AC FILTERING

FLA* RoHS Compliant

The FLA series uses metallized polypropylene dielectric, aluminum can, impregnated with soft PU specially treated to have a very high dielectric strength in operating conditions up to 85°C.

The FLA has been designed with overpressure disconnected device. They are suitable for output AC filtering for power converters, UPS systems, solar inverters and motor drives etc.

APPLICATIONS

- The FLA capacitor is particularly designed for AC filtering.

HOT SPOT CALCULATION

See Hot Spot Temperature, page 70.

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

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

$Q \times tg\delta_0 \Rightarrow [\ ½\ \times C_n \times (V_{peak\ to\ peak})^2 \times f\ ] \times tg\delta_0$

$tg\delta_0$ (tan delta)

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

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

WORKING TEMPERATURE

According to the power to be dissipated
-40°C to +85°C

LIFETIME EXPECTANCY

One unique feature of this technology (as opposed to aluminum electrolytics) is how the capacitor reacts at the end of its lifetime.

Unlike aluminum electrolytic film capacitors do not have a catastrophic failure mode. Film capacitors simply experience a parametric loss of capacitance of about 5% from initial value, with no risk of short circuit.

The capacitor continues to be functional even after this 5% decrease.

PACKAGING MATERIAL

- Aluminium can with soft PU

STANDARDS

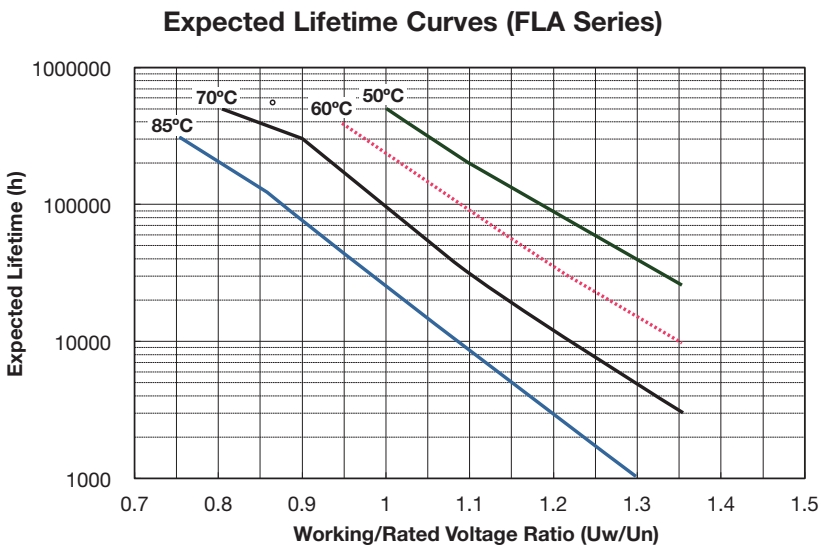
IEC 61071-1, IEC 61071-2: Power electronic capacitors
EN CYWT2.E514025 Certificate: E514025 (approved by UL)

