

CV SERIES ■ LONG LIFE, AUTOMOTIVE 105°C TYPE

KEY FEATURES



AEC-Q 200



LONG LIFE



LOW IMPEDANCE



- **ALUMINUM ELECTROLYTIC CAPACITOR** • SMD type
- Endurance: 105°C • 7 000 hours
- Low impedance and high ripple current
- Vibration-proof (VP) version (up to 30g) available upon request
- AEC-Q200 version available



SPECIFICATIONS

Items		Performance Characteristics						
Operating Temperature Range		-40 ~ +105°C						
Rated Voltage Range	V _R	6.3 ~ 50V DC						
Surge Voltage	V _S	V _S = 1.15·V _R						
Capacitance Range	C _R	22 ~ 1500μF						
Cap. Tolerance	ΔC	±20% (120Hz ▪ 20°C)						
Leakage Current (20°C ▪ V _R applied)	I _{LEAK}	≤ 0.01·C _R ·V _R or 3μA, whichever is greater ▪ After 2 minutes [I _{LEAK} (μA) ; C _R (μF) ; V _R (V)]						
Dissipation Factor % (20°C ▪ 120Hz)	tanδ	V _R (V DC)	6.3	10	16	25	35	50
		tanδ	32	28	26	16	14	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	8	6	4	4	3	3
Lifetime Test								
Endurance 105°C (V _R applied)	Test	7 000 hours						
	ΔC/C _R	≤ ±30% of initial measured value						
	tanδ	≤ 300% of initial specified value						
	I _{Leak}	≤ the initial specified value						
Shelf Life 105°C (V _R = 0)	Test	1 000 hours						
	ΔC/C _R	≤ ±30% of initial measured value						
	tanδ	≤ 300% of initial specified value						
	I _{Leak}	≤ the initial specified value						
		Before measurement: Restore capacitor to 20°C, apply V _R for 30 min according 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							
	ΔC/C _R	Within ±10% of initial value						
	tanδ	Less than specified value						
	I _{Leak}	Less than specified value						

STANDARD RATINGS

Part number shows blister tape on paper reel

V _R (V)	Standard	Vibration-proof	C _R (μF)	ø D (mm)	L (mm)	Z • Max. Impedance +20°C • 100kHz (mΩ)	I _R • Max. Ripple Current +105°C • 100kHz (mA rms)	CapXon Part Number
6.3	•	•	100	6.3	7.7	1100	140	CV101M6R3E077ETR □□
	•	•	150	6.3	7.7	900	180	CV151M6R3E077ETR □□
	•	•	220	6.3	7.7	750	230	CV221M6R3E077ETR □□
	•	•	330	8.0	10.5	500	400	CV331M6R3F105ETR □□
	•	•	470	8.0	10.5	220	600	CV471M6R3F105ETR □□
	•	•	680	10.0	10.5	200	700	CV681M6R3G105ETR □□
	•	•	1000	12.5	14.0	100	1100	CV102M6R3Z140ETR □□
	•	•	1500	16.0	17.0	80	1500	CV152M6R3J170ETR □□
10	•	•	100	6.3	7.7	1100	140	CV101M010E077ETR □□
	•	•	150	6.3	7.7	900	180	CV151M010E077ETR □□
	•	•	220	6.3	7.7	750	230	CV221M010E077ETR □□
	•	•	330	8.0	10.5	500	400	CV331M010F105ETR □□
	•	•	470	8.0	10.5	220	600	CV471M010F105ETR □□
	•	•	680	10.0	10.5	200	700	CV681M010G105ETR □□
	•	•	1000	12.5	14.0	100	1100	CV102M010Z140ETR □□
	•	•	1500	16.0	17.0	80	1500	CV152M010J170ETR □□
16	•	•	100	6.3	7.7	1100	140	CV101M016E077ETR □□
	•	•	150	8.0	10.5	600	250	CV151M016F105ETR □□
	•	•	220	8.0	10.5	400	280	CV221M016F105ETR □□
	•	•	330	8.0	10.5	220	600	CV331M016F105ETR □□
	•	•	470	8.0	10.5	220	600	CV471M016F105ETR □□
	•	•	470	10.0	10.5	160	850	CV471M016G105ETR □□
	•	•	680	12.5	14.0	100	1100	CV681M016Z140ETR □□
	•	•	1000	16.0	17.0	80	1500	CV102M016J170ETR □□
25	•	•	22	6.3	7.7	1500	95	CV220M025E077ETR □□
	•	•	33	6.3	7.7	1300	120	CV330M025E077ETR □□
	•	•	47	6.3	7.7	1100	140	CV470M025E077ETR □□
	•	•	100	8.0	10.5	700	280	CV101M025F105ETR □□
	•	•	150	8.0	10.5	600	380	CV151M025F105ETR □□
	•	•	220	8.0	10.5	220	600	CV221M025F105ETR □□
	•	•	330	8.0	10.5	200	650	CV331M025F105ETR □□
	•	•	390	10.0	10.5	190	750	CV391M025G105ETR □□
	•	•	470	10.0	10.5	160	850	CV471M025G105ETR □□
	•	•	680	12.5	14.0	100	1100	CV681M025Z140ETR □□
	•	•	1000	16.0	17.0	80	1500	CV102M025J170ETR □□
	•	•	47	6.3	7.7	1000	230	CV470M035E077ETR □□
35	•	•	100	8.0	10.5	220	600	CV101M035F105ETR □□
	•	•	220	10.0	10.5	160	850	CV221M035G105ETR □□
	•	•	330	12.5	14.0	100	1100	CV331M035Z140ETR □□
	•	•	470	16.0	17.0	80	1500	CV471M035J170ETR □□

