

KVD Series

RoHS2  
CompliantAEC-  
Q200High  
temperature  
150°C

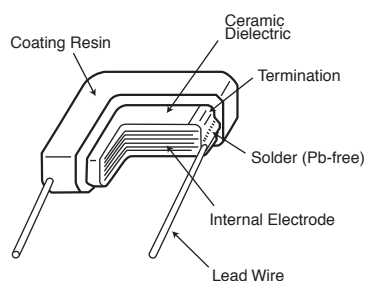
## ◆FEATURES

1. Temperature range : -55 to +150°C
2. Temperature characteristic : X8L
3. Small in size and wide capacitance range.  
Max. 15μF is available.
4. Epoxy resin(UL94 V-0)used for coating.
5. Automotive grade(AEC-Q200)

## ◆APPLICATIONS

1. Noise filter for automotive equipment(ECU etc.)
2. Equipment used in a high temperature environment

## ◆CONSTRUCTION



## ◆RATINGS

1. Category Temperature Range	-55~+150°C
2. Rated Voltage Range	25, 50, 100 Vdc
3. Rated Capacitance Range	0.1~15μF
4. Rated Capacitance Tolerance	M(±20%), K(±10%)
5. Temperature Characteristics	X8L
6. Rated Ripple Current	See No.5 on the following table

## ◆SPECIFICATIONS

No.	Items		Specification	Test Condition	
1	Withstand Voltage	Between Terminals	No abnormality.	250% of rated voltage shall be applied for 5 seconds. (Only 250Vdc products : 475V)	
		Terminals to Coating Resin			
2	Insulation Resistance		100/C <sub>R</sub> (MΩ) or 4000(MΩ) whichever is less.	Rated voltage shall be applied for 60±5 seconds at temperature 25±2°C.	
3	Rated Capacitance		Within specified tolerance.		
				CR≤10μF	CR>10μF
4	Dissipation Factor		5.0% maximum.	Temperature	25±2°C
				Frequency	1±0.1kHz      120±12Hz
				Voltage	1±0.2Vrms      0.5±0.2Vrms

