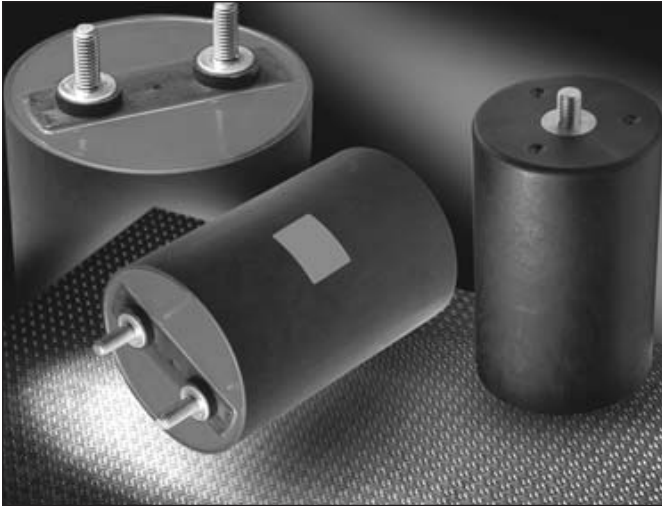


# Medium Power Film Capacitors



## FFLB Design

DC FILTERING



### APPLICATIONS

The FFLB is specifically designed for DC filtering, low reactive power.

### PACKAGING

Self-extinguishing plastic case (V-0 in accordance with UL 94; M2 in accordance with NFP 92-507; Type GET-30F in accordance with mil-M-24519) filled thermosetting resin.

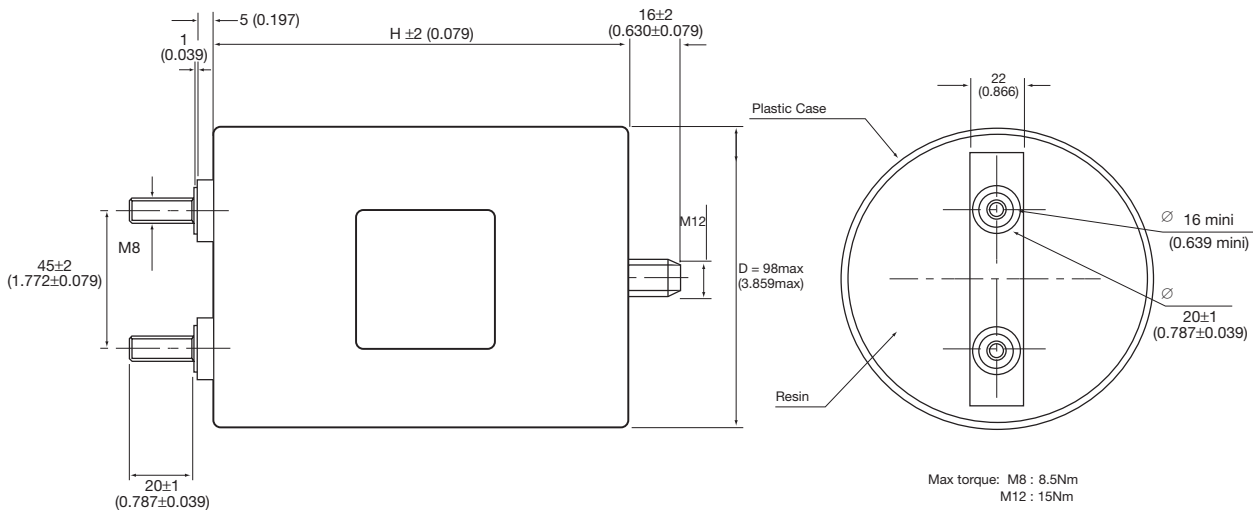
FFLB capacitors meet the level 2 requirement of the fire behavior standard NF F 16 102.

### PRESENTATION

Cylindric resin filled plastic case

2 x M8 terminals

Available with M5\*7.5 female terminal upon request (last codification digit "--" become in that case "JE")



### ELECTRICAL CHARACTERISTICS

|                                                                                        |                                                                                                                                                                                                                                                                    |
|----------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Climatic Category                                                                      | 40/95/56 (IEC 60068)                                                                                                                                                                                                                                               |
| Test Voltage Between Terminals                                                         | @ 25°C: 1.5 x U <sub>i,dc</sub> during 10s                                                                                                                                                                                                                         |
| Test Voltage Between Terminals and Case<br>(Type test for FFLB, routine test for FFLC) | @ 25°C: @ 4 kVrms @ 50Hz during 1 min.                                                                                                                                                                                                                             |
| Standards                                                                              | IEC 61071-1 IEC 61071-2: Power electronic capacitors<br>IEC 60068-1: Environmental testing<br>IEC 60077: Rules for electric traction equipment<br>UL 94: Fire requirements<br>NF F 16-101: Fire and smoke requirements<br>NF F 16-102: Fire and smoke requirements |

