

Metallized Polypropylene Film Capacitor (Aluminium Case) AC Application

APT

The APT series capacitors are designed for PFC systems or filtering harmonic at the AC output of large inverter system, consist of metallized polypropylene film enclosed in cylindrical Al case filled with soft PU resin.



■ FEATURES

Three-phase, delta connected.

Optimized AC voltage performance.

Self-healing property and high reliability.

Overpressure disconnection device.

■ APPLICATIONS

PFC controllers.

UPS Systems.

Output filtering for inverter.

■ ELECTRICAL CHARACTERISTICS

Rated Voltage:	230Vac ~ 690Vac
Capacitance Range:	3x20.3μF ~ 3x335μF
Capacitance Tolerance:	±5%(J), ±10%(K)
Dissipation Factor:	≤0.001 (0.1%) at 100 Hz at 25°C
Test Voltage Between Terminal:	2.15 x Vrms for 10s (terminal to terminal)
Test Voltage Terminals to Case:	4.0 KVac 50Hz for 10s at 25 °C
Insulation Resistance:	Ris x C≥30,000 s
Surge current Is:	200 * I rated
Life Expectancy:	100,000 hours at Un @ Hot-Spot temperature ≤+70°C

■ GENERAL TECHNICAL DATA

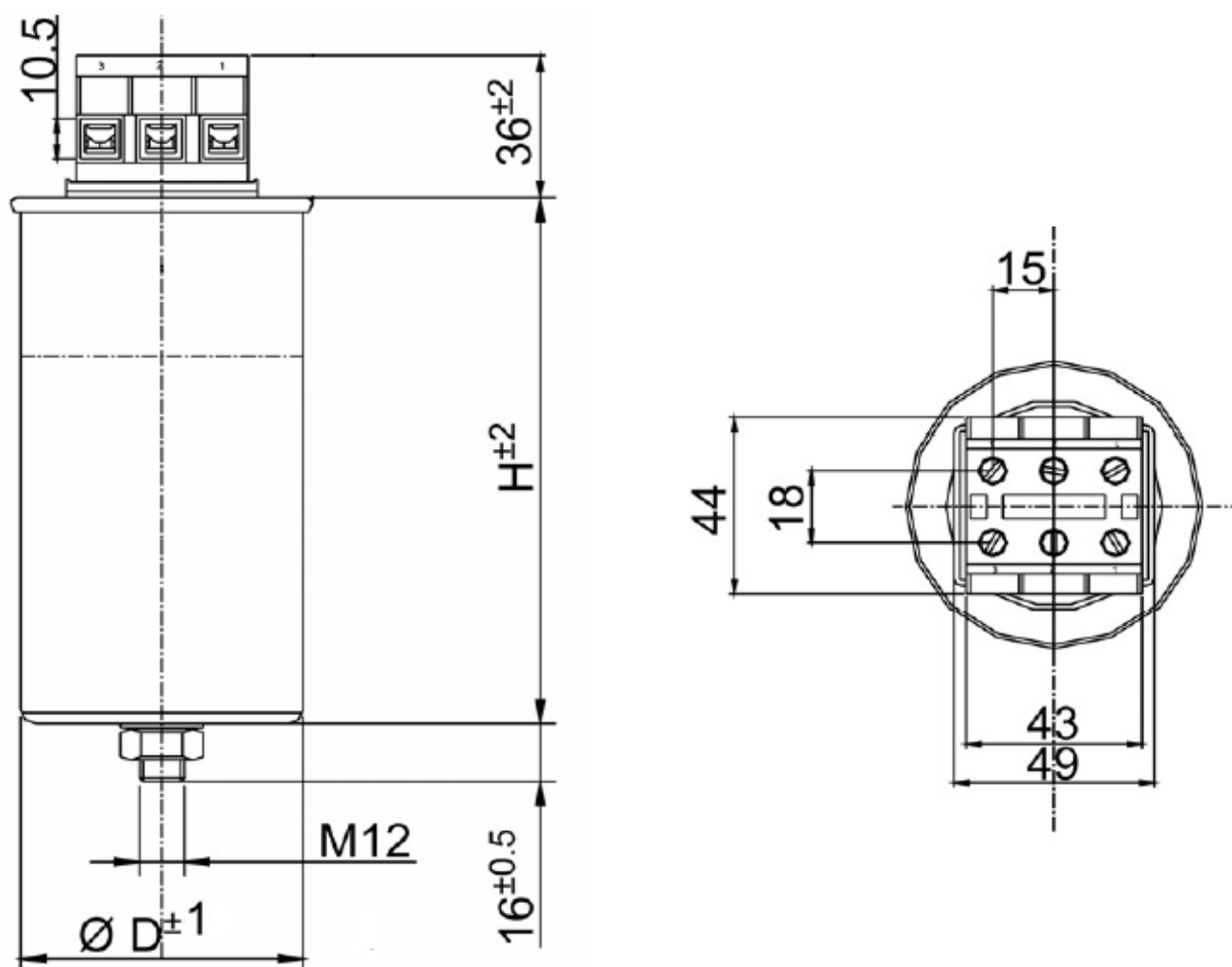
Application:	PFC and AC Output Filtering
Standard:	IEC 60831
Climatic Category:	25/70/56 - IEC 60068-1
Operating Temperature:	-40°C ~ +55°C (-40/D)
Max Hot-spot Temperature:	≤ +70°C
Storage Temperature:	-40°C ~ +70°C
Degree of Protection:	IP 20
Max permissible altitude:	2000 m above sea level
Mounting:	Vertical or horizontal
Installation torque:	Terminal: 2.0N.m The bottom stud of case: M 8:6 Nm M12: 15Nm
RoHS Compliant:	Compliant with the restricted substance requirements of Directive 2002/95/EC
Permissible Humidity:	Annual average ≤95% on 30days/ year. Dewing not admissible
Over Voltage	1.1Un up to 8h / day; 1.15Un up to 30 min / day; 1.2Un up to 5 min/day, only 200 times in the life of the capacitor 1.3Un up to 1 min/day, only 200 times in the life of the capacitor

