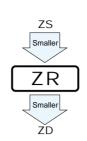
ZR 3.95mmL MAX. Chip Type







- Chip type with 3.95mmLMAX 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).



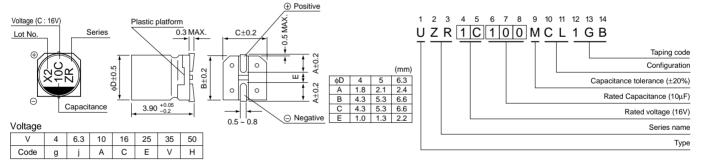


■Specifications

Performance Characteristics										
−40 ~ +85°C										
4 ~ 50V										
0.1 ~ 220µF										
±20% at 120Hz, 20°C										
After 2 minutes' application of rated voltage, leakage current is not more than 0.01 CV or 3 (μA) , whichever is greater.										
Rated vo	ltage(V)	4	6.3	10	16	25	35	50	120Hz 20°C	
tan δ (MAX.)		0.50	0.30	0.24	0.19	0.16	0.14	0.14		
Rated voltage (V)		4	6.3	10	16	25	35	50	120Hz	
Impedance ratio ZT / Z20 (MAX.)	Z-25°C / Z+20°C	7	4	3	2	2	2	2	7	
	Z-40°C / Z+20°C	15	8	8	4	4	3	3		
Capacitance change Within ±30% of initial value										
After 1000 hours' application of rated voltage at 85°C, capacitors meet the characteristic requirements listed at right. tan δ 300% or less of initial specified value Leakage current Initial specified value or less										
									ess	
								ent based on .	IIS C 5101-4 clause	
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 $\pm 10\%$ of initial value $\tan \delta$ Initial specified value or less Leakage current Initial specified value or less									of initial value	
									ed value or less	
									ed value or less	
Black print on the case top.										
	4 ~ 50V 0.1 ~ 220μF ±20% at 120Hz After 2 minutes' Rated vo tan δ (Rated vol Impedance ratio ZT / Z20 (MAX.) After 1000 hour meet the charact 4.1 at 20°C, the The capacitors seconds. After they meet the c	4 ~ 50V 0.1 ~ 220μF ±20% at 120Hz, 20°C After 2 minutes' application of rance Rated voltage (V) tan δ (MAX.) Rated voltage (V) Impedance ratio Z-25°C / Z+20°C ZT / Z20 (MAX.) After 1000 hours' application of meet the characteristic requirem After storing the capacitors und 4.1 at 20°C, they will meet the seconds. After removing from they meet the characteristic requirem	$\begin{array}{l} 4 \sim 50 V \\ 0.1 \sim 220 \mu F \\ \pm 20 \% \ at \ 120 Hz, \ 20 °C \\ \text{After 2 minutes' application of rated voltage} \\ \text{Rated voltage (V)} \\ \text{tan } \delta \ (\text{MAX.}) \\ \text{O.50} \\ \text{Rated voltage (V)} \\ \text{Impedance ratio} \\ \text{ZT / Z20 (MAX.)} \\ \hline \text{Z-40 °C / Z+20 °C} \\ \text{7} \\ \hline \text{Z-40 °C / Z+20 °C} \\ \text{15} \\ \text{After 1000 hours' application of rated voltage} \\ meet the characteristic requirements listed at 4.1 at 20 °C, they will meet the specified val the capacitors shall be kept on the hot plate seconds. After removing from the hot plate they meet the characteristic requirements listed at 4.1 at 20 °C, they will meet the specified val they meet the characteristic requirements listed at 4.2 °C ~C ~C$	-40 ~ +85°C 4 ~ 50V 0.1 ~ 220μF ±20% at 120Hz, 20°C After 2 minutes' application of rated voltage, leakage of tan δ (MAX.) Rated voltage (V) 4 6.3 tan δ (MAX.) 0.50 0.30 Rated voltage (V) 4 6.3 Impedance ratio Z-25°C / Z+20°C Z-40°C / Z+20°C After 1000 hours' application of rated voltage at 85°C, of meet the characteristic requirements listed at right. After storing the capacitors under no load at 85°C for 104.1 at 20°C, they will meet the specified value for endur. The capacitors shall be kept on the hot plate maintained seconds. After removing from the hot plate and restore they meet the characteristic requirements listed at right.	