

### LV SERIES ■ HIGH VOLTAGE, AUTOMOTIVE 85°C TYPE

#### KEY FEATURES



- ALUMINUM ELECTROLYTIC CAPACITOR ■ SMD type
- Endurance: 85°C ■ 2 000 hours
- Low ESR 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 ~ +85°C													
Rated Voltage Range	V <sub>R</sub>	4 ~ 100V DC						160 ~ 450V DC							
Surge Voltage	V <sub>S</sub>	(V <sub>R</sub> ≤ 315V): V <sub>S</sub> = 1.15·V <sub>R</sub>						(V <sub>R</sub> > 315V): V <sub>S</sub> = 1.10·V <sub>R</sub>							
Capacitance Range	C <sub>R</sub>	0.1 ~ 6800μF						3.3 ~ 68μF							
Cap. Tolerance	ΔC	±20% (120Hz ■ 20°C)													
Leakage Current (20°C ■ V <sub>R</sub> applied)	I <sub>LEAK</sub>	≤ 0.01·C <sub>R</sub> ·V <sub>R</sub> or 3μA						≤ 0.04·C <sub>R</sub> ·V <sub>R</sub> + 100μA							
		Whichever is greater ■ After 2 minutes						After 1 minute							
		[ I <sub>LEAK</sub> (μA) ; C <sub>R</sub> (μF) ; V <sub>R</sub> (V) ]													
Dissipation Factor % (20°C ■ 120Hz)	tanδ	V <sub>R</sub> (V DC)	4	6.3	10	16	25	35	50	63	80	100	160 ~ 250	>250	
		∅ 4 ~ 6.3	42	30	22	18	16	14	14	12	12	10	-	-	
		∅ 8 ~ 10	45	34	26	20	16	14	14	12	12	10	15	20	
		≥ ∅ 12.5	45	40	36	24	18	15	14	12	12	10	15	20	
Low Temperature Characteristics at 120Hz	Z ratio max.	V <sub>R</sub> (V DC)	4	6.3	10	16	25	35	50	63	80	100	160 ~ 250	400	450
		Z-25°C/Z+20°C	7	4	3	2	2	2	2	3	3	3	3	6	6
		Z-40°C/Z+20°C	15	8	8	4	4	3	3	4	4	4	6	10	15

