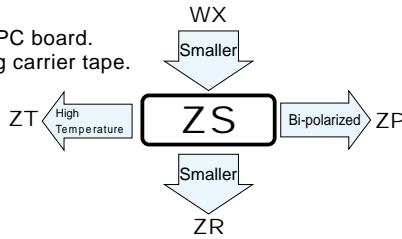


ZS 4.5mmL Chip Type
series



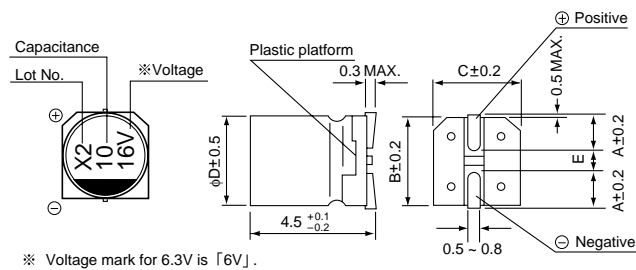
- Chip type with 4.5mm height.
- Designed for surface mounting on high density PC board.
- Applicable to automatic mounting machine using carrier tape.
- Adapted to the RoHS directive (2002/95/EC).



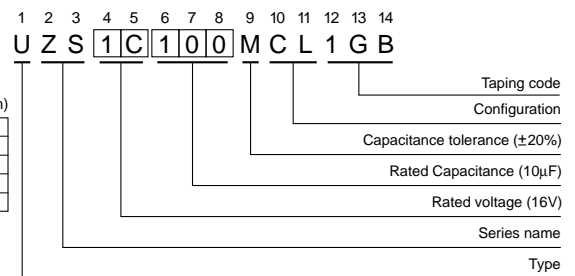
Specifications

Item	Performance Characteristics								
Category Temperature Range	-40 ~ + 85°C								
Rated Voltage Range	4 ~ 50V								
Rated Capacitance Range	0.1 ~ 220μF								
Capacitance Tolerance	±20% at 120Hz, 20°C								
Leakage Current	After 2 minutes' application of rated voltage, leakage current is not more than 0.01 CV or 3 (μA) ,whichever is greater.								
tan δ	Measurement frequency : 120Hz, Temperature : 20°C								
	Rated voltage (V)	4	6.3	10	16	25	35	50	
	tan δ (MAX.)	0.50	0.30	0.24	0.19	0.16	0.14	0.14	
Stability at Low Temperature	Measurement frequency : 120Hz								
	Rated voltage (V)		4	6.3	10	16	25	35	50
	Impedance ratio	Z-25°C / Z+20°C	7	4	3	2	2	2	2
	ZT / Z20 (MAX.)	Z-40°C / Z+20°C	15	8	8	4	4	3	3
Endurance	After 2000 hours' application of rated voltage at 85°C,capacitors meet the characteristics requirements listed at right.				Capacitance change		Within ±20% of initial value		
					tan δ		200% or less of initial specified value		
					Leakage current		Initial specified value or less		
Shelf Life	After storing the capacitors under no load at 85°C for 1000 hours, and after performing voltage treatment based on JIS C 5101-4 clause 4.1 at 20°C, they will meet the specified value for endurance characteristics listed above.								
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		
					Leakage current		Initial specified value or less		
Marking	Black print on the case top.								

Chip Type



Type numbering system (Example : 16V 10μF)



Dimensions

V		4	6.3	10	16	25	35	50
Cap. (μF)	Code	0G	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							4 17
4.7	4R7					4 16	4 18	5 20
10	100				4 23	5 27	5 29	6.3 33
22	220		4 28	5 33	5 37	6.3 42	6.3 46	
33	330	4 28	5 37	5 41	6.3 49	6.3 52		
47	470	4 33	5 45	6.3 52	6.3 58			
100	101	5 56	6.3 70					
220	221	6.3 96						

Rated Ripple (mArms) at 85°C 120Hz

Frequency coefficient of rated ripple current

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

- Taping specifications are given in page 24.
- Recommended land size, soldering by reflow are given in page 25, 26.
- Please select UR(p.70), UG(p.75) series if high C/V products are required.
- Please refer to page 3 for the minimum order quantity.

CAT.8100V