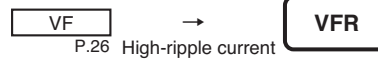


## VFR Series Useful of 4,000 hours at 85°C

- Conform RoHS

### Features

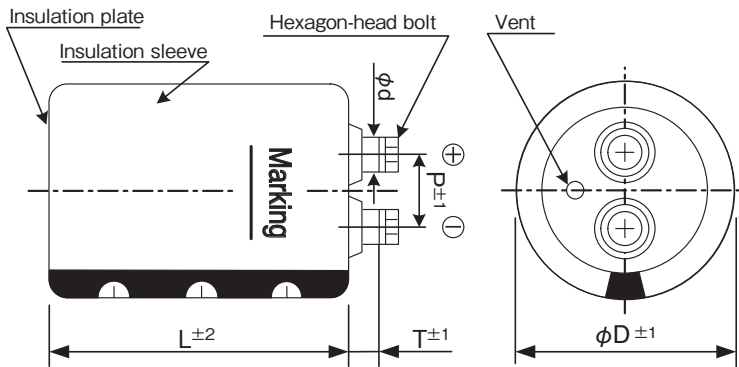
- The permissible ripple current is improved to VF series by approx.30% using low ESR material.



### Product Specifications

Items	Specifications
Temperature range	-40°C ~ +85°C
Rated voltage	350 ~ 500V.DC
Capacitance tolerance	±20% (20°C, 120Hz)
Leakage current	0.01CV (μA) or 5mA, whichever is smaller or less (20°C, after 5 minutes) [C = nominal capacitance (μF), V = rated voltage (V)]
Dissipation factor	Less than the value specified in the standard products table. (20°C, 120Hz)
Permissible ripple current	As specified in the standard product table. (85°C, 120Hz)
Endurance	After the rated voltage with specified ripple current is applied at 85°C for 2,000 hours : Capacitance change : Within ±15% of the initial value measured Dissipation factor : 175% or less than the initial value specified Leakage current : Less than or equal to the initial value specified
Shelf life	The following specification shall be meet when the capacitor are restored to 20°C after storage of 500 hours at 85°C with no voltage applied. Before the measurement, the capacitor shall be preconditioned by applying the voltage treatment according to Item 4.1 of JIS C 5101-4. Capacitance change : Within ±15% of the initial value measured Dissipation factor : 175% or less than the initial value specified Leakage current : Less than or equal to the initial value specified
Others	JIS C 5101-4

### Dimensions



(unit : mm)

φD	P	T	φd	Hexagon-head bolt	Cap material
64	28.6	8.0	11.0	M5×10	Phenol resin
77	31.5	9.0	12.0	M6×12	Phenol resin
90	31.5	8.0	12.0	M6×12	Phenol resin

M6 terminal is available upon request (φ77 and φ90).

### Ripple current correction coefficient

Temperature (°C)	40	60	85	
Correction coefficient	1.89	1.67	1.00	
Frequency (Hz)	120	300	1k	≥10k
Correction coefficient	1.0	1.1	1.3	1.4
Forced wind (m/s)	<0.5	0.5≤		
Correction coefficient	1.0	1.1		

Terminal permissible currents : 60Arms for M5 ; 100Arms for M6.  
Please use this type of capacitor at a terminal current below the permissible.

### Product code

(Example) VFR type 400V 6,800 μF ±20%

**VFR 2G 682 Y F 110**

- VFR: Type of series
- 2G: Case code
- 682: Capacitance code
- Y: Type of bracket code
- F: Rated voltage code
- 110: The L dimension (mm)

Refer to page 21 for product code.

### Bracket

- Refer to page 21-22 for shapes and dimensions.
- Product names in the Standard Products Table correspond to the bracket for Type Y, but Type I bracket may be used (Type of bracket code = I).
- If bracket are not necessary, enter "N" for the type of bracket code.
- Bracket will be delivered separately.