Lifetime Test			
Endurance 85°C (V <sub>R</sub> applied)	Test	<b>2 000 hours</b>	
	ΔC/C <sub>R</sub>	≤ ±25% of initial measured value	
	tanδ	≤ 200% of initial specified value	
	I <sub>Leak</sub>	≤ the initial specified value	
Shelf Life 85°C (V <sub>R</sub> = 0)	Test	<b>1 000 hours</b>	
	ΔC/C <sub>R</sub>	≤ ±25% of initial measured value	
	tanδ	≤ 200% of initial specified value	
	I <sub>Leak</sub>	≤ the initial specified value	
Before measurement: Restore capacitor to 20°C, apply V <sub>R</sub> 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 <sub>R</sub>	Within ±10% of initial value	
	tanδ	Less than specified value	
	I <sub>Leak</sub>	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)	I <sub>R</sub> - Max. Ripple Current +85°C - 120Hz (mA rms)	CapXon Part Number
	Standard	Vibration-proof					
4	•		47	4	5.5	28	LV470M004B055ETR □□
	•		100	5	5.5	34	LV101M004C055ETR □□
	•	•	150	6.3	6.1	50	LV151M004E061ETR □□
	•	•	220	6.3	5.5	61	LV221M004E055ETR □□
	•	•	330	6.3	7.7	135	LV331M004E077ETR □□
	•	*	330	8	6.5	145	LV331M004F065ETR □□
	•	*	470	8	6.5	180	LV471M004F065ETR □□
	•	•	470	8	10.5	220	LV471M004F105ETR □□
	•	•	560	8	10.5	242	LV561M004F105ETR □□
	•	•	680	8	10.5	285	LV681M004F105ETR □□
	•	•	1000	10	10.5	370	LV102M004G105ETR □□
	•	•	1200	10	10.5	410	LV122M004G105ETR □□
	•	•	1500	10	10.5	470	LV152M004G105ETR □□
6.3	•		22	4	5.5	29	LV220M6R3B055ETR □□
	•		33	4	5.5	33	LV330M6R3B055ETR □□
	•		33	5	5.5	37	LV330M6R3C055ETR □□
	•		47	4	5.5	40	LV470M6R3B055ETR □□
	•		47	5	5.5	46	LV470M6R3C055ETR □□
	•		100	5	5.5	70	LV101M6R3C055ETR □□
	•	•	100	6.3	6.1	85	LV101M6R3E061ETR □□
	•	•	150	6.3	6.1	100	LV151M6R3E061ETR □□
	•	•	220	6.3	6.1	130	LV221M6R3E061ETR □□
	•	•	220	6.3	7.7	141	LV221M6R3E077ETR □□
	•	*	220	8	6.5	150	LV221M6R3F065ETR □□
	•	•	330	6.3	7.7	197	LV331M6R3E077ETR □□
	•	*	330	8	6.5	210	LV331M6R3F065ETR □□
	•		470	8	10.5	380	LV471M6R3F105ETR □□
	•		560	8	10.5	410	LV561M6R3F105ETR □□
	•	•	680	8	10.5	460	LV681M6R3F105ETR □□
	•	•	1000	8	10.5	480	LV102M6R3F105ETR □□
	•	•	1000	10	10.5	500	LV102M6R3G105ETR □□
	•	•	1200	10	10.5	510	LV122M6R3G105ETR □□
	•	•	1500	10	10.5	530	LV152M6R3G105ETR □□
•	•	3300	12.5	14	750	LV332M6R3Z140ETR □□	
•	•	6800	16	17	1330	LV682M6R3J170ETR □□	
10	•		10	4	5.5	21	LV100M010B055ETR □□
	•		22	4	5.5	33	LV220M010B055ETR □□
	•		22	5	5.5	37	LV220M010C055ETR □□
	•		33	4	5.5	41	LV330M010B055ETR □□
	•		33	5	5.5	43	LV330M010C055ETR □□
	•		47	5	5.5	52	LV470M010C055ETR □□
	•		100	6.3	5.5	76	LV101M010E055ETR □□
	•	•	150	6.3	6.1	88	LV151M010E061ETR □□
	•	•	220	6.3	7.7	170	LV221M010E077ETR □□

\*Consult CapXon for availability

□□ see description at end of standard ratings

**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)	I <sub>R</sub> - Max. Ripple Current +85°C - 120Hz (mA rms)	CapXon Part Number
	Standard	Vibration-proof					
10	•	*	220	8	6.5	190	LV221M010F065ETR ☐☐
	•	•	330	8	10.5	330	LV331M010F105ETR ☐☐
	•	•	470	8	10.5	420	LV471M010F105ETR ☐☐
	•	•	560	10	10.5	450	LV561M010G105ETR ☐☐
	•	•	680	10	10.5	480	LV681M010G105ETR ☐☐
	•	•	1000	10	10.5	510	LV102M010G105ETR ☐☐
	•	•	2200	12.5	14	730	LV222M010Z140ETR ☐☐
	•	•	4700	16	17	1200	LV472M010J170ETR ☐☐
16	•		10	4	5.5	23	LV100M016B055ETR ☐☐
	•		22	4	5.5	37	LV220M016B055ETR ☐☐
	•		33	5	5.5	45	LV330M016C055ETR ☐☐
	•		47	5	5.5	50	LV470M016C055ETR ☐☐
	•		47	6.3	5.5	60	LV470M016E055ETR ☐☐
	•		100	6.3	5.5	100	LV101M016E055ETR ☐☐
	•	•	100	6.3	6.1	108	LV101M016E061ETR ☐☐
	•	•	150	6.3	7.7	135	LV151M016E077ETR ☐☐
	•	•	220	6.3	7.7	185	LV221M016E077ETR ☐☐
	•	•	220	8	10.5	290	LV221M016F105ETR ☐☐
	•	•	330	8	10.5	330	LV331M016F105ETR ☐☐
	•	•	470	8	10.5	430	LV471M016F105ETR ☐☐
	•	•	470	10	10.5	460	LV471M016G105ETR ☐☐
	•	•	560	10	10.5	500	LV561M016G105ETR ☐☐
	•	•	680	10	10.5	550	LV681M016G105ETR ☐☐
	•	•	1000	12.5	14	600	LV102M016Z140ETR ☐☐
	•	•	1200	12.5	14	660	LV122M016Z140ETR ☐☐
	•	•	1500	12.5	14	710	LV152M016Z140ETR ☐☐
•	•	3300	16	17	1200	LV332M016J170ETR ☐☐	
25	•		4.7	4	5.5	18	LV47R7M025B055ETR ☐☐
	•		10	4	5.5	27	LV100M025B055ETR ☐☐
	•		22	5	5.5	40	LV220M025C055ETR ☐☐
	•		22	6.3	5.5	46	LV220M025E055ETR ☐☐
	•		33	5	5.5	46	LV330M025C055ETR ☐☐
	•		33	6.3	5.5	54	LV330M025E055ETR ☐☐
	•		47	6.3	5.5	60	LV470M025E055ETR ☐☐
	•	•	47	6.3	6.1	68	LV470M025E061ETR ☐☐
	•	•	100	6.3	7.7	150	LV101M025E077ETR ☐☐
	•	*	100	8	6.5	160	LV101M025F065ETR ☐☐
	•	•	150	8	10.5	200	LV151M025F105ETR ☐☐
	•	•	220	8	10.5	300	LV221M025F105ETR ☐☐
	•	•	330	8	10.5	390	LV331M025F105ETR ☐☐
	•	•	330	10	10.5	450	LV331M025G105ETR ☐☐
	•	•	470	10	10.5	480	LV471M025G105ETR ☐☐
	•	•	560	12.5	14	520	LV561M025Z140ETR ☐☐
	•	•	680	12.5	14	580	LV681M025Z140ETR ☐☐

