

# Medium Power Film Capacitors



**FFVS (RoHS Compliant)**

**Low Inductance Range Capacitor for Power Electronics**

DC FILTERING



FFVS series is a specific range of DC filtering capacitors designed for use in high frequency, high ripple applications beyond the limits of standard FFVE or FFVI.

Typical applications include DC power supply for induction heating, resonant DC power supply for scanner, X-ray machines, etc.

Due to the sophisticated internal design, stray inductance is extremely low, between 8 and 13nH.

FFVS products are RoHs compliant.

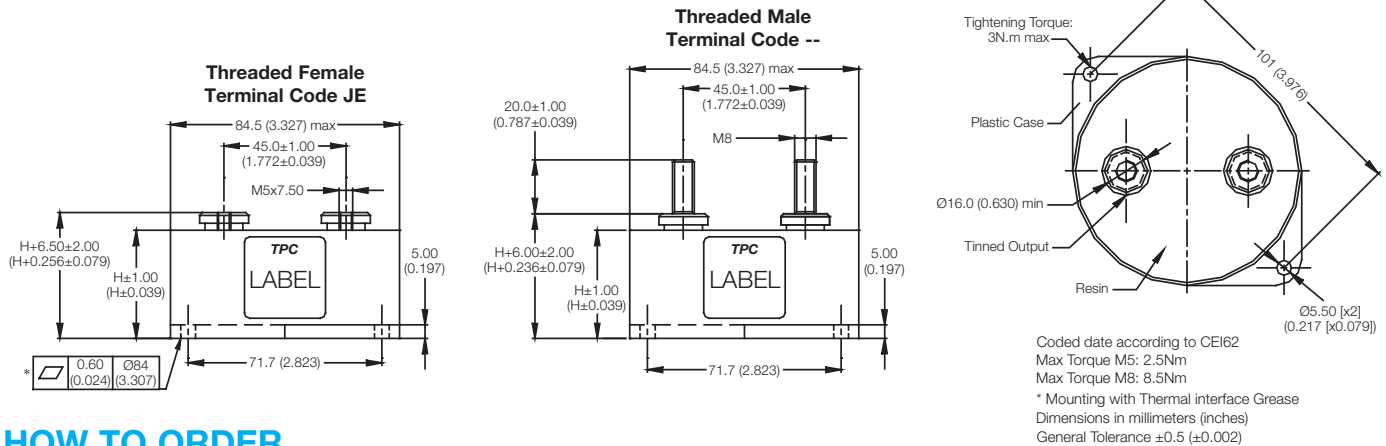
## PACKAGING MATERIAL

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).

## DIMENSIONS

Threaded female terminals version M5 x 7.5mm are also available, To order, the suffix becomes "JE" instead of "--".



## HOW TO ORDER

**FFVS**

Series

**6**

**Dielectric**  
6 = Polypropylene

**K**

**Voltage Code**  
K = 600V  
B = 800V  
C = 900V  
L = 1000V  
U = 1200V  
N = 1900V

**0226**

**Capacitance Code**  
Capacitance Values with 2 significant digits:  
0 + pF code  
0226 = 22µF  
0147 = 140µF  
etc.

Capacitance Values with 3 significant digits:  
1956 = 195µF  
1286 = 138µF  
1356 = 135µF

**K**

**Capacitance Tolerances**  
K = ±10%

**--**

**Terminal Code**  
-- = Male Threaded  
JE = Female Threaded

## HOT SPOT CALCULATION

See *Hot Spot Temperature*, page 3.

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

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

$$Q \times tg\delta_0 \Rightarrow \left[ \frac{1}{2} \times C_n \times (V_{peak\ to\ peak})^2 \times f \right] \times tg\delta_0$$

$tg\delta_0$  (tan delta)

For polypropylene,  $tg\delta_0 = 2 \times 10^{-4}$  for frequencies up to 1MHz and is independent of temperatures.

For polyester,  $tg\delta_0$  values are shown in graph 4 on page 3.

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

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

$\theta_{case}$  = bottom center of case



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## ELECTRICAL CHARACTERISTICS

Working temperature	-40°C +105°C (according to the power to be dissipated)
Capacitance range $C_N$	22 $\mu$ F to 200 $\mu$ F
Tolerance on $C_N$	$\pm 10\%$
Rated dc voltage $U_N$ dc	600V to 1900V
Test voltage between terminals @ 25°C: $1.5 \times U_N$ dc during 10s	
Insulation voltage between shorted terminals and earth (type test) @ 4 kVrms @ 50Hz during 1 min.	

