



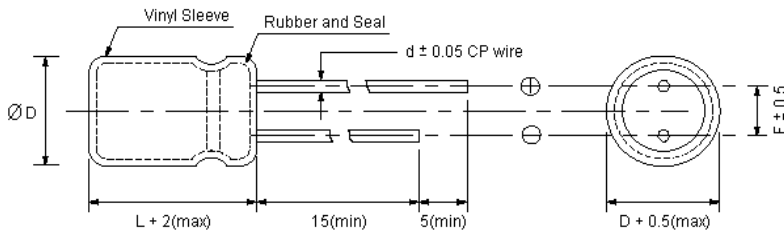
RoHS Compliant ALUMINIUM ELECTROLYTIC CAPACITOR

HR Series

■ **FEATURES**

- ◆ Load life of 5000 hours at 105°C
- ◆ Applications for switching power supplies
- ◆ Low impedance and low ESR with high ripple current

■ **OUTLINE**



	mm				
D	8	10	13	16	18
F	3.5	5.0		7.5	
d	0.6			0.8	

■ **SPECIFICATIONS**

Items	Characteristics							
Capacitance Tolerance (120Hz, 25°C)	± 20% (M)							
Rated Working Voltage Range	10 ~ 100Vdc							
Operation Temperature	-40°C ~ +105°C							
Leakage Current (25°C)	(After 3 minutes applying the DC working voltage)							
	$I \leq 0.01CV$							
	◆ I : Leakage Current (µA)		◆ C : Rated Capacitance (µF)			◆ V : Working Voltage (V)		
Surge Voltage (25°C)	W.V.	10	16	25	35	50	63	100
	S.V.	13	20	32	44	63	79	125
Dissipation Factor (120Hz, 25°C)	W.V.	10	16	25	35	50	63	100
	tan δ	0.12	0.10	0.09	0.08	0.07	0.06	0.06
Temperature Characteristics	◆ For capacitance exceeding 1000 µF, add 0.02 per increment of 1000 µF							
	W.V.	10 ~ 16			25 ~ 100			
	- 25°C / + 25°C	3			2			
	- 40°C / + 25°C	6			4			
Load Test	◆ Impedance ratio at 120Hz							
	After 2000 hours application of WV at +105°C, the capacitor shall meet the following limits: (3000 hours for 10φ and 13φ, 5000 hours for 16φ and larger)							
	Capacitance Change	≤ ± 25% of initial value						
	tan δ	≤ 150% of initial specified value						
Shelf Test	Leakage Current	≤ initial specified value						
	After 1000 hours, no voltage applied at +105°C, the capacitor shall meet the following limits:							
	Capacitance Change	≤ ± 25% of initial value						
	tan δ	≤ 150% of initial specified value						
	Leakage Current	≤ 200% of initial specified value						

DB LECTRO^U

■ DIMENSIONS

D x L (mm)

uF \ WV	10	16	25	35	50	63	100
47				]	8 x 12	8 x 14	10 x 20
68			]	8 x 12	8 x 14	10 x 16	13 x 20
100	[	8 x 12	8 x 12	8 x 14	10 x 16	10 x 16	13 x 25
220	8 x 12	8 x 14	10 x 16	10 x 16	10 x 20	13 x 20	16 x 31
330	8 x 14	8 x 16	10 x 16	10 x 20	13 x 20	13 x 25	16 x 35
470	8 x 16	10 x 16	10 x 20	13 x 20	13 x 25	13 x 30	16 x 41
680	10 x 16	10 x 20	13 x 20	13 x 25	13 x 30	16 x 35	
1000	10 x 20	13 x 20	13 x 25	13 x 30	13 x 40	18 x 35	
1500	13 x 20	13 x 25	13 x 30	13 x 40	16 x 41		
2200	13 x 25	13 x 30	13 x 40	16 x 41			
3300	13 x 30	13 x 40	16 x 41	18 x 41			
4700	13 x 40	16 x 35	18 x 41				

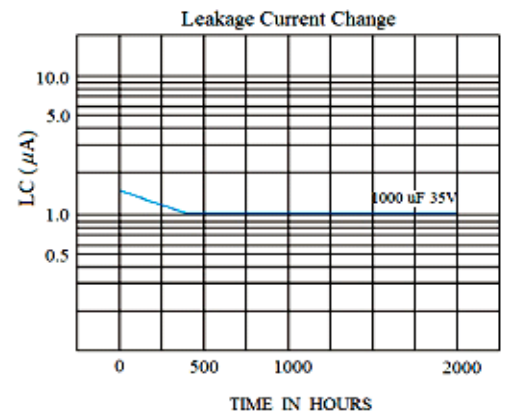
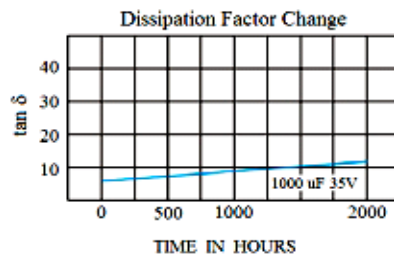
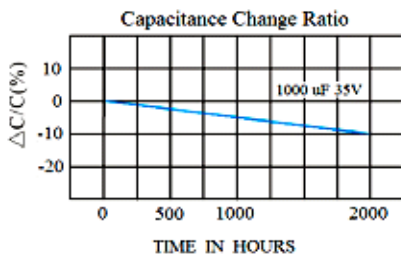
RC: mA (rms) at 100KHz 105°C

Imp: mΩ (ohm) at 100KHz 25°C

■ PERMISSIBLE RIPPLE CURRENT

uF \ WV	Item	10		16		25		35		50		63		100	
		RC	Imp	RC	Imp	RC	Imp	RC	Imp	RC	Imp	RC	Imp	RC	Imp
47								]		278	0.600	350	0.480	500	0.410
68						]		314	0.370	375	0.350	470	0.330	610	0.280
100			]	250	0.650	310	0.400	420	0.310	560	0.270	600	0.260	790	0.230
220		370	0.440	420	0.290	600	0.200	660	0.180	970	0.150	1040	0.140	1200	0.130
330		480	0.310	580	0.210	780	0.170	1020	0.130	1150	0.120	1330	0.110	1710	0.098
470		610	0.220	730	0.160	1010	0.120	1180	0.097	1465	0.092	1700	0.088	2080	0.082
680		780	0.150	970	0.110	1320	0.075	1500	0.072	1850	0.068	2050	0.065		
1000		1040	0.100	1310	0.080	1670	0.068	1970	0.062	2080	0.055	2330	0.049		
1500		1430	0.090	1600	0.065	1900	0.058	2300	0.042	2370	0.032				
2200		1700	0.069	1980	0.059	2510	0.050	2710	0.040						
3300		2090	0.055	2450	0.048	2800	0.040	3050	0.035						
4700		2450	0.048	2680	0.042	3010	0.036								

■ LOAD LIFE



■ RIPPLE CURRENT COEFFICIENTS

Temperature(°C)	45	65	85	105
Multiplier	2.40	2.15	1.70	1.00

uF \ Hz	60(50)	120	1K	10K	100K
47 ~ 330	0.60	0.70	0.85	0.95	1.00
39 ~ 1000	0.65	0.75	0.90	0.98	1.00
1000 ~ 4700	0.75	0.80	0.95	1.00	1.00