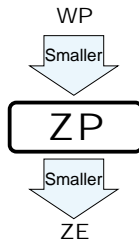


# ALUMINUM ELECTROLYTIC CAPACITORS

**ZP** series 4.5mmL Chip Type, Bi-Polarized



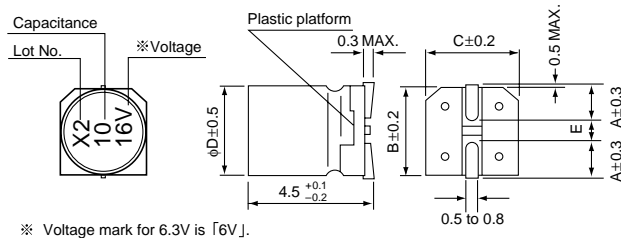
- Chip type with 4.5mm height.
- Designed for surface mounting on high density PC board.
- Applicable to automatic mounting machine using carrier tape.
- Adapted to the RoHS directive (2002/95/EC).



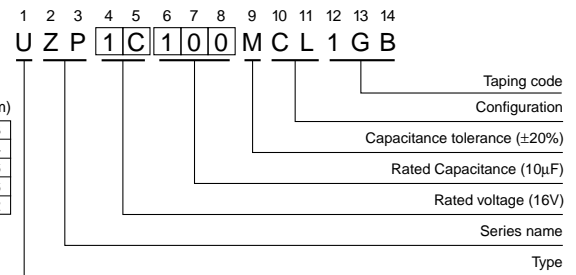
## Specifications

Item	Performance Characteristics						
Category Temperature Range	-40 to +85°C						
Rated Voltage Range	6.3 to 50V						
Rated Capacitance Range	0.1 to 47μF						
Capacitance Tolerance	±20% at 120Hz, 20°C						
Leakage Current	After 2 minutes' application of rated voltage, leakage current is not more than 0.05 CV or 10 (μA) , whichever is greater.						
tan δ	Measurement frequency : 120Hz, Temperature : 20°C						
	Rated voltage (V)	6.3	10	16	25	35	50
Stability at Low Temperature	Measurement frequency : 120Hz						
	Rated voltage (V)	6.3	10	16	25	35	50
	Impedance ratio ZT / Z20 (MAX.)	Z-25°C / Z+20°C	4	3	2	2	2
Endurance	After 2000 hours' application of rated voltage at 85°C with the polarity inverted every 250 hours, capacitors meet the characteristic requirements listed at right.						
	Capacitance change	Within ±20% of initial value					
	tan δ	300% or less of initial specified value					
Shelf Life	After 2000 hours' application of rated voltage at 85°C with the polarity inverted every 250 hours, capacitors meet the characteristic requirements listed at right.						
	Capacitance change	Within ±10% of initial value					
	tan δ	Initial specified value or less					
Resistance to soldering heat	The capacitors shall be kept on the hot plate maintained at 250°C for 30 seconds. After removing from the hot plate and restored at room temperature, they meet the characteristic requirements listed at right.						
	Capacitance change	Within ±10% of initial value					
	tan δ	Initial specified value or less					
Marking	Black print on the case top.						

## Chip Type



## Type numbering system (Example : 16V 10μF)



## Dimensions

Cap. (μF)	Code	V		6.3		10		16		25		35		50	
		0J	1A	1C	1E	1V	1H								
0.1	0R1													4	1.0
0.22	R22													4	2.0
0.33	R33													4	2.8
0.47	R47													4	4.0
1	010													4	8.4
2.2	2R2													4	13
3.3	3R3													5	17
4.7	4R7							4	12	5	16	5	18	6.3	20
10	100			4	17	5	23	6.3	27	6.3	29				
22	220	5	28	6.3	33	6.3	37								
33	330	6.3	37	6.3	41	6.3	49								
47	470	6.3	45												

Rated Ripple (mArms) at 85°C 120Hz

## Frequency coefficient of rated ripple current

Frequency	50 Hz	120 Hz	300 Hz	1 kHz	10 kHz or more
Coefficient	0.70	1.00	1.17	1.36	1.50

- Taping specifications are given in page 23.
- Recommended land size, soldering by reflow are given in page 18, 19.
- Please select WP(p.63), UN(p.93) series if high C/V products are required.
- Please refer to page 3 for the minimum order quantity.