

# ZP

4.5mmL Chip Type, Bi-Polarized  
series



For SMD



Smaller

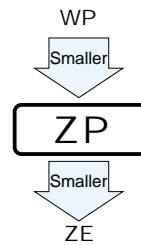


Bi-polarized



Anti-Solvent Feature

- Chip type with 4.5mm height.
- Designed for surface mounting on high density PC board.
- Applicable to automatic mounting machine fed with carrier tape.
- Compliant to the RoHS directive (2011/65/EU).

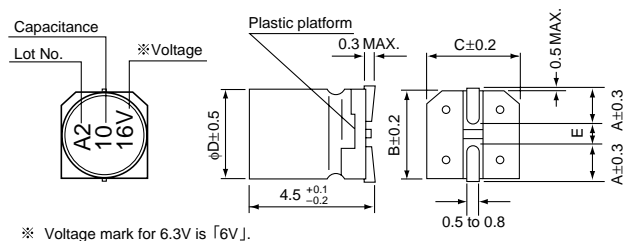


## Specifications

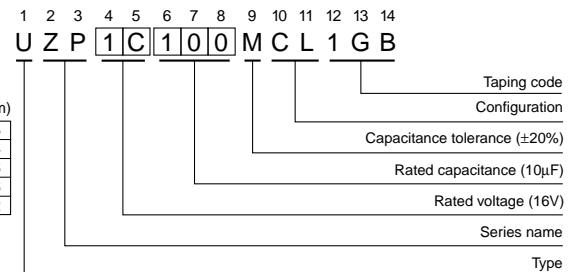
Item	Performance Characteristics							
Category Temperature Range	−40 to +85°C							
Rated Voltage Range	6.3 to 50V							
Rated Capacitance Range	0.1 to 47μF							
Capacitance Tolerance	± 20% at 120Hz, 20°C							
Leakage Current	After 2 minutes' application of rated voltage, leakage current is not more than 0.05 CV or 10 (μA) , whichever is greater.							
Tangent of loss angle (tan δ)	Measurement frequency : 120Hz at 20°C							
	Rated voltage (V)	6.3	10	16	25	35	50	
	tan δ (MAX.)	0.30	0.24	0.20	0.18	0.16	0.16	
Stability at Low Temperature	Measurement frequency : 120Hz							
	Rated voltage (V)		6.3	10	16	25	35	50
	Impedance ratio	Z−25°C / Z+20°C	4	3	2	2	2	2
	ZT / Z20 (MAX.)	Z−40°C / Z+20°C	8	8	4	4	3	3
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 85°C with the polarity inverted every 250 hours.			Capacitance change		Within ±20% 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 85°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 are kept on a 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.							

## Chip Type

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



※ Voltage mark for 6.3V is 「6V」.



## Dimensions

V		6.3	10	16	25	35	50
Cap. (μF)	Code	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 8.4	5 13
3.3	3R3				5 12	5 16	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 current (mA<sub>RMS</sub>) 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.120), UN(p.166) series if high C/V products are required.
- Please refer to page 3 for the minimum order quantity.