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■ DIMENSION

Style: Screw Terminals



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DIMENSION (Part Number Reference)

Vac	Cap	OD		H		Output	I rated	dv/dt	Ipeak	Pkg	Part Number
	Value									Qty	
	uF	mm	inch	mm	inch	Kvar	A	V/us	A	pcs	
230	3 x 200.6	86.0	(3.39)	265.0	(10.43)	10	25.1	25	5021	8	APT-207K23W86HA
230	3 x 200.6	116.0	(4.57)	160.0	(6.30)	10.0	25.1	25	5021	5	APT-207K23W1CHA
230	3 x 250.7	86.0	(3.39)	350.0	(13.78)	12.5	31.4	25	6276	8	APT-257K23W86HA
230	3 x 250.7	116.0	(4.57)	200.0	(7.87)	12.5	31.4	25	6276	5	APT-257K23W1CHA
230	3 x 300.9	86.0	(3.39)	350.0	(13.78)	15.0	37.7	25	7531	8	APT-307K23W86HA
230	3 x 300.9	116.0	(4.57)	200.0	(7.87)	15.0	37.7	25	7531	5	APT-307K23W1CHA
230	3 x 335.0	116.0	(4.57)	230.0	(9.06)	16.7	41.9	25	8384	5	APT-337K23W1CHA
400	3 x 66.3	86.0	(3.39)	200.0	(7.87)	10.0	14.4	44	2887	8	APT-666K40W86HA
400	3 x 82.9	86.0	(3.39)	200.0	(7.87)	13	18.0	44	3609	8	APT-826K40W86HA
400	3 x 99.5	86.0	(3.39)	265.0	(10.43)	15.0	21.7	44	4330	8	APT-996K40W86HA
400	3 x 110.7	86.0	(3.39)	265.0	(10.43)	16.7	24.1	44	4821	8	APT-117K40W86HA
400	3 x 110.7	116.0	(4.57)	160.0	(6.30)	16.7	24.1	44	4821	5	APT-117K40W1CHA
400	3 x 132.6	86.0	(3.39)	265.0	(10.43)	20.0	28.9	44	5774	8	APT-137K40W86HA
400	3 x 132.6	116.0	(4.57)	200.0	(7.87)	20.0	28.9	44	5774	5	APT-137K40W1CHA
400	3 x 165.8	86.0	(3.39)	265.0	(10.43)	25.0	36.1	44	7217	8	APT-167K40W86HA
400	3 x 165.8	116.0	(4.57)	200.0	(7.87)	25.0	36.1	44	7217	5	APT-167K40W1CHA
400	3 x 198.9	136.0	(5.35)	200.0	(7.87)	30.0	43.3	44	8661	2	APT-197K40W1DHA
440	3 x 46	86.0	(3.39)	160.0	(6.30)	8.3	10.9	48	2178	8	APT-466K44W86HA
440	3 x 68.5	86.0	(3.39)	200.0	(7.87)	12.5	16.4	48	3280	8	APT-686K44W86HA
440	3 x 77.0	86.0	(3.39)	200.0	(7.87)	14.1	18.5	48	3700	8	APT-686K44W86HA
440	3 x 77.0	116.0	(4.57)	160.0	(6.30)	14.1	18.5	48	3700	5	APT-776K44W1CHA
440	3 x 82.2	86.0	(3.39)	200.0	(7.87)	15.0	19.7	48	3937	8	APT-826K44W86HA
440	3 x 92.6	116.0	(4.57)	200.0	(7.87)	16.9	22.2	48	4435	5	APT-926K44W86HA
440	3 x 103.0	86.0	(3.39)	265.0	(10.43)	18.8	24.7	48	4934	8	APT-107K44W86HA
440	3 x 103.0	116.0	(4.57)	160.0	(6.30)	18.8	24.7	48	4934	5	APT-107K44W1CHA
440	3 x 109.0	86.0	(3.39)	265.0	(10.43)	20.0	26.2	48	5249	8	APT-117K44W86HA
440	3 x 109.0	116.0	(4.57)	160.0	(6.30)	20.0	26.2	48	5249	5	APT-117K44W1CHA
440	3 x 123.3	86.0	(3.39)	265.0	(10.43)	22.5	29.5	48	5905	8	APT-127K44W86HA
440	3 x 123.3	116.0	(4.57)	200.0	(7.87)	22.5	29.5	48	5905	5	APT-127K44W1CHA
440	3 x 137.0	86.0	(3.39)	265.0	(10.43)	25.0	32.8	48	6561	8	APT-137K44W86HA
440	3 x 137.0	116.0	(4.57)	200.0	(7.87)	25.0	32.8	48	6561	5	APT-137K44W1CHA
440	3 x 154.0	86.0	(3.39)	265.0	(10.43)	28.1	36.9	48	7375	8	APT-157K44W86HA
440	3 x 154.0	116.0	(4.57)	200.0	(7.87)	28.1	36.9	48	7375	5	APT-157K44W11HA
440	3 x 164.4	86.0	(3.39)	350.0	(13.78)	30.0	39.4	48	7873	8	APT-167K44W86HA
440	3 x 164.4	116.0	(4.57)	200.0	(7.87)	30.0	39.4	48	7873	5	APT-167K44W1CHA
440	3 x 180.9	136.0	(5.35)	200.0	(7.87)	33.0	43.3	48	8661	2	APT-187K44W1DHA
480	3 x 40	86.0	(3.39)	200.0	(7.87)	8.7	10.5	52	2093	8	APT-406K48W86HA
480	3 x 60	86.0	(3.39)	275.0	(10.83)	13.0	15.6	52	3127	8	APT-606K48W86HA
480	3 x 80	116.0	(4.57)	200.0	(7.87)	17.4	20.9	52	4186	5	APT-806K48W1CHA
480	3 x 120	116.0	(4.57)	275.0	(10.83)	26.0	31.3	52	6255	5	APT-127K48W1CHA