HOW TO ORDER

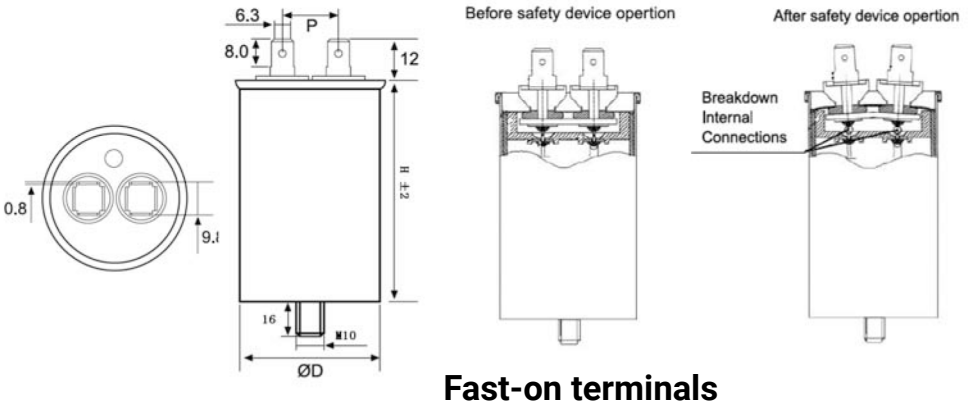
FLA	A1	6	V	0606	K	C
Series	**Case** A1-A2 B1-B4 C1 D1 E1-E8 F1-F5 G1-G6 H1-H2	**Dielectric** 6 = Polypropylene	**Voltage** A = 250V H = 330V L = 450V M = 480V J = 550V R = 600V N = 660V O = 690V P = 850V	**Capacitance EIA Code** 0606 = 60uF	**Tolerances** J = ±5% K = ±10%	**Terminal Code** F = Fast-on terminals H = M8 screw terminals

RoHS compliant

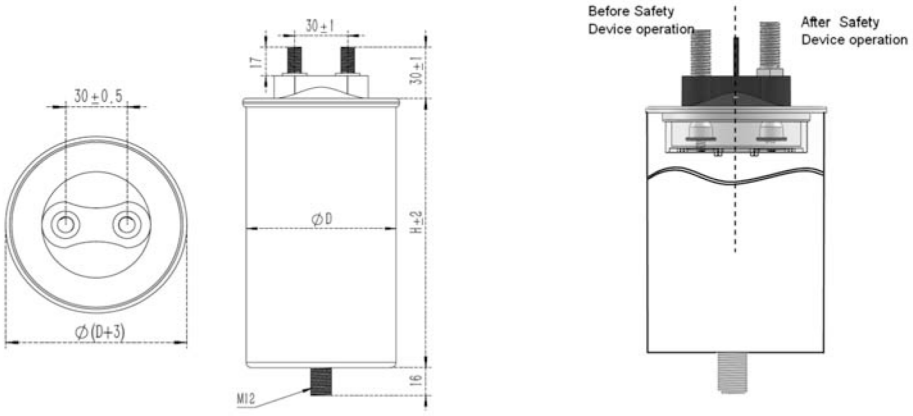
LIFETIME EXPECTANCY VS HOT SPOT TEMPERATURE AND VOLTAGE



GENERAL DESCRIPTION



Fast-on terminals



M 8 screw terminals

DIMENSIONS

Case Ref	OD (mm)	H (mm)
A1	45	100
A2	45	125
B1	50	75
B2	50	100
B3	50	125
B4	50	150
C1	55	125
D1	60	130
E1	63.5	70
E2	63.5	75
E3	63.5	80
E4	63.5	100
E5	63.5	125
E6	63.5	150
E7	63.5	165
E8	63.5	197
F1	75	107
F2	75	122
F3	75	152
F4	75	180
F5	75	197
G1	85	122
G2	85	152
G3	85	180
G4	85	197
G5	85	210
G6	85	247
H1	106	210
H2	106	247

INSTALLATION TORQUE

Terminals	Torque Nm
Terminals	Torque Nm
M8	6
Stud of Case	Torque Nm
M10	10
M12	15

AC FILTERING

FLA* RoHS Compliant

POLYPROPYLENE DIELECTRIC FOR INDUSTRIAL AC FILTERING

These capacitors have been designed principally for high and medium power AC filtering applications.

