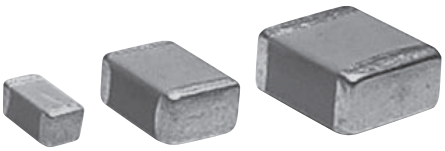
KVF Series

RoHS2 Compliant | AEC-Q200 | High temperature 150℃

Temperature cycle : 1000 cycles



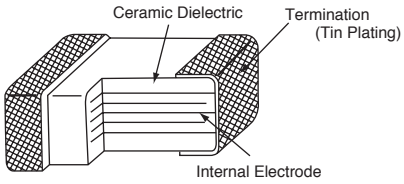
◆FEATURES

1. Temperature range : -55 to +150℃
2. Temperature characteristics : X8L
3. Exellent noise absorption.
4. 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	0.033～15μF
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	No abnormality.	250% of rated voltage shall be applied for 5 seconds.
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.	See table below
4	Dissipation Factor	5.0% maximum.	
5	Rated Ripple Current	See table below	10kHz～1MHz (sine curve) Ripple voltage Vp shall be less than the rated voltage. The surface temperature MLCC must not exceed the maximum category temperature when the ripple current is applied.

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

Size code	31	32	43	55
Arms	0.3	0.5	1.0	2.0

As customer requirement, Chemi-Con has submits the test results according to AEC-Q200 for Multilayer ceramic capacitors. Please contact us for more information.

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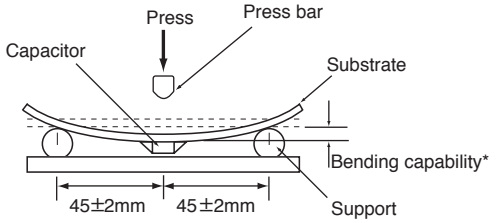
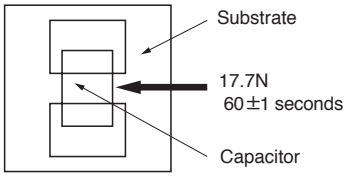
KVF Series

◆SPECIFICATIONS

<table>
<tr><th>No.</th><th>Items</th><th>Specification</th><th>Test Condition</th></tr>
<tr><td>6</td><td>High Temperature Exposure (Storage)</td><td>Appearance : No abnormality.
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 $^{48}_{0}$ 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><th>Step</th><th>Temperature (℃)</th><th>(min.)</th></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>(Epoxy resin PCB t=1.6mm)
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 $^{48}_{0}$ hours</td></tr>
<tr><td>9</td><td>Operational Life</td><td>Appearance : No abnormality.
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 $^{48}_{0}$ hours</td></tr>
<tr><td>10</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 Method213 Condition F
Peak value : 1,500 G
Normal duration : 0.5 ms
Velocity change : 15.4 ft/sec (4.7m/s)
Direction and time : 3 times each in X,Y, Z axis. Total 18 times</td></tr>
<tr><td>11</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>Preheating temperature : 150±10℃
Preheating time : 1 to 2 minute
Solder temp. : 260±5℃
Dipping Time : 10±1s</td></tr>
<tr><td>12</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>13</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>
<tr><td>14</td><td>Board Flex</td><td>Appearance : No visible damage.
ΔC/C : ±15%</td><td>The substrate shall be bend at rate of 1mm/s for 5 seconds.


∗ Bending capability : 1mm or 2mm</td></tr>
<tr><td>15</td><td>Terminal Strength (SMD)</td><td>No visible damage.</td><td>
</td></tr>
</table>

*CR : Rated Capacitance(μF)

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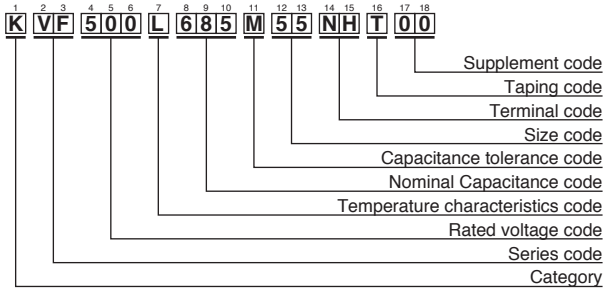
KVF Series