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Vac	Cap	OD		H		Output	I rated	dv/dt	Ipeak	Pkg	Part Number
	Value									Qty	
	uF	mm	inch	mm	inch	Kvar	A	V/us	A	pcs	
525	3 x 38.5	86.0	(3.39)	200.0	(7.87)	10	11.0	57	2199	8	APT-386K52W86HA
525	3 x 48.1	86.0	(3.39)	200.0	(7.87)	12.5	13.7	57	2749	8	APT-486K52W86HA
525	3 x 53.1	86.0	(3.39)	200.0	(7.87)	13.8	15.2	57	3035	8	APT-536K52W86HA
525	3 x 57.7	86.0	(3.39)	230.0	(9.06)	15.0	16.5	57	3299	8	APT-576K52W86HA
525	3 x 77.0	86.0	(3.39)	265.0	(10.43)	20.0	22.0	57	4399	8	APT-776K52W86HA
525	3 x 77.0	116.0	(4.57)	200.0	(7.87)	20.0	22.0	57	4399	5	APT-776K52W1CHA
525	3 x 96.2	86.0	(3.39)	350.0	(13.78)	25.0	27.5	57	5499	8	APT-966K52W86HA
525	3 x 96.2	116.0	(4.57)	200.0	(7.87)	25.0	27.5	57	5499	5	APT-966K52W1CHA
525	3 x 115.4	116.0	(4.57)	230.0	(9.06)	30	33.0	57	6598	5	APT-117K52W1CHA
525	3 x 115.4	136.0	(5.35)	200.0	(7.87)	30.0	33.0	57	6598	2	APT-117K52W1DHA
525	3 x 138.2	116.0	(4.57)	265.0	(10.43)	35.9	39.5	57	7896	5	APT-137K52W1CHA
525	3 x 138.2	136.0	(5.35)	230.0	(9.06)	35.9	39.5	57	7896	2	APT-137K52W1DHA
525	3 x 142.8	116.0	(4.57)	265.0	(10.43)	37.1	40.8	57	8160	5	APT-147K52W1CHA
525	3 x 142.8	136.0	(5.35)	230.0	(9.06)	37.1	40.8	57	8160	2	APT-147K52W1DHA
660	3 x 20.3	86.0	(3.39)	200.0	(7.87)	8.3	7.3	72	1457	8	APT-206K66W86HA
660	3 x 24.4	86.0	(3.39)	200.0	(7.87)	10.0	8.7	72	1750	8	APT-246K66W86HA
660	3 x 30.4	86.0	(3.39)	265.0	(10.43)	12.5	10.9	72	2187	8	APT-306K66W86HA
660	3 x 36.5	86.0	(3.39)	265.0	(10.43)	15.0	13.1	72	2624	8	APT-366K66W86HA
660	3 x 40.7	86.0	(3.39)	265.0	(10.43)	16.7	14.6	72	2922	8	APT-406K66W86HA
660	3 x 48.7	86.0	(3.39)	350.0	(13.78)	20.0	17.5	72	3499	8	APT-486K66W86HA
660	3 x 55.8	86.0	(3.39)	350.0	(13.78)	22.9	20.0	72	4007	8	APT-556K66W86HA
690	3 x 27.9	86.0	(3.39)	265.0	(10.43)	12.5	10.5	75	2092	8	APT-276K69W86HA
690	3 x 33.4	86.0	(3.39)	265.0	(10.43)	15.0	12.6	75	2510	8	APT-336K69W86HA
690	3 x 44.6	86.0	(3.39)	350.0	(13.78)	20.0	16.7	75	3347	8	APT-446K69W86HA
690	3 x 55.7	86.0	(3.39)	350.0	(13.78)	25.0	20.9	75	4184	8	APT-556K69W86HA

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PART NUMBERING SYSTEMS

■ EXPLANATION OF ARTICLE CODE

APT -	5 5 6	K	6 9	W	8 6	H	A
①	②	③	④	⑤	⑥	⑦	⑧

① Capacitor Type

TYPE	APT
CODE	APT-

② Rated Capacitance (EIA Code)

The rated Capacitance value of the product is indicated with three digits. The first two digits indicate the two most significant digits of the capacitance value, and the third digit gives the number of following zeroes. This gives the capacitance value expressed in picofarads.

Examples:

105	=	1,000,000pF	=	1,000nF	=	1uF
106	=	10,000,000pF	=	10,000nF	=	10uF

③ Capacitance Tolerance

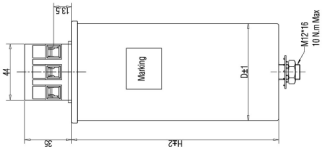
TOLERANCE	±5%	±10%	±20%
CODE	J	K	M

④ Rated Voltage

Code for AC Voltage: (expressed in one digit & one letter)

VOLTAGE	230V	400V	440V	480V	525V	660V	690V
CODE	23	40	44	48	52	66	69

⑤ Terminal Configuration

FORM	THREADED STUD
CODE	W
FORM STYLE	

⑥ Case Diameter (mm)