## ◆ SPECIFICATIONS

No.	Items		Specification	Test Condition															
5	Rated Ripple Current		<table><tr><td>Size code</td><td>32</td><td>43</td><td>55</td></tr><tr><td>Arms</td><td>0.3</td><td>0.8</td><td>1.0</td></tr></table>	Size code	32	43	55	Arms	0.3	0.8	1.0	10kHz to 1MHz (sine curve) Ripple voltage Vp shall be less than the rated voltage. The surface temperature of MLCC must not exceed the maximum category temperature when the ripple current is applied.							
Size code	32	43	55																
Arms	0.3	0.8	1.0																
6	High Temperature Exposure(Storage)		Appearance : No structural damage such as cracks ΔC/C : ±20% D.F. : 10% maximum I.R. : 50/CR(MΩ) or 1000(MΩ) whichever is less.	Temperature : Max. category temperature±3℃ Time : 1000 ± <sup>48</sup> <sub>0</sub> hours															
7	Temperature Cycle		Appearance : No visible damage. ΔC/C : ±15% D.F. : To meet the initial specification. I.R. : To meet the initial specification.	<table><tr><td>Step</td><td>Temperature(℃ )</td><td>(min)</td></tr><tr><td>1</td><td>Min Category temperature ±3</td><td>30 ±3</td></tr><tr><td>2</td><td>Room temperature</td><td>3 max.</td></tr><tr><td>3</td><td>Max. Category temperature ±3</td><td>30 ±3</td></tr><tr><td>4</td><td>Room temperature</td><td>3 max.</td></tr></table> For 1000 cycles	Step	Temperature(℃ )	(min)	1	Min Category temperature ±3	30 ±3	2	Room temperature	3 max.	3	Max. Category temperature ±3	30 ±3	4	Room temperature	3 max.
Step	Temperature(℃ )	(min)																	
1	Min Category temperature ±3	30 ±3																	
2	Room temperature	3 max.																	
3	Max. Category temperature ±3	30 ±3																	
4	Room temperature	3 max.																	
8	Biased Humidity		Appearance : No abnormality. ΔC/C : ±20% D.F. : 10% maximum I.R. : 25/CR(MΩ) or 1000(MΩ) whichever is less.	Temperature : 85℃ ±3℃ Humidity : 80 ~ 85%RH Voltage : Rated voltage Time : 1000 ± <sup>48</sup> <sub>0</sub> hours															
9	Operational Life		Appearance : No structural damage such as cracks ΔC/C : ±20% D.F. : 10% maximum I.R. : 50/CR(MΩ) or 1000(MΩ) whichever is less.	Temperature : Max. category temperature±3℃ Voltage : Rated voltage Time : 1000 ± <sup>48</sup> <sub>0</sub> hours															
10	Terminal Strength (Leaded)	<div>Tension</div> <div>Bending</div>	No visible damage.	The force applied shall be : <table><tr><td>Lead ϕ (mm)</td><td>Tensile(N)</td><td>(sec.)</td></tr><tr><td>0.5 max.</td><td>5</td><td>10 ±1</td></tr></table> <table><tr><td>Lead ϕ (mm)</td><td>Bending(N)</td><td>(kg)</td></tr><tr><td>0.5 max.</td><td>2.5</td><td>0.25</td></tr></table> Time : 2times.	Lead ϕ (mm)	Tensile(N)	(sec.)	0.5 max.	5	10 ±1	Lead ϕ (mm)	Bending(N)	(kg)	0.5 max.	2.5	0.25			
Lead ϕ (mm)	Tensile(N)	(sec.)																	
0.5 max.	5	10 ±1																	
Lead ϕ (mm)	Bending(N)	(kg)																	
0.5 max.	2.5	0.25																	
11	Mechanical Shock		Appearance : No abnormality. ΔC/C : To meet the initial specification. D.F. : To meet the initial specification.	MIL-STD-202 Method 213 Condition C Peak value : 100G Normal duration : 6 ms Velocity change : 12.3 ft/sec(3.8m/s) Direction and time : 3 times each in X,Y, Z axis. Total 18 times															
12	Vibration		Appearance : No abnormality. ΔC/C : To meet the initial specification. D.F. : To meet the initial specification.	MIL-STD-202 Method 204 Test condition : 5G peak Amplitude : 1.5mm max. Frequency : 10-2000-10Hz(20 minute) Direction and time : 12 times each in X,Y, Z axis. Total 36 times															
13	Resistance to Soldering Heat		Appearance : No visible damage. ΔC/C : ±15% D.F. : To meet the initial specification. I.R. : To meet the initial specification.	Solder temp. : 260±5℃ Dipping Time : 10±1s Depth : 1.5 to 2mm															
14	ESD		Appearance : No abnormality. ΔC/C : To meet the initial specification. D.F. : To meet the initial specification. I.R. : To meet the initial specification.	AEC-Q200-002 Connection : Between terminals Direct Contact : 8kV(150pF 2000Ω) Times : ±1time															
15	Solderability		Min. 75% of surface of the termination shall be covered with new solder.	<table><tr><td>Solder</td><td>Pb Free</td></tr><tr><td>Solder Temperature</td><td>245 ±5℃</td></tr><tr><td>Dipping Time</td><td>2 ±0.5s</td></tr></table>	Solder	Pb Free	Solder Temperature	245 ±5℃	Dipping Time	2 ±0.5s									
Solder	Pb Free																		
Solder Temperature	245 ±5℃																		
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\*CR : Rated Capacitance( $\mu\text{F}$ )

