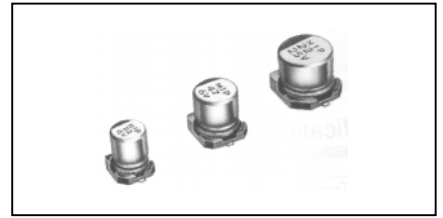


# Chip type operating over wide temperature range of to $-50\sim+105$

- Designed for surface mounting on high density PC board.
- Applicable to automatic mounting machine using carrier tape.



## SPECIFICATIONS

Item	Performance								
Category temperature range ( )	-55~+105								
Rated voltage range	4~50V								
Rated capacitance range	0.1~1500 $\mu$ F								
Capacitance tolerance	$\pm 20\%$ (20 , 120Hz)								
Leakage current ( $\mu$ A)	After 2 minutes' application of rated voltage, leakage current is not more than 0.01CV or 3 ( $\mu$ A), whichever is greater.								
Tangent of loss angle ( $\tan \delta$ )	Rated voltage (V)	4	6.3	10	16	25	35	50	(20 , 120Hz)
	$\tan \delta$ (max.)	0.40	0.30	0.24	0.20	0.16	0.14	0.14	
Stability at low temperature	Rated voltage (V)	4	6.3	10	16	25	35	50	(120Hz)
	Impedance ratio (max.)	Z25 /Z+20	7	4	3	2	2	2	
Endurance (85 ) (Applied ripple current)	Capacitance change	Within $\pm 25\%$ of initial value for capacitors of $\phi 3$ mm unit, and 16V or less. Within $\pm 20\%$ of initial value for capacitors of 25V or more.							
	$\tan \delta$	200% or less of initial specified value							
	Leakage Current	Initial specified value or less							
Shelf life	After 1000 hours' application of rated voltage at 105 , capacitors meet the characteristic requirements listed at right. After leaving capacitors under no load at 105 for 1000 hours, they meet the specified value for endurance characteristics listed above.								
Resistance to soldering heat	Capacitance change	Within $\pm 10\%$ of initial value							
	$\tan \delta$	Initial specified value or less							
	Leakage Current	Initial specified value or less							
Frequency coefficient of rated ripple current	The capacitors shall be kept on the hot plate maintained at 250 for 30 seconds. After removing from the hot plate and restored at room temperature, they meet the characteristic requirements listed at right.								
Frequency coefficient of rated ripple current	Frequency (Hz)	50	120	300	1k	10k~			
	Coefficient	0.70	1.00	1.17	1.36	1.50			

## CHIP TYPE

**( $\phi 3 \sim \phi 8 \times 5.4$ L)**

\*3. Apply to  $\phi 6.3 \times 5.8$ ,  $\phi 6.3 \times 7.7$

Outside Size $\phi D \times L$	3 $\times$ 5.4	4 $\times$ 5.4	5 $\times$ 5.4	6.3 $\times$ 5.4	6.3 $\times$ 5.8	6.3 $\times$ 7.7	8 $\times$ 5.4	8 $\times$ 10	10 $\times$ 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

**( $\phi 8 \times 10$ L ~  $\phi 10 \times 10$ L)**

\*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).

**DIMENSIONS**

V		4		6.3		10		16		25		35		50	
Cap. (µF)	Code	0G		0J		1A		1C		1E		1V		1H	
		0.1	0R1												
0.22	R22													3×5.4 4×5.4	2.6
0.33	R33													3×5.4 4×5.4	3.2
0.47	R47													3×5.4 4×5.4	3.8
1	010													3×5.4 4×5.4	5.9 6.3
2.2	2R2											3×5.4	7.5	3×5.4 4×5.4	11(9)
3.3	3R3											3×5.4	9	4×5.4	14
4.7	4R7									3×5.4 4×5.4	10 13	4×5.4	15	5×5.4	19
10	100							3×5.4 4×5.4	14 18	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	6.3×5.8 8×5.4	45 51
33	330	5×5.4	30	5×5.4	30	5×5.4	35	6.3×5.4	40	6.3×5.4	48	6.3×5.8 8×5.4	52 59	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	6.3×5.8 8×5.4	59 66	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	8×10	180
220	221	6.3×5.8 8×5.4	91 102	6.3×5.8 8×5.4	91 102	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								
1500	152	10×10	310	10×10	310									Case size	Rated ripple

Rated Ripple (mA rms) at 105 120Hz