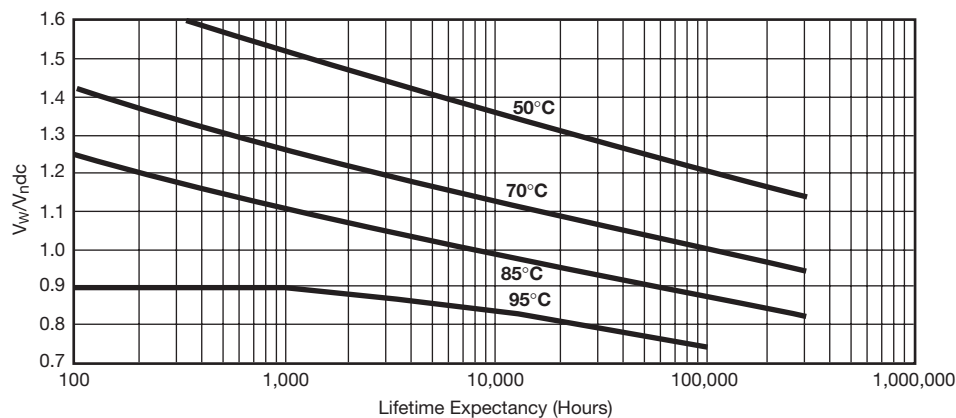
### ELECTRICAL CHARACTERISTICS

|                                   |                           |
|-----------------------------------|---------------------------|
| Capacitance Range $C_N$           | 58 $\mu$ F to 800 $\mu$ F |
| Tolerance on $C_N$                | $\pm 10\%$                |
| Rated DC Voltage $U_N$ dc         | 680 to 1900 V             |
| Maximum rms Current $I_{rms}$ max | up to 60 Arms             |
| Stray Inductance $L_s$            | 60 to 100 nH              |

### FFLB

| Part Number                        | Capacitance ( $\mu$ F) | Height mm (in) | $I_{rms}$ (A) | $L_s$ (nH) | $R_s$ (m $\Omega$ ) | $R_{th}$ ( $^{\circ}$ C/W) | Weight (kg) |
|------------------------------------|------------------------|----------------|---------------|------------|---------------------|----------------------------|-------------|
| <b><math>U_N</math> dc: 680 V</b>  |                        |                |               |            |                     |                            |             |
| FFLB6A0807K--                      | 800                    | 170 (6.693)    | 45            | 100        | 6.5                 | 3.2                        | 1.5         |
| FFLB6A0657K--                      | 650                    | 145 (5.709)    | 60            | 85         | 5.6                 | 3.3                        | 1.3         |
| FFLB6A0387K--                      | 380                    | 97 (3.819)     | 60            | 60         | 3.6                 | 3.4                        | 0.9         |
| <b><math>U_N</math> dc: 1000 V</b> |                        |                |               |            |                     |                            |             |
| FFLB6L0467K--                      | 460                    | 170 (6.693)    | 45            | 100        | 6.1                 | 3.2                        | 1.5         |
| FFLB6L0397K--                      | 390                    | 145 (5.709)    | 60            | 85         | 5.2                 | 3.3                        | 1.3         |
| FFLB6L0237K--                      | 230                    | 97 (3.819)     | 60            | 60         | 3.5                 | 3.7                        | 0.9         |
| <b><math>U_N</math> dc: 1200 V</b> |                        |                |               |            |                     |                            |             |
| FFLB6U0327K--                      | 320                    | 170 (6.693)    | 45            | 100        | 7.2                 | 3.2                        | 1.5         |
| FFLB6U0277K--                      | 270                    | 145 (5.709)    | 60            | 85         | 6.1                 | 3.3                        | 1.3         |
| FFLB6U0167K--                      | 160                    | 97 (3.819)     | 60            | 60         | 4.1                 | 3.7                        | 0.9         |
| <b><math>U_N</math> dc: 1900 V</b> |                        |                |               |            |                     |                            |             |
| FFLB6N1256K--                      | 125                    | 170 (6.693)    | 50            | 100        | 3.8                 | 3.1                        | 1.5         |
| FFLB6N0107K--                      | 100                    | 145 (5.709)    | 55            | 85         | 3.4                 | 3.3                        | 1.3         |
| FFLB6N0586K--                      | 58                     | 97 (3.819)     | 60            | 60         | 2.3                 | 3.4                        | 0.9         |

### LIFETIME EXPECTANCY vs HOT SPOT TEMPERATURE AND VOLTAGE



$V_w$ : permanent working or operating DC-voltage.

### HOT SPOT CALCULATION

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

with  $P_d$  (Dielectric losses) =  $Q \times \tan \delta_0$

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

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

where  $C_N$  in Farad  $I_{rms}$  in Ampere  $f$  in Hertz  $V$  in Volt  $R_s$  in Ohm  $\theta$  in  $^{\circ}$ C  $R_{th}$  in  $^{\circ}$ C/W

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