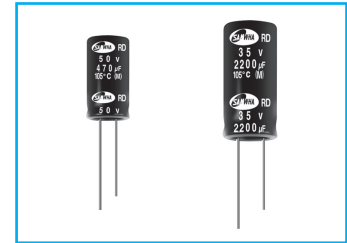
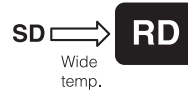




# MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS

**Upgrade**  
**RD** Wide Temperature Range Series

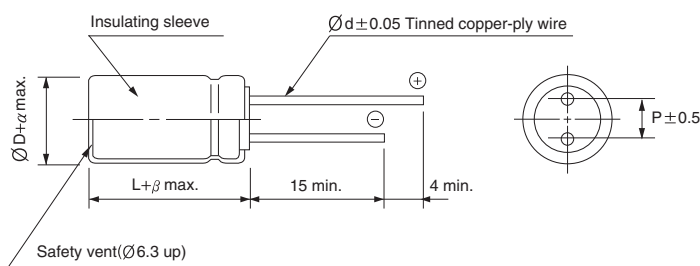
- Standard series for general purpose
- High CV value
- Wide operating temperature range of -55 ~ +105°C
- Complied to the RoHS directive



Item	Characteristics										
Operating temperature range	WV	6.3 ~ 100			160 ~ 450			500			
	Temperature range	-55 ~ +105°C			-40 ~ +105°C			-25 ~ +105°C			
Leakage current max.	WV ≤ 100						WV > 100				
	I = 0.01CV or 3µA whichever is greater (after 2 min) I = 0.03CV or 4µA whichever is greater (after 1 min)						I = 0.02CV+15µA (after 5 min)				
Capacitance tolerance	±20% at 120Hz, 20°C										
Dissipation factor max. (at 120Hz, 20°C)	Capacitance > 1000µF : tanδ increases by 0.02 for each 1000µF from below value.										
	WV	6.3	10	16	25	35	50	63	100	160~250	350~500
tanδ	0.28	0.24	0.20	0.16	0.14	0.12	0.10	0.08	0.15	0.20	
Low temperature characteristics (Impedance ratio at 120Hz)	WV	6.3	10	16	25	35	50~100	160	200~350	400~450	500
	Z-25°C/Z+20°C	5	4	3	2	2	2	4	6	10	12
	Z-40°C/Z+20°C	12	10	8	5	4	3	6	8	12	-
Load life (after application of the rated voltage for 2000 hours at 105°C)	Leakage current		Less than specified value								
	Capacitance change		Within ±20% of initial value								
	tanδ		Less than 200% of specified value								
	Life time		∅D ≤ 8			∅D ≥ 10					
Shelf life (at 105°C)	Life time		1000 hours			2000 hours					
	After 1000 hours no load test, leakage current, capacitance and tanδ are same as load life value. The measurement shall be performed at 20°C by the KS C IEC 60384 - 4										

● DRAWING

Unit : mm



∅D	5	6.3	8	10	12.5	16	18	22
P	2.0	2.5	3.5	5.0	5.0	7.5	7.5	10.0
∅d	0.5	0.5	0.6	0.6	0.6	0.8	0.8	1.0
α	0.5							1.0
β	1.5		2.0				3.0	

MINIATURE TYPES

● FREQUENCY COEFFICIENT OF PERMISSIBLE RIPPLE CURRENT

WV	µF	Frequency	60Hz	120Hz	1kHz	10kHz	50kHz	100kHz ≤
6.3~100		~ 47	0.75	1.00	1.55	2.00	2.00	2.00
		68 ~ 680	0.80	1.00	1.35	1.50	1.62	1.75
		820 ~	0.85	1.00	1.15	1.15	1.32	1.50
160~500		~ 220	0.80	1.00	1.40	1.60	1.70	1.80
		330 ~	0.90	1.00	1.13	1.15	1.32	1.50

# MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS

**RD** series

● DIMENSIONS & MAXIMUM PERMISSIBLE RIPPLE CURRENT

WV Item μF	6.3		10		16		25	
	ØD×L (mm)	Ripple current (mA rms) 105°C 120Hz	ØD×L (mm)	Ripple current (mA rms) 105°C 120Hz	ØD×L (mm)	Ripple current (mA rms) 105°C 120Hz	ØD×L (mm)	Ripple current (mA rms) 105°C 120Hz
68							5 × 11	108
82							6.3 × 11	137
100					5 × 11	119	6.3 × 11	151
150			5 × 11	134	6.3 × 11	167	6.3 × 11	185
220	5 × 11	146	5 × 11	162	6.3 × 11	203	6.3 × 11	224
330	6.3 × 11	206	6.3 × 11	228	6.3 × 11	248	8 × 11.5	324
470	6.3 × 11	246	6.3 × 11	272	8 × 11.5	349	8 × 11.5	386
680	8 × 11.5	348	8 × 11.5	386	8 × 11.5	420	10 × 12.5	540
820	8 × 11.5	382	10 × 12.5	493	10 × 16	587	10 × 20	708
1000	8 × 11.5	422	10 × 12.5	544	10 × 16	648	10 × 20	820
1500	10 × 16	621	10 × 16	680	10 × 20	797	12.5 × 20	1017
2200	10 × 16	713	10 × 16	774	10 × 20	898	12.5 × 20	1100
	10 × 20	778	10 × 20	844	12.5 × 20	1055	12.5 × 25	1235
3300	12.5 × 16	983	12.5 × 20	1148	12.5 × 20	1184	16 × 25	1562
4700	12.5 × 20	1219	12.5 × 20	1272	12.5 × 25	1459	16 × 25	1752
			12.5 × 25	1421	16 × 25	1657	16 × 31.5	1916
6800	12.5 × 25	1480	16 × 25	1737	16 × 25	1811	16 × 35.5	2176
					16 × 31.5	1982	18 × 35.5	2335
10000	16 × 25	1807	16 × 31.5	2172	16 × 31.5	2140	18 × 35.5	2497
15000	16 × 31.5	2128	16 × 35.5	2323	18 × 35.5	2545		
	16 × 35.5	2233	18 × 35.5	2482				
22000	18 × 31.5	2411						

WV Item μF	35		50		63		100	
	ØD×L (mm)	Ripple current (mA rms) 105°C 120Hz	ØD×L (mm)	Ripple current (mA rms) 105°C 120Hz	ØD×L (mm)	Ripple current (mA rms) 105°C 120Hz	ØD×L (mm)	Ripple current (mA rms) 105°C 120Hz
2.2			5 × 11	24	5 × 11	26	5 × 11	26
3.3			5 × 11	29	5 × 11	32	5 × 11	32
4.7			5 × 11	35	5 × 11	38	5 × 11	38
6.8			5 × 11	42	5 × 11	46	5 × 11	46
10			5 × 11	51	5 × 11	56	5 × 11	56
15			5 × 11	62	5 × 11	68	6.3 × 11	78
22			5 × 11	75	5 × 11	83	6.3 × 11	95
33			5 × 11	92	6.3 × 11	116	8 × 11.5	139
47	5 × 11	96	6.3 × 11	127	6.3 × 11	139	10 × 12.5	190
68	6.3 × 11	132	8 × 11.5	180	8 × 11.5	197	10 × 16	251
82	6.3 × 11	145	8 × 11.5	198	8 × 11.5	216	10 × 16	290
100	6.3 × 11	160	8 × 11.5	218	8 × 11.5	239	10 × 16	304
150	8 × 11.5	231	8 × 11.5	267	10 × 12.5	340	10 × 20	406
220	8 × 11.5	280	10 × 12.5	376	10 × 16	451	12.5 × 20	564
330	10 × 12.5	400	10 × 16	504	10 × 20	603	16 × 25	856
470	10 × 16	521	10 × 20	657	12.5 × 20	844	16 × 25	1021
680	10 × 20	684	12.5 × 20	927	12.5 × 25	1107	16 × 31.5	1344
820	12.5 × 20	880	12.5 × 25	1050	16 × 25	1300	16 × 35.5	1627
1000	12.5 × 20	974	12.5 × 25	1226	16 × 25	1490	18 × 35.5	1835
1500	12.5 × 25	1136	16 × 25	1442	16 × 35.5	1770		
	16 × 20	1188	16 × 31.5	1578	18 × 31.5	1812		
2200	16 × 25	1426	16 × 31.5	1709	16 × 35.5	1891		
3300	16 × 35.5	1857	16 × 35.5	1794	18 × 40	2689		
	18 × 31.5	1900	18 × 35.5	2152				
4700	16 × 35.5	2073						
	18 × 35.5	2224						
6800	18 × 40	2510						



# MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS

## RD series

### ● DIMENSIONS & MAXIMUM PERMISSIBLE RIPPLE CURRENT

WV Item μF	160		200		250		350	
	ØD×L (mm)	Ripple current (mA rms) 105°C 120Hz	ØD×L (mm)	Ripple current (mA rms) 105°C 120Hz	ØD×L (mm)	Ripple current (mA rms) 105°C 120Hz	ØD×L (mm)	Ripple current (mA rms) 105°C 120Hz
2.2	6.3 × 11	23	6.3 × 11	23	6.3 × 11	23	6.3 × 11	23
3.3	6.3 × 11	29	6.3 × 11	29	6.3 × 11	30	8 × 11.5	34
4.7	6.3 × 11	34	6.3 × 11	34	8 × 11.5	40	8 × 11.5	40
			8 × 11.5	40			10 × 12.5	47
6.8	6.3 × 11.5	49	8 × 11.5	49	10 × 12.5	56	10 × 12.5	56
			10 × 12.5	56			10 × 16	62
10	8 × 11.5	59	8 × 11.5	59	10 × 12.5	68	10 × 16	75
	10 × 12.5	68	10 × 12.5	68			10 × 16	92
15	10 × 12.5	84	10 × 12.5	84	10 × 16	92	10 × 16	92
	10 × 16	92	10 × 16	92			10 × 20	100
22	10 × 12.5	102	10 × 16	111	10 × 16	111	12.5 × 20	143
	10 × 16	111			10 × 20	121		
33	10 × 16	136	10 × 20	149	10 × 20	149	12.5 × 25	190
	10 × 20	149			12.5 × 20	175		
47	10 × 20	177	12.5 × 20	208	12.5 × 20	203	16 × 25	252
	12.5 × 20	208			12.5 × 25	227		
68	12.5 × 25	273	16 × 20	279	12.5 × 25	267	16 × 31.5	332
82	12.5 × 25	302	16 × 25	333	16 × 25	333	18 × 31.5	391
100	12.5 × 25	331	16 × 25	368	16 × 25	368	18 × 31.5	432
150	16 × 25	450	16 × 25	450	16 × 31.5	450	18 × 35.5	554
220	16 × 31.5	596	18 × 31.5	641	18 × 35.5	671	22 × 41	721
			18 × 35.5	671	18 × 40	694		
330	18 × 31.5	784	18 × 40	863	22 × 41	968		
470	18 × 40	1030	22 × 41	1155				
680	22 × 41	1390						

WV Item μF	400		450		500	
	ØD×L (mm)	Ripple current (mA rms) 105°C 120Hz	ØD×L (mm)	Ripple current (mA rms) 105°C 120Hz	ØD×L (mm)	Ripple current (mA rms) 105°C 120Hz
2.2	8 × 11.5	28	8 × 11.5	23		
3.3	8 × 11.5	34	10 × 12.5	33		
	10 × 12.5	39	10 × 16	36		
4.7	10 × 12.5	47	10 × 12.5	39	10 × 16	59
6.8	10 × 16	62	10 × 16	52	10 × 16	72
10	10 × 16	75	10 × 20	68	12.5 × 25	88
	10 × 20	82	12.5 × 20	80		
15	12.5 × 20	118	12.5 × 20	96	12.5 × 30	115
22	12.5 × 20	140	12.5 × 25	127	16 × 25	159
	12.5 × 25	155	16 × 25	144		
33	16 × 25	211	16 × 25	177	16 × 31.5	207
47	16 × 25	252	16 × 31.5	231	18 × 31.5	261
68	16 × 31.5	332	16 × 35.5	291	18 × 35.5	335
	18 × 31.5	356				
82	18 × 31.5	391	18 × 31.5	327	18 × 40	370
100	18 × 35.5	453	18 × 40			
150	22 × 41	596				

MINIATURE TYPES

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