ALUMINUM ELECTROLYTIC CAPACITORS

nichicon

NEW

CX

Chip Type, High Reliability
Low temperature ESR specification
series

For SMD | Low Impedance | Anti-Solvent Feature

- Chip type, high temperature range, for +135°C use.
- Added ESR specification after the test at -40°C.
- Applicable to automatic mounting machine fed with carrier tape.
- Compliant to the RoHS directive (2011/65/EU).

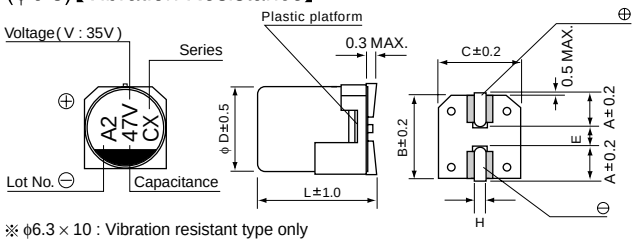
CX
High Temperature
CZ

■Specifications

Item	Performance Characteristics
Category Temperature Range	–40 to +135°C
Rated Voltage Range	10 to 50V
Rated Capacitance Range	47 to 3300μF
Capacitance Tolerance	±20% at 120Hz, 20°C
Leakage Current	After 2 minutes' application of rated voltage, leakage current is not more than 0.01CV or 3(μA), whichever is greater.
Tangent of loss angle (tan δ)	Rated voltage (V): 10 / 16 / 25 / 35 / 50 — tan δ (MAX.): 0.30 / 0.23 / 0.18 / 0.16 / 0.16 — Measurement frequency : 120Hz at 20°C
Stability at Low Temperature	Rated voltage (V): 10 / 16 / 25 / 35 / 50 — Impedance ratio ZT / Z20 (MAX.) Z–40°C / Z+20°C: 12 / 8 / 6 / 4 / 4 — Measurement frequency : 120Hz
Endurance	The specifications listed at right shall be met when the capacitors are restored to 20°C after the rated voltage is applied for 2000 hours at 135°C. — Capacitance Change: Within ± 30% of the initial capacitance value; tan δ: 300% or less than the initial specified value; Leakage current: Less than or equal to the initial specified value
Shelf Life	After storing the capacitors under no load at 135°C for 1000 hours and then performing voltage treatment based on JIS C 5101-4 clause 4.1 at 20°C, they shall meet the specified values for the endurance characteristics listed above.
Resistance to soldering heat	The capacitors shall be kept on the hot plate for 30 seconds, which is maintained at 250°C. The capacitors shall meet the characteristic requirements listed at right when they are removed from the plate and restored to 20°C. — Capacitance Change: Within ±10% of the initial capacitance value; tan δ: Less than or equal to the initial specified value; Leakage current: Less than or equal to the initial specified value
Marking	Black print on the case top.

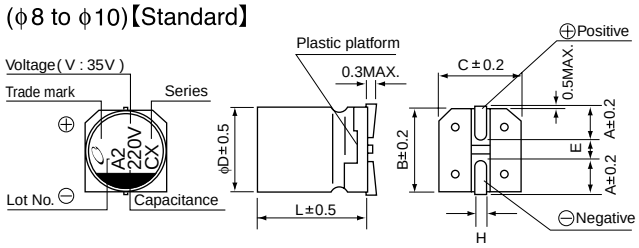
■Radial Lead Type

(φ6.3)【Vibration Resistance】

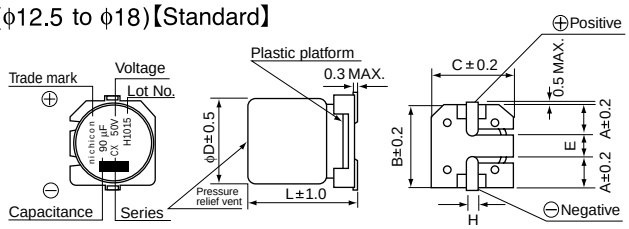


※ φ6.3 × 10 : Vibration resistant type only

(φ8 to φ10)【Standard】



(φ12.5 to φ18)【Standard】



Type numbering system (Example : 35V 47μF)

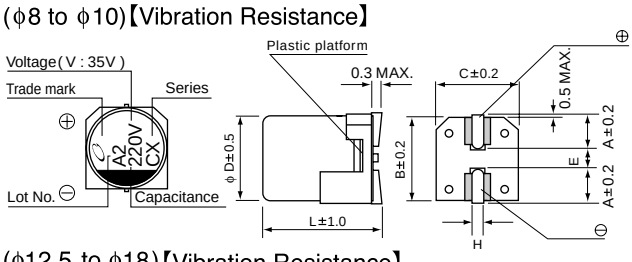
1	2	3	4	5	6	7	8	9	10	11	12	13	14
U	C	X	1	V	4	7	0	M	C	L	1	G	S

- 1–3: Type
- 4–5: Series name
- 6–8: Rated voltage (35V)
- 9: Rated capacitance (47μF)
- 10: Capacitance tolerance (±20%)
- 11–12: Configuration ※
- 13–14: Size code
- Package code

