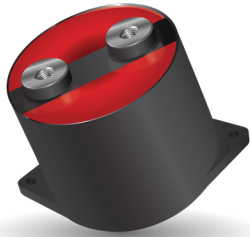


DC FILTERING

FFVE/FFVI (FFWE/FFWI RoHS Compliant)



Not RoHS Compliant



Please Select Correct Series

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, specifically 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; certified classification according to EN 45545-2).

STANDARDS

IEC 61071	Capacitors for power electronics
IEC 61881	Railway applications, rolling stock equipment, capacitors for power electronics
EC 61373	Railway applications, rolling stock equipment, shock and vibration tests
IEC 60068-1	Environmental testing - Part 1: General and Guidance
UL 94	Tests for flammability of plastic materials for parts in devices and appliances

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 L = 1000V I = 400V (FFVE/FFWE) J = 500V L = 1100V K = 600V (FFVI/FFWI) A = 700V U = 1200V B = 800V N = 1900V C = 900V	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

Total losses are calculated as follow: $P_t = P_j + P_d$

Joule losses: $P_j = R_s \times (I_{rms})^2$

Dielectric losses: $P_d = Q \times tg\delta_0$ with

$- Q(\text{reactive power}) = \frac{(I_{rms})^2}{C2\pi f}$ for a waveform of f frequency

- for polypropylene, $tg\delta_0 = 2 \times 10^{-4}$

- for polyester, $tg\delta_0$ values are shown in graph 4 on page 2

Hot spot temperature will be:

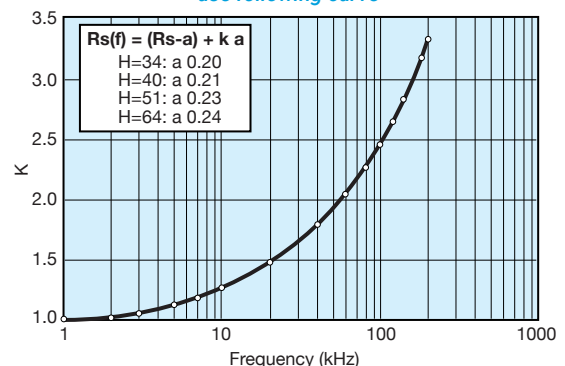
$$\Theta_{HS} = \Theta_{case} + (P_j + P_d) \times R_{th}$$

The FFVE/FFVI capacitors are supposed to be mounted on a cooling plate. Thus, the temperature of the bottom of the case must be taken in account.

(Θ_{case} = bottom of center of case)

R_s vs FREQUENCY

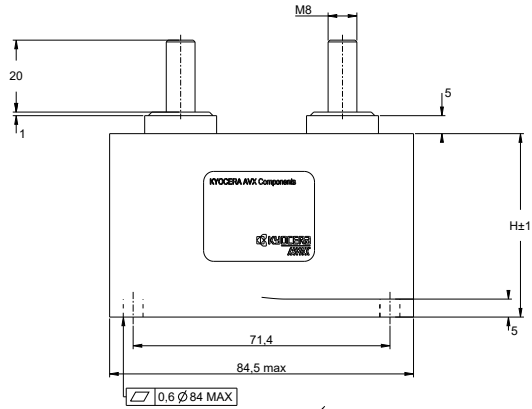
For frequency higher than 1 kHz use following curve



