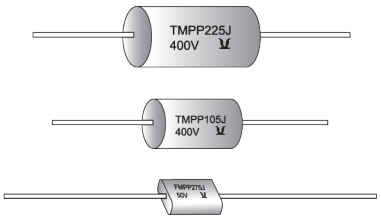
Metallized Polypropylene Film Capacitor (Axial)
AC Application

APW

The APW series is a polypropylene metallized film capacitor with polyester tape wrapping filled with resin and tinned copper wires.



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:	0.22μF - 50μF
Capacitance Tolerance:	±5%(J), ±10%(K)
Dissipation Factor::	≤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 ºC
Insulation Resistance:	IR x C ≥ 30,000s at 100Vdc 1 min at +25 ºC
Life Expectancy:	100,000 hours at Un @ hot-spot temperature T=+85 ºC
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 Operatin Temperature:	+105°C
Upper Temperature T max:	+85°C
Lower Temperature T min:	-40°C
Protection:	Polyester wrapping filled with epoxy resin
Leads:	Tinned copper wires
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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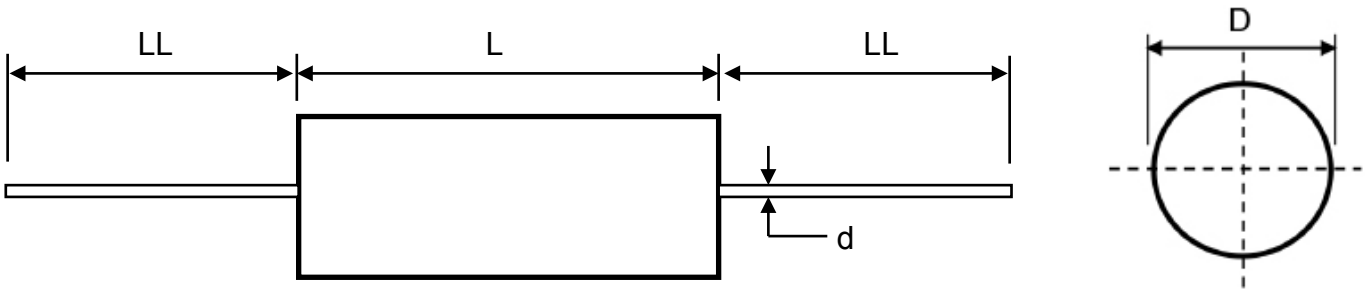
■ DIMENSION



■ DIMENSION - Lead Wires

D (mm) Max	L (mm) Max	d (mm) ±0.1	LL (mm) min
11	22	0.8	35
9.5	28	0.8	35
10 ~ 13	34	0.8	35
13.5 ~ 20.5	34	1	35
18 ~ 22.5	44	1	35
23.5 ~ 33	44	1.2	35
15 ~ 27	48	1	35
28 ~ 35	58	1.2	35

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■ DIMENSION (Part Number Reference)

Vac	Cap	Dimensions		Irms	Peak	ESR_{10K}	ESL	Thermal	dv/dt	Pkg	Part Number
	Value	D	L	10KHz	Current	Typical		Res		Qty	
	uF	mm max	mm max	70℃ A	A	mΩ	nH	°C/W	V/us	pcs	
160	1	11	22	6	60	8.7	12	47.9	60	240	APW-105K16A22LLA
160	2.2	11.5	34	6	66	14.2	20	29.3	30	232	APW-225K16A34LLA
160	2.5	12	34	7	75	12.7	20	24.1	30	216	APW-255K16A34LLA
160	3	13.5	34	8	90	10.7	20	21.9	30	192	APW-305K16A34LLA
160	3.3	14	34	9	99	9.8	20	18.9	30	184	APW-335K16A34LLA
160	4	15.5	34	9	120	8.3	20	22.3	30	168	APW-405K16A34LLA
160	5	17	34	9	150	7.0	20	26.5	30	152	APW-505K16A34LLA
160	6.8	19.5	34	9	204	5.7	20	32.5	30	136	APW-685K16A34LLA
160	10	20	44	9	200	6.9	25	26.8	20	96	APW-106K16A44LLA
160	10	20	48	9	200	12.4	25	14.9	20	96	APW-106K16A48LLA
160	15	24.5	44	12	300	5.1	25	20.4	20	78	APW-156K16A44LLA
160	20	28	44	12	400	4.4	25	23.7	20	72	APW-206K16A44LLA
160	20	28	48	12	400	10.7	25	9.7	20	72	APW-206K16A48LLA
160	25	31	44	12	500	4.0	25	26	20	60	APW-256K16A44LLA
160	30	29	58	12	450	5.2	30	20	15	50	APW-306K16A58LLA
160	40	33.5	58	12	600	4.6	30	22.6	15	50	APW-406K16A58LLA
160	40	36	58	12	600	8.8	30	11.8	15	50	APW-406K16A58LLA
250	0.47	9.5	28	6	28.2	14.4	15	28.9	60	350	APW-474K25A28LLA
250	0.68	10	34	6	30.6	15.2	20	27.4	45	264	APW-684K25A34LLA
250	1	12	34	7	45	10.8	20	28.3	45	216	APW-105K25A34LLA
250	1.5	14.5	34	9	67.5	75.0	20	24.7	45	184	APW-155K25A34LLA
250	2	16.5	34	9	90	6.1	20	30.4	45	160	APW-205K25A34LLA
250	2.2	17.5	34	9	99	5.7	20	32.5	45	152	APW-225K25A34LLA
250	2.5	18.5	34	9	112.5	5.2	20	35.6	45	144	APW-255K25A34LLA
250	3	20	34	9	135	4.7	20	39.4	45	128	APW-305K25A34LLA
250	3.3	18	44	9	99	6.8	25	27.2	30	108	APW-335K25A44LLA
250	4	19.5	44	9	120	6.0	25	30.9	30	102	APW-405K25A44LLA
250	4.7	21	44	9	141	5.3	25	34.9	30	96	APW-475K25A44LLA
250	5	21.5	44	9	150	5.2	25	35.6	30	90	APW-505K25A44LLA
250	6.8	25	44	12	204	4.2	25	24.8	30	78	APW-685K25A44LLA
250	10	30	44	12	300	3.5	25	29.8	30	66	APW-106K25A44LLA
250	15	31.5	58	12	300	6.2	30	16.8	20	50	APW-156K25A58LLA
250	20	35	58	12	400	5.2	30	20	20	50	APW-206K25A58LLA
330	0.47	11	34	6	28.2	17.0	20	24.5	60	240	APW-474K33A34LLA
330	0.68	13	34	7	40.8	12.2	20	25.1	60	200	APW-684K33A34LLA
330	1	15.5	34	9	60	8.6	20	21.5	60	168	APW-105K33A34LLA
330	2	18.5	44	9	80	8.2	25	22.6	40	108	APW-205K33A44LLA
330	2.2	19.5	44	9	88	6.8	25	27.2	40	102	APW-225K33A44LLA
330	3	22.5	44	9	120	6.2	25	29.9	40	84	APW-305K33A44LLA
330	3.3	23.5	44	12	132	5.6	25	18.6	40	84	APW-335K33A44LLA
330	4	25.5	44	12	160	4.9	25	21.3	40	78	APW-405K33A44LLA
330	4.7	27.5	44	12	188	4.6	25	22.6	40	72	APW-475K33A44LLA
330	5	28.5	44	12	200	4.4	25	23.7	40	66	APW-505K33A44LLA
330	6.8	28.5	58	12	204	8.8	30	11.8	30	60	APW-685K33A58LLA
330	10	34.5	58	12	300	6.9	30	15.1	30	50	APW-106K33A58LLA