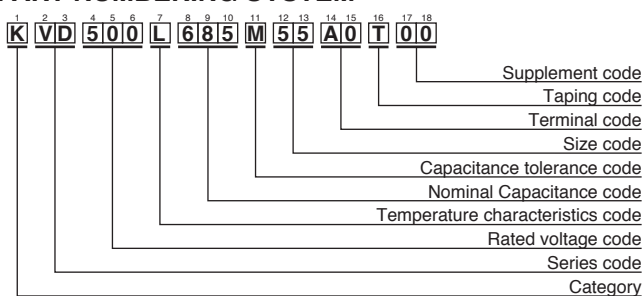
## ◆STANDARD RATINGS

Rated voltage (Vdc)	Rated Capacitance (μF)	Electrostatic Capacitance Temperature Characteristics	Dimensions(mm)					Maximum ripple current (Arms)	Part Number	Taping Quantity per reel (pcs. / reel)
			L max.	W max.	T max.	F±0.8	φd±0.05			
25	1.0	X8L	5.0	6.0	3.5	5.0	0.5	0.3	KVD250L105□32A0T00	2,000
	1.5	X8L	5.0	6.0	3.5	5.0	0.5	0.3	KVD250L155□32A0T00	2,000
	2.2	X8L	5.0	6.0	3.5	5.0	0.5	0.3	KVD250L225□32A0T00	2,000
	3.3	X8L	5.0	6.0	3.5	5.0	0.5	0.3	KVD250L335□32A0T00	2,000
	4.7	X8L	6.5	6.5	4.0	5.0	0.5	0.8	KVD250L475□43A0T00	2,000
	6.8	X8L	6.5	6.5	4.0	5.0	0.5	0.8	KVD250L685□43A0T00	2,000
	10	X8L	7.5	9.0	4.5	5.0	0.5	1.0	KVD250L106□55A0T00	2,000
50	15	X8L	7.5	9.0	4.5	5.0	0.5	1.0	KVD250L156□55A0T00	2,000
	0.33	X8L	5.0	6.0	3.5	5.0	0.5	0.3	KVD500L334□32A0T00	2,000
	0.47	X8L	5.0	6.0	3.5	5.0	0.5	0.3	KVD500L474□32A0T00	2,000
	0.68	X8L	5.0	6.0	3.5	5.0	0.5	0.3	KVD500L684□32A0T00	2,000
	1.0	X8L	5.0	6.0	3.5	5.0	0.5	0.3	KVD500L105□32A0T00	2,000
	1.5	X8L	6.5	6.5	4.0	5.0	0.5	0.8	KVD500L155□43A0T00	2,000
	2.2	X8L	6.5	6.5	4.0	5.0	0.5	0.8	KVD500L225□43A0T00	2,000
	3.3	X8L	7.5	9.0	4.5	5.0	0.5	1.0	KVD500L335□55A0T00	2,000
100	4.7	X8L	7.5	9.0	4.5	5.0	0.5	1.0	KVD500L475□55A0T00	2,000
	6.8	X8L	7.5	9.0	4.7	5.0	0.5	1.0	KVD500L685□55A0T00	1,500
	0.10	X8L	5.0	6.0	3.5	5.0	0.5	0.3	KVD101L104□32A0T00	2,000
	0.15	X8L	5.0	6.0	3.5	5.0	0.5	0.3	KVD101L154□32A0T00	2,000
	0.22	X8L	5.0	6.0	3.5	5.0	0.5	0.3	KVD101L224□32A0T00	2,000
	0.33	X8L	5.0	6.0	3.5	5.0	0.5	0.3	KVD101L334□32A0T00	2,000
	0.47	X8L	6.5	6.5	4.0	5.0	0.5	0.8	KVD101L474□43A0T00	2,000
	0.68	X8L	6.5	6.5	4.0	5.0	0.5	0.8	KVD101L684□43A0T00	2,000
	1.0	X8L	7.5	9.0	4.5	5.0	0.5	1.0	KVD101L105□55A0T00	2,000
	1.5	X8L	7.5	9.0	4.5	5.0	0.5	1.0	KVD101L155□55A0T00	2,000

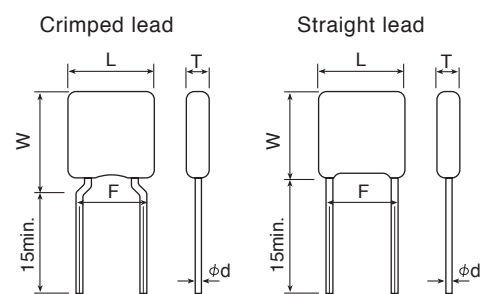
※ The square ( □ ) in part numbers is replaced by a capacitance tolerance code: 'K' when ±10%, or 'M' when ±20%

※ Please consult with us when you consider the rating other than a standard table.

## ◆PART NUMBERING SYSTEM



## ◆DIMENSIONS



Please refer to "Part Numbering System" of the beginning of a catalog for the details.



- Always read "Notes on Use" before using the product in order to enable you to use the product correctly and prevent any faults and accidents from occurring.
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