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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)	I <sub>R</sub> - Max. Ripple Current +85°C - 120Hz (mA rms)	CapXon Part Number
	Standard	Vibration-proof					
25	•	•	1000	12.5	14	660	LV102M025Z140ETR □□
	•	•	2200	16	17	1150	LV222M025J170ETR □□
35	•		4.7	4	5.5	18	LV4R7M035B055ETR □□
	•		10	4	5.5	29	LV100M035B055ETR □□
	•		22	5	5.5	45	LV220M035C055ETR □□
	•		22	6.3	5.5	48	LV220M035E055ETR □□
	•		33	6.3	5.5	58	LV330M035E055ETR □□
	•		47	6.3	5.5	65	LV470M035E055ETR □□
	•	•	47	6.3	6.1	70	LV470M035E061ETR □□
	•	*	47	8	6.5	115	LV470M035F065ETR □□
	•	•	100	6.3	7.7	250	LV101M035E077ETR □□
	•	•	100	8	10.5	280	LV101M035F105ETR □□
	•	•	150	8	10.5	300	LV151M035F105ETR □□
	•	•	220	8	10.5	350	LV221M035F105ETR □□
	•	•	220	10	10.5	400	LV221M035G105ETR □□
	•	•	330	10	10.5	460	LV331M035G105ETR □□
	•	•	470	12.5	14	590	LV471M035Z140ETR □□
	•	•	560	12.5	14	600	LV561M035Z140ETR □□
	•	•	680	12.5	14	610	LV681M035Z140ETR □□
	•	•	1500	16	17	1060	LV152M035J170ETR □□
50	•		0.1	4	5.5	1	LV0R1M050B055ETR □□
	•		0.22	4	5.5	2	LVR22M050B055ETR □□
	•		0.33	4	5.5	2.8	LVR33M050B055ETR □□
	•		0.47	4	5.5	4	LVR47M050B055ETR □□
	•		1	4	5.5	8.4	LV010M050B055ETR □□
	•		2.2	4	5.5	14	LV2R2M050B055ETR □□
	•		3.3	4	5.5	17	LV3R3M050B055ETR □□
	•		4.7	4	5.5	22	LV4R7M050B055ETR □□
	•		10	5	5.5	30	LV100M050C055ETR □□
	•		10	6.3	5.5	35	LV100M050E055ETR □□
	•	•	22	6.3	6.1	60	LV220M050E061ETR □□
	•	•	22	6.3	7.7	75	LV220M050E077ETR □□
	•	*	22	8	6.5	80	LV220M050F065ETR □□
	•	•	33	6.3	7.7	188	LV330M050E077ETR □□
	•	*	33	8	6.5	200	LV330M050F065ETR □□
	•	•	47	6.3	7.7	225	LV470M050E077ETR □□
	•	*	47	8	6.5	240	LV470M050F065ETR □□
	•	•	100	8	10.5	300	LV101M050F105ETR □□
	•	•	150	10	10.5	320	LV151M050G105ETR □□
	•	•	220	10	10.5	450	LV221M050G105ETR □□
	•	•	330	12.5	14	520	LV331M050Z140ETR □□
	•	•	470	16	17	925	LV471M050J170ETR □□
•	•	1000	16	17	940	LV102M050J170ETR □□	

