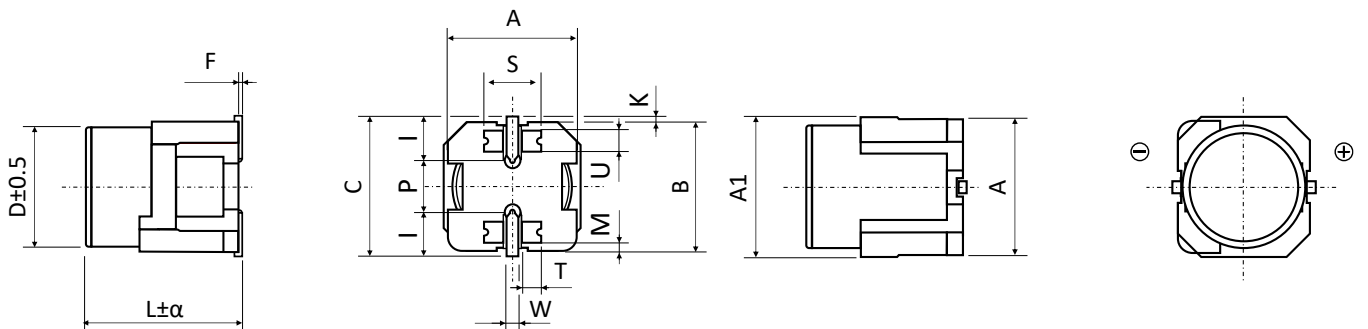
∅ D	L	α	A ± 0.2	A1 (max.)	B ± 0.2	C (max.)	F	K
6.3	8.0	0.3	6.6	7.1	6.6	7.8	0 to 0.15	0.35 +0.15/-0.2

∅ 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**


ø D	L	α	A ± 0.2	A1 (max.)	B ± 0.2	C (max.)	F	K ± 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

ø D	L	P ± 0.2	S ± 0.1	I ± 0.1	T ± 0.1	U ± 0.1	W ± 0.1	M ± 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

**DIMENSIONS VP PACKAGE (VIBRATION-PROOF) Ø D12.5 and D16 ▪ All dimensions in mm**


ø D	L	α	A ± 0.2	A1 (max.)	B ± 0.2	C (max.)	F	K ± 0.3
12.5	14.0	1.0	13.5	13.5	13.5	15.0	0 to 0.15	0.7
16.0	17.0	1.0	17.0	17.0	17.0	19.0	0 to 0.15	0.7






ø D	L	P ± 0.2	S ± 0.1	I ± 0.1	T ± 0.1	U ± 0.1	W ± 0.1	M ± 0.1
12.5	14.0	4.4	6.0	4.7	2.0	2.2	1.2	0.95
16.0	17.0	6.7	5.8	5.5	2.0	3.0	1.4	1.0

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

$C_R$ ( $\mu$ F) / Frequency (Hz)	50/60	100/120	500	1k	10k	50k ~ 100k
$1 \leq C_R \leq 10$	0.47	0.59	0.76	0.85	0.97	1
$10 < C_R \leq 6800$	0.52	0.65	0.8	0.89	0.97	1

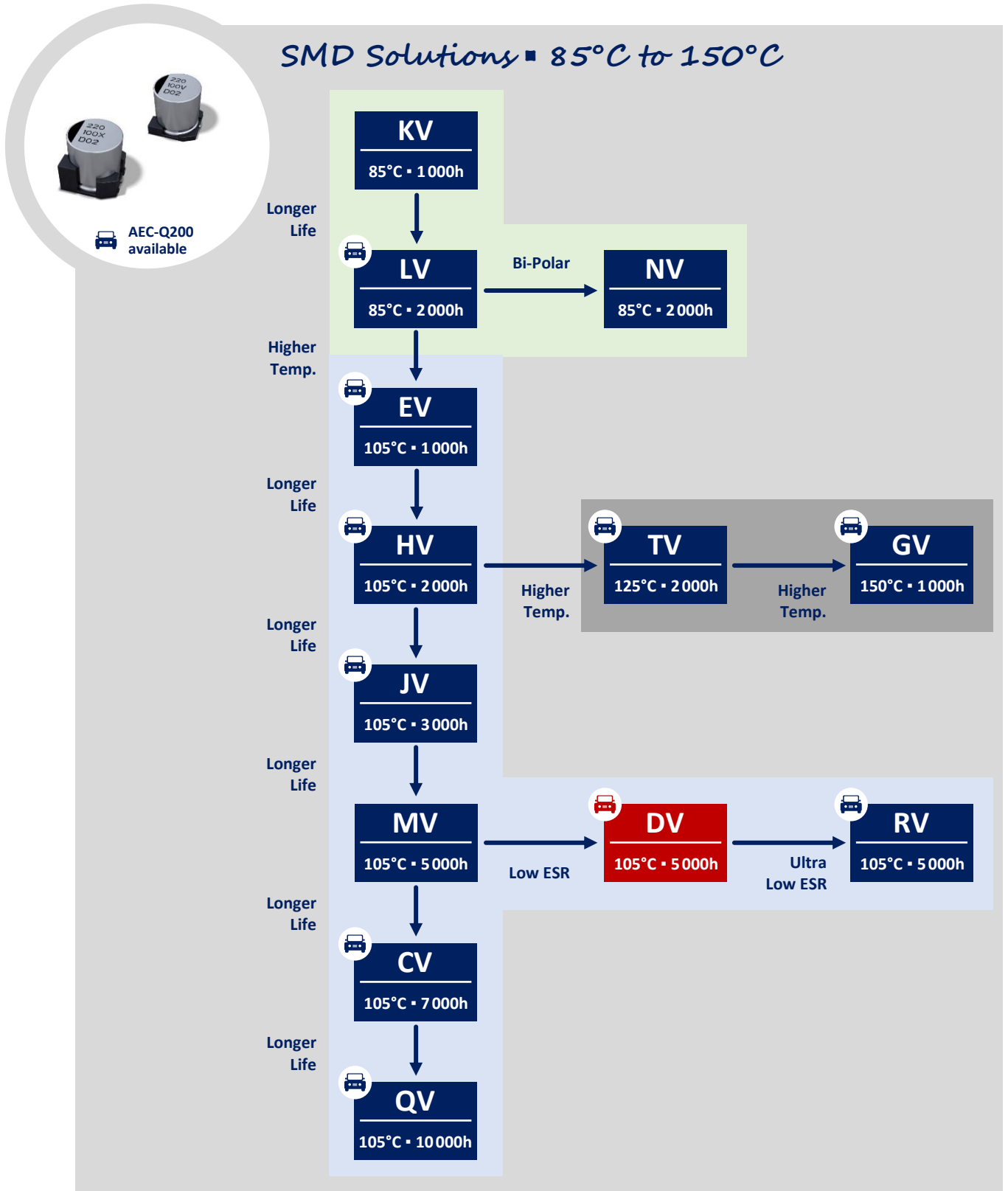
**PRECAUTIONS, GUIDELINES AND PACKAGING INFORMATION**

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="#">Vibration Test Profiles</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.