DIAMETER	50	75	85	100	106	116	136
CODE	50	75	85	1A	1B	1C	1D

⑦ Terminal

TERMINAL	M6	M8	M10	M12	M16	M20
CODE	F	H	J	L	M	N

⑧ Terminal Pitch (mm)

TERMINAL PITCH	15
CODE	A

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■ PERFORMANCE NOTES

Rs: Equivalent series resistance - Ohmic resistances (Ohm)

Dielectric Dissipation Factor: $\tan\delta$ (Polypropylene: 0.0002)

Ta: Ambient temperature

Rth: Thermal resistance °C / W, indicates hot spot temperature rise due to power dissipation losses

Pj: Joule losses $P_j = R_s \cdot I_{rms}^2$

Pd: Dielectric losses

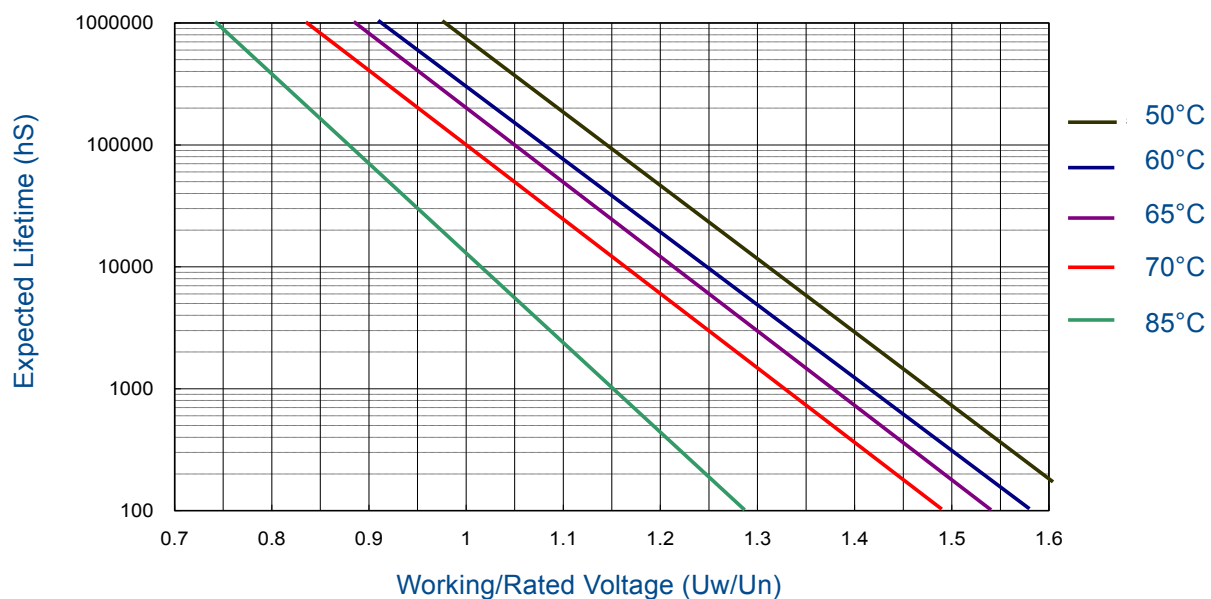
$$P_d = X_c \cdot I_{rms}^2 \cdot \tan\delta = I_{rms}^2 / (2 \cdot \pi \cdot f \cdot C) \cdot \tan\delta$$

T_{HS}: Hot spot temperature within the capacitor

$$T_{HS} = T_a + (P_j + P_d) \cdot R_{th}$$

Design life: 100,000 hours at Un @ Hot-Spot temperature $\leq +70^\circ\text{C}$

Expected Life Curve



■ CAUTIONS AND WARNING

- In case of dents of more than 1 mm depth or any other mechanical damage, capacitors must not be used at all.
- To ensure the full functionality of the overpressure disconnector, elastic elements must not be hindered and a minimum space of 12 mm has to be kept above each capacitor.
- Do not handle the capacitor before it is discharged.
- The threaded bottom stud of the capacitor has to be used for grounding. The maximum tightening torque is 15Nm
- Do not use or store capacitor in corrosive atmosphere, in the dusty environments regular maintenance and cleaning especially of the terminals is required to avoid conductive path between phase / or phase and ground.
- Do not have unlimited service life expectancy, the max service life expectancy may vary depending on the application the capacitor is used in.