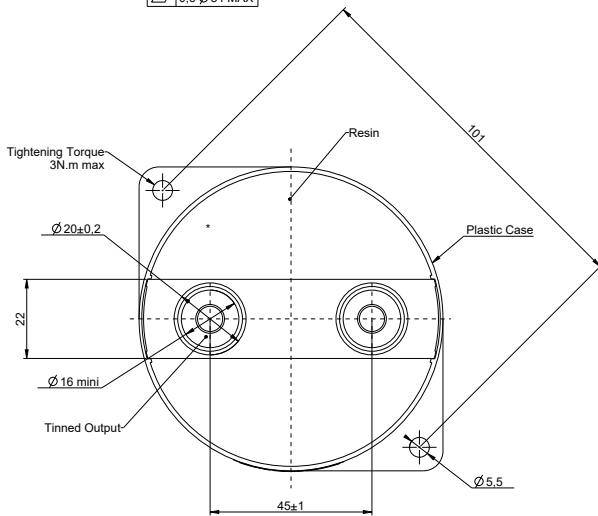
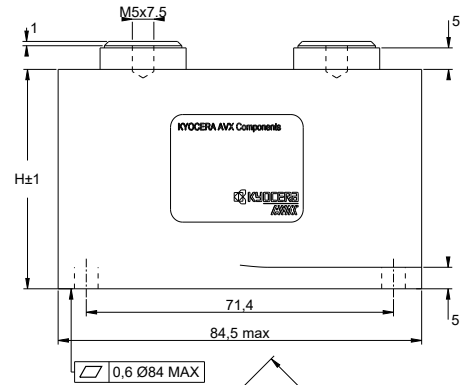
DC FILTERING

FFVE/FFVI (FFWE/FFWI RoHS Compliant)

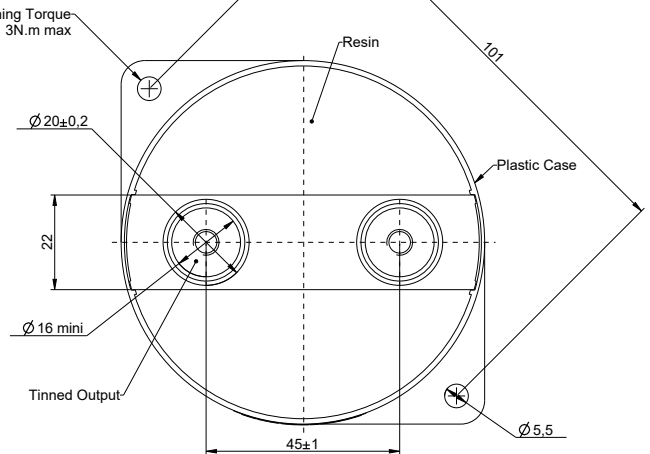
FORMAT DIMENSIONS



*Mounting with Thermal Interface Grease
General Tolerance ± 0.5



Max Torque 8.5N.m for M8
Max Torque 2.5N.m for M5



DC FILTERING

FFVE/FFVI (FFWE/FFWI RoHS Compliant)

ELECTRICAL CHARACTERISTICS – FFVE/FFWE POLYESTER DIELECTRIC

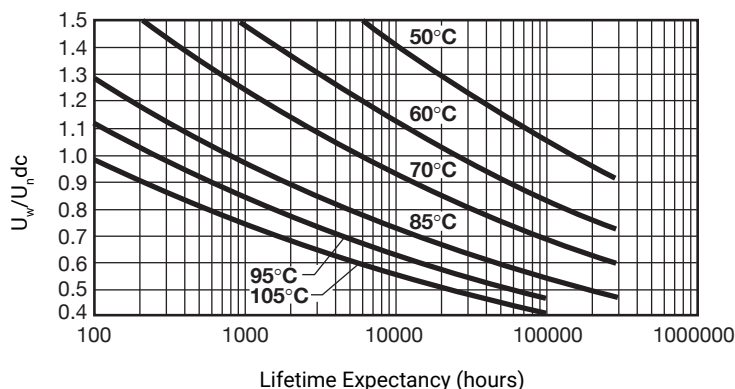
Working temperature	-40°C to +105°C (according to the power to be dissipated)
Capacitance range	100µF to 400µF
Capacitance tolerance	±10%
Rated DC voltage	300 to 400 V
Test voltage between terminals @ 25°C	1.5 x V _{n,dc} 10s
Insulation voltage between shorted terminals and earth	7 kV _{rms} /60sec/50Hz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

LIFETIME EXPECTANCY FFVE POLYESTER



U_w = Permanent working or operating DC voltage

DC FILTERING

FFVE/FFVI (FFWE/FFWI RoHS Compliant)



ELECTRICAL CHARACTERISTICS – FFVE/FFWE POLYPROPYLENE DIELECTRIC

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 kV _{rms} /60sec/50Hz
Dielectric	Polypropylene