# SCREW TERMINAL TYPE ALUMINUM ELECTROLYTIC CAPACITORS

Standard Products Table

Rated Voltage (V. DC)	Capacitance ( $\mu$ F)	Case size $\phi$ D $\times$ L (mm)	$\tan\delta$ 20°C, 120Hz	Ripple current (Arms) 85°C, 120Hz	ESR (typ.) (m $\Omega$ ) 20°C, 100Hz	Z max (m $\Omega$ ) 20°C, 10kHz	ESL (typ.) (nH)	Product name
350	3,900	64 $\times$ 107	0.20	17.0	24	26	22	VFR2V392YD107
	4,700	64 $\times$ 123	0.20	19.2	20	21	22	VFR2V472YD123
	5,600	64 $\times$ 147	0.20	20.6	17	18	22	VFR2V562YD147
		77 $\times$ 108	0.20	23.5	17	18	24	VFR2V562YE108
	6,800	64 $\times$ 164	0.20	23.3	14	15	22	VFR2V682YD164
		77 $\times$ 124	0.20	26.5	14	15	24	VFR2V682YE124
	8,200	64 $\times$ 187	0.20	25.8	12	12	22	VFR2V822YD187
		77 $\times$ 148	0.20	28.5	12	12	24	VFR2V822YE148
		90 $\times$ 110	0.20	32.6	12	12	24	VFR2V822YF110
	10,000	77 $\times$ 165	0.20	32.1	9	10	24	VFR2V103YE165
		90 $\times$ 126	0.20	35.9	9	10	24	VFR2V103YF126
	12,000	77 $\times$ 188	0.20	35.3	8	8	24	VFR2V123YE188
		90 $\times$ 150	0.20	39.1	8	8	24	VFR2V123YF150
	15,000	77 $\times$ 228	0.20	40.8	6	7	24	VFR2V153YE228
90 $\times$ 167		0.20	43.3	6	7	24	VFR2V153YF167	
18,000	90 $\times$ 190	0.20	47.1	5	6	24	VFR2V183YF190	
	90 $\times$ 230	0.20	51.2	4	5	24	VFR2V223YF230	
400	3,300	64 $\times$ 107	0.20	15.7	29	30	22	VFR2G332YD107
	3,900	64 $\times$ 123	0.20	17.5	24	26	22	VFR2G392YD123
	4,700	64 $\times$ 147	0.20	18.9	20	21	22	VFR2G472YD147
		77 $\times$ 108	0.20	21.5	20	21	24	VFR2G472YE108
	5,600	64 $\times$ 164	0.20	21.2	17	18	22	VFR2G562YD164
		77 $\times$ 124	0.20	24.0	17	18	24	VFR2G562YE124
	6,800	64 $\times$ 187	0.20	23.5	14	15	22	VFR2G682YD187
		77 $\times$ 148	0.20	26.0	14	15	24	VFR2G682YE148
		90 $\times$ 110	0.20	29.7	14	15	24	VFR2G682YF110
	8,200	77 $\times$ 165	0.20	29.1	12	12	24	VFR2G822YE165
		90 $\times$ 126	0.20	32.5	12	12	24	VFR2G822YF126
	10,000	77 $\times$ 188	0.20	32.2	9	10	24	VFR2G103YE188
		90 $\times$ 150	0.20	35.7	9	10	24	VFR2G103YF150
	12,000	77 $\times$ 228	0.20	36.5	8	8	24	VFR2G123YE228
90 $\times$ 167		0.20	38.7	8	8	24	VFR2G123YF167	
15,000	90 $\times$ 190	0.20	43.0	6	7	24	VFR2G153YF190	
18,000	90 $\times$ 230	0.20	46.3	5	6	24	VFR2G183YF230	
450	2,700	64 $\times$ 107	0.20	14.5	35	37	22	VFR2W272YD107
	3,300	64 $\times$ 123	0.20	16.5	29	30	22	VFR2W332YD123
	3,900	64 $\times$ 147	0.20	17.6	24	26	22	VFR2W392YD147
		77 $\times$ 108	0.20	20.1	24	26	24	VFR2W392YE108
	4,700	64 $\times$ 164	0.20	19.9	20	21	22	VFR2W472YD164
		77 $\times$ 124	0.20	22.6	20	21	24	VFR2W472YE124
	5,600	64 $\times$ 187	0.20	21.9	17	18	22	VFR2W562YD187
		77 $\times$ 148	0.20	24.1	17	18	24	VFR2W562YE148
		90 $\times$ 110	0.20	27.6	17	18	24	VFR2W562YF110
	6,800	77 $\times$ 165	0.20	27.1	14	15	24	VFR2W682YE165
		90 $\times$ 126	0.20	30.3	14	15	24	VFR2W682YF126
	8,200	77 $\times$ 188	0.20	29.9	12	12	24	VFR2W822YE188
		90 $\times$ 150	0.20	33.1	12	12	24	VFR2W822YF150
	10,000	77 $\times$ 228	0.20	34.1	9	10	24	VFR2W103YE228
90 $\times$ 167		0.20	36.2	9	10	24	VFR2W103YF167	
12,000	90 $\times$ 190	0.20	39.4	8	8	24	VFR2W123YF190	
15,000	90 $\times$ 230	0.20	43.3	6	7	24	VFR2W153YF230	
500	1,800	64 $\times$ 107	0.20	11.3	58	61	22	VFR2H182YD107
	2,200	64 $\times$ 123	0.20	12.8	47	50	22	VFR2H222YD123
	2,700	64 $\times$ 147	0.20	13.9	39	41	22	VFR2H272YD147
		77 $\times$ 108	0.20	15.9	39	41	24	VFR2H272YE108
	3,300	64 $\times$ 164	0.20	15.8	32	33	22	VFR2H332YD164
		77 $\times$ 124	0.20	18.0	32	33	24	VFR2H332YE124
	3,900	64 $\times$ 187	0.20	17.3	27	28	22	VFR2H392YD187
		77 $\times$ 148	0.20	19.1	27	28	24	VFR2H392YE148
		90 $\times$ 110	0.20	21.9	27	28	24	VFR2H392YF110
	4,700	77 $\times$ 165	0.20	21.4	22	23	24	VFR2H472YE165
		90 $\times$ 126	0.20	24.0	22	23	24	VFR2H472YF126
	5,600	77 $\times$ 188	0.20	23.5	19	20	24	VFR2H562YE188
		90 $\times$ 150	0.20	26.0	19	20	24	VFR2H562YF150
	6,800	77 $\times$ 228	0.20	26.7	15	16	24	VFR2H682YE228
90 $\times$ 167		0.20	28.4	15	16	24	VFR2H682YF167	
8,200	90 $\times$ 190	0.20	31.0	13	13	24	VFR2H822YF190	
10,000	90 $\times$ 230	0.20	33.6	10	11	24	VFR2H103YF230	

ALUMINUM ELECTROLYTIC CAPACITORS

## Life time graph

Useful life depending on ambient temperature  $T_a$  and ripple current operating condition  $I$  versus rated ripple current at  $85^\circ\text{C}$ , 120Hz

