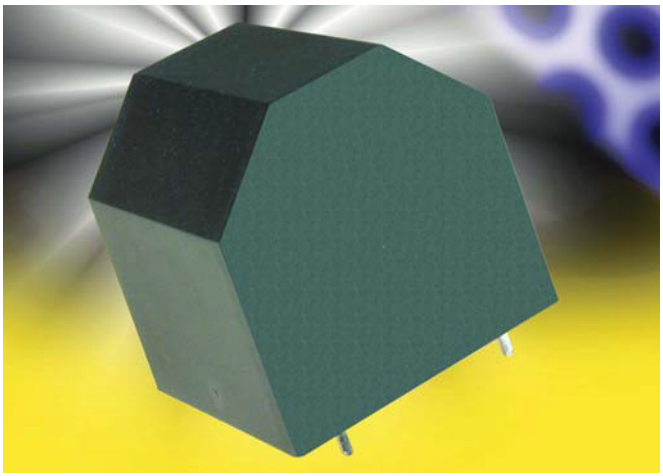
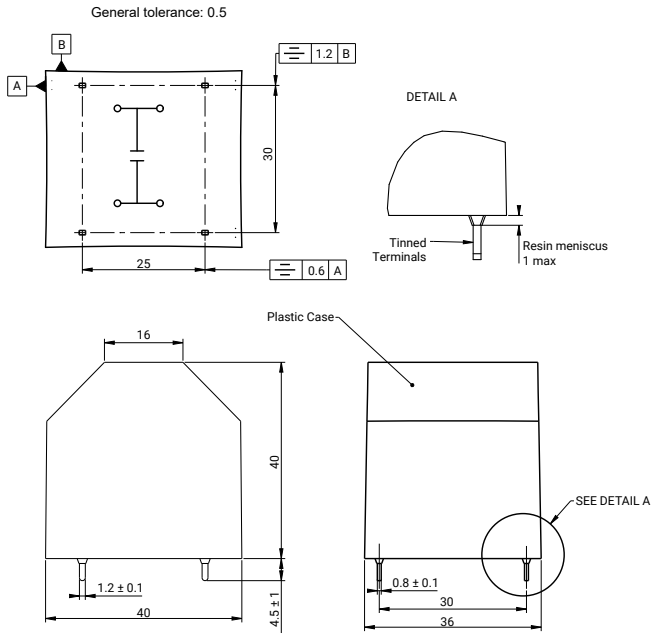
DC FILTERING

FFV3* RoHS Compliant



The series uses a metallized polypropylene or polyester dielectric, with the controlled self-healing process, specially treated to have a very high dielectric strength in operating conditions up to 105°C. This is a dry solution for polypropylene and dry or wet for polyester. The FFV3 has been designed for printed circuit board mounting.



APPLICATIONS

The FFV3 capacitors are particularly designed for DC filtering, low reactive power.

STANDARDS

IEC 61071: Capacitors for power electronics

IEC 60384-16: Fixed metallized polypropylene film dielectric DC capacitors

IEC 60384-16-1: Fixed metallized polypropylene film dielectric DC capacitors Assessment level E

IEC 60384-17: Fixed metallized polypropylene film dielectric AC and pulse capacitors

IEC 60384-17-1: Fixed metallized polypropylene film dielectric AC and pulse capacitors Assessment level E

IEC 60384-2: Fixed metallized polyester capacitors

LIFETIME EXPECTANCY

One unique feature of this technology (as opposed to electrolytics) is how the capacitor reacts at the end of its lifetime. Unlike aluminum, electrolytics film capacitors do not have a catastrophic failure mode. Film capacitors simply experience a parametric loss of capacitance of about 2%, with no risk of short circuit.

Please note that this is theoretical, however, as the capacitor continues to be functional even after this 2% decrease.

PACKAGING MATERIAL

Self-extinguishing plastic case (V-0 = in accordance with UL 94; certified classifications according to EN 45545-2) filled with thermosetting resin.