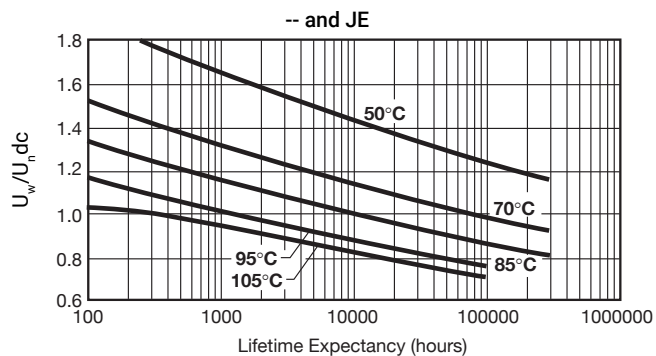
RATINGS AND PART NUMBER REFERENCE – POLYPROPYLENE DIELECTRIC

Part Number*	Capacitance (µF)	Height (mm)	I _{rms} max. (A)	L _s max. (nH)	R _s (mΩ)	R _{th} (°C/W)	Typical Weight (g)
U_{n,dc} 600V (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
U_{n,dc} 800V (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
U_{n,dc} 900V (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
U_{n,dc} 1000V (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
U_{n,dc} 1200V (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
U_{n,dc} 1900V (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

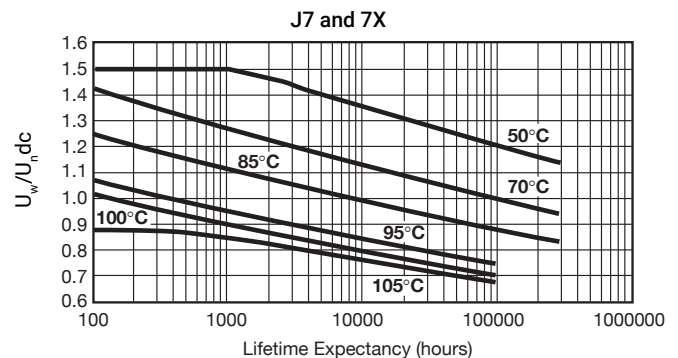
*Change "--" to "JE" for female connectors M5 x 7.5mm

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

LIFETIME EXPECTANCY FOR FFVE POLYPROPYLENE



U_w = Permanent working or operating DC voltage



U_w = Permanent working or operating DC voltage

DC FILTERING

FFVE/FFVI (FFWE/FFWI RoHS Compliant)

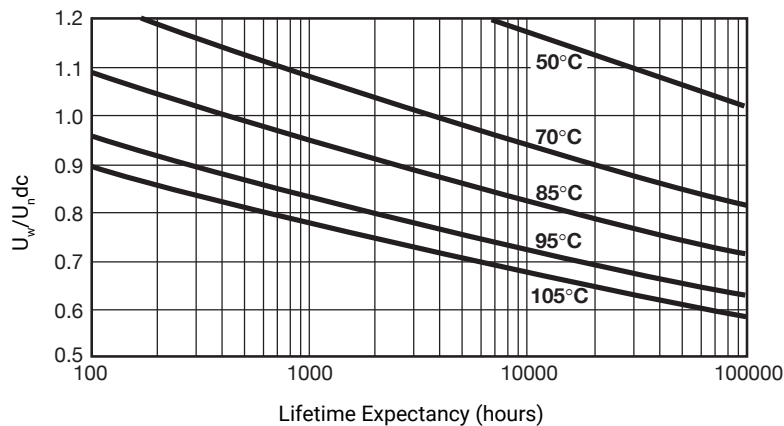
ELECTRICAL CHARACTERISTICS – FFVE/FFWE POLYPROPYLENE DIELECTRIC

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 kV _{rms} /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)
U_{n,dc} 500V (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
U_{n,dc} 700V (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
U_{n,dc} 900V (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
U_{n,dc} 1100V (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

LIFETIME EXPECTANCY FOR FFVI



U_w = Permanent working or operating DC voltage