

DC FILTERING

FFVE/FFVI (FFWE/FFWI RoHS Compliant)

GENERAL DESCRIPTION

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 105°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 MATERIAL

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

Self-extinguishing thermosetting resin (V0 = in accordance with UL 94; I3F1 = in accordance with NF F 16-101).

FFVE capacitors meet the Level 2 requirement of the fire behavior standard NF F 16-102.

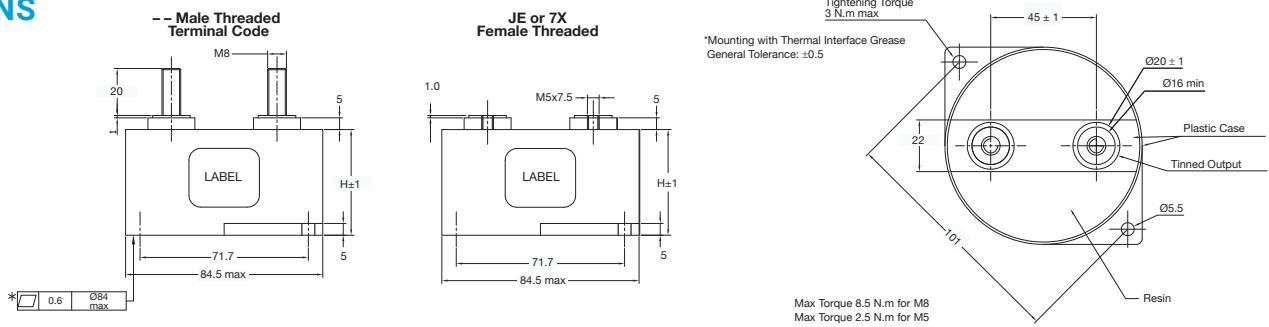
Not RoHS Compliant



Please select correct termination style.

DIMENSIONS

Also available with threaded female connections - M5 x 7.5mm max Torque 2.5Nm



HOW TO ORDER

FFVE	6	H	0187	K	--
Series	Dielectric	Voltage Code	Capacitance Code	Capacitance Tolerances	Terminal Code
FFVE = Standard FFVI = Standard FFWE = RoHS Compliant FFWI = RoHS Compliant	4 = Polyester 6 = Polypropylene	H = 300V I = 400V J = 500V A = 700V B = 800V C = 900V	L = 1000V (FFVE/FFWE) L = 1100V (FFVI/FFWI) U = 1200V N = 1900V	0 + pF code 0187 = 180µF 0356 = 35µF etc.	K = ±10%
					-- or J7 = Male Threaded JE or 7X = Female Threaded See Ratings and Part Reference Tables for details

HOT SPOT CALCULATION

See Hot Spot Temperature, page 3.

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

with P_d (Dielectric losses) = $Q \times tg\delta_0$
 $Q \times tg\delta_0 \Rightarrow [\frac{1}{2} \times C_n \times (V_{peak\ to\ peak})^2 \times f] \times tg\delta_0$
 $tg\delta_0$ (tan delta)
 For polypropylene, $tg\delta_0 = 2 \times 10^{-4}$ for frequencies up to 1MHz and is independent of temperatures. For polyester, $tg\delta_0$ values are shown in graph 4 on page 3.

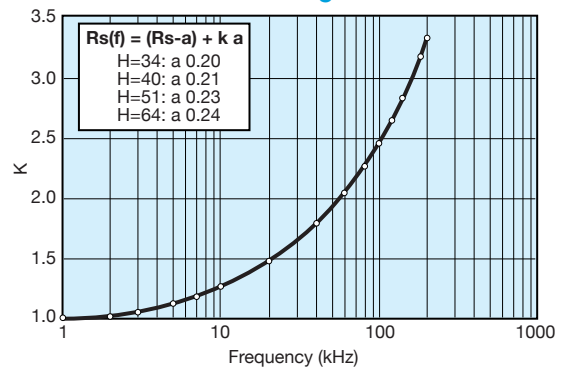
$$P_t \text{ (Thermal losses)} = R_s \times (I_{rms})^2$$

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

θ_{case} = bottom center of case

Rs(f) vs FREQUENCY

For frequency higher than 1 kHz use following curve



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ELECTRICAL CHARACTERISTICS – FFVE/FFWE POLYESTER DIELECTRIC

Items	Characteristics
Working temperature	-40°C to +105°C (according to the power to be dissipated)
Capacitance range	100µF to 400µF
Capacitance tolerance	±10%
Rated DC voltage	300 to 400 V
Test voltage between terminals @ 25°C	1.5 x V _{n,dc} 10s
Insulation voltage between shorted terminals and earth	7 kVrms/60sec/50Hz
Dielectric	Polyester