□□ see description at end of standard ratings

STANDARD RATINGS

Part number shows blister tape on paper reel

V_R (V)	Standard	Vibration-proof	C_R (μF)	ϕD (mm)	L (mm)	Z - Max. Impedance +20°C - 100kHz (m Ω)	I_R - Max. Ripple Current +105°C - 100kHz (mA rms)	CapXon Part Number
50	•	•	47	8.0	10.5	530	350	CV470M050F105ETR □□
	•	•	100	8.0	10.5	530	350	CV101M050F105ETR □□
	•	•	100	10.0	10.5	510	400	CV101M050G105ETR □□
	•	•	150	10.0	10.5	480	450	CV151M050G105ETR □□
	•	•	220	12.5	14.0	400	850	CV221M050Z140ETR □□
	•	•	330	16.0	17.0	300	1100	CV331M050J170ETR □□

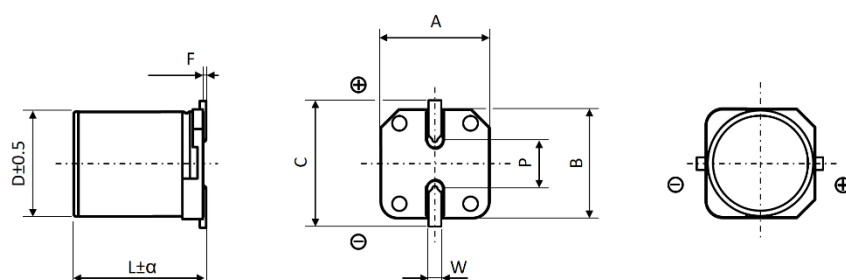
□□: Enter **blank** for Standard package

□□: Enter **X** for AEC-Q200

□□: Enter **W** for Vibration proof version

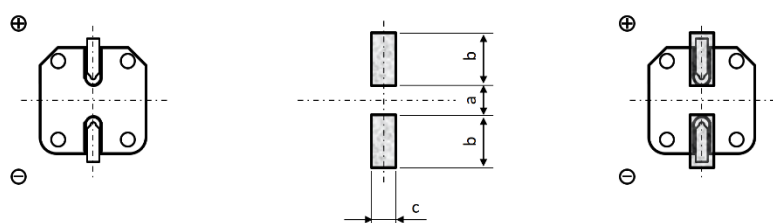
□□: Enter **XW** for AEC-Q200 and Vibration proof version

DIMENSIONS STANDARD PACKAGE ▪ All dimensions in mm



ϕD	L	α	$A \pm 0.2$	$B \pm 0.2$	$C \pm 0.2$	F	$P \pm 0.2$	W
6.3	7.7	Max	6.6	6.6	7.2	0.3 max.	2.2	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