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**STANDARD RATINGS**

Part number shows blister tape on paper reel

$V_R$ (V)	Vibration-proof		$C_R$ ( $\mu F$ )	$\varnothing D$ (mm)	L (mm)	$I_R$ - Max. Ripple Current +85°C - 120Hz (mA rms)	CapXon Part Number
	Standard						
63	•		0.1	4	5.5	1	LV0R1M063B055ETR ☐☐
	•		0.22	4	5.5	2	LVR22M063B055ETR ☐☐
	•		0.33	4	5.5	2.8	LVR33M063B055ETR ☐☐
	•		0.47	4	5.5	4	LVR47M063B055ETR ☐☐
	•		1	4	5.5	8.4	LV010M063B055ETR ☐☐
	•		2.2	4	5.5	14	LV2R2M063B055ETR ☐☐
	•		3.3	5	5.5	18	LV3R3M063C055ETR ☐☐
	•		4.7	5	5.5	23	LV4R7M063C055ETR ☐☐
	•		4.7	6.3	5.5	27	LV4R7M063E055ETR ☐☐
	•		10	6.3	5.5	35	LV100M063E055ETR ☐☐
	•	•	22	6.3	7.7	75	LV220M063E077ETR ☐☐
	•	*	22	8	6.5	75	LV220M063F065ETR ☐☐
	•	•	33	8	10.5	160	LV330M063F105ETR ☐☐
	•	•	47	8	10.5	170	LV470M063F105ETR ☐☐
	•	•	100	10	10.5	270	LV101M063G105ETR ☐☐
	•	•	100	12.5	14	340	LV101M063Z140ETR ☐☐
	•	•	150	12.5	14	380	LV151M063Z140ETR ☐☐
	•	•	220	12.5	14	460	LV221M063Z140ETR ☐☐
	•	•	330	16	17	560	LV331M063J170ETR ☐☐
	•	•	470	16	17	700	LV471M063J170ETR ☐☐
80	•		1	4	5.5	8	LV010M080B055ETR ☐☐
	•		2.2	5	5.5	16	LV2R2M080C055ETR ☐☐
	•		3.3	6.3	5.5	25	LV3R3M080E055ETR ☐☐
	•		4.7	6.3	5.5	30	LV4R7M080E055ETR ☐☐
	•	•	10	6.3	7.7	40	LV100M080E077ETR ☐☐
	•	•	22	6.3	7.7	70	LV220M080E077ETR ☐☐
	•	•	33	8	10.5	160	LV330M080F105ETR ☐☐
	•	•	47	10	10.5	195	LV470M080G105ETR ☐☐
	•	•	100	12.5	14	380	LV101M080Z140ETR ☐☐
	•	•	150	12.5	14	450	LV151M080Z140ETR ☐☐
	•	•	220	16	17	550	LV221M080J170ETR ☐☐
	100	•		1	4	5.5	8
•			2.2	6.3	5.5	18	LV2R2M100E055ETR ☐☐
•		•	2.2	6.3	6.1	20	LV2R2M100E061ETR ☐☐
•			3.3	6.3	5.5	25	LV3R3M100E055ETR ☐☐
•		•	3.3	6.3	6.1	28	LV3R3M100E061ETR ☐☐
•		•	4.7	6.3	7.7	38	LV4R7M100E077ETR ☐☐
•		*	4.7	8	6.5	38	LV4R7M100F065ETR ☐☐
•		•	10	6.3	7.7	50	LV100M100E077ETR ☐☐
•		•	22	8	10.5	120	LV220M100F105ETR ☐☐
•		•	33	10	10.5	190	LV330M100G105ETR ☐☐
•		•	47	12.5	14	330	LV470M100Z140ETR ☐☐
•		•	100	12.5	14	380	LV101M100Z140ETR ☐☐
•		•	150	16	17	560	LV151M100J170ETR ☐☐

