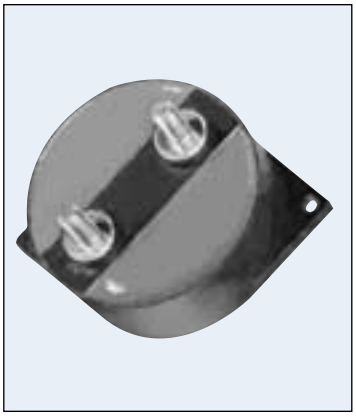
Medium Power Film Capacitors

FFVE/FFVI/FFVA

DC FILTERING



The FFV capacitor is specifically designed for DC filtering, low reactive power.

The series uses a non-impregnated metallized polypropylene or polyester dielectric, which features a controlled self-healing process, specially treated to have a very high dielectric strength in operating conditions up to 85°C.

The FFV special design gives this series a very low level of stray inductance (18 nH to 40 nH).

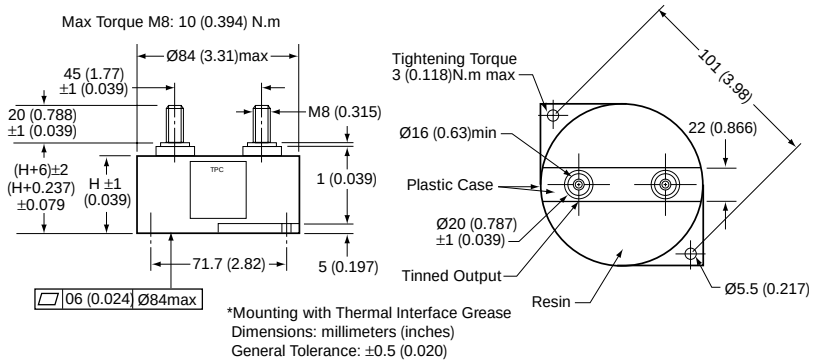
Furthermore, the performance levels of the FFVE capacitor makes them a very interesting alternative to electrolytic technology, because they can withstand much higher levels of surge voltage, very high rms current ratings, and longer lifetimes.

PACKAGING

Self-extinguishing plastic case (V0 = in accordance with UL 94) filled thermosetting resin.

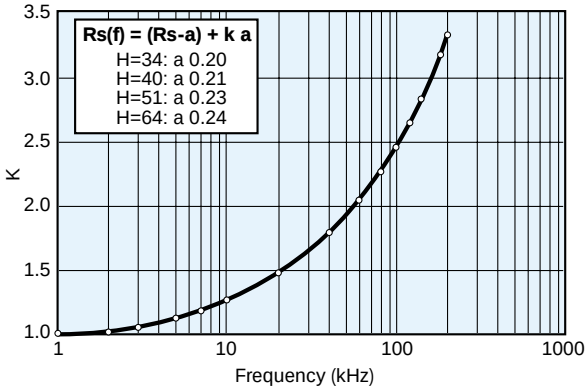
Self-extinguishing thermosetting resin (V0 = in accordance with UL 94; M2F1 = in accordance with NF F 16-101).

DESIGN - **Also available with threaded female connections - use FFVA female connectors M5 x 7.5mm**



Rs(f) vs FREQUENCY

For frequency higher than 1 kHz use following curve



The FFVE for low voltage DC filtering are polyester dielectric capacitors.

Working temperature	-40°C to +85°C (according to the power to be dissipated)
Capacitance range	12µF to 400µF
Capacitance tolerance	±10%
Rated DC voltage	300 to 1100 V
Test voltage between terminals @ 25°C	1.5 x $V_n$dc 10s (1.25 $V_n$dc – 10s for FFVI)
Insulation voltage between shorted terminals and earth	4 kVrms

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POLYESTER DIELECTRIC

Dimensions: millimeters (inches)

Capacitance (µF)	Height	Irms max. (A)	Ls max. (nH)	Rs (mΩ)	Rth (°C/W)	Part Number*
$V_n$dc 300 volts						
180	34 (1.339)	100	18	0.8	4.7	FFVE4H0187K--
195	34 (1.339)	100	18	0.8	4.4	FFVE4H1956K--
250	40 (1.575)	100	25	0.6	5.2	FFVE4H0257K--
350	51 (2.008)	100	32	0.8	7.2	FFVE4H0357K--
400	51 (2.008)	110	32	0.8	7.1	FFVE4H0407K--
$V_n$dc 400 volts						
100	34 (1.339)	80	18	0.7	4.7	FFVE4I0107K--
120	34 (1.339)	100	18	0.6	4.1	FFVE4I0127K--
150	40 (1.575)	100	25	0.7	5.0	FFVE4I0157K--
180	51 (2.008)	80	32	1.0	8.5	FFVE4I0187K--
220	51 (2.008)	100	32	0.9	7.2	FFVE4I0227K--

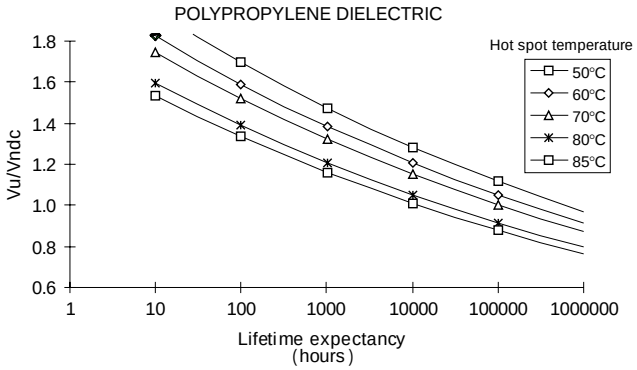
*Change FFVE to FFVA for female connectors M5 x 7.5mm

