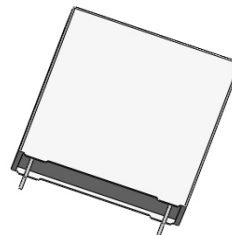


Metallized Polypropylene Film Capacitor (Plastic Case) AC Application (2 or 4 pins)

APB

The APB series is a polypropylene metallized film capacitor with plastic casing sealed with epoxy. This capacitor is suitable for use in AC filter circuits, Solar Inverter and Industrial Inverter.



FEATURES

High ripple current, low losses.

High capacitance density.

Self-healing property and high reliability.

Suitable for high frequency application.

APPLICATIONS

AC filtering for power converter.

UPS Systems, solar inverter, motor drives.

ELECTRICAL CHARACTERISTICS

Rated Voltage:	160Vac ~ 450Vac
Capacitance range:	0.22 μ F - 50 μ F
Capacitance Tolerance:	\pm 5%(J), \pm 10%(K)
Dissipation Factor::	\leq 0.001 (0.1%) at 100 Hz at 25°C
Test Voltage Between Terminal:	2.0 x rated voltage for 10s (terminal to terminal)
Test Voltage Terminals to Case:	3.0 KVac 50Hz/60Hz for 10s at 25 °C
Insulation Resistance:	IR x C \geq 30,000s at 100Vdc 1 min at +25 °C
Life Expectancy:	100,000 hours at Un @ hot-spot temperature T=+85 °C
Damp Heat:	IEC 60068-2-78
Change of Temperature:	IEC 60068-2-14

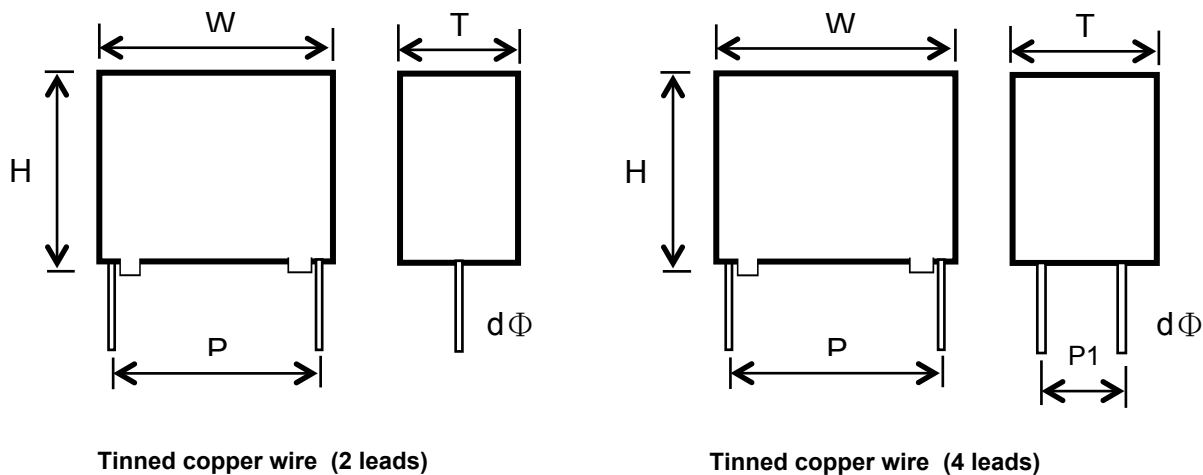
GENERAL TECHNICAL DATA

Application:	AC filtering
Standard:	IEC 61071
Climatic Category:	40/85/21 IEC 60068-1
Maximum Operating Temperature:	+105°C
Upper Temperature T max:	+85°C
Lower Temperature T min:	-40°C
Protection:	Solvent resistant plastic case UL94 V-0, Thermosetting resin sealing UL 94 V-0 compliant
Leads:	Tinned copper wires, standard lead wire length 5 \pm 1mm
Packaging:	Packed in cardboard boxes with protection for the terminals
RoHS Compliant:	Compliant with the restricted substance requirements of Directive 2002/95/EC

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■ DIMENSION



■ DIMENSION - Lead Wires

Number of Lead Wires	Lead Spacing (P ± 0.5)mm	Lead Diameter (dΦ ±0.1)
2 - pin	27.5	0.8
2 - pin	37.5	1.0
4 - pin	37.5	1.2
4 - pin	52.5	1.2

■ DIMENSION - Case (mm)

