CLZ Series

• 125℃ 1,000~5,000Hrs assured.

Solvent-proof

WV ≦ 80VDC

- Vertical SMD type.
- LOW ESR of CLA Series
- For ECU, ESA
- RoHS compliant.
- Halogen-free capacitors are also available.

CLA → CLZ

Low ESR.

SPECIFICATIONS

Item	Characteristics
Rated Voltage Range	10 ~ 400 VDC
Operating Temperature Range	-40 ~ +125℃
Capacitance Tolerance	±20%(M)
Leakage Current	Rated voltage(VDC): 10~80 / 160~400 Max. Leakage current (μA): I=0.01CV(μA) or 3μA, whichever is greater. (at 20℃, 2 minutes) / 0.04CV + 100(μA) (at 20℃, 2 minutes) Where, C : Nominal capacitance(μF), V : Rated voltage(VDC)
Disspation Factor (Tanδ)	Rated voltage(VDC): 10 / 16 / 25 / 35 / 50~80 / 160~250 / 400 Tanδ(Max.): 0.22 / 0.19 / 0.16 / 0.14 / 0.12 / 0.20 / 0.24 (at 20℃, 120Hz)
Temperature Characteristics (Max. Impedance ratio)	Rated voltage(VDC): 10 / 16 / 25 / 35~80 / 160~250 / 400 Z(-25℃)/Z(+20℃): 4 / 3 / 2 / 2 / 3 / 6 Z(-40℃)/Z(+20℃): 8 / 6 / 4 / 3 / 6 / 10 (at 120Hz)
Load Life	The following specifications shall be satisfied when the capacitors are restored to 20℃ after the rated voltage is applied for the specified time at 125℃ Capacitance change ≦ ±30% of the initial value Tanδ ≦ 300% of the initial specified value Leakage current ≦ The initial specified value Case Code: D55~F60 — 10~80V: 1,000Hrs, 160~400V: -; H63 — 3,000Hrs, -; H10, J10 — 5,000Hrs, -; J10~M22 — 5,000Hrs, 2,000Hrs
Shelf Life	The following specifications shall be satisfied when the capacitors are restored to 20℃ after exposing them for 1,000 hours at 125℃ 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. (Where, D55 ~ F60 is 500 hours) Capacitance change ≦ ±30% of the initial value Tanδ ≦ 300% of the initial specified value Leakage current ≦ The initial specified value
Others	Satisfied characteristics KS C IEC 60384-4

PART NUMBERING SYSTEM

CLZ 16 VC 330 M J10 TP

- TP — With tape
- J10 — Case code
- M — Capacitance tolerance(±20%)
- 330 — Nominal capacitance code
- VC — Lead type
- 16 — Rated voltage in volts
- CLZ — Series name

Capacitance	Code
0.1μF	R1
0.47μF	R47
1.0μF	1
4.7μF	4R7
10μF	10
100μF	100

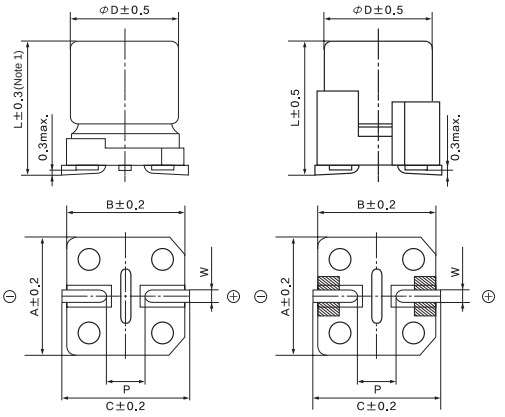
DIMENSIONS OF CLZ Series (Type : VC)

Unit(mm)