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V <sub>R</sub> (V)	Standard	Vibration-proof	C <sub>R</sub> (μF)	ø D (mm)	L (mm)	I <sub>R</sub> - Max. Ripple Current +85°C - 120Hz (mA rms)	CapXon Part Number
	•	•					
160	•	•	10	8	10.5	70	LV100M160F105ETR ☐☐
	•	•	12	8	10.5	80	LV120M160F105ETR ☐☐
	•	•	18	10	10.5	100	LV180M160G105ETR ☐☐
	•	•	22	10	10.5	150	LV220M160G105ETR ☐☐
	•	•	27	12.5	14	235	LV270M160Z140ETR ☐☐
	•	•	33	12.5	14	250	LV330M160Z140ETR ☐☐
	•	•	39	12.5	14	270	LV390M160Z140ETR ☐☐
	•	•	47	16	17	400	LV470M160J170ETR ☐☐
200	•	•	10	10	10.5	100	LV100M200G105ETR ☐☐
	•	•	10	12.5	14	130	LV100M200Z140ETR ☐☐
	•	•	22	12.5	14	235	LV220M200Z140ETR ☐☐
	•	•	27	12.5	14	250	LV270M200Z140ETR ☐☐
	•	•	33	12.5	14	270	LV330M200Z140ETR ☐☐
	•	•	39	16	17	370	LV390M200J170ETR ☐☐
	•	•	47	16	17	420	LV470M200J170ETR ☐☐
	•	•	68	16	17	520	LV680M200J170ETR ☐☐
250	•	•	4.7	8	10.5	70	LV4R7M250F105ETR ☐☐
	•	•	6.8	10	10.5	95	LV6R8M250G105ETR ☐☐
	•	•	10	10	10.5	115	LV100M250G105ETR ☐☐
	•	•	15	12.5	14	180	LV150M250Z140ETR ☐☐
	•	•	22	16	17	280	LV220M250J170ETR ☐☐
	•	•	27	16	17	305	LV270M250J170ETR ☐☐
	•	•	33	16	17	340	LV330M250J170ETR ☐☐
	•	•	39	16	17	370	LV390M250J170ETR ☐☐
400	•	•	47	16	17	430	LV470M250J170ETR ☐☐
	•	•	3.3	10	10.5	50	LV3R3M400G105ETR ☐☐
	•	•	4.7	10	10.5	90	LV4R7M400G105ETR ☐☐
	•	•	4.7	12.5	14	115	LV4R7M400Z140ETR ☐☐
	•	•	6.8	12.5	14	130	LV6R8M400Z140ETR ☐☐
	•	•	8.2	12.5	14	140	LV8R2M400Z140ETR ☐☐
	•	•	10	12.5	14	145	LV100M400Z140ETR ☐☐
	•	•	10	16	17	160	LV100M400J170ETR ☐☐
	•	•	12	16	17	175	LV120M400J170ETR ☐☐
	•	•	15	16	17	170	LV150M400J170ETR ☐☐
	•	•	18	16	17	195	LV180M400J170ETR ☐☐
•	•	22	16	17	235	LV220M400J170ETR ☐☐	

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☐☐ see description at end of standard ratings

### STANDARD RATINGS

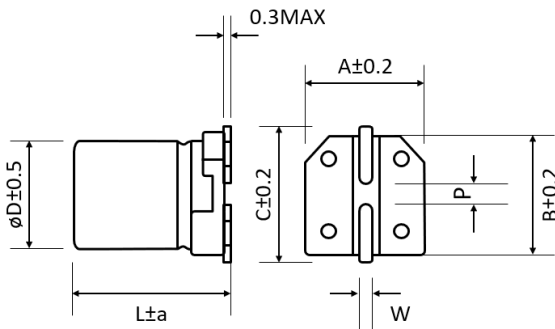
Part number shows blister tape on paper reel

