



CONDUCTIVE POLYMER HYBRID ALUMINUM ELECTROLYTIC CAPACITORS

FRB Series

- Wide Temperature range
- High Ripple Current
- -55℃~+135℃
- Endurance 135℃, 4,000hrs
- AEC-Q200 compliant : Please contact us for more details, test data, information.

FRA

Low ESR

FRB



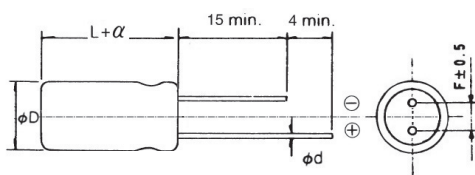
SPECIFICATIONS

Item	Characteristics				
Category temperature range	-55 to +135℃				
Rated voltage range	25 to 63Vdc				
Surge voltage	Rated Voltage(WV)	25	35	50	63
	Surge Voltage(SV)	29,0	40,0	57,5	72,5
Capacitance tolerance	±20% (M) (at 20℃, 120Hz)				
Tangent of loss angle	Shall not exceed the value in Ratings of FRB series, (at 20℃, 120Hz)				
Leakage Current ※ 1	Shall not exceed the value in Ratings of FRB series. (at 20℃, 2minutes)				
ESR	Shall not exceed the value in Ratings of FRB series, (at 20℃, 100kHz)				
Impedance Ratio (Characteristics at low temp.)	Impedance	Ratio			
	Z(-25℃) / Z(+20℃)	< 1,5			
	Z(-55℃) / Z(+20℃)	< 2,0 (at 100kHz)			
Endurance	The following specifications shall be satisfied when the capacitors are restored to 20℃ after the rated voltage is applied for 4,000 hours at 125℃ or 135℃. Capacitance change ≤ ±30% of the initial value Tanδ ≤ ±200% of the initial specified value ESR ≤ ±200% of the initial specified value Leakage current ≤ The initial specified value				
Shelf Life	The following specifications shall be satisfied when the capacitors are restored to 20℃ after exposing them for 1,000 hours at 135℃ without voltage applied. The rated voltage shall be applied to the capacitors for a minimum of 30 minutes, at least 24hours and not more than 48 hours and not more than 48 hours before the measurements. Capacitance change ≤ ±30% of the initial value Tanδ ≤ ±200% of the initial specified value ESR ≤ ±200% of the initial specified value Leakage current ≤ The initial specified value				
Bias Humidity	The following specifications shall be satisfied when the capacitors are restored to 20℃ after subjecting them to the DC rated voltage at 85℃, 85% RH for 2000hours Capacitance change ≤ ±30% of the initial value Tanδ ≤ ±200% of the initial specified value ESR ≤ ±200% of the initial specified value Leakage current ≤ The initial specified value				

※ 1, if any doubt arises, measure the leakage current after following voltage treatment.
(Voltage treatment : Applying rated voltage for 120minutes at 135℃)

DIMENSIONS

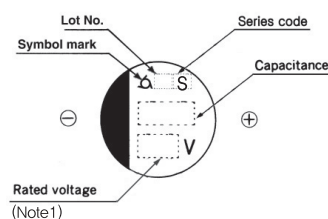
Coating Case Type



UNIT(mm)

ΦD(+0,5max.)	8	10
L	10	10
α	0,5	
Φd(±0,05)	0,6	0,6
F(±0,5)	3,5	5

MARKING



RATED RIPPLE CURRENT MULTIPLIES

Frequency(Hz)	120	1K	5K	10K	20K	30K	100K ~500K
Capacitance(μF)							
33 ~ 150	0,10	0,30	0,50	0,60	0,75	0,75	1,00
220 ~ 330	0,10	0,40	0,60	0,70	0,80	0,85	1,00

RATINGS OF FRB Series

Case Code	Rated Voltage (V)	Rated Capacitance (μF)	ESR(mΩ) (at 100kHz)	Rated Ripple Current (mA _{rms} at 100kHz)		Tangent of loss angle	Leakage Current (μA)
				125°C	135°C		
8X10	25	150	18	3,900	2,800	0.14	38
	25	220	18	3,900	2,800	0.14	55
	35	100	18	3,900	2,800	0.12	35
	35	150	18	3,900	2,800	0.12	53
	50	47	24	3,600	2,500	0.10	24
	50	68	24	3,600	2,500	0.10	34
	63	33	27	3,300	2,300	0.08	21
	63	47	27	3,300	2,300	0.08	30
10X10	25	270	16	4,500	3,300	0.14	68
	25	330	16	4,500	3,300	0.14	83
	35	150	16	4,500	3,300	0.12	53
	35	270	16	4,500	3,300	0.12	95
	50	100	20	4,300	3,000	0.10	50
	50	120	20	4,300	3,000	0.10	60
	63	56	22	4,000	2,800	0.08	35
	63	82	22	4,000	2,800	0.08	52