

Medium Power Film Capacitors

FFG Design (FFH-RoHS Compliant)



DC FILTERING



GENERAL DESCRIPTION

The FFG series uses a non-impregnated metallized dielectric, which features a controlled self-healing process.

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).

STANDARDS

IEC 61071-1, IEC 61071-2: Power electronic capacitors
IEC 60068-1: Environmental testing
UL 94: Fire requirement

HOT SPOT CALCULATION

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

with P_d (Dielectric losses) = $Q \times \text{tg}\delta_0$ and $\text{tg}\delta_0 = 2.10$, where $Q = \frac{I_{rms}^2}{C \cdot 2 \cdot \pi \cdot f}$

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

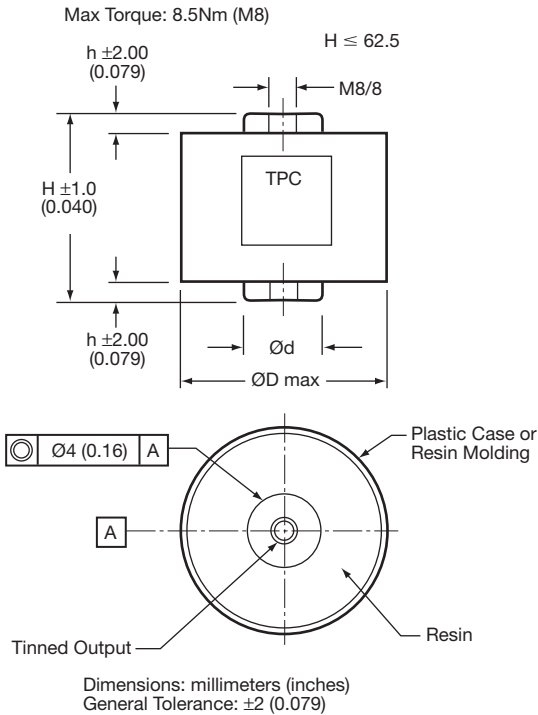
where C_n in Farad I_{rms} in Ampere f in Hertz
V in Volt R_s in Ohm θ in °C
 R_{th} in °C/W

HOW TO ORDER

FFG	8	6	K	0376	K	--
Series	Case Size	Dielectric	Voltage Code	Capacitance Code	Capacitance Tolerances	Voltage Range
FFG = Standard FFH = RoHS Compliant	8	6 = Polypropylene	K = 600Vdc B = 800Vdc C = 900Vdc L = 1000Vdc U = 1200Vdc N = 1900Vdc	0 + pF code 0376 = 36µF 0256 = 25µF 0505 = 5µF etc.	K = ±10%	-- = < 1kV J7 = ≥ 1kV

DIMENSIONS (CASE SIZES)

plastic case – Outputs: threaded insert M8 filled with thermosetting resin



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ELECTRICAL CHARACTERISTICS

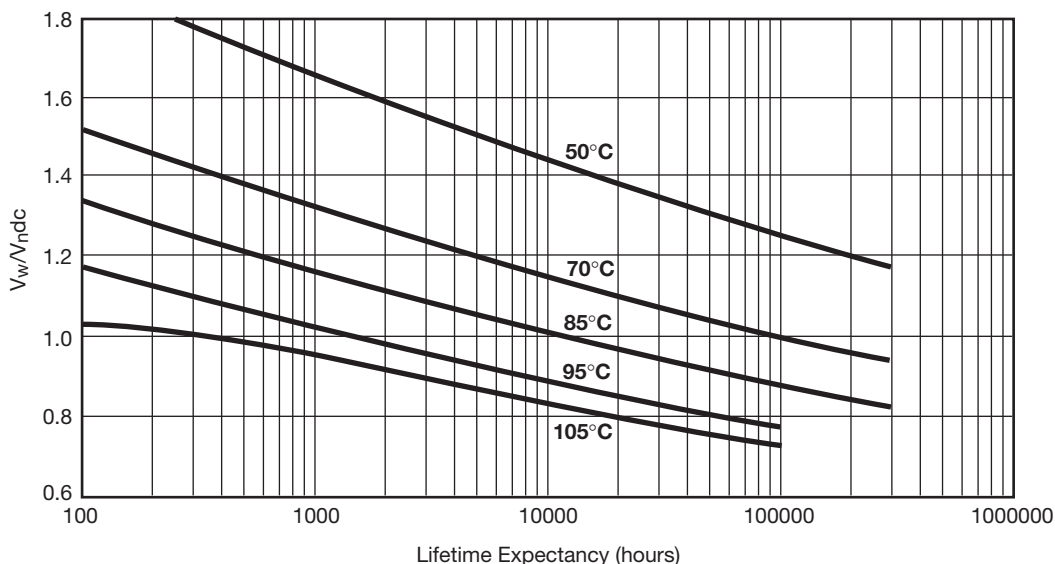
Operating temperature:	-40°C + 105°C
Storage temperature:	-55°C + 85°C
Capacitance range:	5μF to 160μF
Rated DC voltage V _{ndc} :	600 to 900 V
Capacitance tolerance:	±10%
Test voltage between terminals:	@ 25°C: 1.5 x U _n dc during 10s
Test voltage between terminals and case:	@ 25°C: @ 4 kVrms @ 50 Hz during 1 mn (test type)
Dielectric	Polypropylene