◆STANDARD RATINGS

Rated voltage (Vdc)	Rated Capacitance (μF)	Electrostatic Capacitance Temperature Characteristics	Case Code	Dimensions(mm)				Maximum ripple current (Arms)	Part Number	Taping Quantity per reel (pcs. / reel)
			inch / mm	L	W	T max.	a			
25	0.33	X8L	1206 / 3216	3.2±0.3	1.6±0.2	1.8	0.7±0.2	0.3	KVF250L334□31NLT00	3,000
	0.47	X8L	1206 / 3216	3.2±0.3	1.6±0.2	1.8	0.7±0.2	0.3	KVF250L474□31NLT00	3,000
	0.68	X8L	1206 / 3216	3.2±0.3	1.6±0.2	1.8	0.7±0.2	0.3	KVF250L684□31NLT00	3,000
	1.0	X8L	1206 / 3216	3.2±0.3	1.6±0.2	1.8	0.7±0.2	0.3	KVF250L105□31NLT00	3,000
	1.5	X8L	1210 / 3225	3.2±0.4	2.5±0.3	2.6	0.7±0.2	0.5	KVF250L155□32NHT00	1,600
	2.2	X8L	1210 / 3225	3.2±0.4	2.5±0.3	2.6	0.7±0.2	0.5	KVF250L225□32NHT00	1,600
	3.3	X8L	1210 / 3225	3.2±0.4	2.5±0.3	2.6	0.7±0.2	0.5	KVF250L335□32NHT00	1,600
	4.7	X8L	1812 / 4535	4.5±0.4	3.2±0.4	2.8	0.7±0.2	1.0	KVF250L475□43NHT00	800
	6.8	X8L	1812 / 4535	4.5±0.4	3.2±0.4	2.8	0.7±0.2	1.0	KVF250L685□43NHT00	800
	10	X8L	2220 / 5750	5.7±0.4	5.0±0.4	2.8	1.0±0.4	2.0	KVF250L106□55NHT00	800
	15	X8L	2220 / 5750	5.7±0.4	5.0±0.4	2.8	1.0±0.4	2.0	KVF250L156□55NHT00	800
50	0.10	X8L	1206 / 3216	3.2±0.2	1.6±0.2	1.8	0.7±0.2	0.3	KVF500L104□31NLT00	3,000
	0.15	X8L	1206 / 3216	3.2±0.2	1.6±0.2	1.8	0.7±0.2	0.3	KVF500L154□31NLT00	3,000
	0.22	X8L	1206 / 3216	3.2±0.2	1.6±0.2	1.8	0.7±0.2	0.3	KVF500L224□31NLT00	3,000
	0.33	X8L	1206 / 3216	3.2±0.2	1.6±0.2	1.8	0.7±0.2	0.3	KVF500L334□31NLT00	3,000
	0.47	X8L	1206 / 3216	3.2±0.2	1.6±0.2	1.8	0.7±0.2	0.3	KVF500L474□31NLT00	3,000
	0.68	X8L	1210 / 3225	3.2±0.4	2.5±0.3	2.6	0.7±0.2	0.5	KVF500L684□32NLT00	1,600
	1.0	X8L	1210 / 3225	3.2±0.4	2.5±0.3	2.6	0.7±0.2	0.5	KVF500L105□32NHT00	1,600
	1.5	X8L	1812 / 4532	4.5±0.4	3.2±0.4	2.8	0.7±0.2	1.0	KVF500L155□43NHT00	800
	2.2	X8L	1812 / 4532	4.5±0.4	3.2±0.4	2.8	0.7±0.2	1.0	KVF500L225□43NHT00	800
	3.3	X8L	2220 / 5750	5.7±0.4	5.0±0.4	2.8	1.0±0.4	2.0	KVF500L335□55NLT00	800
	4.7	X8L	2220 / 5750	5.7±0.4	5.0±0.4	2.8	1.0±0.4	2.0	KVF500L475□55NHT00	800
	6.8	X8L	2220 / 5750	5.7±0.4	5.0±0.4	2.8	1.0±0.4	2.0	KVF500L685□55NHT00	800
100	0.033	X8L	1206 / 3216	3.2±0.2	1.6±0.2	1.8	0.7±0.2	0.3	KVF101L333□31NLT00	3,000
	0.047	X8L	1206 / 3216	3.2±0.2	1.6±0.2	1.8	0.7±0.2	0.3	KVF101L473□31NLT00	3,000
	0.068	X8L	1206 / 3216	3.2±0.2	1.6±0.2	1.8	0.7±0.2	0.3	KVF101L683□31NLT00	3,000
	0.1	X8L	1206 / 3216	3.2±0.2	1.6±0.2	1.8	0.7±0.2	0.3	KVF101L104□31NLT00	3,000
	0.15	X8L	1210 / 3225	3.2±0.4	2.5±0.3	2.6	0.7±0.2	0.5	KVF101L154□32NLT00	1,600
	0.22	X8L	1210 / 3225	3.2±0.4	2.5±0.3	2.6	0.7±0.2	0.5	KVF101L224□32NLT00	1,600
	0.3	X8L	1210 / 3225	3.2±0.4	2.5±0.3	2.6	0.7±0.2	0.5	KVF101L334□32NLT00	1,600
	0.5	X8L	1812 / 4532	4.5±0.4	3.2±0.4	2.8	0.7±0.2	1.0	KVF101L474□43NLT00	800
	0.68	X8L	1812 / 4532	4.5±0.4	3.2±0.4	2.8	0.7±0.2	1.0	KVF101L684□43NLT00	800
	1.0	X8L	2220 / 5750	5.7±0.4	5.0±0.4	2.8	1.0±0.4	2.0	KVF101L105□55NLT00	800
	1.5	X8L	2220 / 5750	5.7±0.4	5.0±0.4	2.8	1.0±0.4	2.0	KVF101L155□55NLT00	800