PAD LAYOUT STANDARD PACKAGE ▪ All dimensions in mm



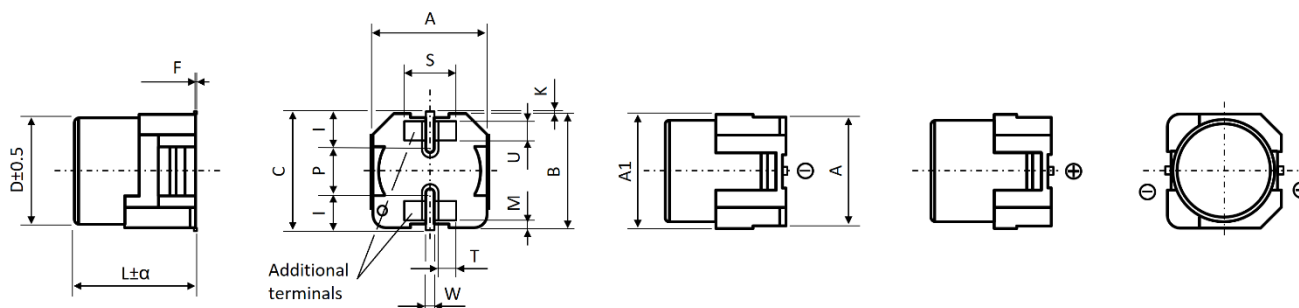
Bottom view

Recommended land patterns

Capacitor mounted on pads

ϕD	L	a	b	c
6.3	7.7	2.1	3.5	1.6
8.0	10.5	2.8	4.2	1.9
10.0	10.5	4.3	4.4	1.9
12.5	14.0	4.3	5.8	2.5
16.0	17.0	6.0	6.5	3.5

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

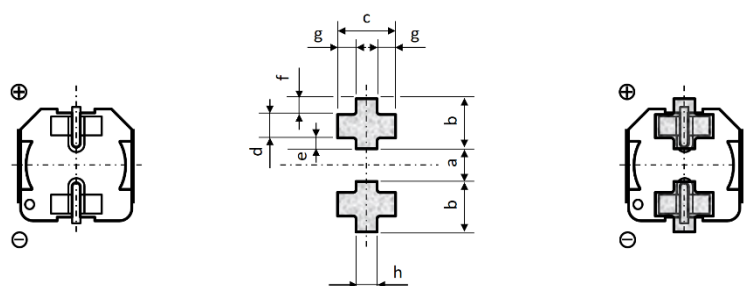


Note: Additional terminals electrical connected to anode or cathode terminal.

ϕD	L	α	$A \pm 0.2$	A1 (max.)	$B \pm 0.2$	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

ϕD	L	$I \pm 0.1$	$M \pm 0.1$	$P \pm 0.2$	$S \pm 0.1$	$T \pm 0.1$	$U \pm 0.1$	$W \pm 0.1$
6.3	8.0	2.5	0.35	2.2	3.2	1.1	0.7	0.65

PAD LAYOUT VP PACKAGE (VIBRATION-PROOF) Ø D6.3 ▀ All dimensions in mm



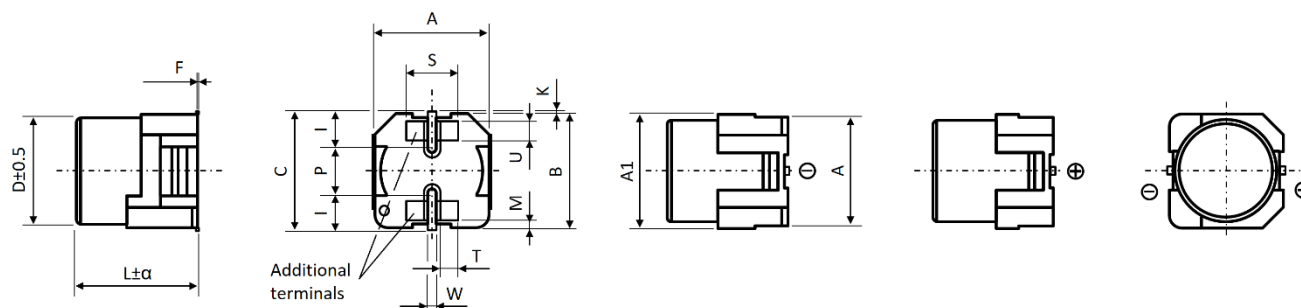
Bottom view

Recommended land patterns

Capacitor mounted on pads

ϕD	L	a	b	c	d	e	f	g	h
6.3	8.0	1.2	3.6	3.2	2.0	0.95	0.65	1.0	1.2

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

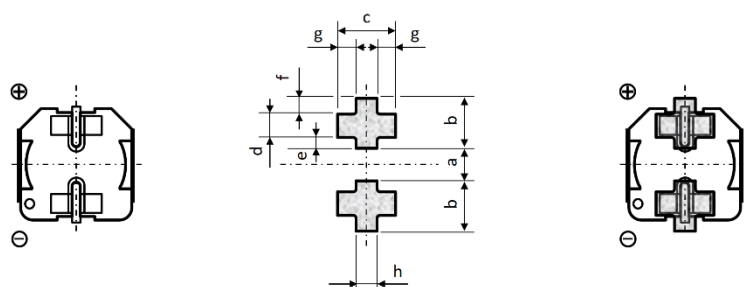


Note: Additional terminals electrical connected to anode or cathode terminal.