-40 ~ +85°C 4 ~ 50V 0.1 ~ 220μF ±20% at 120Hz, 20°C After 2 minutes' application of rated voltage, leakage current is not tan δ (MAX.) tan δ (MAX.) 0.50 0.30 0.24 Rated voltage (V) 4 6.3 10 Impedance ratio Z-25°C / Z+20°C 7 4 3 Z-1 / Z20 (MAX.) After 1000 hours' application of rated voltage at 85°C, capacitors meet the characteristic requirements listed at right. After storing the capacitors under no load at 85°C for 1000 hours, 4.1 at 20°C, they will meet the specified value for endurance characteristic requirements listed at right.	$-40 \sim +85^{\circ}\text{C}$ $4 \sim 50\text{V}$ $0.1 \sim 220\mu\text{F}$ $\pm 20\% \text{ at } 120\text{Hz}, 20^{\circ}\text{C}$ After 2 minutes' application of rated voltage, leakage current is not more than 0 Rated voltage (V) $4 \qquad 6.3 \qquad 10 \qquad 16$ $\tan \delta \text{ (MAX.)} \qquad 0.50 \qquad 0.30 \qquad 0.24 \qquad 0.19$ Rated voltage (V) $4 \qquad 6.3 \qquad 10 \qquad 16$ Impedance ratio $Z = \frac{Z-25^{\circ}\text{C}}{Z+20^{\circ}\text{C}} \qquad 7 \qquad 4 \qquad 3 \qquad 2$ $Z = \frac{Z-25^{\circ}\text{C}}{Z+20^{\circ}\text{C}} \qquad 15 \qquad 8 \qquad 8 \qquad 4$ After 1000 hours' application of rated voltage at 85°C, capacitors meet the characteristic requirements listed at right. Capacitance tan δ Leakage cur After storing the capacitors under no load at 85°C for 1000 hours, and after perf 4.1 at 20°C, they will meet the specified value for endurance characteristics listed. 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.	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	$-40 \sim +85^{\circ}\text{C}$ $4 \sim 50\text{V}$ $0.1 \sim 220\mu\text{F}$ $\pm 20\% \text{ at } 120\text{Hz}, 20^{\circ}\text{C}$ After 2 minutes' application of rated voltage, leakage current is not more than 0.01 CV or 3 (μ A) , which the standard voltage (V) and the standard voltage (V) by the standard voltage (V) and the standard voltage (V) by	$-40 \sim +85^{\circ}\text{C}$ $4 \sim 50\text{V}$ $0.1 \sim 220 \mu\text{F}$ $\pm 20\% \text{ at } 120\text{Hz}, 20^{\circ}\text{C}$ After 2 minutes' application of rated voltage, leakage current is not more than 0.01 CV or 3 (μ A), whichever is great Rated voltage(V) $4 \qquad 6.3 \qquad 10 \qquad 16 \qquad 25 \qquad 35 \qquad 50$ $\tan \delta \text{ (MAX.)} \qquad 0.50 \qquad 0.30 \qquad 0.24 \qquad 0.19 \qquad 0.16 \qquad 0.14 \qquad 0.14$ Rated voltage (V) $4 \qquad 6.3 \qquad 10 \qquad 16 \qquad 25 \qquad 35 \qquad 50$ $\lim_{1000000000000000000000000000000000000$	







■Dimensions

	V		4	6	.3	1	0	1	16	2	25	3	5	5	0
Cap. (µF)	Code	0	G	0	J	1	A	1	С	1	E	1	V	1	Н
0.1	0R1						!							4	1.0
0.22	R22		İ				i		İ		İ			4	2.0
0.33	R33													4	2.8
0.47	R47		i				i		į		i		i	4	4.0
1	010		!				!				!		!	4	8.4
2.2	2R2		i		i				İ		i			4	13
3.3	3R3		!				!		!		!		!	4	17
4.7	4R7								İ	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				İ						!
220	221	6.3	96											Case size	Rated ripple

Rated Ripple (mArms) at 85°C 120Hz

Frequency coefficient of rated ripple current

or requestey econologic or rated rippie current									
Frequency	50 Hz	120 Hz	300 Hz	1 kHz	10 kHz~				
Coefficient	0.70	1.00	1 17	136	1.50				

- Taping specifications are given in page 24.
- Recommended land size are given in page 25.
- Please contact us for the soldering by reflow.
- Please refer to page 3 for the minimum order quantity.