POLYPROPYLENE DIELECTRIC

Capacitance (µF)	Height	Irms max. (A)	Ls max. (nH)	Rs (mΩ)	Rth (°C/W)	Part Number*
$V_n$dc 600 volts						
25	34 (1.339)	90	18	0.7	4.3	FFVE6K0256K--
100	40 (1.575)	100	25	0.6	4.8	FFVE6K0107K--
150	51 (2.008)	110	32	0.9	6.9	FFVE6K0157K--
220	64 (2.520)	100	40	1.0	8.4	FFVE6K0227K--
$V_n$dc 800 volts						
66	40 (1.575)	100	25	0.7	4.7	FFVE6B0666K--
100	51 (2.008)	90	32	1.0	6.7	FFVE6B0107K--
140	64 (2.520)	100	40	1.3	8.4	FFVE6B0147K--
$V_n$dc 900 volts						
12	34 (1.339)	70	18	0.9	4.4	FFVE6C0126K--
38	34 (1.339)	100	18	0.7	3.9	FFVE6C0386K--
47	40 (1.575)	100	25	0.8	4.6	FFVE6C0476K--
70	51 (2.008)	100	32	1.2	6.7	FFVE6C0706K--
100	64 (2.520)	90	40	1.1	8.2	FFVE6C0107K--

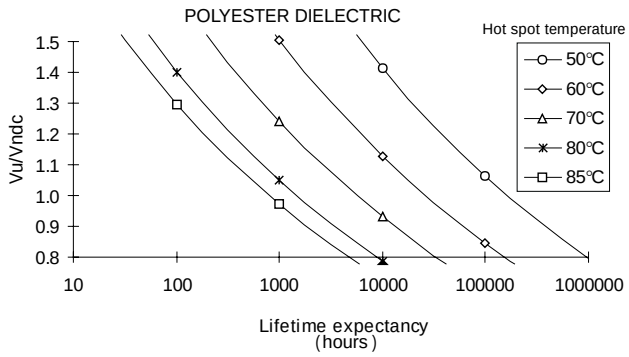
*Change FFVE to FFVA for female connectors M5 x 7.5mm

LIFETIME EXPECTANCY FOR FFVE



Vu: Operating or working voltage.

LIFETIME EXPECTANCY FOR FFVE



Vu: Operating or working voltage.

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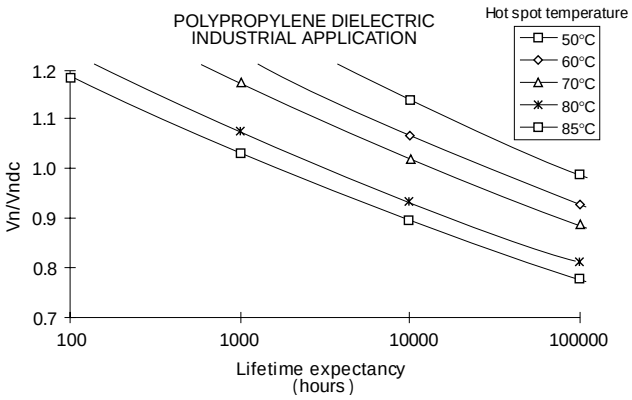
POLYPROPYLENE DIELECTRIC

Capacitance (µF)	Height	Irms max. (A)	Ls max. (nH)	Rs (mΩ)	Rth (°C/W)	Part Number*
$V_n$dc 500 volts						
125	40 (1.575)	90	25	0.6	5.0	FFVI6J1256K--
200	51 (2.008)	90	32	0.8	6.7	FFVI6J0207K--
275	64 (2.520)	90	40	0.9	8.7	FFVI6J2756K--
$V_n$dc 700 volts						
100	40 (1.575)	100	25	0.6	4.8	FFVI6A0107K--
150	51 (2.008)	100	32	0.9	6.9	FFVI6A0157K--
220	64 (2.520)	100	40	1.0	8.4	FFVI6A0227K--
$V_n$dc 900 volts						
66	40 (1.575)	100	25	0.7	4.7	FFVI6C0666K--
100	51 (2.008)	90	32	1.0	6.7	FFVI6C0107K--
140	64 (2.520)	100	40	1.3	8.4	FFVI6C0147K--
$V_n$dc 1100 volts						
47	40 (1.575)	100	25	0.8	4.6	FFVI6L0476K--
70	51 (2.008)	100	32	1.2	6.7	FFVI6L0706K--
100	64 (2.520)	90	40	1.1	8.2	FFVI6L0107K--

*Change FFVI to FFVA for female connectors

LIFETIME EXPECTANCY FOR FFVI



Vu: Operating or working voltage.

HOT SPOT CALCULATION

$\theta_{hot\ spot} = \theta_{case} + (P_d + P_t) \times R_{th}$

with P_d (Dielectric losses) = Q x $tg\delta_0$

$\Rightarrow [\frac{1}{2} \times C_n \times (V_{peak\ to\ peak})^2 \times f] \times tg\delta_0$

(see $tg\delta_0$ vs dielectric page 3)

P_t (Thermal losses) = $R_s \times (I_{rms})^2$

where C_n in Farad, I_{rms} in Ampere, f in Hertz
V in Volt, R_s in Ohm, θ in °C
R_{th} in °C/W, R_{th} hot spot/bottom case