ϕD	L	α	$A \pm 0.2$	A1 (max.)	$B \pm 0.2$	C (max.)	F	$K \pm 0.2$
8.0	10.5	0.5	8.3	8.8	8.3	10.0	0 to 0.15	0.7
10.0	10.5	0.5	10.3	10.8	10.3	12.0	0 to 0.15	0.7

ϕD	L	$I \pm 0.1$	$M \pm 0.1$	$P \pm 0.2$	$S \pm 0.1$	$T \pm 0.1$	$U \pm 0.1$	$W \pm 0.1$
8.0	10.5	3.3	0.75	3.1	3.3	0.9	0.8	1.2
10.0	10.5	3.5	0.9	4.6	3.3	0.9	0.8	1.2

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



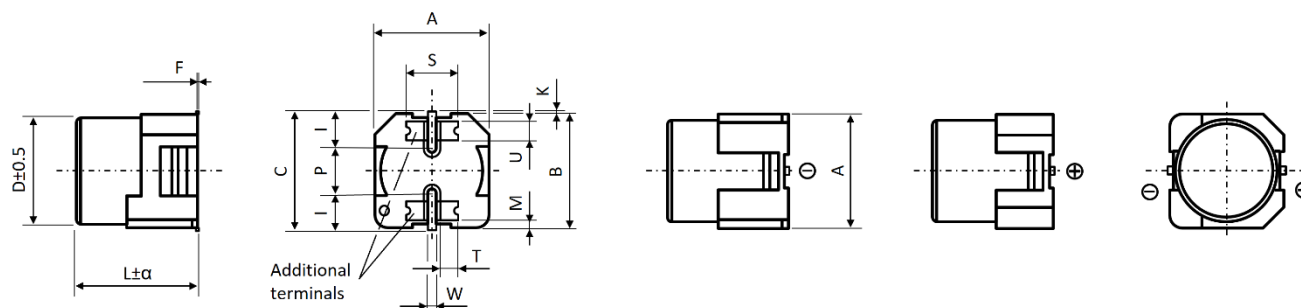
Bottom view

Recommended land patterns

Capacitor mounted on pads

ϕD	L	a	b	c	d	e	f	g	h
8.0	10.5	2.7	4.0	4.7	1.3	1.0	1.7	1.1	2.5
10.0	10.5	3.9	4.4	4.7	1.3	1.2	1.9	1.1	2.5

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

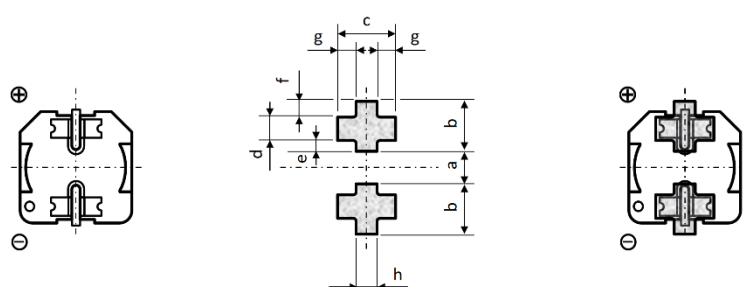


Note: Additional terminals electrical connected to anode or cathode terminal.

ϕD	L	α	$A \pm 0.2$	$B \pm 0.2$	C (max.)	F	$K \pm 0.3$
12.5	14.0	1.0	13.0	13.0	14.5	0 to 0.15	0.7
16.0	17.0	1.0	17.0	17.0	19.0	0 to 0.15	0.7

ϕD	L	$I \pm 0.1$	$M \pm 0.1$	$P \pm 0.2$	$S \pm 0.1$	$T \pm 0.1$	$U \pm 0.1$	$W \pm 0.1$
12.5	14.0	5.0	0.7	4.4	6.0	2.15	2.2	1.2
16.0	17.0	5.8	1.0	6.7	5.8	1.9	3.0	1.4

PAD LAYOUT VP PACKAGE (VIBRATION-PROOF) Ø D12.5 and D16 ▀ All dimensions in mm



Bottom view

Recommended land patterns

Capacitor mounted on pads




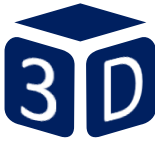

ϕD	L	a	b	c	d	e	f	g	h
12.5	14.0	3.9	6.0	6.9	2.8	1.3	1.9	2.2	2.5
16.0	17.0	5.8	6.8	6.2	3.6	1.3	1.9	1.7	2.8

MULTIPLIER K_f for RIPPLE CURRENT vs. FREQUENCY

C_R (μF) / Frequency (Hz)	50/60	100/120	500	1k	10k ~ 100k
$22 \leq C_R \leq 100$	0.53	0.67	0.8	0.87	1
$100 < C_R \leq 1500$	0.67	0.83	0.92	0.96	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.

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

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 or contact CapXon directly.

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