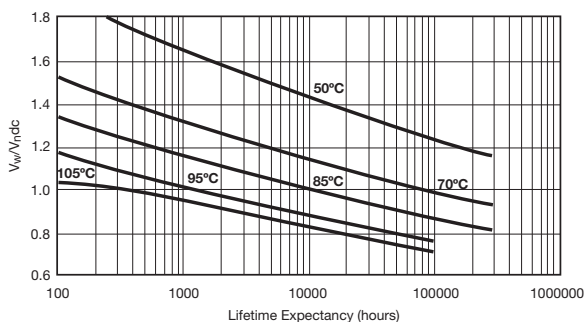
## RATINGS AND PART NUMBER REFERENCE

Part Number	Capacitance ( $\mu$ F)	Height mm (inches)	$I_{rms}$ (A)	$I^2t$ (A <sup>2</sup> s)	$L_s$ max. (nH)	$R_s$ (m $\Omega$ )	$R_{th}$ (°C/W)	Typical Weight (g)
<b><math>U_N</math>dc 600 volts (Voltage Code K)</b>								
FFVS6K0226K--	22	34 (1.339)	78	11.5	8	0.74	4.2	320
FFVS6K0906K--	90	40 (1.575)	84	24	9	0.60	4.9	345
FFVS6K0147K--	140	51 (2.008)	82	23.5	11	0.83	6.8	405
FFVS6K1956K--	195	64 (2.520)	84	24	13	1.04	8.6	475
<b><math>U_N</math>dc 800 volts (Voltage Code B)</b>								
FFVS6B0586K--	58	40 (1.575)	83	19	9	0.72	4.9	345
FFVS6B0926K--	92	51 (2.008)	83	19	11	0.99	6.7	405
FFVS6B1286K--	128	64 (2.520)	84	19.5	13	1.25	8.5	475
<b><math>U_N</math>dc 900 volts (Voltage Code C)</b>								
FFVS6C0306K--	30	34 (1.339)	56	7	8	1.55	4.2	320
FFVS6C0406K--	40	40 (1.575)	85	16.5	9	0.85	5.0	345
FFVS6C0656K--	65	51 (2.008)	86	17	11	1.15	6.7	405
FFVS6C0906K--	90	64 (2.520)	87	17	13	1.46	8.5	475
<b><math>U_N</math>dc 1000 volts (Voltage Code L)</b>								
FFVS6L0536K--	53	40 (1.575)	61	9.5	9	1.56	4.9	345
FFVS6L0956K--	95	51 (2.008)	63	11	11	1.98	6.7	405
FFVS6L1356K--	135	64 (2.520)	65	11.5	13	2.42	8.3	475
<b><math>U_N</math>dc 1200 volts (Voltage Code U)</b>								
FFVS6U0406K--	40	40 (1.575)	57	7.5	9	1.77	4.9	345
FFVS6U0656K--	65	51 (2.008)	57	7.5	11	2.38	6.8	405
FFVS6U0866K--	86	64 (2.520)	58	7	13	3.02	8.5	475
<b><math>U_N</math>dc 1900 volts (Voltage Code N)</b>								
FFVS6N0146K--	14	40 (1.575)	66	12.5	10	1.05	4.9	345
FFVS6N0226K--	22	51 (2.008)	68	13.5	13	1.26	6.3	405
FFVS6N0326K--	32	64 (2.520)	68	13.5	16	1.58	8.1	475

Dimensions millimeters (inches)

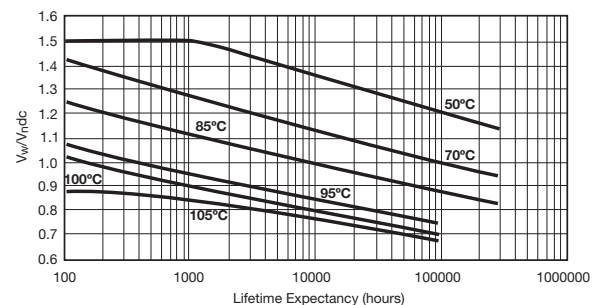
## LIFETIME EXPECTANCY

FFVS for 600V, 800V and 900V



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

FFVS for 1000V, 1200V and 1900V



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

