

Capacitors for Power Electronics



FFLI (RoHS Compliant)

DC FILTERING



USUAL APPLICATIONS

The FFLI capacitor is specifically designed for DC filtering,

PACKAGING MATERIAL

Aluminium cylindrical case filled thermosetting resin.

Self extinguishing thermosetting resin (V0 : in accordance with UL 94 ; M2F1 : in accordance with NF F 16-101).

Self extinguishing plastic cover (V0 : in accordance with UL 94)
ROHS components

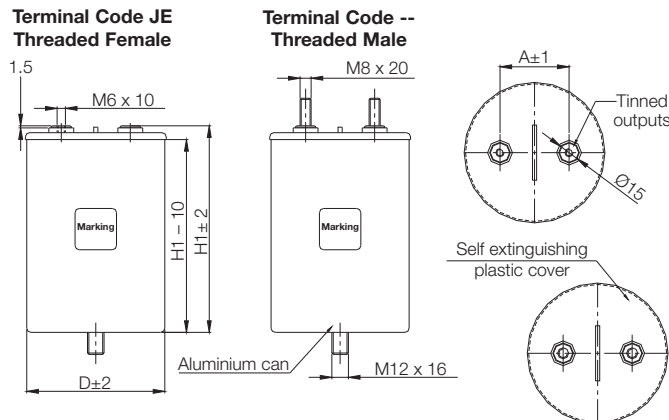
LIFETIME EXPECTANCY

One unique feature of this technology (as opposed to electrolytics) is how the capacitor reacts at the end of its lifetime. Whereas with an electrolytic there is a strong risk of explosion of the case. However with our line of film capacitors, the capacitor will simply experience at the end of life a loss of capacitance of about 5%, with no risk of explosion.

Please note that this is theoretical, however, as the capacitor continues to be functional even after this 5% decrease.

Expected life time for FFLI range:
100 000 Hrs / $U_{n,dc}$ / Hot-spot temperature = 65°C.

DIMENSIONS



MARKING

Capacitance value	Max Torque M6 = 4.5.Nm
Nominal dc voltage	Max Torque M8 = 8.5Nm
Maximum rms current	Max Torque M12 = 15Nm
Batch number	
Coded date according IEC62	

STANDARDS

- IEC 61071: Power electronic capacitors
- IEC 60068-1: Environmental testing
- IEC 61373: Shocks and vibrations
- UL 94: Fire requirements
- UL810: Capacitors

HOT SPOT CALCULATION

See *Hot Spot Temperature*, page 3.

For all applications, the hot spot temperature must be lower than 95°C.

$$\theta_{\text{hot spot}} = \theta_{\text{ambient}} + [\text{tg}\delta \cdot Q + R_s \cdot (I_{\text{rms}})^2] \cdot R_{\text{th}}$$

With:

Q : Reactive power in Var

R_s in Ohm

I_{rms} in Ampere

R_{th} : Rth ambient / hot spot in °C/W

$\text{tg} \delta_0 \cdot (10^{-4})$ is the tangent of loss angle for polypropylene dielectric. Polypropylene has a constant dielectric loss factor of 2×10^{-4} irrespective of temperature and frequency (up to 1 MHz).

θ_{Ambient} : Ambient Temperature in °C

HOW TO ORDER

FFLI	6	L	0337	K	--
Series	Dielectric 6 = Polypropylene	Voltage Code L = 1000V U = 1200V Q = 1400V	Capacitance Code Capacitance Values with 2 significant digits: 0 + pF code 0397 = 390µF 0167 = 160µF etc.	Capacitance Tolerances K = ±10%	Terminal Code -- = Male Threaded JE = Female Threaded

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FFLI Design

ELECTRICAL CHARACTERISTICS

Dry with controlled self-healing metallized polypropylene dielectric.

Climatic Category	40/95/56 (IEC68)
Working temperature	-40°C / + 95°C (according to the power dissipated)
Storage temperature	-40°C / +85°C
Test voltage between terminals	@ 25°C: 1.5 x U _n dc during 10s
Test voltage between terminals and case	@ 25°C:@ 4 kVrms @ 50Hz during 1 min.
Dielectric	Polypropylene

