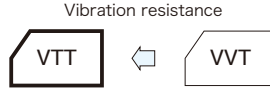


Code in front of series have been extracted from product code, which describes the segment of products, such as type and features.

- Compatible with surface mounting, low ESR capacitors.
- For Vibration resistance. (30G guaranteed)
- Environmental : GREEN CAP™, RoHS compliance.
- Supplied with carrier taping.
- Guaranteed 1000 to 5000 hours at 125°C.
(See table below)



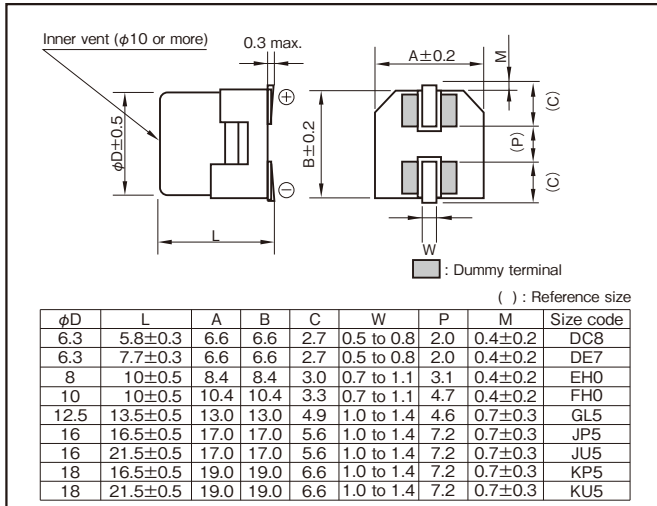
Marking color : Black print

Specifications

Item	Performance																												
Category temperature range (°C)	-40 to +125																												
Tolerance at rated capacitance (%)	±20 (20°C, 120Hz)																												
Leakage current (µA) (max.)	0.01CV or 3 whichever is larger (after 2 minutes) C : Rated capacitance (µF), V : Rated voltage (V) (20°C)																												
Tangent of loss angle (tanδ)	<table border="1"> <thead> <tr> <th>Rated voltage (V)</th> <th>10</th> <th>16</th> <th>25</th> <th>35</th> <th>50</th> <th>63</th> <th>80</th> <th>100</th> </tr> </thead> <tbody> <tr> <td>tanδ (max.)</td> <td>0.24</td> <td>0.20</td> <td>0.16</td> <td>0.14</td> <td>0.14</td> <td>0.12</td> <td>0.12</td> <td>0.10</td> </tr> </tbody> </table> <p>0.02 is added to every 1000µF increase over 1000µF (20°C, 120Hz)</p>	Rated voltage (V)	10	16	25	35	50	63	80	100	tanδ (max.)	0.24	0.20	0.16	0.14	0.14	0.12	0.12	0.10										
Rated voltage (V)	10	16	25	35	50	63	80	100																					
tanδ (max.)	0.24	0.20	0.16	0.14	0.14	0.12	0.12	0.10																					
Characteristics at high and low temperature	<table border="1"> <thead> <tr> <th>Rated voltage (V)</th> <th>10</th> <th>16</th> <th>25</th> <th>35</th> <th>50</th> <th>63</th> <th>80</th> <th>100</th> </tr> </thead> <tbody> <tr> <td rowspan="2">Impedance ratio (max.)</td> <td>Z-25°C/Z+20°C</td> <td>3</td> <td>2</td> <td>2</td> <td>2</td> <td>2</td> <td>2</td> <td>2</td> </tr> <tr> <td>Z-40°C/Z+20°C</td> <td>4</td> <td>3</td> <td>3</td> <td>3</td> <td>3</td> <td>3</td> <td>3</td> </tr> </tbody> </table> <p>(120Hz)</p>	Rated voltage (V)	10	16	25	35	50	63	80	100	Impedance ratio (max.)	Z-25°C/Z+20°C	3	2	2	2	2	2	2	Z-40°C/Z+20°C	4	3	3	3	3	3	3		
Rated voltage (V)	10	16	25	35	50	63	80	100																					
Impedance ratio (max.)	Z-25°C/Z+20°C	3	2	2	2	2	2	2																					
	Z-40°C/Z+20°C	4	3	3	3	3	3	3																					
Endurance (125°C) (Applied ripple current)	<table border="1"> <thead> <tr> <th>Test time</th> <th>1000 hours (φ6.3)</th> <th>2000 hours (φ8, φ10)</th> <th>3000 hours (63V to 100V : φ12.5)</th> <th>3500 hours (63V to 100V : φ16x16.5L, φ18x16.5L)</th> <th>4000 hours (63V to 100V : φ16x21.5L, φ18x21.5L)</th> <th>5000 hours (50V or less : φ12.5 or more)</th> </tr> </thead> <tbody> <tr> <td>Leakage current</td> <td colspan="6">The initial specified value or less</td> </tr> <tr> <td>Percentage of capacitance change</td> <td colspan="6">Within ±30% of initial value</td> </tr> <tr> <td>Tangent of loss angle</td> <td colspan="6">300% or less of the initial specified value</td> </tr> </tbody> </table>	Test time	1000 hours (φ6.3)	2000 hours (φ8, φ10)	3000 hours (63V to 100V : φ12.5)	3500 hours (63V to 100V : φ16x16.5L, φ18x16.5L)	4000 hours (63V to 100V : φ16x21.5L, φ18x21.5L)	5000 hours (50V or less : φ12.5 or more)	Leakage current	The initial specified value or less						Percentage of capacitance change	Within ±30% of initial value						Tangent of loss angle	300% or less of the initial specified value					
Test time	1000 hours (φ6.3)	2000 hours (φ8, φ10)	3000 hours (63V to 100V : φ12.5)	3500 hours (63V to 100V : φ16x16.5L, φ18x16.5L)	4000 hours (63V to 100V : φ16x21.5L, φ18x21.5L)	5000 hours (50V or less : φ12.5 or more)																							
Leakage current	The initial specified value or less																												
Percentage of capacitance change	Within ±30% of initial value																												
Tangent of loss angle	300% or less of the initial specified value																												
Shelf life (125°C)	Test time : 1000hours ; other items are same as the endurance. Voltage application treatment : According to JIS C5101-4 4.1																												
Applicable standards	JIS C5101 - 1, - 18 (IEC 60384 - 1, - 18)																												