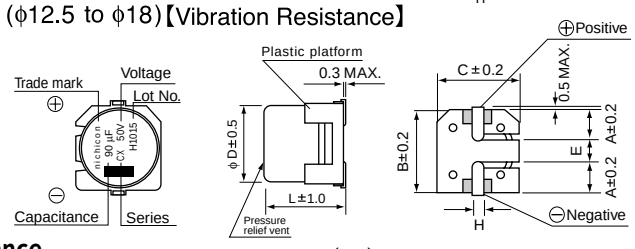
※ Configuration

Configuration	Code
Standard	CL(φ10 or less) NQ(φ12.5 or more)
Vibration Resistance	CS(φ10 or less) NS(φ12.5 or more)

(φ8 to φ10)【Vibration Resistance】



(φ12.5 to φ18)【Vibration Resistance】



Standard (mm)

φDXL	8×10	10×10	12.5×13.5	16×16.5, 21.5	18×16.5, 21.5
A	2.9	3.2	4.8	5.4	6.4
B	8.3	10.3	13.6	17.1	19.1
C	8.3	10.3	13.6	17.1	19.1
E	3.1	4.5	4	6.3	6.3
L	10	10	13.5	16.5, 21.5	16.5, 21.5
H	0.8 to 1.1	0.8 to 1.1	1.0 to 1.4	1.0 to 1.4	1.0 to 1.4

Vibration Resistance (mm)

φDXL	6.3×10	8×10	10×10	12.5×13.5	16×16.5, 21.5	18×16.5, 21.5
A	2.4	2.9	3.2	4.8	5.4	6.4
B	6.6	8.3	10.3	13.6	17.1	19.1
C	6.6	8.3	10.3	13.6	17.1	19.1
E	2.2	3.1	4.5	4	6.3	6.3
L	10.8	10	10	13.5	16.5, 21.5	16.5, 21.5
H	0.5 to 0.8	1.1 to 1.5	1.1 to 1.5	1.0 to 1.4	1.0 to 1.4	1.0 to 1.4

Aid electrode

Rated Voltage

V	10	16	25	35	50
Code	A	C	E	V	H

● Dimension table in next page.

CX series

■Dimensions

Cap.(μF) \ V	Code	10	16	25	35	50
		1A	1C	1E	1V	1H
47	470				●6.3 × 10 0.25 4 15 197 8 × 10 0.20 3 12 270	8 × 10 0.25 3.5 15 270
68	680				8 × 10 0.20 3 12 270	
100	101		●6.3 × 10 0.25 4 15 197 8 × 10 0.20 3 12 270	8 × 10 0.20 3 12 270	●6.3 × 10 0.25 4 15 197 8 × 10 0.20 3 12 270	10 × 10 0.2 2.5 12 500
220	221	8 × 10 0.20 3 12 270	8 × 10 0.20 3 12 270	10 × 10 0.15 2 10 500	10 × 10 0.15 2 10 500	
330	331	● 8 × 10 0.20 3 12 270 10 × 10 0.15 2 10 500	10 × 10 0.15 2 10 500	10 × 10 0.15 2 10 500		
390	391					12.5 × 13.5 0.09 1.3 6.5 750
470	471	10 × 10 0.15 2 10 500	10 × 10 0.15 2 10 500		12.5 × 13.5 0.07 1.0 5.0 750	16 × 16.5 0.07 0.70 3.5 1000
560	561				12.5 × 13.5 0.07 1.0 5.0 750	16 × 16.5 0.07 0.70 3.5 1000
680	681				12.5 × 13.5 0.07 1.0 5.0 750	18 × 16.5 0.07 0.70 3.5 1200
820	821			12.5 × 13.5 0.07 1.0 5.0 750	16 × 16.5 0.05 0.50 2.5 1200	18 × 16.5 0.07 0.70 3.5 1200
1000	102			12.5 × 13.5 0.07 1.0 5.0 750	16 × 16.5 0.05 0.50 2.5 1200	16 × 21.5 0.05 0.40 2.0 1600
1200	122			16 × 16.5 0.05 0.50 2.5 1200	18 × 16.5 0.05 0.50 2.5 1400	18 × 21.5 0.04 0.32 1.6 1900
1500	152			16 × 16.5 0.05 0.50 2.5 1200	●16 × 21.5 0.04 0.32 1.6 1900 18 × 16.5 0.05 0.50 2.5 1400	
1800	182			16 × 16.5 0.05 0.50 2.5 1200	18 × 21.5 0.035 0.28 1.4 2200	
2200	222			18 × 16.5 0.05 0.50 2.5 1400	18 ×21.5 0.035 0.28 1.4 2200	Case size ΦDXL (mm) / Initial ESR 20°C / Initial ESR -40°C / After endurance test 1000hours -40°C / Rated ripple
2700	272			16 × 21.5 0.04 0.32 1.6 1900		
3300	332			18 × 21.5 0.035 0.28 1.4 2200		

MAX. ESR (Ω) at 20°C / -40°C 100kHz, Rated ripple current(mArms) at 135°C 100kHz

●In this case, 6 will be put at 12th digit of type numbering system.

●Frequency coefficient of rated ripple current

Frequency	50Hz	120Hz	300Hz	1kHz	10kHz or more
Coefficient	0.35	0.50	0.64	0.83	1.00

- Taping specifications are given in page 23.
- Recommended land size, soldering by refrow are given in page 18, 19.
- Please refer to page 3 for the minimum order quantity.