RATINGS AND PART NUMBER REFERENCE

Part Number	Capacitance (µF)	D	H1	A	I _{rms} (A)	I ² t (A ² s)	L _s max. (nH)	R _s (mΩ)	R _{th} (°C/W)	Typical Weight (g)
U_ndc 800V										
FFLI6B0297K--	290	75 (2.953)	105 (4.134)	32 (1.260)	50	13	60	4.1	4.1	500
FFLI6B0397K--	390	85 (3.346)	105 (4.134)	32 (1.260)	62	23	60	2.9	3.6	600
FFLI6B0507K--	500	75 (2.953)	155 (6.102)	32 (1.260)	45	13	85	5.6	3.6	600
FFLI6B0687K--	680	85 (3.346)	155 (6.102)	32 (1.260)	53	24	85	4.3	3.3	900
FFLI6B0817K--	810	85 (3.346)	180 (7.087)	32 (1.260)	50	23	100	5.1	3.1	1100
FFLI6B1007K--	1000	100 (3.937)	155 (6.102)	50 (13.78)	65	52	85	3.2	3.0	1200
FFLI6B1207K--	1200	100 (3.937)	180 (7.087)	50 (13.78)	61	52	100	3.7	2.9	1500
FFLI6B1357K--	1350	116 (4.567)	155 (6.102)	50 (13.78)	77	95	85	2.5	2.6	1700
FFLI6B1607K--	1600	116 (4.567)	180 (7.087)	50 (13.78)	72	93	100	3.0	2.6	2000
FFLI6B1907K--	1900	116 (4.567)	240 (9.449)	50 (13.78)	110	300	140	1.4	2.4	2600
FFLI6B2407K--	2400	116 (4.567)	290 (11.42)	50 (13.78)	100	300	170	1.6	2.2	3200
FFLI6B3007K--	3000	116 (4.567)	340 (13.39)	50 (13.78)	100	320	200	1.9	2.0	3800
U_ndc 1000V										
FFLI6L0197K--	190	75 (2.953)	105 (4.134)	32 (1.260)	46	8	60	4.5	4.1	200
FFLI6L0267K--	260	85 (3.346)	105 (4.134)	32 (1.260)	56	15	60	3.4	3.6	300
FFLI6L0337K--	330	75 (2.953)	155 (6.102)	32 (1.260)	40	8	85	6.8	3.6	600
FFLI6L0457K--	450	85 (3.346)	155 (6.102)	32 (1.260)	48	16	85	5.2	3.3	900
FFLI6L0547K--	540	85 (3.346)	180 (7.087)	32 (1.260)	45	16	100	6.1	3.1	1100
FFLI6L0657K--	650	100 (3.937)	155 (6.102)	50 (13.78)	60	33	85	3.8	3.0	1200
FFLI6L0787K--	780	100 (3.937)	180 (7.087)	50 (13.78)	55	33	100	4.5	2.9	1500
FFLI6L0907K--	900	116 (4.567)	155 (6.102)	50 (13.78)	72	64	85	2.9	2.6	1700
FFLI6L1107K--	1100	116 (4.567)	180 (7.087)	50 (13.78)	68	66	100	3.4	2.6	2000
FFLI6L1307K--	1300	116 (4.567)	240 (9.449)	50 (13.78)	100	210	140	1.5	2.4	2600
FFLI6L1807K--	1800	116 (4.567)	290 (11.42)	50 (13.78)	95	200	170	1.9	2.2	3200
FFLI6L2207K--	2200	116 (4.567)	340 (13.39)	50 (13.78)	95	200	200	2.2	2.0	3800
U_ndc 1150V										
FFLI6U0157K--	150	75 (2.953)	105 (4.134)	32 (1.260)	44	6	60	5.0	4.1	500
FFLI6U0207K--	200	85 (3.346)	105 (4.134)	32 (1.260)	53	11	60	3.9	3.6	600
FFLI6U0267K--	260	75 (2.953)	155 (6.102)	32 (1.260)	39	7	85	7.4	3.6	600
FFLI6U0357K--	350	85 (3.346)	155 (6.102)	32 (1.260)	45	12	85	5.9	3.3	900
FFLI6U0437K--	430	85 (3.346)	180 (7.087)	32 (1.260)	43	12	100	6.8	3.1	1100
FFLI6U0537K--	530	100 (3.937)	155 (6.102)	50 (13.78)	57	27	85	4.1	3.0	1200
FFLI6U0637K--	630	100 (3.937)	180 (7.087)	50 (13.78)	53	27	100	4.9	2.9	1500
FFLI6U0727K--	720	116 (4.567)	155 (6.102)	50 (13.78)	69	51	85	3.2	2.6	1700
FFLI6U0867K--	860	116 (4.567)	180 (7.087)	50 (13.78)	64	50	100	3.8	2.6	2000
FFLI6U1007K--	1000	116 (4.567)	240 (9.449)	50 (13.78)	95	160	140	1.7	2.4	2600
FFLI6U1307K--	1300	116 (4.567)	290 (11.42)	50 (13.78)	90	160	170	2.0	2.2	3200
FFLI6U1607K--	1600	116 (4.567)	340 (13.39)	50 (13.78)	90	160	200	2.3	2.0	3800
U_ndc 1400V										
FFLI6Q1056K--	105	75 (2.953)	105 (4.134)	32 (1.260)	41	5	60	5.8	4.1	500
FFLI6Q0147K--	140	85 (3.346)	105 (4.134)	32 (1.260)	50	8	60	4.5	3.6	600
FFLI6Q1856K--	185	75 (2.953)	155 (6.102)	32 (1.260)	35	5	85	8.8	3.6	600
FFLI6Q0257K--	250	85 (3.346)	155 (6.102)	32 (1.260)	42	9	85	6.7	3.3	900
FFLI6Q0307K--	300	85 (3.346)	180 (7.087)	32 (1.260)	40	9	100	7.9	3.1	1100
FFLI6Q0367K--	360	100 (3.937)	155 (6.102)	50 (13.78)	52	18	85	4.8	3.0	1200
FFLI6Q0447K--	440	100 (3.937)	180 (7.087)	50 (13.78)	50	19	100	5.6	2.9	1500
FFLI6Q0507K--	500	116 (4.567)	155 (6.102)	50 (13.78)	65	36	85	3.7	2.6	1700
FFLI6Q0607K--	600	116 (4.567)	180 (7.087)	50 (13.78)	60	35	100	4.3	2.6	2000
FFLI6Q0707K--	700	116 (4.567)	240 (9.449)	50 (13.78)	90	120	140	1.9	2.4	2600
FFLI6Q0907K--	900	116 (4.567)	290 (11.42)	50 (13.78)	90	120	170	2.3	2.2	3200
FFLI6Q1107K--	1100	116 (4.567)	340 (13.39)	50 (13.78)	85	120	200	2.7	2.0	3800

*Change "--" to "JE" for female terminals

Dimensions millimeters (inches)