Outline Drawing

Unit : mm



Refer to individual page.
(Soldering conditions, Land pattern size, The taping specifications)

Coefficient of Frequency for Rated Ripple Current

Frequency (Hz)	120	1k	10k	100k
Rated voltage (V)				
10 to 100	0.77	0.88	0.96	1

Product code system (*For general product)

φ6.3 (example : 10V220µF)

RS*	VTT	221	M	1L	DE7	002	U
Category code	Series code	capacitance code	Cap tol. code	Voltage code	Size code	Taping and packing code	Additional code

φ8, φ10 (example : 35V100µF)

RS*	VTT	101	M	1G	FH0	002	SU
Category code	Series code	capacitance code	Cap tol. code	Voltage code	Size code	Taping and packing code	Additional code

50V or less : φ12.5 or more (example : 35V1000µF)

RS*	VTT	102	M	1G	KU5	005	T
Category code	Series code	capacitance code	Cap tol. code	Voltage code	Size code	Taping and packing code	Additional code

63V to 100V : φ12.5 or more (example : 63V220µF)

RS*	VTT	221	M	4E	JP5	005	KT
Category code	Series code	capacitance code	Cap tol. code	Voltage code	Size code	Taping and packing code	Additional code

- If "Standard (terminal)" type is required, please see the series VVT.
- For details, refer to the various "Product Code System" pages.

Code in front of series have been extracted from product code, which describes the segment of products, such as type and features.

