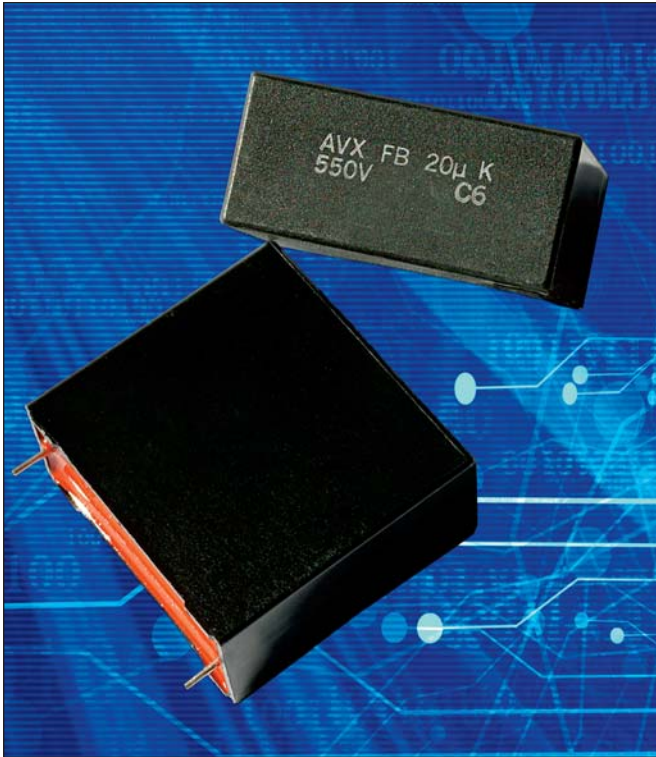


Medium Power Film Capacitors



FB (RoHS Compliant)



The FB series uses a non-impregnated metallized polypropylene dielectric specially treated to have a very high dielectric strength in operating conditions up to 100°C.

The FB has been designed for printed circuit board mounting. FB series performance characteristics make them a viable alternative to aluminum electrolytic technology due to much lower ESR and much higher surge voltage capability (dv/dt).

APPLICATIONS

The FB capacitor is particularly designed for DC filtering, low reactive power.

HOT SPOT CALCULATION

See *Hot Spot Temperature*, page 3.

$\theta_{\text{hot spot}} = \theta_{\text{ambient}} + (P_d + P_t) \times R_{\text{th}}$
with P_d (Dielectric losses) = $Q \times \text{tg}\delta_0$
 $Q \times \text{tg}\delta_0 \Rightarrow [\frac{1}{2} \times C_n \times (V_{\text{peak to peak}})^2 \times f] \times \text{tg}\delta_0$
 $\text{tg}\delta_0$ (tan delta)
For polypropylene, $\text{tg}\delta_0 = 2 \times 10^{-4}$ for frequencies up to 1MHz and is independent of temperatures.

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

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

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; I3F2 = in accordance with NF F 16-101).

STANDARDS

- IEC 61071-1, IEC 61071-2: Power electronic capacitors
- 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

OPERATING TEMPERATURE RANGE

Operating temperature range: -40°C to +100°C

LIFETIME EXPECTANCY

One unique feature of this technology (versus aluminum electrolytics) is how the capacitor reacts at the end of its lifetime.

Unlike aluminum electrolytic, film capacitors do not have a catastrophic failure mode. Film capacitors simply experience a parametric loss of capacitance of about 2% of initial value, with no risk of a short circuit.

The capacitor continues to be functional even after this 2% decrease.

Medium Power Film Capacitors



FB (RoHS Compliant)

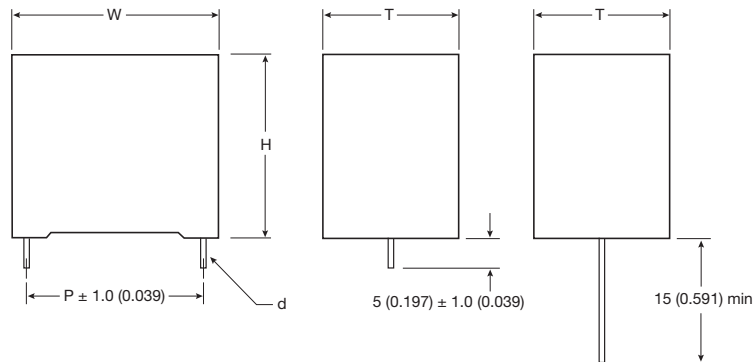
HOW TO ORDER

FB	27	A	6	K	0335	K	C
Series FB	Pitch 27 37 52	Case A H B J C K D L E M S N F P G	Dielectric 6 = Polypropylene	Voltage I = 450V J = 550V A = 700V B = 800V C = 900V K = 1000V L = 1100V P = 1200V	Cap µF Code	Tolerance J = ±5% K = ±10% M = ±20%	Lead Length C = 5mm