Self-extinguishing thermosetting resin (V-0 = in accordance with UL 94; certified classifications according to EN 45545-2).

HOT SPOT TEMPERATURE 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(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:
$\Theta_{HS} = \Theta_{case} + (P_j + P_d) \times R_{th}$
or
$\Theta_{HS} = \Theta_{amb} + (P_j + P_d) \times (R_{th} + 7{,}4)$

DC FILTERING

FFV3* for Low Voltage Applications RoHS Compliant

HOW TO ORDER

FFV3 — **Series**

4 — **Dielectric**
4 = Polyester
6 = Polypropylene

D — **Voltage Code**
D = 75Vdc
E = 100Vdc
F = 160Vdc
H = 300Vdc
I = 400Vdc
J = 525Vdc
A = 720Vdc
C = 900Vdc
L = 1100Vdc

K — **Capacitance Tolerances**
K = ±10%

–– — **Lead Styles**
– – = Standard
Consult Factory for Special Options

RoHS COMPLIANT

ELECTRICAL CHARACTERISTICS – POLYESTER DIELECTRIC

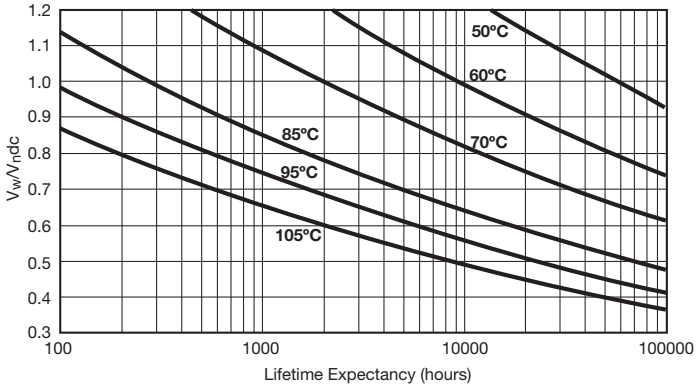
Items	Characteristics
Climatic category	40/105/56 (IEC 60068)
Test voltage between terminals @ 25°C	1.5 x $V_n$dc during 10s
Test voltage between terminals and case @ 25°C "	@ 4 kVrms @ 50 Hz during 1 min.
Capacitance range C_n	30µF to 160µF
Tolerance on C_n	±10%
Rated DC voltage $V_n$dc	75 to 400 V
Dielectric	Polyester
Max Stray Inductance	15nH

RATINGS AND PART NUMBER REFERENCE – POLYESTER DIELECTRIC

Part Number	Capacitance (µF)	$I_{rms\ max.}$ (A)	I^2t_{10} shots (A^2s)	$I^2t_{1000\ shots}$ (A^2s)	R_s (mΩ)	R_{th} (°C/W)	Typical Weight (g)
$V_n$dc = 75 V Vrms = 45 v max Voltage Code: D							
FFV34D0137K--	130	23	370	37	0.56	5.6	90
FFV34D0167K--	160	28	560	56	0.47	5	90
$V_n$dc = 100 V Vrms = 60 v max Voltage Code: E							
FFV34E0806K--	80	19	250	25	0.67	6.2	90
FFV34E0107K--	100	24	390	39	0.55	5.4	90
$V_n$dc = 160 V Vrms = 75 v max Voltage Code: F							
FFV34F0556K--	55	17	180	18	0.77	6.6	90
FFV34F0656K--	65	20	260	26	0.66	6	90
$V_n$dc = 300 V Vrms = 90 v max Voltage Code: H							
FFV34H0406K--	40	20	150	15	2.80	9.6	90
FFV34H0506K--	50	26	230	23	2.25	8.5	90
$V_n$dc = 400 V Vrms = 105 v max Voltage Code: I							
FFV34I0306K--*	30	17	110	11	2.93	9.9	90
FFV34I0406K--*	40	23	200	20	2.21	8.4	90

(*) Polyester dielectric film wet silicone. Silicone oil could resweat in very low quantity (<0,0X ml) without effect on reliability.

