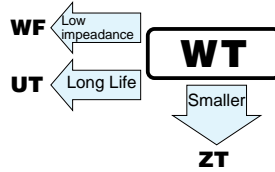


WT series Chip Type, Wide Temperature Range



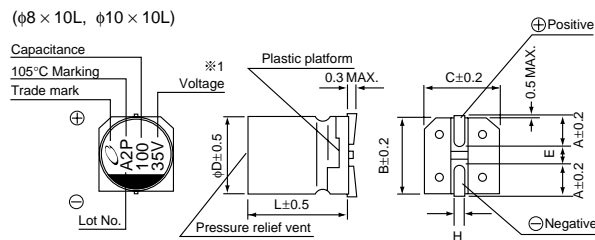
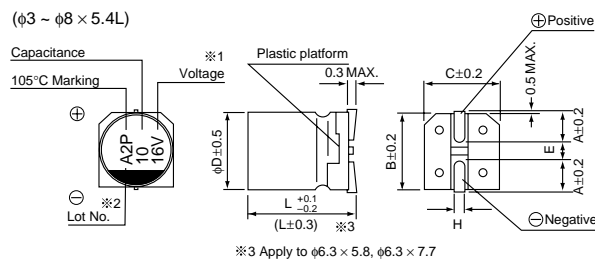
- Chip type operating over wide temperature range of to $-55 \sim +105^{\circ}\text{C}$.
- Designed for surface mounting on high density PC board.
- Applicable to automatic mounting machine using carrier tape.



Specifications

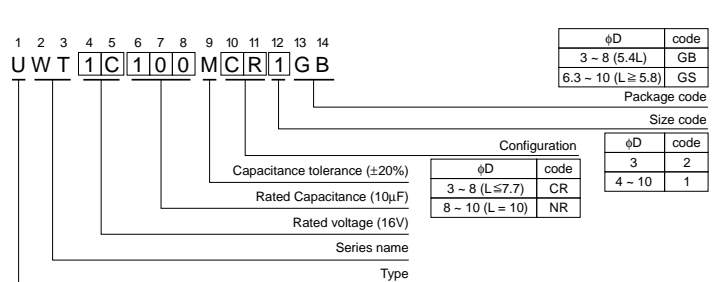
Item	Performance Characteristics								
Category Temperature Range	$-55 \sim +105^{\circ}\text{C}$								
Rated Voltage Range	4 ~ 50V								
Rated Capacitance Range	0.1 ~ 1500 μF								
Capacitance Tolerance	$\pm 20\%$ at 120Hz, 20 $^{\circ}\text{C}$								
Leakage Current	After 2 minutes' application of rated voltage, leakage current is not more than 0.01CV or 3 (μA), whichever is greater.								
tan δ	Measurement frequency : 120Hz, Temperature : 20 $^{\circ}\text{C}$								
	Rated voltage (V)	4	6.3	10	16	25	35	50	
Stability at Low Temperature	Measurement frequency : 120Hz								
	Impedance ratio	Z-25 $^{\circ}\text{C}$ / Z+20 $^{\circ}\text{C}$		7	4	3	2	2	2
		ZT / Z20 (MAX.)		Z-40 $^{\circ}\text{C}$ / Z+20 $^{\circ}\text{C}$	15	8	8	4	4
Endurance	After 1000 hours' application of rated voltage at 105 $^{\circ}\text{C}$, capacitors meet the characteristic requirements listed at right.		Capacitance change	Within $\pm 25\%$ of initial value for capacitors of $\phi 3\text{mm}$ unit, and 16V or less. Within $\pm 20\%$ of initial value for capacitors of 25V or more.					
			tan δ	200% or less of initial specified value					
			Leakage current	Initial specified value or less					
			Shelf Life	After leaving capacitors under no load at 105 $^{\circ}\text{C}$ for 1000 hours, they 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 $^{\circ}\text{C}$ 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 δ	Initial specified value or less					
			Leakage current	Initial specified value or less					
Marking	Black print on the case top.								

Chip Type



- ※1. Voltage mark for 6.3V is 「6V」. In case of marking for $\phi 3$ units, "V" for rated voltage is omitted.
 ※2. In case of marking for $\phi 3$ units, Lot No is expressed by a digit (month code).

