DIPPED RADIAL LEAD MULTILAYER CERAMIC CAPACITORS

KVD Series

RoHS2 Compliant | AEC-Q200 | High temperature 150°C

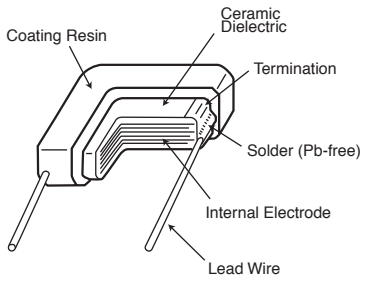
◆FEATURES

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 fillter 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/CR(MΩ) or 4000(MΩ) whichever is less.	Rated voltage shall be applied for 60±5 seconds at temperature 25±2℃.
3	Rated Capacitance		Within specified tolerance.	
4	Dissipation Factor		5.0% maximum.	

	CR≦10μF	CR>10μF
Temperature	25±2℃	
Frequency	1±0.1kHz	120±12Hz
Voltage	1±0.2Vrms	0.5±0.2Vrms

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KVD Series

◆SPECIFICATIONS

<table>
<tr><th>No.</th><th>Items</th><th>Specification</th><th>Test Condition</th></tr>
<tr><td>5</td><td>Rated Ripple Current</td><td>
<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>
</td><td>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.</td></tr>
<tr><td>6</td><td>High Temperature Exposure(Storage)</td><td>Appearance : No structural damage such as cracks
ΔC/C : ±20%
D.F. : 10% maximum
I.R. : 50/C_R(MΩ) or 1000(MΩ)
whichever is less.</td><td>Temperature : Max. category temperature±3℃
Time : 1000 $\pm^{48}_{0}$ hours</td></tr>
<tr><td>7</td><td>Temperature Cycle</td><td>Appearance : No visible damage.
ΔC/C : ±15%
D.F. : To meet the initial specification.
I.R. : To meet the initial specification.</td><td>
<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</td></tr>
<tr><td>8</td><td>Biased Humidity</td><td>Appearance : No abnormality.
ΔC/C : ±20%
D.F. : 10% maximum
I.R. : 25/C_R(MΩ) or 1000(MΩ)
whichever is less.</td><td>Temperature : 85℃±3℃
Humidity : 80 ～ 85%RH
Voltage : Rated voltage
Time : 1000 $\pm^{48}_{0}$ hours</td></tr>
<tr><td>9</td><td>Operational Life</td><td>Appearance : No structural damage such as cracks
ΔC/C : ±20%
D.F. : 10% maximum
I.R. : 50/C_R(MΩ) or 1000(MΩ)
whichever is less.</td><td>Temperature : Max. category temperature±3℃
Voltage : Rated voltage
Time : 1000 $\pm^{48}_{0}$ hours</td></tr>
<tr><td>10</td><td>Terminal Strength (Leaded)
Tension
Bending</td><td>No visible damage.</td><td>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.</td></tr>
<tr><td>11</td><td>Mechanical Shock</td><td>Appearance : No abnormality.
ΔC/C : To meet the initial specification.
D.F. : To meet the initial specification.</td><td>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</td></tr>
<tr><td>12</td><td>Vibration</td><td>Appearance : No abnormality.
ΔC/C : To meet the initial specification.
D.F. : To meet the initial specification.</td><td>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</td></tr>
<tr><td>13</td><td>Resistance to Soldering Heat</td><td>Appearance : No visible damage.
ΔC/C : ±15%
D.F. : To meet the initial specification.
I.R. : To meet the initial specification.</td><td>Solder temp. : 260±5℃
Dipping Time : 10±1s
Depth : 1.5 to 2mm</td></tr>
<tr><td>14</td><td>ESD</td><td>Appearance : No abnormality.
ΔC/C : To meet the initial specification.
D.F. : To meet the initial specification.
I.R. : To meet the initial specification.</td><td>AEC-Q200-002
Connection : Between terminals
Direct Contact : 8kV(150pF 2000Ω)
Times : ±1time</td></tr>
<tr><td>15</td><td>Solderability</td><td>Min. 75% of surface of the termination shall be covered with new solder.</td><td>
<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>
</td></tr>
</table>

*CR : Rated Capacitance(μF)

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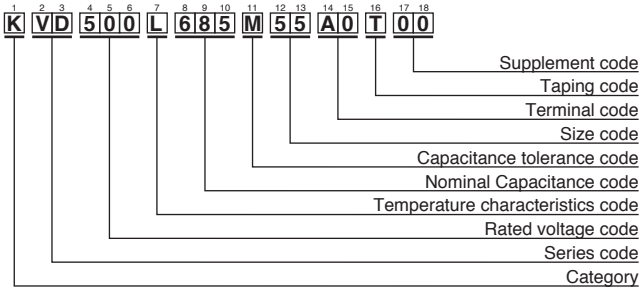
KVD Series

◆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
	15	X8L	7.5	9.0	4.5	5.0	0.5	1.0	KVD250L156□55A0T00	2,000
50	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
	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
100	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

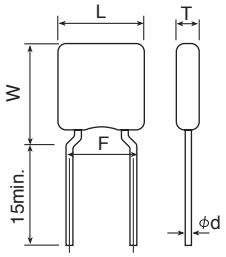
※ The square (□) in part numbers is replaced by a capacitance tolerance code: 'K' when ±10%, or 'M' when ±20%
※ Please consult with us when you consider the rating other than a standard table.

◆PART NUMBERING SYSTEM

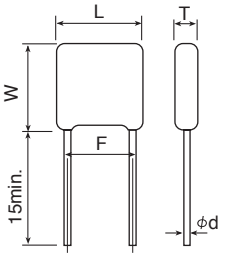


◆DIMENSIONS

Crimped lead



Straight lead



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

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Precautions and Guidelines・Recommended Soldering Conditions
Part Numbering System
List of Standardization and Obsoleted Products
TAPING SPECIFICATION
Characteristics Data
Minimum Packaging Quantity

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