RATINGS AND PART NUMBER REFERENCE (600V TO 900V)

Part Number	C _n (μF)	Height ±1 (±0.039)	h ±2 (±0.079)	D max)	d ±0.50	I ² t max (±0.020)	I _{rms} max (A ² s)	R _s (mΩ) (A)	R _{th} (°C/W)	Typical Weight (g)
U_ndc 600 V (Voltage Code K)										
FFG86K0376K--	37	52 (2.072)	5 (0.197)	60 (2.362)	22 (0.866)	4	28	1.3	10.1	190
FFG86K0586K--	58	52 (2.072)	5 (0.197)	72 (2.835)	22 (0.866)	10	44	1	6.4	260
FFG86K0806K--	80	52 (2.072)	5 (0.197)	82 (3.228)	22 (0.866)	20	61	0.7	4.9	320
FFG86K0167K--	160	62.5 (2.461)	5 (0.197)	92 (3.622)	22 (0.866)	32	76	0.8	5.8	475
U_ndc 800 V (Voltage Code B)										
FFG86B0236K--	23	52 (2.072)	5 (0.197)	60 (2.362)	22 (0.866)	3	26	1.7	10.1	190
FFG86B0376K--	37	52 (2.072)	5 (0.197)	72 (2.835)	22 (0.866)	8	43	1.2	6.5	260
FFG86B0516K--	51	52 (2.072)	5 (0.197)	82 (3.228)	22 (0.866)	15	59	0.9	4.8	320
FFG86B0107K--	100	62.5 (2.461)	5 (0.197)	92 (3.622)	22 (0.866)	24	73	1	5.9	475
U_ndc 900 V (Voltage Code C)										
FFG86C0166K--	16	52 (2.072)	5 (0.197)	60 (2.362)	22 (0.866)	2.8	27	2	9.8	190
FFG86C0266K--	26	52 (2.072)	5 (0.197)	72 (2.835)	22 (0.866)	7	44	1.3	6.5	260
FFG86C0356K--	35	52 (2.072)	5 (0.197)	82 (3.228)	22 (0.866)	13	60	1	4.8	320
FFG86C0706K--	70	62.5 (2.461)	5 (0.197)	92 (3.622)	22 (0.866)	20	75	1.2	5.8	475

Dimensions millimeters (inches)

LIFETIME EXPECTANCY vs HOT SPOT TEMPERATURE AND VOLTAGE



V_w = Permanent working or operating DC voltage.