※ 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.

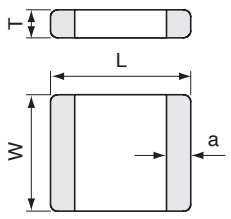
◆PART NUMBERING SYSTEM



Size Code

Size Code	L × W (mm)
31	3.2 × 1.6
32	3.2 × 2.5
43	4.5 × 3.2
55	5.7 × 5.0
76	7.5 × 6.3

◆DIMENSIONS



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

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■ 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.

■ Request the Product Specification on the product of NIPPON CHEMI-CON CORPORATION to refer to it as well as this brochure prior to the order of the products. Some specific notes on use of the ordered product may be described in the specifications.

■ The products listed in this catalog are designed and manufactured for general electronics equipment use and are not intended for use in applications that can adversely affect human life; where the malfunction of equipment may cause damage to life or property. In addition, our products are not intended to be used in specific applications that may cause a major social impact. Please consult with us in advance of usage of our products in the following listed applications. ① Aerospace equipment ② Power generation equipment such as thermal power, nuclear power etc. ③ Medical equipment ④ Transport equipment (automobiles, trains, ships, etc.) ⑤ Transportation control equipment ⑥ Disaster prevention / crime prevention equipment ⑦ Highly publicized information processing equipment ⑧ Submarine equipment ⑨ Other applications that are not considered general-purpose applications.

■ The circuits described as examples in this catalog and the "delivery specifications" are featured in order to show the operations and usage of our products, however, this fact does not guarantee that the circuits are available to function in your equipment systems. We are not in any case responsible for any failures or damage caused by the use of information contained herein. You should examine our products, of which the characteristics are described in the "delivery specifications" and other documents, and determine whether or not our products suit your requirements according to the specifications of your equipment systems. Therefore, you bear final responsibility regarding the use of our products.
Please make sure that you take appropriate safety measures such as use of redundant design and malfunction prevention measures in order to prevent fatal accidents and/or fires in the event any of our products malfunction.

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■ We reserve the right to discontinue production and delivery of products. We do not guarantee that all the products included in this catalog will be available in the future.
The aforementioned does not apply in the case of individual agreements deviating from the foregoing for customer-specific products

■ We continually strive to improve the quality and reliability of our products, but in any case that our product does not meet our published specifications, please stop using it promptly and contact us immediately. As for compensation for non-conforming goods delivered by Chemi-Con, we will limit it only to goods found in non-compliance of our published specifications. This may be accomplished by a no cost replacement of non-conforming individual products, a credit of the piece price paid per each individual non-conforming product, or in other ways deemed necessary.
In addition, we have an established system with enhanced traceability, therefore we will limit the applicable lot items for any potential compensation.

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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