ELECTRICAL CHARACTERISTICS

Climatic category	40/85/56 (IEC 60068)
Test voltage between terminals @ 25°C	2.15 x V_{rms}
Capacitance range C_n	10µF to 600µF
Capacitance Tolerances:	±5%, ±10%
Rated AC Voltage:	V_{rms} 250V to 690V
Dielectric:	Polypropylene
Lifetime (ΔC/C < 5%):	100,000hrs @ U_r & 70ºC

RATINGS AND PART NUMBER REFERENCE – POLYPROPYLENE DIELECTRIC

Cap. (uF)	Rated Voltage V	Part Number	Case Code	OD ±1		H ±2		dv/dt Volt/sec	I peak Amps	I rms Amps	ESR mOhms	ESL nH	Rth °C/W	SPQ	MOQ
Vrms = 250V Voltage code : A															
60	250	FLAB26A0606KF	B2	50	(1.97)	100	(3.94)	16.7	1002	16.0	3.9	175	7.8	15	300
80	250	FLAB26A0806KF	B2	50	(1.97)	100	(3.94)	16.7	1336	16.0	4.4	175	7.8	15	300
100	250	FLAB36A0107KF	B3	50	(1.97)	125	(4.92)	12.6	1260	16.0	4.8	175	6.3	15	300
120	250	FLAC16A0127KF	C1	55	(2.17)	125	(4.92)	12.6	1512	16.0	4.6	175	6.0	15	300
150	250	FLAD36A0157KF	D3	60	(2.36)	125	(4.92)	12.6	1890	16.0	4.3	175	5.3	12	240
150	250	FLAK26A0157KH	K2	76	(2.99)	125	(4.92)	10.8	1620	22.0	3.3	190	4.7	12	240
180	250	FLAK26A0187KH	K2	76	(2.99)	125	(4.92)	11.7	2106	28.0	3.1	200	4.7	12	240
250	250	FLAK36A0257KH	K3	76	(2.99)	150	(5.91)	8.6	2150	30.0	3.4	190	4.3	12	240
300	250	FLAL16A0307KH	L1	86	(3.39)	150	(5.91)	8.6	2580	36.0	3.2	190	4.3	8	160
350	250	FLAK56A0357KH	K5	76	(2.99)	200	(7.87)	10.4	3640	35.0	3.1	200	4.0	12	240
400	250	FLAL36A0407KH	L3	86	(3.39)	200	(7.87)	10.4	4160	40.0	3.0	200	4.0	8	160
500	250	FLAL36A0507KH	L3	86	(3.39)	200	(7.87)	10.8	5400	50.0	3.3	220	2.9	8	160
600	250	FLAL46A0607KH	L4	86	(3.39)	250	(9.84)	8.0	4800	50.0	3.1	200	2.5	8	160
Vrms = 330V Voltage code : H															
50	330	FLAB26H0506KF	B2	50	(1.97)	100	(3.94)	16.7	835	16.0	5.1	175	7.8	15	300
60	330	FLAB36H0606KF	B3	50	(1.97)	125	(4.92)	12.6	756	16.0	5.4	175	6.3	15	300
100	330	FLAD36H0107KF	D3	60	(2.36)	125	(4.92)	12.6	1260	16.0	4.1	175	5.3	12	240
100	330	FLAK26H0107KH	K2	76	(2.99)	125	(4.92)	13.1	1310	30.0	3.8	190	5.2	12	240