Case Code	W (±1)	H (±1)	T (±1)	P (±0.5)
R10	32	20	11	27.5
R20	32	22	13	27.5
R50	32	28	14	27.5
R60	32	28	18	27.5
R80	32	33	18	27.5
R94	32	37	22	27.5
T10	42.5	45	30	37.5
T33	42.5	40	20	37.5
T42	42.5	37	28	37.5
K10	57.5	45	30	52.5
K20	57.5	50	35	52.5

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DIMENSION (Part Number Reference)

Vac	Cap	Dimensions			P	P1	Irms	Peak	ESR _{10K}	ESL	Thermal	dv/dt	Pkg	Part Number
	Value	W	H	T			10KHz	Current	Typical		Res		Qty	
	uF	mm	mm	mm			70°C A	A	mΩ		°C/W		V/us	
160	1	32	20	11	27.5	\	5	32	30.3	24	19.8	32	150	APB-105K16B27L5AR10
160	2.2	32	20	11	27.5	\	7	70.4	15.3	24	20.0	32	150	APB-225K16B27L5AR10
160	3.3	32	22	13	27.5	\	7	105.6	11.3	24	27.1	32	125	APB-335K16B27L5AR20
160	5	32	28	14	27.5	\	7	160	8.8	26	34.8	32	115	APB-505K16B27L5AR50
160	10	32	33	18	27.5	\	7	320	6.8	26	45.0	32	90	APB-106K16B27L5AR80
160	10	42.5	37	28	37.5	10.2	12	220	7.2	30	14.5	22	42	APB-106K16437B5AT42
160	20	42.5	37	28	37.5	10.2	12	440	6.9	30	15.1	22	42	APB-206K16437B5AT42
160	30	42.5	45	30	37.5	20.3	12	660	7.4	30	14.1	22	35	APB-306K16437D5AT10
160	40	57.5	45	30	52.5	20.3	12	640	7.6	35	13.7	16	25	APB-406K16452D5AK10
160	50	57.5	50	35	52.5	20.3	12	800	7.5	35	13.9	16	20	APB-506K16452D5AK20
250	1	32	20	11	27.5	\	8	40	14.0	24	16.7	40	150	APB-105K25B27L5AR10
250	1.5	32	20	11	27.5	\	8	60	10.0	24	23.4	40	150	APB-155K25B27L5AR10
250	2	32	22	13	27.5	\	9	80	8.2	24	22.6	40	125	APB-205K25B27L5AR20
250	3.3	32	28	14	27.5	\	9	132	6.2	26	29.9	40	115	APB-335K25B27L5AR50
250	4	32	33	18	27.5	\	9	160	5.9	26	31.4	40	90	APB-405K25B27L5AR80
250	5	32	33	18	27.5	\	9	200	5.2	26	35.6	40	90	APB-505K25B27L5AR80
250	6.8	32	37	22	27.5	\	14	272	4.9	28	15.6	40	75	APB-685K25B27L5AR94
250	10	42.5	40	20	37.5	10.2	14	300	5.6	30	13.7	30	56	APB-106K25437B5AT33
250	15	42.5	37	28	37.5	10.2	14	450	5.2	30	14.7	30	42	APB-156K25437B5AT42
250	20	42.5	45	30	37.5	20.3	14	600	4.8	30	15.9	30	35	APB-206K25437D5AT10
250	25	57.5	45	30	52.5	20.3	14	625	5.7	35	13.4	25	25	APB-256K25452D5AK10
250	30	57.5	45	30	52.5	20.3	14	750	5.3	35	14.4	25	25	APB-306K25452D5AK10
250	35	57.5	50	35	52.5	20.3	14	875	5.5	35	13.9	25	20	APB-356K25452D5AK20
250	40	57.5	50	35	52.5	20.3	14	1000	5.2	35	14.7	25	20	APB-406K25452D5AK20
275	1	32	20	11	27.5	\	8	40	13.0	24	18.0	40	150	APB-105K27B27L5AR10
275	3.3	32	33	18	27.5	\	9	132	6.2	26	29.9	40	90	APB-335K27B27L5AR80
275	6.8	32	37	22	27.5	\	9	272	4.7	28	39.4	40	75	APB-685K27B27L5AR94
275	10	42.5	40	20	37.5	10.2	14	300	5.9	30	13.0	30	56	APB-106K27437B5AT33
275	15	42.5	45	30	37.5	20.3	14	450	5.1	30	15.0	30	35	APB-156K27437D5AT10
275	20	57.5	45	30	52.5	20.3	14	500	6.0	35	12.8	25	25	APB-206K27452D5AK10
275	30	57.5	50	35	52.5	20.3	14	750	5.3	35	14.4	25	20	APB-306K27452D5AK20
350	0.68	32	20	11	27.5	\	8	30.6	15.0	24	15.6	45	150	APB-684K35B27L5AR10
350	1	32	22	13	27.5	\	9	45	10.9	24	17	45	125	APB-105K35B27L5AR20
350	2	32	33	18	27.5	\	9	90	7.3	26	25.4	45	90	APB-205K35B27L5AR80
350	2.2	32	33	18	27.5	\	9	99	6.9	26	26.8	45	90	APB-225K35B27L5AR80
350	3.3	32	37	22	27.5	\	9	148.5	5.7	28	32.5	45	75	APB-335K35B27L5AR94
350	4.7	42.5	40	20	37.5	10.2	14	159.8	6.9	30	11.1	34	56	APB-475K35437B5AT33
350	5	42.5	40	20	37.5	10.2	14	170	6.8	30	11.3	34	56	APB-505K35437B5AT33
350	6.8	42.5	37	28	37.5	10.2	14	231.2	6.2	30	12.3	34	42	APB-685K35437B5AT42
350	10	42.5	45	30	37.5	20.3	14	340	5.3	30	14.4	34	35	APB-106K35437D5AT10
350	12	57.5	45	30	52.5	20.3	14	336	6.8	35	11.3	28	25	APB-126K35452D5AK10
350	20	57.5	50	35	52.5	20.3	14	560	5.9	35	13	28	20	APB-206K35452D5AK20