DIMENSIONS

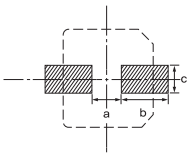
● Vibration Resistance

〈Size code:H63~M22〉 〈Size code:L17~M22〉



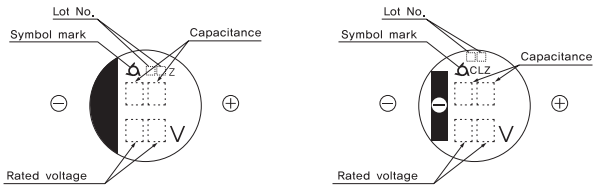
▨ : Dummy terminals

Recommended solder land on PC board



▨ : Solder pad on PC board

MARKING



〈D55~J10〉 〈K14~M22〉

Note 1 : L±0.5 for 8×6.3(H63)~18×21.5(M22)
Note 2 : 4×5.2(D55), 5×5.2(E55)is excluded symbol mark

Case code	ØD	L	A	B	C	W	P	a	b	c	a	b	c
D55	4	5.2	4.3	4.3	5.1	0.5~0.8	1.0	1.0	2.6	1.6			
E55	5	5.2	5.3	5.3	5.9	0.5~0.8	1.4	1.4	3.0	1.6			
F55	6.3	5.2	6.6	6.6	7.2	0.5~0.8	1.9	1.9	3.5	1.6			
F60	6.3	5.7	6.6	6.6	7.2	0.5~0.8	1.9	1.9	3.5	1.6			
H63	8	6.3	8.3	8.3	9.0	0.5~0.8	2.3	2.3	4.5	1.6			
H10	8	10	8.3	8.3	9.0	0.7~1.1	3.1	3.1	4.2	2.2			
J10	10	10	10.3	10.3	11.0	0.7~1.1	4.5	4.5	4.4	2.2			
K14	12.5	13.5	13.0	13.0	13.7	1.0~1.3	4.2	4.0	5.7	2.5			
L17	16	16.5	17.0	17.0	18.0	1.0~1.3	6.5	6.0	6.9	2.5	4.7	7.8	9.6
L22	16	21.5	17.0	17.0	18.0	1.0~1.3	6.5	6.0	6.9	2.5			
M17	18	16.5	19.0	19.0	20.0	1.0~1.3	6.5	6.0	7.9	2.5	4.7	8.8	9.6
M22	18	21.5	19.0	19.0	20.0	1.0~1.3	6.5	6.0	7.9	2.5			

● Vibration Resistance

RATINGS OF CLZ Series

VDC / μF	10			16			25			35			50			63			80		
10				D55	7.00	12	E55	3.30	23	F60	1.60	69	F60	2.80	51	H63	2.00	60	H10	1.20	70
22	E55	3.30	23	E55	3.30	23	F55	2.00	40	F60	1.60	69	H63	1.60	83	H10	1.00	70	J10	0.55	115
33	E55	3.30	23	F55	2.00	40	F60	1.60	69	H63	0.90	110	H10	0.70	160	J10	0.55	115	J10	0.55	115
47	F55	2.00	40	F60	1.60	69	H63	0.90	110	H10	0.40	220	J10	0.50	247	J10	0.55	115	K14	0.33	450
100	H63	0.90	110	H63	0.90	110	H10	0.40	220	H10	0.40	220	J10	0.50	247	K14	0.33	450	L17	0.24	650
220	H10	0.40	220	H10	0.40	220	J10	0.30	296	J10	0.30	296	K14	0.23	550	L17	0.24	650	M17	0.16	950
330	J10	0.30	296	J10	0.30	296	K14	0.14	750	K14	0.14	750	L17	0.15	850	L17	0.24	650			
470	J10	0.30	296	K14	0.14	750	L17	0.10	1000	M17	0.10	1000	M17	0.15	920	L22	0.16	950			
1,000	K14	0.14	750	M17	0.10	1200	M22	0.058	1550												
2,200	L17	0.10	1000																		
3,300	M17	0.10	1200																		
4,700	M22	0.058	1550																		

Rated Ripple Current (mArms/125℃, 100kHz)
ESR (Ω max./ 20℃, 100kHz)
Case code

VDC / μF	160		200		250		400	
1							J10	18
2.2							J10	26
3.3							J10	37
4.7							K14	70
10	K14	100	K14	100	L17	120	L22	140
22	L17	180	L17	180	M17	205		
33	M17	245	M17	245	M22	260		
47	M22	315	M22	315				
68	M22	380						

Rated Ripple Current (mArms/125℃, 120Hz)
Case code