DC FILTERING

DIMENSIONS: millimeters (inches)



millimeters (inches)

Case Size	W	H	T	P	d
A	32.0 (1.260)	20.0 (0.787)	11.0 (0.433)	27.5 (1.083)	0.80 (0.031)
B	32.0 (1.260)	22.0 (0.866)	13.0 (0.512)	27.5 (1.083)	0.80 (0.031)
C	32.0 (1.260)	24.5 (0.965)	15.0 (0.591)	27.5 (1.083)	0.80 (0.031)
D	32.0 (1.260)	25.0 (0.984)	16.0 (0.630)	27.5 (1.083)	0.80 (0.031)
E	32.0 (1.260)	28.0 (1.102)	14.0 (0.551)	27.5 (1.083)	0.80 (0.031)
S	32.0 (1.260)	28.0 (1.102)	18.0 (0.709)	27.5 (1.083)	0.80 (0.031)
F	32.0 (1.260)	33.0 (1.299)	18.0 (0.709)	27.5 (1.083)	0.80 (0.031)
G	32.0 (1.260)	37.0 (1.457)	22.0 (0.866)	27.5 (1.083)	0.80 (0.031)
H	42.5 (1.673)	33.5 (1.319)	22.0 (0.866)	37.5 (1.476)	1.00 (0.039)
J	42.5 (1.673)	37.0 (1.457)	28.0 (1.102)	37.5 (1.476)	1.00 (0.039)
K	42.5 (1.673)	40.0 (1.575)	20.0 (0.787)	37.5 (1.476)	1.00 (0.039)
L	42.5 (1.673)	44.0 (1.732)	24.0 (0.945)	37.5 (1.476)	1.00 (0.039)
M	42.5 (1.673)	45.0 (1.772)	30.0 (1.181)	37.5 (1.476)	1.20 (0.047)
N	57.5 (2.264)	45.0 (1.772)	30.0 (1.181)	52.5 (2.067)	1.20 (0.047)
P	57.5 (2.264)	50.0 (1.969)	35.0 (1.378)	52.5 (2.067)	1.20 (0.047)

POLYPROPYLENE DIELECTRIC FOR INDUSTRIAL DC FILTERING

These capacitors have been designed primarily for high and medium power DC filtering applications.

ELECTRICAL CHARACTERISTICS – POLYPROPYLENE DIELECTRIC

Climatic category	40/100/56 (IEC 60068)
Test voltage between terminals @ 25°C	1.5 x V _N dc
Capacitance range C _N	0.68µF to 75µF
Tolerance on C _N	±5%, ±10%, ±20%
Rated DC voltage V _N dc	450 to 1200 V
Dielectric	Polypropylene
Insulation Resistance:	>3,000 MΩ.µF/C after 1 minute electrification @ 100 Vdc & 25°C
Lifetime (ΔC/C ≤ 5%):	100,000hrs @ Ur & 70°C



Medium Power Film Capacitors



FB (RoHS Compliant)