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■ DIMENSION (Part Number Reference)

Vac	Cap	Dimensions			P	P1	I _{rms} 10KHz 70°C A	Peak Current A	ESR _{10K} Typical mΩ	ESL nH	Thermal Res °C/W	dv/dt V/us	Pkg	Part Number
	Value	W	H	T									Qty	
	uF	mm	mm	mm									pcs	
400	0.47	32	20	11	27.5	\	7	23.5	18.6	24	16.5	50	150	APB-474K40B27L5AR10
400	1	32	28	14	27.5	\	9	50	10.3	26	18	50	115	APB-105K40B27L5AR50
400	1.5	32	33	18	27.5	\	9	75	8.1	26	22.9	50	90	APB-155K40B27L5AR80
400	2.2	32	33	18	27.5	\	9	110	6.4	26	28.9	50	90	APB-225K40B27L5AR80
400	3	32	37	22	27.5	\	9	150	5.7	28	32.5	50	75	APB-305K40B27L5AR94
400	5	42.5	37	28	37.5	10.2	14	200	6.2	30	12.3	40	42	APB-505K40437B5AT42
400	10	57.5	45	30	52.5	20.3	14	350	6.9	35	11.1	35	25	APB-106K40452D5AK10
400	15	57.5	50	35	52.5	20.3	14	525	6.1	35	12.5	35	20	APB-156K40452D5AK20
450	0.22	32	20	11	27.5	\	5	12.1	30.9	24	19.4	55	150	APB-224K45B27L5AR10
450	0.47	32	22	13	27.5	\	8	25.85	15.7	24	14.9	55	125	APB-474K45B27L5AR20
450	1	32	33	18	27.5	\	8	55	9.2	26	25.5	55	90	APB-105K45B27L5AR80
450	1.5	32	37	22	27.5	\	8	82.5	7.3	28	32.1	55	75	APB-155K45B27L5AR94
450	3.3	42.5	37	28	37.5	10.2	14	148.5	7.4	30	10.3	45	42	APB-335K45437B5AT42
450	4.7	42.5	45	30	37.5	20.3	14	211.5	6.2	30	12.3	45	35	APB-475K45437D5AT10
450	6.8	57.5	45	30	52.5	20.3	14	258.4	7.5	35	10.2	38	25	APB-685K45452D5AK10
450	10	57.5	50	35	52.5	20.3	14	380	6.6	35	11.6	38	20	APB-106K45452D5AK20

Metallized Polypropylene Film Capacitor (Plastic Case) AC Application (2 or 4 pins)