120	330	FLAE56H0127KF	E5	63.5	(2.50)	125	(4.92)	7.2	864	16.0	3.8	175	5.5	12	240
150	330	FLAK36H0157KH	K3	76	(2.99)	150	(5.91)	9.0	1350	40.0	3.0	190	4.3	12	240
200	330	FLAL16H0207KH	L1	86	(3.39)	150	(5.91)	13.1	2620	40.0	3.1	200	4.0	8	160
250	330	FLAK56H0257KH	K5	76	(2.99)	200	(7.87)	8.6	2150	40.0	3.9	190	4.0	12	240
300	330	FLAL36H0307KH	L3	86	(3.39)	200	(7.87)	13.1	3930	50.0	3.6	200	2.9	8	160
330	330	FLAL36H0337KH	L3	86	(3.39)	200	(7.87)	13.1	4323	50.0	3.4	200	2.9	8	160
400	330	FLAL46H0407KH	L4	86	(3.39)	250	(9.84)	8.1	3240	50.0	3.6	200	2.5	8	160
Vrms = 450V Voltage code : L															
20	450	FLAB16L0206KF	B1	50	(1.97)	75	(2.95)	35.0	700	16.0	5.2	175	10.5	15	300
30	450	FLAB26L0306KF	B2	50	(1.97)	100	(3.94)	23.3	699	16.0	6.9	175	7.8	15	300
35	450	FLAB26L0356KF	B2	50	(1.97)	100	(3.94)	13.5	473	16.0	6.0	175	7.8	15	300
48	450	FLAB36L0486KF	B3	50	(1.97)	125	(4.92)	10.8	518	16.0	5.2	175	5.3	15	300
50	450	FLAK16L0506KH	K1	76	(2.99)	100	(3.94)	17.1	855	20.0	3.3	190	5.3	12	240
70	450	FLAD36L0706KF	D3	60	(2.36)	125	(4.92)	13.0	910	16.0	4.8	175	5.5	12	240
75	450	FLAD36L0756KF	D3	60	(2.36)	125	(4.92)	11.3	848	16.0	4.4	175	5.5	12	240
100	450	FLAK36L0107KH	K3	76	(2.99)	150	(5.91)	10.8	1080	35.0	4.7	190	4.3	12	240
140	450	FLAL16L0147KH	L1	86	(3.39)	150	(5.91)	13.1	1834	40.0	4.0	200	4.3	8	160
200	450	FLAL36L0207KH	L3	86	(3.39)	200	(7.87)	13.5	2700	40.0	3.7	220	2.9	8	160
210	450	FLAL36L0217KH	L3	86	(3.39)	200	(7.87)	13.5	2835	40.0	3.7	200	2.9	8	160
280	450	FLAL46L0287KH	L4	86	(3.39)	250	(9.84)	8.0	2240	50.0	4.1	220	2.5	8	160
Vrms = 480V Voltage code : M															
20	480	FLAB16M0206KF	B1	50	(1.97)	75	(2.95)	37.5	750	16.0	4.8	175	10.5	15	300
25	480	FLAB26M0256KF	B2	50	(1.97)	100	(3.94)	30.0	750	16.0	4.2	175	7.8	15	300
30	480	FLAB26M0306KF	B2	50	(1.97)	100	(3.94)	25.0	750	16.0	3.9	175	7.8	15	300
40	480	FLAD26M0406KF	D2	60	(2.36)	100	(3.94)	21.3	852	12.0	5.2	175	7.3	12	240