DC FILTERING

Cap (µF)	Rated Voltage (V)	AVX Part Number	Case Size	W ±0.50 (0.020)	H ±0.50 (0.020)	T ±0.50 (0.020)	P ±1.00 (0.039)	d ±0.05 (0.002)	dv/dt Volt/usec	I peak Amps	I rms Amps	ESR mOhms	Ls nH	Rth °C/W	Packaging Qty.
Voltage V_{dc} 1000V Voltage Code: K															
1.5	1000	FB27A6K0155°C	A	32.0 (1.260)	20.0 (0.787)	11.0 (0.433)	27.5 (1.083)	0.80 (0.031)	47.0	70.5	4.5	42.3	25.0	17.5	150
2.0	1000	FB27B6K0205°C	B	32.0 (1.260)	22.0 (0.866)	13.0 (0.512)	27.5 (1.083)	0.80 (0.031)	47.0	94.0	5.5	38.5	25.0	12.9	130
2.5	1000	FB27C6K0255°C	C	32.0 (1.260)	24.5 (0.965)	15.0 (0.591)	27.5 (1.083)	0.80 (0.031)	47.0	117.5	6.0	22.6	25.0	18.4	110
3.0	1000	FB27E6K0305°C	E	32.0 (1.260)	28.0 (1.102)	14.0 (0.551)	27.5 (1.083)	0.80 (0.031)	47.0	141.0	7.0	18.4	25.0	16.6	110
4.7	1000	FB27F6K0475°C	F	32.0 (1.260)	33.0 (1.299)	18.0 (0.709)	27.5 (1.083)	0.80 (0.031)	47.0	220.9	9.0	16.1	27.0	11.5	95
5.0	1000	FB27F6K0505°C	F	32.0 (1.260)	33.0 (1.299)	18.0 (0.709)	27.5 (1.083)	0.80 (0.031)	47.0	235.0	9.0	15.0	27.0	12.3	95
6.8	1000	FB27G6K0685°C	G	32.0 (1.260)	37.0 (1.457)	22.0 (0.866)	27.5 (1.083)	0.80 (0.031)	47.0	319.6	11.0	14.0	27.0	8.9	80
7.5	1000	FB37H6K0755°C	H	42.5 (1.673)	33.5 (1.319)	22.0 (0.866)	37.5 (1.476)	1.00 (0.039)	31.0	232.5	10.0	14.0	30.0	10.7	49
9.0	1000	FB37K6K0905°C	K	42.5 (1.673)	40.0 (1.57)	20.0 (0.787)	37.5 (1.476)	1.00 (0.039)	31.0	279.0	11.0	13.4	30.0	9.3	56
10	1000	FB37K6K0106°C	K	42.5 (1.673)	40.0 (1.57)	20.0 (0.787)	37.5 (1.476)	1.00 (0.039)	31.0	310.0	11.0	12.8	30.0	9.7	56
12	1000	FB37L6K0126°C	L	42.5 (1.673)	44.0 (1.732)	24.0 (0.945)	37.5 (1.476)	1.00 (0.039)	31.0	372.0	12.0	9.4	30.0	11.1	42
15	1000	FB37M6K0156°C	M	42.5 (1.673)	45.0 (1.772)	30.0 (1.181)	37.5 (1.476)	1.20 (0.047)	31.0	465.0	14.0	8.0	33.0	9.6	44
22	1000	FB52N6K0226°C	N	57.5 (2.264)	45.0 (1.772)	30.0 (1.181)	52.5 (2.067)	1.20 (0.047)	21.0	462.0	13.0	7.5	35.0	11.8	25
30	1000	FB52P6K0306°C	P	57.5 (2.264)	50.0 (1.969)	35.0 (1.378)	52.5 (2.067)	1.20 (0.047)	21.0	630.0	14.0	7.0	37.0	10.9	20
Voltage V_{dc} 1100V Voltage Code: L															
1.2	1100	FB27A6L0125°C	A	32.0 (1.260)	20.0 (0.787)	11.0 (0.433)	27.5 (1.083)	0.80 (0.031)	70.0	84.0	3.4	40.5	25.0	33.0	150
1.5	1100	FB27B6L0155°C	B	32.0 (1.260)	22.0 (0.866)	13.0 (0.512)	27.5 (1.083)	0.80 (0.031)	70.0	105.0	3.8	34.3	25.0	31.1	130
2.0	1100	FB27C6L0205°C	C	32.0 (1.260)	24.5 (0.965)	15.0 (0.591)	27.5 (1.083)	0.80 (0.031)	70.0	140.0	4.5	23.0	25.0	32.2	110
2.2	1100	FB27C6L0225°C	C	32.0 (1.260)	24.5 (0.965)	15.0 (0.591)	27.5 (1.083)	0.80 (0.031)	70.0	154.0	4.9	21.6	25.0	28.7	110
2.5	1100	FB27E6L0255°C	E	32.0 (1.260)	28.0 (1.102)	14.0 (0.551)	27.5 (1.083)	0.80 (0.031)	70.0	175.0	5.3	19.3	25.0	28.3	110
3.3	1100	FB27F6L0335°C	F	32.0 (1.260)	33.0 (1.299)	18.0 (0.709)	27.5 (1.083)	0.80 (0.031)	70.0	231.0	6.8	14.0	27.0	23.2	95
4.0	1100	FB27F6L0405°C	F	32.0 (1.260)	33.0 (1.299)	18.0 (0.709)	27.5 (1.083)	0.80 (0.031)	70.0	280.0	8.0	11.5	27.0	20.4	95
4.7	1100	FB27G6L0475°C	G	32.0 (1.260)	37.0 (1.457)	22.0 (0.866)	27.5 (1.083)	0.80 (0.031)	70.0	329.0	8.6	10.0	27.0	20.3	80