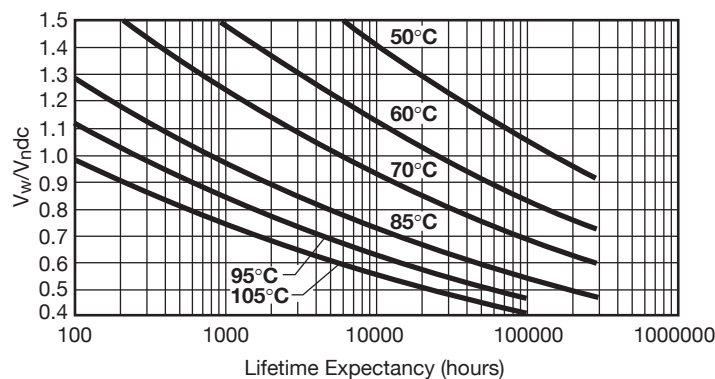
RATINGS AND PART NUMBER REFERENCE – POLYESTER DIELECTRIC

Part Number*	Capacitance (µF)	Height (mm)	I _{rms} max. (A)	L _s max. (nH)	R _s (mΩ)	R _{th} (°C/W)	Typical Weight (g)
V_{n,dc} 300 volts (Voltage Code H)							
FFVE4H0187K-	180	34	100	18	0.8	4.7	300
FFVE4H1956K-	195	34	100	18	0.8	4.4	300
FFVE4H0257K-	250	40	100	25	0.6	5.2	350
FFVE4H0357K-	350	51	100	32	0.8	7.2	420
FFVE4H0407K-	400	51	110	32	0.8	7.1	420
V_{n,dc} 400 volts (Voltage Code I)							
FFVE4I0107K-	100	34	80	18	0.7	4.7	300
FFVE4I0127K-	120	34	100	18	0.6	4.1	300
FFVE4I0157K-	150	40	100	25	0.7	5.0	350
FFVE4I0187K-	180	51	80	32	1.0	8.5	420
FFVE4I0227K-	220	51	100	32	0.9	7.2	420

*Change "--" to "JE" for female connectors M5 x 7.5mm

Dimensions millimeters

LIFETIME EXPECTANCY FFVE POLYESTER



V_w = Permanent working or operating DC voltage.

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ELECTRICAL CHARACTERISTICS – FFVE/FFWE POLYPROPYLENE DIELECTRIC

Items	Characteristics
Working temperature	-40°C to +105°C (according to the power to be dissipated)
Capacitance range	12μF to 220μF
Capacitance tolerance	±10%
Rated DC voltage	600 to 1900 V
Test voltage between terminals @ 25°C	1.5 x V _{n,dc} 10s
Insulation voltage between shorted terminals and earth	7 kVrms/60sec/50Hz
Dielectric	Polypropylene

RATINGS AND PART NUMBER REFERENCE – POLYPROPYLENE DIELECTRIC

Part Number*	Capacitance (μF)	Height (mm)	I _{rms} max. (A)	L _s max. (nH)	R _s (mΩ)	R _{th} (°C/W)	Typical Weight (g)
V_{n,dc} 600 volts (Voltage Code K)							
FFVE6K0256K--	25	34	90	18	0.7	4.3	300
FFVE6K0107K--	100	40	100	25	0.6	4.8	350
FFVE6K0157K--	150	51	110	32	0.9	6.9	420
FFVE6K0227K--	220	64	100	40	1.0	8.4	500
V_{n,dc} 800 volts (Voltage Code B)							
FFVE6B0666K--	66	40	100	25	0.7	4.7	350
FFVE6B0107K--	100	51	90	32	1.0	6.7	420
FFVE6B0147K--	140	64	100	40	1.3	8.4	500
V_{n,dc} 900 volts (Voltage Code C)							
FFVE6C0126K--	12	34	70	18	0.9	4.4	300
FFVE6C0386K--	38	34	100	18	1.6	3.9	300
FFVE6C0476K--	47	40	100	25	0.8	4.6	350
FFVE6C0706K--	70	51	100	32	1.2	6.7	420
FFVE6C0107K--	100	64	90	40	1.1	8.2	500
V_{n,dc} 1000 volts (Voltage Code L)							
FFVE6L0666KJ7	66	40	70	25	1.5	5.1	350
FFVE6L0107KJ7	100	51	64	32	2.0	7.3	420
FFVE6L0147KJ7	140	64	51	40	2.5	9.2	500
V_{n,dc} 1200 volts (Voltage Code U)							
FFVE6U0476KJ7	47	40	66	25	1.7	4.9	350
FFVE6U0706KJ7	70	51	59	32	2.4	7.2	420
FFVE6U0107KJ7	100	64	49	40	2.9	8.9	500
V_{n,dc} 1900 volts (Voltage Code N)							
FFVE6N0156KJ7	15	40	73	25	1.1	5.2	350
FFVE6N0246KJ7	24	51	73	32	1.3	6.5	420
FFVE6N0356KJ7	35	64	67	40	1.6	8.4	500

