CONDUCTIVE POLYMER HYBRID ALUMINUM ELECTROLYTIC CAPACITORS

FRW 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.

FRV → FRW

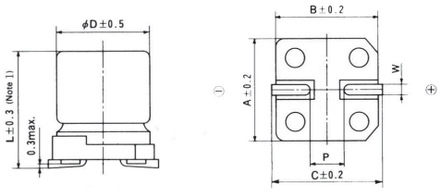
Low ESR

SPECIFICATIONS

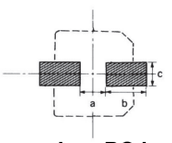
Item	Characteristics
Category temperature range	−55 to +135℃
Rated voltage range	25 to 63Vdc
Surge voltage	Rated Voltage(WV): 25 / 35 / 50 / 63 — Surge Voltage(SV): 29.0 / 40.0 / 57.5 / 72.5
Capacitance tolerance	±20% (M) (at 20℃, 120Hz)
Tangent of loss angle	Shall not exceed the value in Ratings of FRW series. (at 20℃, 120Hz)
Leakage Current ※ 1	Shall not exceed the value in Ratings of FRW series. (at 20℃, 2minutes)
ESR	Shall not exceed the value in Ratings of FRW series. (at 20℃, 100kHz)
Impedance Ratio (Characteristics at low temp.)	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 lest 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℃)
※ 2. Reflow Condition : Refer to 46 Page

DIMENSIONS



Recommended solder land on PC board



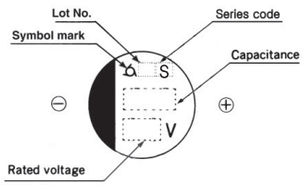
▨ : Solder pad on PC board

Note1 : L±0.7 for 10×10(J10)

UNIT(mm)

CASE CODE	ΦD	L	A	B	C	W	P	a	b	c
H10	8	10.0	8.3	8.3	9.0	0.7 ~ 1.1	3.1	3.1	4.2	2.2
J10	10	10.0	10.3	10.3	11.0	0.7 ~ 1.1	4.5	4.5	4.4	2.2

MARKING



RATED RIPPLE CURRENT MULTIPLIES

Capacitance(μF) \ Frequency(Hz)	120	1K	5K	10K	20K	30K	100K ~500K
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 FRW Series

Case Code	Rated Voltage (V)	Rated Capacitance (μF)	ESR(mΩ) (at 100kHz)	Rated Ripple Current (mArms at 100kHz)		Tangent of loss angle	Leakage Current (μA)
				125℃	135℃		
H10	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
J10	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