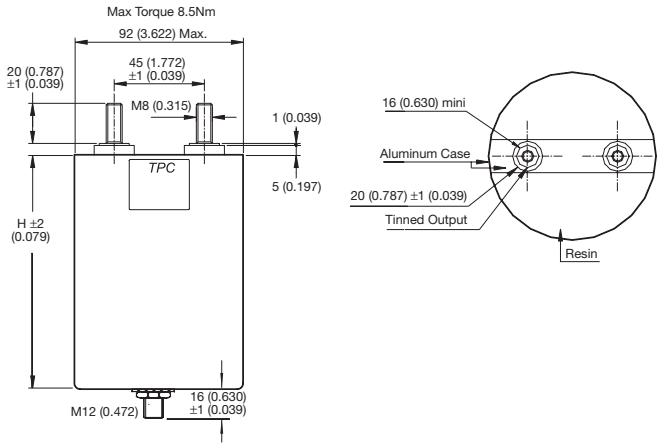
Medium Power Film Capacitors

FFLI Design

DC FILTERING

PACKAGING - also available with female connections

Cylindrical resin-filled aluminum case.



ELECTRICAL CHARACTERISTICS

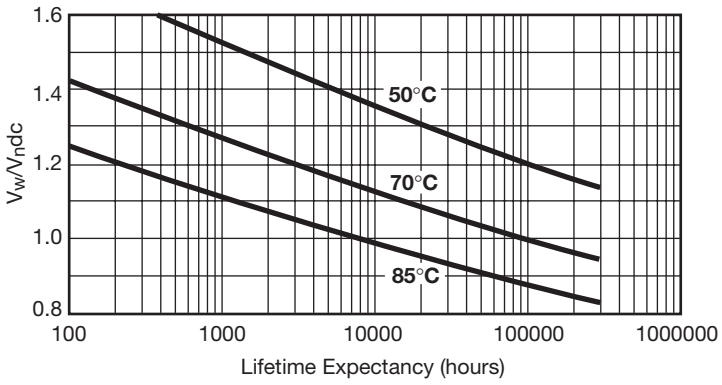
Capacitance range C_n	160µF to 390µF
Tolerance on C_n	±10%
Rated DC voltage $V_n$dc	1000 to 1200 V
Maximum rms current I_{rms} max	60 Arms
Stray inductance L_s	60 nH to 85 nH
Test voltage between terminals @ 25°C	1.5 $V_n$dc 10 s
Test voltage between terminals and case @25°C	4 kVrms @ 50 Hz during 1 min.

POLYPROPYLENE DIELECTRIC

mm (inches)

Capacitance (µF)	Height	I_{rms} (A)	Ls (nH)	Rs (mΩ)	Rth (°C/W)	Weight (kg)	Part Number
$V_n$dc = 1000 V							
390	145 (5.709)	60	85	5.2	2.4	1.2	FFLI6L0397K--
230	97 (3.819)	60	60	3.5	3.1	0.8	FFLI6L0237K--
$V_n$dc = 1200 V							
270	145 (5.709)	60	85	6.1	2.4	1.2	FFLI6U0277K--
160	97 (3.819)	60	60	4.1	3.1	0.8	FFLI6U0167K--

LIFETIME EXPECTANCY vs HOT SPOT TEMPERATURE AND VOLTAGE



V_W: permanent working or operating DC-voltage.

ELECTRICAL CHARACTERISTICS

Maximum overvoltage (V_S): V_S = 1.8 $V_n$dc

Voltages and overvoltages withstanding for 100,000 hours at $V_n$dc and 50°C hot spot temperature:

Voltage Value	Duration
V_{dc} = 1.67 x $V_n$dc	≤ 100ms_1 time per day
+V_{dc} = 1.5 x $V_n$dc	5 min._1 time per day
+V_{dc} = 1.3 x $V_n$dc	2.5 hours_1 time per day
+V_{dc} = 1.1 x $V_n$dc	40% of the 0n-load duration
+V_{dc} = $V_n$dc	≅50% of the 0n-load duration
Sum	100,000 hours

HOT SPOT CALCULATION

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

with P_d (Dielectric losses) = Q x $tg\delta_0$

$\Rightarrow [\frac{1}{2} \times C_n \times (V_{peak\ to\ peak})^2 \times f] \times (2 \times 10^{-4})$

P_t (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