6.8	1100	FB37H6L0685°C	H	42.5 (1.673)	33.5 (1.319)	22.0 (0.866)	37.5 (1.476)	1.00 (0.039)	45.0	306.0	11.0	14.0	30.0	8.9	49
7.5	1100	FB37H6L0755°C	H	42.5 (1.673)	33.5 (1.319)	22.0 (0.866)	37.5 (1.476)	1.00 (0.039)	45.0	337.5	11.5	12.0	30.0	9.5	49
10	1100	FB37L6L0106°C	L	42.5 (1.673)	44.0 (1.732)	24.0 (0.945)	37.5 (1.476)	1.00 (0.039)	45.0	450.0	14.0	9.0	30.0	8.5	42
12	1100	FB37M6L0126°C	M	42.5 (1.673)	45.0 (1.772)	30.0 (1.181)	37.5 (1.476)	1.20 (0.047)	45.0	540.0	15.5	7.5	33.0	8.3	44
20	1100	FB52N6L0206°C	N	57.5 (2.264)	45.0 (1.772)	30.0 (1.181)	52.5 (2.067)	1.20 (0.047)	23.0	460.0	14.0	9.0	35.0	8.5	25
22	1100	FB52P6L0226°C	P	57.5 (2.264)	50.0 (1.969)	35.0 (1.378)	52.5 (2.067)	1.20 (0.047)	23.0	506.0	15.5	8.0	38.0	7.8	20
25	1100	FB52P6L0256°C	P	57.5 (2.264)	50.0 (1.969)	35.0 (1.378)	52.5 (2.067)	1.20 (0.047)	23.0	575.0	16.0	7.0	38.0	8.4	20
Voltage V_{dc} 1200V Voltage Code: P															
0.68	1200	FB27A6P0684°C	A	32.0 (1.260)	20.0 (0.787)	11.0 (0.433)	27.5 (1.083)	0.80 (0.031)	80.0	54.4	2.2	65.4	25.0	47.4	150
1.0	1200	FB27B6P0105°C	B	32.0 (1.260)	22.0 (0.866)	13.0 (0.512)	27.5 (1.083)	0.80 (0.031)	80.0	80.0	3.0	43.0	25.0	38.8	130
1.5	1200	FB27C6P0155°C	C	32.0 (1.260)	24.5 (0.965)	15.0 (0.591)	27.5 (1.083)	0.80 (0.031)	80.0	120.0	4.0	32.3	25.0	29.1	110
2.0	1200	FB27F6P0205°C	F	32.0 (1.260)	33.0 (1.299)	18.0 (0.709)	27.5 (1.083)	0.80 (0.031)	80.0	160.0	5.0	21.5	27.0	27.9	95
2.2	1200	FB27F6P0225°C	F	32.0 (1.260)	33.0 (1.299)	18.0 (0.709)	27.5 (1.083)	0.80 (0.031)	80.0	176.0	5.5	19.8	27.0	25.1	95
2.5	1200	FB27F6P0255°C	F	32.0 (1.260)	33.0 (1.299)	18.0 (0.709)	27.5 (1.083)	0.80 (0.031)	80.0	200.0	5.8	18.0	27.0	24.8	95
3.0	1200	FB27F6P0305°C	F	32.0 (1.260)	33.0 (1.299)	18.0 (0.709)	27.5 (1.083)	0.80 (0.031)	80.0	240.0	6.5	14.5	27.0	24.5	95
3.3	1200	FB27G6P0335°C	G	32.0 (1.260)	37.0 (1.457)	22.0 (0.866)	27.5 (1.083)	0.80 (0.031)	80.0	264.0	7.2	13.0	27.0	22.3	80
4.0	1200	FB27G6P0405°C	G	32.0 (1.260)	37.0 (1.457)	22.0 (0.866)	27.5 (1.083)	0.80 (0.031)	80.0	320.0	8.0	11.0	27.0	21.3	80
4.7	1200	FB37H6P0475°C	H	42.5 (1.673)	33.5 (1.319)	22.0 (0.866)	37.5 (1.476)	1.00 (0.039)	55.0	258.5	6.3	20.0	30.0	18.9	49
5.0	1200	FB37H6P0505°C	H	42.5 (1.673)	33.5 (1.319)	22.0 (0.866)	37.5 (1.476)	1.00 (0.039)	55.0	275.0	6.5	17.0	30.0	20.9	49
6.8	1200	FB37L6P0685°C	L	42.5 (1.673)	44.0 (1.732)	24.0 (0.945)	37.5 (1.476)	1.00 (0.039)	55.0	374.0	8.0	14.3	30.0	16.4	42
7.5	1200	FB37L6P0755°C	L	42.5 (1.673)	44.0 (1.732)	24.0 (0.945)	37.5 (1.476)	1.00 (0.039)	55.0	412.5	8.8	11.3	30.0	17.2	42
10	1200	FB37M6P0106°C	M	42.5 (1.673)	45.0 (1.772)	30.0 (1.181)	37.5 (1.476)	1.20 (0.047)	55.0	550.0	11.0	8.5	33.0	14.6	44
12	1200	FB52N6P0126°C	N	57.5 (2.264)	45.0 (1.772)	30.0 (1.181)	52.5 (2.067)	1.20 (0.047)	35.0	420.0	9.0	14.0	35.0	13.2	25
15	1200	FB52N6P0156°C	N	57.5 (2.264)	45.0 (1.772)	30.0 (1.181)	52.5 (2.067)	1.20 (0.047)	35.0	525.0	10.0	11.0	35.0	13.6	25
20	1200	FB52P6P0206°C	P	57.5 (2.264)	50.0 (1.969)	35.0 (1.378)	52.5 (2.067)	1.20 (0.047)	35.0	700.0	13.0	8.5	38.0	10.4	20