* Insert K for 10% capacitance tolerance (standard); J (+5%) and M (+20%) tolerances available on request.
Values outside this standard range may be available – please contact KYOCERA AVX for any special requirements.
KYOCERA AVX reserves the right to supply capacitors to a tighter capacitance tolerance or higher voltage rating, in the same case size.

RATINGS AND PART NUMBER REFERENCE – POLYPROPYLENE DIELECTRIC

Cap. (uF)	Rated Voltage V	Part Number	Case Code	OD ±1		H ±2		dv/dt Volt/sec	I peak Amps	I rms Amps	ESR mOhms	ESL nH	Rth °C/W	SPQ	MOQ
50	480	FLAC16M0506KF	C1	55	(2.17)	125	(4.92)	17.0	850	14.0	4.6	175	6.0	15	300
60	480	FLAK26M0606KH	K2	76	(2.99)	125	(4.92)	17.6	1056	18.0	3.7	190	4.7	12	240
70	480	FLAK26M0706KH	K2	76	(2.99)	125	(4.92)	15.0	1050	20.0	3.4	190	4.7	12	240
80	480	FLAK36M0806KH	K3	76	(2.99)	150	(5.91)	15.3	1224	30.0	4.2	190	4.3	12	240
100	480	FLAK56M0107KH	K5	76	(2.99)	200	(7.87)	17.1	1710	50.0	4.1	190	4.0	12	240
140	480	FLAK56M0147KH	K5	76	(2.99)	200	(7.87)	17.1	2394	40.0	3.6	200	4.0	12	240
180	480	FLAK66M0187KH	K6	76	(2.99)	250	(9.84)	13.1	2358	40.0	4.8	200	3.0	12	240
250	480	FLAL46M0257KH	L4	86	(3.39)	250	(9.84)	11.7	2925	50.0	4.2	200	2.5	8	160
Vrms = 550V Voltage code : J															
20	550	FLAB26J0206KF	B2	50	(1.97)	100	(3.94)	30.0	600	16.0	6.9	175	7.9	15	300
30	550	FLAB36J0306KF	B3	50	(1.97)	125	(4.92)	25.0	750	16.0	6.6	175	6.3	15	300
40	550	FLAD36J0406KF	D3	60	(2.36)	125	(4.92)	18.8	752	16.0	7.1	175	5.5	15	300
50	550	FLAE56J0506KF	E5	63.5	(2.50)	125	(4.92)	17.0	850	16.0	6.1	175	5.3	12	240
70	550	FLAK36J0706KH	K3	76	(2.99)	150	(5.91)	12.9	903	25.0	4.6	175	4.2	12	240
75	550	FLAK36J0756KH	K3	76	(2.99)	150	(5.91)	12.9	968	25.0	4.4	175	4.3	12	240
100	550	FLAL16J0107KH	L1	86	(3.39)	150	(5.91)	28.2	2820	30.0	3.9	200	4.0	8	160
125	550	FLAL36J0127KH	L3	86	(3.39)	200	(7.87)	22.6	2825	30.0	3.6	200	2.9	8	160
150	550	FLAL36J0157KH	L3	86	(3.39)	200	(7.87)	21.4	3210	40.0	5.0	200	2.9	8	160
200	550	FLAL46J0207KH	L4	86	(3.39)	250	(9.84)	16.1	3220	50.0	4.4	200	2.5	8	160
250	550	FLAM16J0257KH	M1	96	(3.78)	250	(9.84)	14.0	3500	50.0	4.0	240	2.1	6	120
300	550	FLAH36J0307KH	H3	106	(4.17)	250	(9.84)	11.7	3510	50.0	3.7	240	2.0	5	100
Vrms = 600V Voltage code : R															
10	600	FLAB16R0106KF	B1	50	(1.97)	75	(2.95)	35.0	350	16.0	6.4	160	10.5	15	300
20	600	FLAB36R0206KF	B3	50	(1.97)	125	(4.92)	25.0	500	16.0	11.1	160	6.3	15	300
25	600	FLAB36R0256KF	B3	50	(1.97)	125	(4.92)	24.0	600	16.0	6.1	175	6.3	15	300
30	600	FLAD36R0306KF	D3	60	(2.36)	125	(4.92)	20.0	600	16.0	5.4	175	5.3	12	240
35	600	FLAD36R0356KF	D3	60	(2.36)	125	(4.92)	20.0	700	16.0	7.3	175	5.3	12	240