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ELECTRICAL CHARACTERISTICS

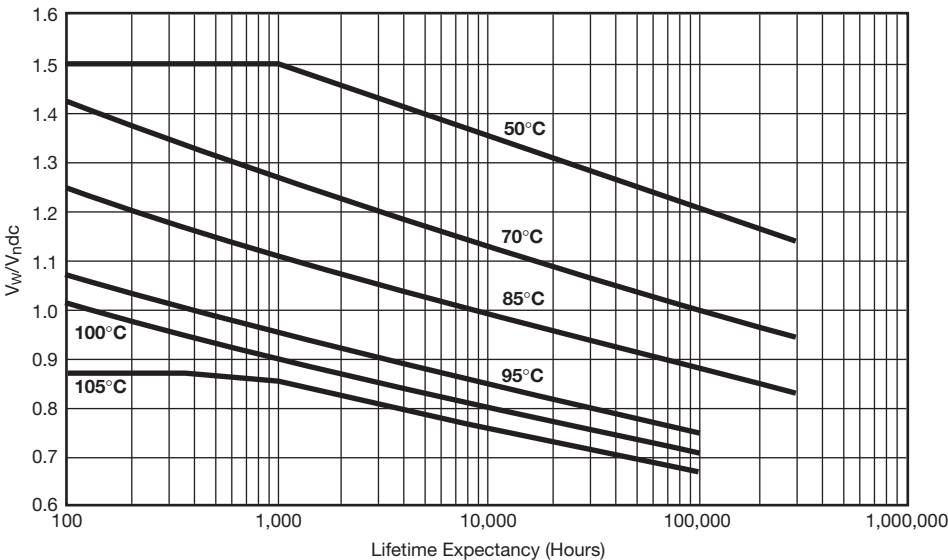
Operating temperature:	-40°C + 105°C
Storage temperature:	-55°C + 85°C
Capacitance range:	5μF to 160μF
Rated DC voltage V _{ndc} :	1000 to 1900 V
Capacitance tolerance:	±10%
Test voltage between terminals:	@ 25°C: 1.5 x U _n dc during 10s
Test voltage between terminals and case:	@ 25°C: @ 4 kVrms @ 50 Hz during 1 mn (test type)
Dielectric	Polypropylene

RATINGS AND PART NUMBER REFERENCE (600V TO 900V)

Part Number	C _n (μF)	Height ±1 (±0.039)	h ±2 (±0.079)	D max)	d ±0.50	I _{2t} max (±0.020)	I _{rms} max (A ² s)	R _s (mΩ) (A)	R _{th} (°C/W)	Typical Weight (g)
U_ndc 1000 V (Voltage Code K)										
FFG86L0256KJ7	25	52 (2.072)	5 (0.197)	60 (2.362)	22 (0.866)	1.9	21	3.6	9.9	190
FFG86L0406KJ7	40	52 (2.072)	5 (0.197)	72 (2.835)	22 (0.866)	5	34	2.32	6.4	260
FFG86L0556KJ7	55	52 (2.072)	5 (0.197)	82 (3.228)	22 (0.866)	9.5	46	1.74	4.7	320
FFG86L0117KJ7	110	62.5 (2.461)	5 (0.197)	92 (3.622)	22 (0.866)	14.9	58	1.86	5.7	475
U_ndc 1200 V (Voltage Code U)										
FFG86U0176KJ7	17	52 (2.072)	5 (0.197)	60 (2.362)	22 (0.866)	1.3	19	4.33	9.9	190
FFG86U0276KJ7	27	52 (2.072)	5 (0.197)	72 (2.835)	22 (0.866)	3.3	30	2.8	6.5	260
FFG86U0376KJ7	37	52 (2.072)	5 (0.197)	82 (3.228)	22 (0.866)	6.2	41	2.1	4.8	320
FFG86U0766KJ7	76	62.5 (2.461)	5 (0.197)	92 (3.622)	22 (0.866)	10.3	53	2.2	5.6	475
U_ndc 1900 V (Voltage Code N)										
FFG86N0505KJ7	5	52 (2.072)	5 (0.197)	60 (2.362)	22 (0.866)	1.7	19	2.77	11.3	190
FFG86N0905KJ7	9	52 (2.072)	5 (0.197)	72 (2.835)	22 (0.866)	5.5	35	1.63	6.6	260
FFG86N0126KJ7	12	52 (2.072)	5 (0.197)	82 (3.228)	22 (0.866)	9.9	46	1.27	5	320
FFG86N0256KJ7	25	62.5 (2.461)	5 (0.197)	92 (3.622)	22 (0.866)	18	63	1.2	5.2	475

Dimensions millimeters (inches)

LIFETIME EXPECTANCY vs HOT SPOT TEMPERATURE AND VOLTAGE



V_w = Permanent working or operating DC voltage.