Dimensions in millimeters (inches)

* Insert K for 10% capacitance tolerance (standard); J = +5% and M = +20% tolerances available on request.

Last character C denotes 5.00mm (0.197in) lead length (standard). For L option (15mm (0.591in)) contact factory for availability.

Values outside this standard range may be available – please contact AVX for any special requirements.

AVX reserves the right to supply capacitors to a tighter capacitance tolerance or higher voltage rating, in the same case size.

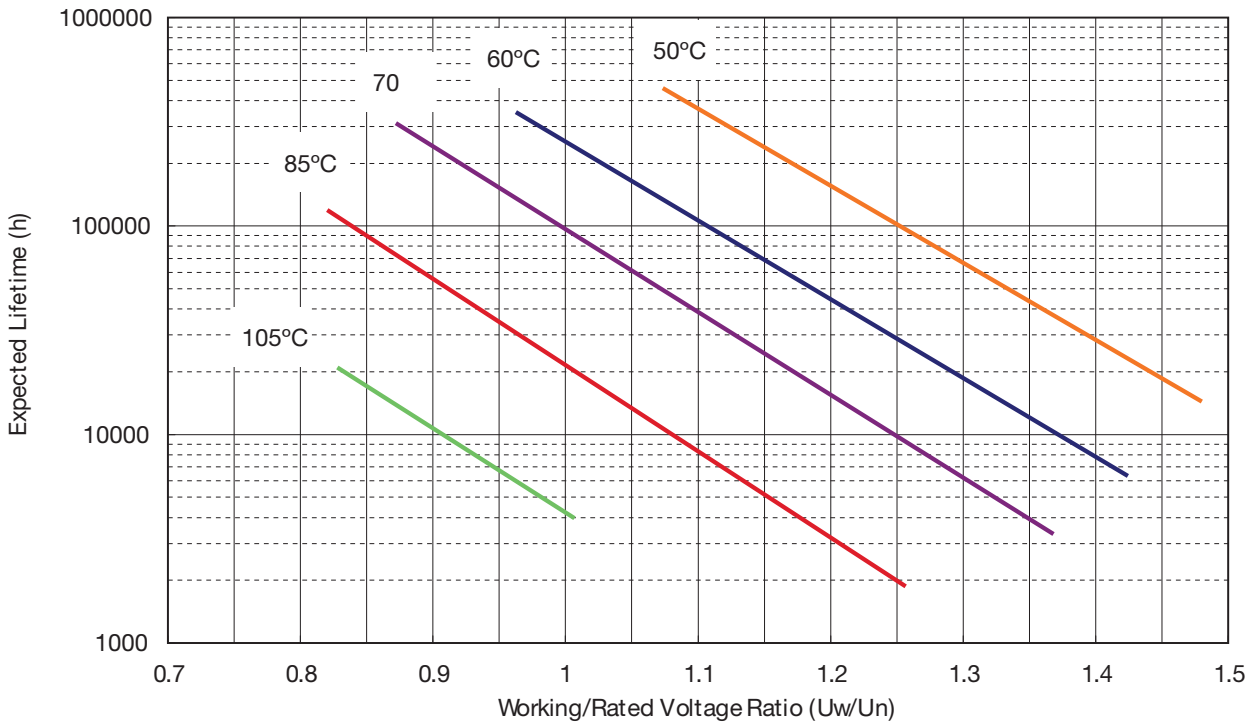


Medium Power Film Capacitors

FB (RoHS Compliant)



TYPICAL LIFETIME* CHARACTERISTICS



DC FILTERING

*Lifetime is the number of operating hours required for the capacitor to lose 3% of its initial value.