APB

PART NUMBERING SYSTEMS

EXPLANATION OF ARTICLE CODE

APB -	106	K	16	4	37	B	5
1	2	3	4	5	6	7	8

1 Capacitor Type

TYPE	APB
CODE	APB-

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

Vac	160V	250V	275V	300V	330V	350V	400V	450V
CODE	16	25	27	30	33	35	40	45

5 Lead Configuration

LEAD TYPE	2 Lead		4 Lead
	Long	Cut	Cut
CODE	L	B	4

6 Lead Pitch (P) mm

Lead Pitch	22.5	27.5	32.5	37.5	42.5	47.5	52.5	57.5
CODE	22	27	32	37	42	47	52	57

7 Ipsilateral Lead Space (P1) mm

Lead Space	5.1	10.2	12.7	16.0	20.3
CODE	A	B	G	C	D

8 Lead Length (mm)

TYPE	Long	Cut
LENGTH	15 (min)	5.0
CODE	L	5

Metallized Polypropylene Film Capacitor (Plastic Case) AC Application (2 or 4 pins)

APB

■ 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

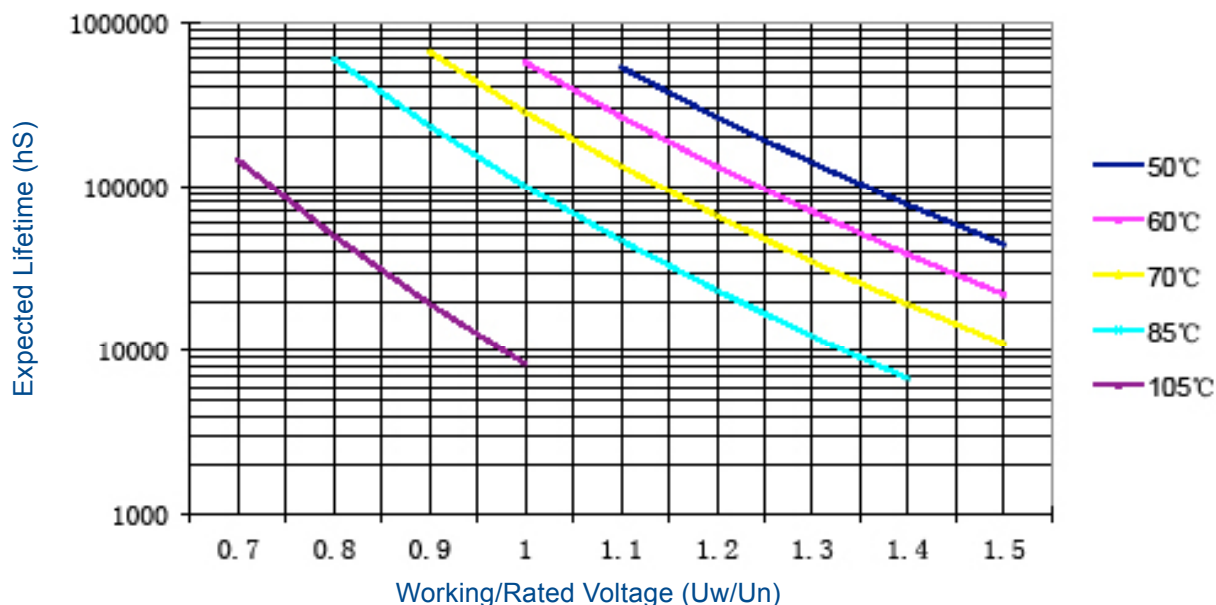
$$P_d = X_c \cdot I_{rms}^2 \cdot \tan\delta = I_{rms}^2 / (2 \cdot \pi \cdot f \cdot C) \cdot \tan\delta$$

Ths: Hot spot temperature within the capacitor

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

Design life: 100,000 hours at U_n @ Hot-Spot temperature $\leq +85^\circ\text{C}$

Expected Life Curve



■ CAUTIONS AND WARNING

- Don't exceed the upper category temperature.
- For longtime storage, maximum relative humidity 80%, no dew allowed on the capacitor.
- 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 terminal / or terminal and ground.
- Don't apply any mechanical stress to the capacitor terminals, and avoid any compressive, tensile or flexural stresses.
- Don't move the capacitor after soldered to the PC board, and don't pick up the PC board by soldered capacitor.
- Don't place the capacitor on a PC board whose holes pitch differs from the specified space.
- Avoid overload of the capacitors
- Do not have unlimited service life expectancy, the max service life expectancy may vary depending on the application the capacitor is used in.