40	600	FLAE56R0406KF	E5	63.5	(2.50)	125	(4.92)	17.5	700	16.0	6.6	175	5.3	12	240
50	600	FLAK36R0506KH	K3	76	(2.99)	150	(5.91)	17.0	850	20.0	5.7	175	4.3	12	240
Vrms = 660V Voltage code : N															
10	660	FLAB36N0106KF	B3	50	(1.97)	125	(4.92)	55.0	550	16.0	5.2	160	10.5	15	300
15	660	FLAD36N0156KF	D3	60	(2.36)	125	(4.92)	28.0	420	16.0	6.2	160	6.3	12	240
20	660	FLAC16N0206KF	C1	55	(2.17)	125	(4.92)	27.5	550	16.0	8.3	175	6.3	12	240
25	660	FLAD36N0256KF	D3	60	(2.36)	125	(4.92)	22.0	550	16.0	7.9	175	5.3	12	240
30	660	FLAE56N0306KF	E5	63.5	(2.50)	125	(4.92)	25.0	750	16.0	6.3	175	5.5	12	240
40	660	FLAK36N0406KH	K3	76	(2.99)	150	(5.91)	22.5	900	30.0	5.2	175	4.6	12	240
50	660	FLAL16N0506KH	L1	86	(3.39)	150	(5.91)	20.0	1000	40.0	4.7	175	4.0	8	160
Vrms = 690V Voltage code : 0															
10	690	FLAB36O0106KF	B3	50	(1.97)	125	(4.92)	55.0	550	16.0	5.2	160	6.3	15	300
15	690	FLAB36O0156KF	B3	50	(1.97)	125	(4.92)	28.0	420	16.0	6.2	160	6.3	15	300
20	690	FLAC16O0206KF	C1	55	(2.17)	125	(4.92)	27.5	550	16.0	8.3	175	6.0	15	300
30	690	FLAE56O0306KF	E5	63.5	(2.50)	125	(4.92)	25.0	750	16.0	6.3	175	5.5	12	240
40	690	FLAK36O0406KH	K3	76	(2.99)	150	(5.91)	28.8	1152	25.0	4.8	190	4.3	12	240
50	690	FLAL16O0506KH	L1	86	(3.39)	150	(5.91)	23.0	1150	30.0	4.3	190	4.0	8	160
70	690	FLAK66O0706KH	K6	76	(2.99)	250	(9.84)	18.0	1260	30.0	3.7	200	2.9	12	240
85	690	FLAL46O0856KH	L4	86	(3.39)	250	(9.84)	18.0	1530	40.0	3.5	220	2.5	8	160
100	690	FLAL46O0107KH	L4	86	(3.39)	250	(9.84)	18.0	1800	40.0	3.3	200	2.5	8	160
125	690	FLAH36O0127KH	H3	106	(4.17)	250	(9.84)	12.5	1563	50.0	4.0	220	2.0	5	100
150	690	FLAH36O0157KH	H3	106	(4.17)	250	(9.84)	12.5	1875	50.0	3.8	240	2.0	5	100
200	690	FLAN16O0207KH	N1	116	(4.57)	250	(9.84)	16.5	3300	60.0	1.6	190	2.0	5	100
Vrms = 850V Voltage code : P															
10	850	FLAK16P0106KH	K1	76	(2.99)	100	(3.94)	60.0	600	22.0	2.7	100	8.8	12	240
13	850	FLAK16P0136KH	K1	76	(2.99)	100	(3.94)	50.0	650	26.0	2.7	120	8.8	12	240
22	850	FLAK36P0226KH	K3	76	(2.99)	150	(5.91)	22.7	500	25.0	4.4	190	6.3	12	240
33	850	FLAK46P0336KH	K4	76	(2.99)	170	(6.69)	45.5	1500	40.0	1.9	120	5.0	12	240
44	850	FLAL26P0446KH	L2	86	(3.39)	170	(6.69)	38.6	1700	43.0	2.1	140	4.2	8	160
68	850	FLAL46P0686KH	L4	86	(3.39)	250	(9.84)	20.6	1400	49.0	2.0	190	3.4	8	160
80	850	FLAL46P0806KH	L4	86	(3.39)	250	(9.84)	21.3	1700	50.0	1.8	190	3.4	8	160
100	850	FLAM16P0107KH	M1	96	(3.78)	250	(9.84)	21.0	2100	56.0	1.8	190	3.0	6	120
150	850	FLAN16P0157KH	N1	116	(4.57)	250	(9.84)	19.3	2900	60.0	1.6	190	2.6	5	100

* Insert K for 10% capacitance tolerance (standard); J (+5%) and M (+20%) tolerances available on request.
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