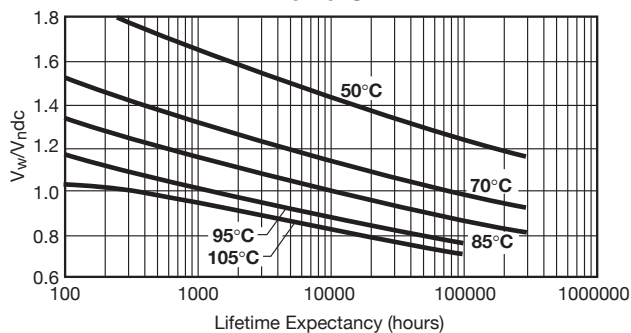
*Change "--" to "JE" for female connectors M5 x 7.5mm

Dimensions millimeters

*Change "J7" to "7X" for female connectors M5 x 7.5mm

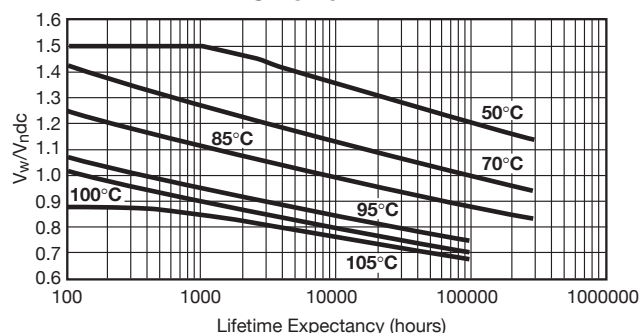
LIFETIME EXPECTANCY FOR FFVE POLYPROPYLENE

-- and JE



V_w: permanent working or operating DC-voltage.

J7 and 7X



V_w: permanent working or operating DC-voltage.

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ELECTRICAL CHARACTERISTICS – FFVE/FFWE POLYPROPYLENE DIELECTRIC

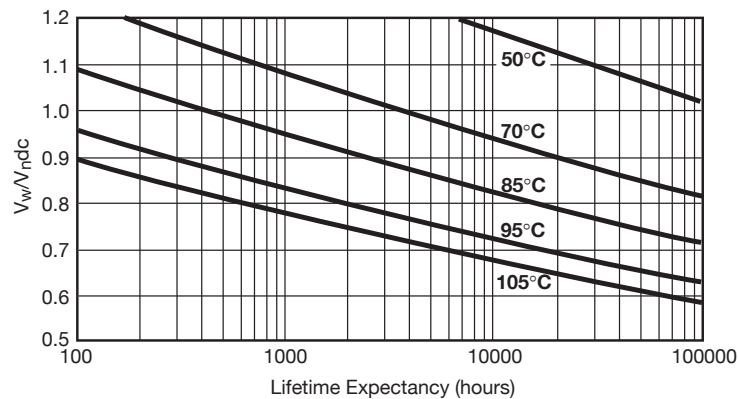
Items	Characteristics
Working temperature	-40°C to +105°C (according to the power to be dissipated)
Capacitance range	47µF to 275µF
Capacitance tolerance	±10%
Rated DC voltage	500 to 1100V
Test voltage between terminals @ 25°C	1.25 x V _{n,dc} 10s
Insulation voltage between shorted terminals and earth	7 kVrms/60sec/50Hz
Dielectric	Polypropylene

RATINGS AND PART NUMBER REFERENCE – POLYPROPYLENE DIELECTRIC

Part Number*	Capacitance (µF)	Height (mm)	Irms max. (A)	Ls max. (nH)	Rs (mΩ)	Rth (°C/W)	Typical Weight (g)
V_{n,dc} 500 volts (Voltage Code J)							
FFVI6J1256K-	125	40	90	25	0.6	5.0	350
FFVI6J0207K-	200	51	90	32	0.8	6.7	420
FFVI6J2756K-	275	64	90	40	0.9	8.7	500
V_{n,dc} 700 volts (Voltage Code A)							
FFVI6A0107K-	100	40	100	25	0.6	4.8	350
FFVI6A0157K-	150	51	100	32	0.9	6.9	420
FFVI6A0227K-	220	64	100	40	1.0	8.4	500
V_{n,dc} 900 volts (Voltage Code C)							
FFVI6C0666K-	66	40	100	25	0.7	4.7	350
FFVI6C0107K-	100	51	90	32	1.0	6.7	420
FFVI6C0147K-	140	64	100	40	1.3	8.4	500
V_{n,dc} 1100 volts (Voltage Code L)							
FFVI6L0476K-	47	40	100	25	0.8	4.6	350
FFVI6L0706K-	70	51	100	32	1.2	6.7	420
FFVI6L0107K-	100	64	90	40	1.1	8.2	500

Dimensions millimeters

LIFETIME EXPECTANCY FOR FFVI



V_w: permanent working or operating DC-voltage.