$V_R$ (V)	Standard	Vibration-proof	$C_R$ ( $\mu F$ )	$\phi D$ (mm)	L (mm)	$I_R$ - Max. Ripple Current +85°C - 120Hz (mA rms)	CapXon Part Number
	•	•					
450	•	•	4.7	12.5	14	115	LV4R7M450Z140ETR □□
	•	•	6.8	12.5	14	130	LV6R8M450Z140ETR □□
	•	•	8.2	12.5	14	140	LV8R2M450Z140ETR □□
	•	•	10	12.5	14	145	LV100M450Z140ETR □□
	•	•	10	16	17	160	LV100M450J170ETR □□
	•	•	12	16	17	175	LV120M450J170ETR □□
	•	•	15	16	17	170	LV150M450J170ETR □□
	•	•	18	16	17	195	LV180M450J170ETR □□
	•	•	22	16	17	235	LV220M450J170ETR □□

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

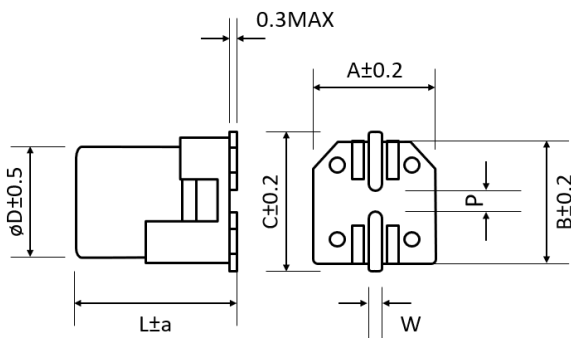
□□: Enter **X** for AEC-Q200  
 □□: Enter **XW** for AEC-Q200 and Vibration proof version

### DIMENSIONS STANDARD PACKAGE - All dimensions in mm



$\phi D$	L	a	A	B	C	W	P $\pm 0.2$
4	5.5	Max	4.3	4.3	4.9	0.5 to 0.8	1
5	5.5	Max	5.3	5.3	5.9	0.5 to 0.8	1.4
6.3	5.5	0.2	6.6	6.6	7.2	0.5 to 0.8	2.2
6.3	6.1	Max	6.6	6.6	7.2	0.5 to 0.8	2.2
6.3	7.7	Max	6.6	6.6	7.2	0.5 to 0.8	2.2
8	6.5	Max	8.3	8.3	9	0.5 to 0.8	2.3
8	10.5	Max	8.3	8.3	9	0.7 to 1.1	3.1
10	10.5	Max	10.3	10.3	11	0.7 to 1.1	4.5
12.5	14	Max	13	13	13.9	1 to 1.4	4.5
16	17	0.5	17	17	18	1 to 1.4	6.6

### DIMENSIONS VP PACKAGE (VIBRATION-PROOF) - All dimensions in mm



$\phi D$	L	a	A	B	C	W	P $\pm 0.2$
6.3	6.1	0.5	6.6	6.6	7.2	0.5 to 0.8	2.2
6.3	7.7	0.5	6.6	6.6	7.2	0.5 to 0.8	2.2
8	6.5	0.5	8.3	8.3	9	0.7 to 1.1	3.1
8	10.5	0.5	8.3	8.3	9	0.7 to 1.1	3.1
10	10.5	0.5	10.5	10.5	11.2	0.7 to 1.1	4.5
12.5	14	0.5	13	13	13.9	1 to 1.4	5.5
16	17	0.5	17	17	18	1 to 1.4	6.6

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

$C_R$ ( $\mu\text{F}$ ) / Frequency (Hz)	50/60	100/120	500	1k	$\geq 10\text{k}$
$0.1 \leq C_R \leq 100$	0.8	1	1.2	1.3	1.5
$100 < C_R \leq 6800$	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.

<a href="#">General Precautions &amp; Guidelines</a>	<a href="#">Packaging Information</a>	<a href="#">Vibration Test Profiles</a>	<a href="#">3D Models</a>

### 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.