Type numbering system (Example : 16V 10 μF)



- The lead-free product is also available upon request.
 In this case, 「L」 will be put at 11th digit of type numbering system.

$\phi\text{D} \times \text{L}$	(mm)								
	3 × 5.4	4 × 5.4	5 × 5.4	6.3 × 5.4	6.3 × 5.8	6.3 × 7.7	8 × 5.4	8 × 10	10 × 10
A	1.5	1.8	2.1	2.4	2.4	2.4	3.3	2.9	3.2
B	3.3	4.3	5.3	6.6	6.6	6.6	8.3	8.3	10.3
C	3.3	4.3	5.3	6.6	6.6	6.6	8.3	8.3	10.3
E	0.8	1.0	1.3	2.2	2.2	2.2	2.3	3.1	4.5
L	5.4	5.4	5.4	5.4	5.8	7.7	5.4	10	10
H	0.5 ~ 0.8	0.5 ~ 0.8	0.5 ~ 0.8	0.5 ~ 0.8	0.5 ~ 0.8	0.5 ~ 0.8	0.5 ~ 0.8	0.8 ~ 1.1	0.8 ~ 1.1

■ Dimensions

φ D × L (mm)

Cap. (μF)	Code	4		6.3		10		16		25		35		50	
		0G		0J		1A		1C		1E		1V		1H	
0.1	0R1													4 × 5.4 (3)	1.0
0.22	R22													4 × 5.4 (3)	2.6
0.33	R33													4 × 5.4 (3)	3.2
0.47	R47													4 × 5.4 (3)	3.8
1	010													4 × 5.4 (3)	6.3 (5.9)
2.2	2R2											3 × 5.4	7.5	4 × 5.4 (3)	11 (9)
3.3	3R3											3 × 5.4	9	4 × 5.4	14
4.7	4R7									4 × 5.4 (3)	13 (10)	4 × 5.4	15	5 × 5.4	19
10	100							4 × 5.4 (3)	18 (14)	5 × 5.4	23	5 × 5.4	25	6.3 × 5.4	30
22	220	4 × 5.4	22	4 × 5.4	22	5 × 5.4	27	5 × 5.4	30	6.3 × 5.4	38	6.3 × 5.4	42	● 8 × 5.4	51 (45)
33	330	5 × 5.4	30	5 × 5.4	30	5 × 5.4	35	6.3 × 5.4	40	6.3 × 5.4	48	● 8 × 5.4	59 (52)	6.3 × 7.7	60
47	470	5 × 5.4	36	5 × 5.4	36	6.3 × 5.4	46	6.3 × 5.4	50	● 8 × 5.4	66 (59)	6.3 × 5.8	63	6.3 × 7.7	63
100	101	6.3 × 5.4	60	6.3 × 5.4	60	6.3 × 5.4	60	6.3 × 5.4	60	6.3 × 7.7	91	6.3 × 7.7	84	8 × 10	140
150	151	6.3 × 5.8	86	6.3 × 5.8	86	6.3 × 5.8	86	6.3 × 7.7	95	8 × 10	140	8 × 10	155	10 × 10	180
220	221	● 8 × 5.4	102 (91)	● 8 × 5.4	102 (91)	6.3 × 7.7	105	6.3 × 7.7	105	8 × 10	155	8 × 10	190	10 × 10	220
330	331	6.3 × 7.7	105	6.3 × 7.7	105	8 × 10	195	8 × 10	195	8 × 10	190	10 × 10	300		
470	471	8 × 10	210	8 × 10	210	8 × 10	210	8 × 10	230	10 × 10	300				
680	681	8 × 10	210	8 × 10	210	10 × 10	310	10 × 10	310						
1000	102	8 × 10	230	8 × 10	230	10 × 10	310							Case size	Rated ripple
1500	152	10 × 10	310	10 × 10	310										

Rated Ripple (mA rms) at 105°C 120Hz

() is also available with φ3mm upon request. In such a case, [2] will be put at 12th digit of type numbering system.

Size φ6.3 × 5.8 is available for capacitors marked. " ● " In such a case, [6] will be put at 12th digit of type numbering system.

● 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 22.
- Recommended land size are given in page 23
- Please refer to page 3 for the minimum order quantity.