Standard Ratings

Rated voltage (V)	Item	10 (1L)				16 (1E)				25 (1T)				35 (1G)				50 (1U)			
		Case φD × L (mm)	ESR (Ω max.)		Rated ripple current (mArms)	Case φD × L (mm)	ESR (Ω max.)		Rated ripple current (mArms)	Case φD × L (mm)	ESR (Ω max.)		Rated ripple current (mArms)	Case φD × L (mm)	ESR (Ω max.)		Rated ripple current (mArms)	Case φD × L (mm)	ESR (Ω max.)		Rated ripple current (mArms)
			20°C	- 40°C			20°C	- 40°C			20°C	- 40°C			20°C	- 40°C			20°C	- 40°C	
10	—	—	—	—	—	—	—	—	—	—	—	—	6.3×5.8	1.0	15	114	6.3×5.8	3.2	48	58	
22	—	—	—	—	—	—	—	—	6.3×5.8	1.0	15	114	6.3×5.8	1.0	15	114	6.3×7.7	1.2	18	95	
33	—	—	—	—	6.3×5.8	1.0	15	114	6.3×5.8	1.0	15	114	6.3×7.7	0.60	9.0	165	6.3×7.7	1.2	18	95	
47	—	—	—	—	6.3×5.8	1.0	15	114	6.3×7.7	0.60	9.0	165	6.3×7.7	0.60	9.0	165	8×10	0.50	7.5	180	
100	—	—	—	—	—	—	—	—	6.3×7.7	0.60	9.0	165	8×10	0.20	2.0	340	8×10	0.20	2.0	340	
220	6.3×7.7	0.60	9.0	165	8×10	0.20	2.0	340	8×10	0.20	2.0	340	8×10	0.20	2.0	340	10×10	0.15	1.5	500	
330	8×10	0.20	2.0	340	10×10	0.15	1.5	500	10×10	0.15	1.5	500	10×10	0.15	1.5	500	10×10	0.15	1.5	500	
470	10×10	0.15	1.5	500	12.5×13.5	0.086	1.29	750	12.5×13.5	0.086	1.29	750	12.5×13.5	0.086	1.29	750	12.5×13.5	0.086	1.29	750	
680	12.5×13.5	0.086	1.29	750	12.5×13.5	0.086	1.29	750	16×16.5	0.060	0.90	1000	16×16.5	0.060	0.90	1000	16×16.5	0.060	0.90	1000	
1000	12.5×13.5	0.086	1.29	750	18×16.5	0.050	0.75	1200	18×16.5	0.050	0.75	1200	18×16.5	0.050	0.75	1200	18×16.5	0.050	0.75	1200	
2200	16×16.5	0.060	0.90	1000	18×16.5	0.050	0.75	1200	—	—	—	—	—	—	—	—	—	—	—	—	
3300	18×16.5	0.050	0.75	1200	18×21.5	0.042	0.63	1550	—	—	—	—	—	—	—	—	—	—	—	—	
4700	18×21.5	0.042	0.63	1550	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	

Rated voltage (V)	Item	63 (4E)				80 (1R)				100 (1H)			
		Case φD × L (mm)	ESR (Ω max.)		Rated ripple current (mArms)	Case φD × L (mm)	ESR (Ω max.)		Rated ripple current (mArms)	Case φD × L (mm)	ESR (Ω max.)		Rated ripple current (mArms)
			20°C	- 40°C			20°C	- 40°C			20°C	- 40°C	
10	—	—	—	—	8×10	0.75	15	110	8×10	0.75	15	110	
22	8×10	0.70	14	140	8×10	0.75	15	110	8×10	0.75	15	110	
33	8×10	0.70	14	140	10×10	0.55	11	150	10×10	0.55	11	150	
47	8×10	0.70	14	140	8×10	0.75	15	110	10×10	0.55	11	150	
100	12.5×13.5	0.25	3.75	400	10×10	0.55	11	150	—	—	—	—	
220	16×16.5	0.22	3.3	500	16×16.5	0.24	3.6	480	12.5×13.5	0.32	4.8	300	
330	16×16.5	0.22	3.3	500	16×21.5	0.18	2.7	600	16×16.5	0.24	3.6	480	
470	16×21.5	0.16	2.4	650	18×21.5	0.12	1.8	1000	16×16.5	0.24	3.6	480	
					—	—	—	—	18×21.5	0.16	2.4	700	
					—	—	—	—	—	—	—	—	
					—	—	—	—	—	—	—	—	

(Note) Rated ripple current : 125°C , 100kHz
ESR : 100kHz