



CLS Series

• 125°C 2,000Hrs assured.

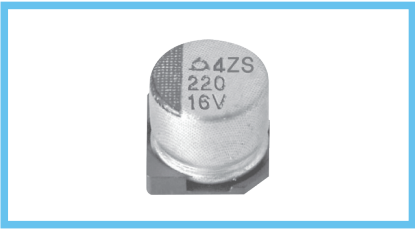
Solvent-proof

- Vertical SMD type.
- Wide Temp., Low ESR.
- Suitable to fit for automotive equipment.
- RoHS compliant.
- Halogen-free capacitors are also available.

CLX

Low ESR

CLS



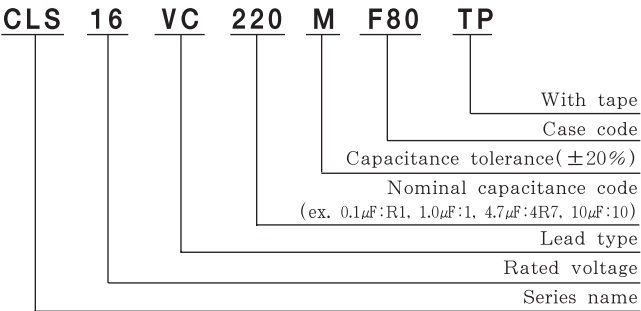
• AEC-Q200 compliant : Please contact us for more details, test data, information.

SPECIFICATIONS

Item	Characteristics																		
Rated Voltage Range	10 ~ 50 V _{DC}																		
Operating Temperature Range	-40 ~ +125 °C																		
Capacitance Tolerance	±20%(M) (at 20°C, 120Hz)																		
Leakage Current	I=0.01CV(μA) or 3μA, whichever is greater. Where, I:Max. Leakage current(μA) C:Nominal capacitance(μF) V:Rated voltage(V _{DC}) (at 20°C, 2 minutes)																		
Dissipation Factor(Tanδ)	<table><tr><td>Rated voltage(V_{DC})</td><td>10</td><td>16</td><td>25</td><td>35</td><td>50</td></tr><tr><td>Tanδ(Max.)</td><td>0.30</td><td>0.23</td><td>0.18</td><td>0.16</td><td>0.16</td></tr></table> (at 20°C, 120Hz)	Rated voltage(V _{DC})	10	16	25	35	50	Tanδ(Max.)	0.30	0.23	0.18	0.16	0.16						
Rated voltage(V _{DC})	10	16	25	35	50														
Tanδ(Max.)	0.30	0.23	0.18	0.16	0.16														
Temperature Characteristics (Max. Impedance ratio)	<table><tr><td>Rated voltage(V_{DC})</td><td>10</td><td>16</td><td>25</td><td>35</td><td>50</td></tr><tr><td>Z(-25°C)/Z(20°C)</td><td>3</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></tr></table> (at 120Hz)	Rated voltage(V _{DC})	10	16	25	35	50	Z(-25°C)/Z(20°C)	3	2	2	2	2	Z(-40°C)/Z(20°C)	4	3	3	3	3
Rated voltage(V _{DC})	10	16	25	35	50														
Z(-25°C)/Z(20°C)	3	2	2	2	2														
Z(-40°C)/Z(20°C)	4	3	3	3	3														
Load Life	The following specifications shall be satisfied when the capacitors are restored to 20°C after the rated voltage is applied for 2,000 hours at 125°C. Capacitance change ≤ ±30% of the initial value Tan δ ≤ 300% of the initial specified value Leakage current ≤ The initial specified value																		
Shelf Life	The following specifications shall be satisfied when the capacitors are restored to 20°C after exposing them for 1,000 hours at 125°C without voltage applied. The rated voltage shall be applied to the capacitors for a minimum of 30 minutes, at least 24 hours and not more than 48 hours before the measurements. Capacitance change ≤ ±30% of the initial value Tan δ ≤ 300% of the initial specified value Leakage current ≤ The initial specified value																		
Others	Satisfied characteristics KS C IEC 60384-4																		

CLS Series

PART NUMBERING SYSTEM



RATED RIPPLE CURRENT MULTIPLIERS

Frequency Multipliers

Cap.(μF)	Freq.(Hz)	120	1K	10K	100K
47 ~ 150		0.40	0.75	0.90	1.00
220 ~ 470		0.50	0.85	0.94	1.00

DIMENSIONS OF CLS Series

Unit(mm)

DIMENSIONS

● Vibration Resistance

<Size code:F80~J10> <Size code:H10~J10>

①: Dummy terminals

Recommended solder land on PC board

■: Solder land on PC board

MARKING

Note 1 : L±0.5 for 8×10(H10)~10×10(J10)

Case code	∅D	L	A	B	C	W	P	a	b	c	a	b	c
F80	6.3	7.7	6.6	6.6	7.2	0.5~0.8	1.9	1.9	3.5	1.6			
H10	8	10	8.3	8.3	9.0	0.7~1.1	3.1	3.1	4.2	2.2	3.1	4.2	3.5
J10	10	10	10.3	10.3	11.0	0.7~1.1	4.5	4.5	4.4	2.2	4.5	4.4	3.5

● Vibration Resistance

RATINGS OF CLS Series

WV (V _{DC})	Cap.(μF)	Case code	ESR(Ω max./100kHz)		Rated Ripple Current (mA _{rms} / 125°C, 100kHz)
			20°C	-40°C	
10	220	H10	0.150	3.0	350
	330	H10	0.150	3.0	350
		J10	0.120	2.0	550
	470	J10	0.120	2.0	550
16	220	F80	0.300	3.0	240
		H10	0.150	3.0	350
	330	H10	0.150	3.0	350
	470	J10	0.120	2.0	550
25	150	F80	0.300	3.0	240
	220	H10	0.150	3.0	350
	330	J10	0.120	2.0	550
35	47	F80	0.300	3.0	240
	68	F80	0.300	3.0	240
	100	F80	0.300	3.0	240
		H10	0.150	3.0	350
	220	J10	0.120	2.0	550
50	100	H10	0.360	5.4	320
	150	J10	0.300	4.5	500