LIFETIME EXPECTANCY VS V_W/V_n AND HOT SPOT TEMPERATURE POLYESTER DIELECTRIC



Vw = Permanent working or operating DC voltage.

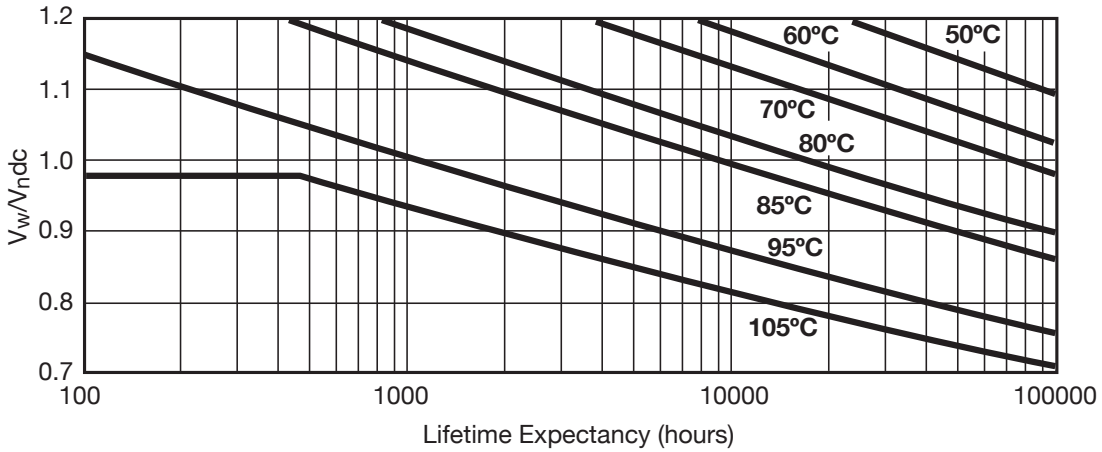
DC FILTERING ELECTRICAL CHARACTERISTICS – POLYPROPYLENE DIELECTRIC

Items	Characteristics
Climatic category	40/105/56 (IEC 60068)
Test voltage between terminals @ 25°C	1.5 x $V_n$dc during 10s
Test voltage between terminals and case @ 25°C "	@ 4 kVrms @ 50 Hz during 1 min.
Capacitance range C_n	6µF to 25µF
Tolerance on C_n	±10%
Rated DC voltage $V_n$dc	500 to 1100 V
Dielectric	Polypropylene
Max Stray Inductance	15nH

RATINGS AND PART NUMBER REFERENCE – POLYPROPYLENE DIELECTRIC

Part Number	Capacitance (µF)	$I_{rms\ max.}$ (A)	I²t 10 shots (A²s)	I²t 1000 shots (A²s)	R_s (mΩ)	R_{th} (°C/W)	Typical Weight (g)
$V_n$dc = 500 V Vrms = 105 v max Voltage Code: J							
FFV36J0206K--	20	27	3200	320	5.88	3.5	90
FFV36J0256K--	25	33	5000	500	4.72	3.1	90
$V_n$dc = 700 V Vrms = 120 v max Voltage Code: A							
FFV36A0146K--	14	21	2000	200	7.34	3.7	90
FFV36A0206K--	20	30	4200	420	5.15	3.1	90
$V_n$dc = 900 V Vrms = 150 v max Voltage Code: C							
FFV36C0106K--	10	19	1600	160	8.21	3.4	90
FFV36C0136K--	13	25	2800	280	6.33	2.9	90
$V_n$dc = 1100 V Vrms = 180 v max Voltage Code: L							
FFV36L0605K--	6	13	800	80	11.4	3.7	90
FFV36L0905K--	9	20	1900	190	7.61	2.9	90

LIFETIME EXPECTANCY VS V_W/V_n AND HOT SPOT TEMPERATURE POLYPROPYLENE DIELECTRIC



Vw = Permanent working or operating DC voltage.