

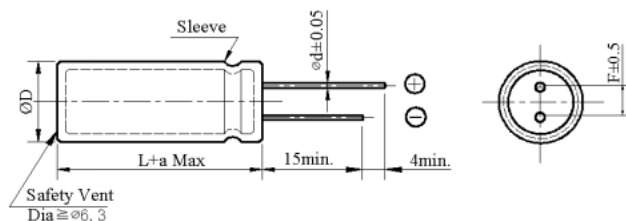
# RA Series

- Low impedance, high ripple current and miniature size with 9 mm height.
- Load life 2,000~6,000 hours at 105°C.

◆ SPECIFICATIONS

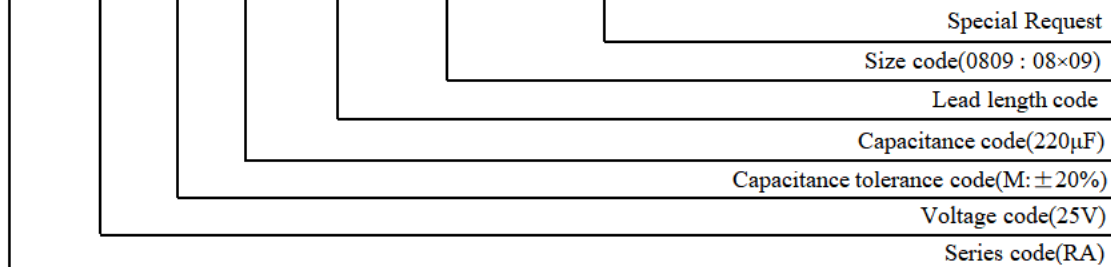
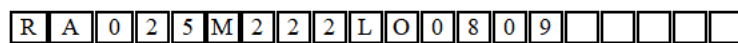
Item	Performance Characteristics											
Category Temperature Range	-40 ~ +105°C											
Working Voltage Range	10 ~450Vdc											
Capacitance Range	0.47 ~ 680 μF											
Capacitance Tolerance	±20% (at 25°C and 120Hz)											
Dissipation Factor (tanδ) (at 25°C, 120Hz)	Rated Voltage (V)	10	16	25	35	50	63	80	100	160-250	160-250	
	Tan δ (Max)	0.20	0.16	0.14	0.12	0.10	0.09	0.09	0.09	0.15	0.15	
Leakage Current	I=0.01CV or 3 μA, whichever is greater(10-100Vdc), I=0.02CV+10μA(160-450Vdc) I: Leakage current (μA) C: Rated capacitance (μF) V: Rated voltage (V) Impress the rated voltage for 2 minutes.											
Low Temperature Characteristics Impedance Ratio(MAX)	Rated Voltage (V)	10	16	25	35	50	63	80	100	160-250	160-250	
	Z(-40°C)/Z(+20°C)	8	8	5	4	3	3	3	3	8	9	
(at 120Hz)												
Endurance	The following requirements shall be satisfied when the capacitor are restored to 25°C after the rated voltage applied for 2,000 to 6,000 hours at 105°C.											
	Capacitance change	≧ ±25% of the initial value(6.3V、10V: ≧ ±30%)							Size	Life time (hours)		
	Dissipation factor(tanδ)	≧ 200% of the specified value							ΦD≤6.3Φ	2,000		
	Leakage current	≧ specified value							ΦD=8 Φ	5,000		
Shelf Life	The following requirements shall be satisfied when the capacitor are restored to 25°C after the rated voltage applied for 1,000 hours at 105°C without voltage applied.											
	Capacitance change	≧ ±25% of the initial value(6.3V、10V: ≧ ±30%)										
	Dissipation factor(tanδ)	≧ 200% of the specified value										
	Leakage current	≧ 200% of the specified value										
Others	Conforms to JIS-C-5101-4 (1998) and IEC 60384-4											

◆ DIMENSIONS(mm)



ΦD	5	6.3	8	10
ΦD	ΦD + 0.5 Max			
dΦ	0.5			0.60
F	2.0	2.5	3.5	5
a	L+ 2.0 Max			

◆ PART NUMBER SYSTEM( Example :25V 220μF)





**RA Series**

◆ **Case size & Permissible rated ripple current: (mA rms) at 105°C / 100KHz.**

Nominal capacitance (uF)	63V		80V		100V		160		200V	
	ΦD×L (mm)	RC	ΦD×L (mm)	RC	ΦD×L (mm)	RC	ΦD×L (mm)	RC	ΦD×L (mm)	RC
0.47	5×9	22	5×9	24	5×9	24				
1.0	5×9	30	5×9	32	5×9	32				
1.8	5×9	38	5×9	40	5×9	40				
2.2	5×9	44	5×9	46	5×9	46				
2.7	5×9	52	5×9	54	5×9	54			6.3×9	73
3.3	5×9	58	5×9	60	5×9	60			6.3×9	82
3.9	5×9	65	5×9	67	5×9	68	6.3×9	82	6.3×9	98
4.7	5×9	74	5×9	76	5×9	76	6.3×9	98	8×9	115
5.6	5×9	83	5×9	85	6.3×9	98	6.3×9	115	8×9	123
6.8	5×9	91	5×9	93	6.3×9	115	8×9	123	8×9	135
8.2	5×9	100	5×9	102	6.3×9	123	8×9	135	8×9	151
10	5×9	112	5×9	119	6.3×9	135	10×9	151	10×9	155
12	5×9	125	6.3×9	138	6.3×9	161	10×9	155		
15	5×9	138	6.3×9	148	6.3×9	181	10×9	165		
18	6.3×9	148	6.3×9	168	8×9	206				
22	6.3×9	168	6.3×9	185	8×9	220				
33	6.3×9	185	8×9	211	8×9	229				
39	6.3×9	211	8×9	234	10×9	344				
47	8×9	234	8×9	246	10×9	344				
56	8×9	246	10×9	398						
68	10×9	398	10×9	424						
82	10×9	424	10×9							
100	10×9	460								

Nominal capacitance (uF)	250V		350V		400V		450V	
	ΦD×L (mm)	RC	ΦD×L (mm)	RC	ΦD×L (mm)	RC	ΦD×L (mm)	RC
1.0	6.3×9	88	6.3×9	88	6.3×9	88	6.3×9	75
1.2	6.3×9	88	6.3×9	88	6.3×9	88	6.3×9	75
1.8	6.3×9	88	6.3×9	88	6.3×9	92	6.3×9	81
2.2	6.3×9	88	6.3×9	92	6.3×9	100	8×9	88
2.7	6.3×9	92	6.3×9	100	6.3×9	112	8×9	88
3.3	6.3×9	100	8×9	112	8×9	121	8×9	88
3.9	6.3×9	112	8×9	121	8×9	130	10×9	109
4.7	8×9	121	8×9	130	8×9	138	10×9	116
5.6	8×9	130	8×9	138	10×9	145	10×9	118
6.8	8×9	138	10×9	145	10×9	145		
8.2	10×9	145	10×9	145				
10	10×9	145						

◆ **RIPPLE CURRENT MULTIPLIERS**

**Frequency Multipliers**

Vdc	Cap(uF)	Frequency (Hz)			
		120	1K	10K	100K ≤ 200K
10~450	0.47 ~ 8.2	0.40	0.75	0.90	1.00
	10 ~ 82	0.50	0.80	0.93	1.00
	100 ~ 680	0.65	0.85	0.95	1.00