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Vac	Cap	Dimensions		Irms	Peak	ESR_{10K}	ESL	Thermal	dv/dt	Pkg	Part Number
	Value	D	L	10KHz	Current	Typical		Res		Qty	
	uF	mm max	mm max	70℃ A	A	mΩ	nH	°C/W	V/us	pcs	
400	0.47	14.5	34	8	37.6	12.4	20	18.9	80	184	APW-474K40A34LLA
400	0.68	17	34	9	54.4	9.1	20	20.4	80	152	APW-684K40A34LLA
400	1	20.5	34	9	80	6.8	20	27.2	80	128	APW-105K40A34LLA
400	1.5	20.5	44	9	90	8.3	25	22.3	60	96	APW-155K40A44LLA
400	2	23.5	44	12	120	6.5	25	16	60	84	APW-205K40A44LLA
400	2.2	24.5	44	12	132	6.1	25	17.1	60	78	APW-225K40A44LLA
400	3	28.5	44	12	180	5.1	25	20.4	60	66	APW-305K40A44LLA
400	3.3	30	44	12	198	4.8	25	21.7	60	66	APW-335K40A44LLA
400	4	33	44	12	240	4.6	25	22.6	60	60	APW-405K40A44LLA
400	4.7	29.5	58	12	188	10.3	30	10.1	40	50	APW-475K40A58LLA
400	5	30.5	58	12	200	9.8	30	10.6	40	50	APW-505K40A58LLA
400	6.8	35	58	12	272	7.9	30	13.2	40	50	APW-685K40A58LLA
450	0.15	10	34	5	31.5	18.9	20	31.7	210	264	APW-154K45A34LLA
450	0.22	12	34	7	46.2	13.4	20	22.8	210	216	APW-224K45A34LLA
450	0.33	14.5	34	9	69.3	9.2	20	20.1	210	176	APW-334K45A34LLA
450	0.47	17	34	9	98.7	7.0	20	26.5	210	152	APW-474K45A34LLA
450	0.68	20.5	34	9	142.8	5.5	20	33.7	210	128	APW-684K45A34LLA
450	1	20.5	44	9	140	6.1	25	30.4	140	96	APW-105K45A44LLA
450	1.5	24.5	44	12	210	4.6	25	22.6	140	78	APW-155K45A44LLA
450	2	28.5	44	12	280	4.0	25	26	140	66	APW-205K45A44LLA
450	2.2	29.5	44	12	308	3.9	25	26.7	140	66	APW-225K45A44LLA
450	2.5	31.5	44	12	350	3.8	25	27.4	140	60	APW-255K45A44LLA
450	3	28	58	12	270	4.7	30	22.2	90	60	APW-305K45A58LLA
450	3.3	29.5	58	12	297	4.6	30	22.6	90	60	APW-335K45A58LLA
450	4	32.5	58	12	360	4.2	30	24.8	90	50	APW-405K45A58LLA

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PART NUMBERING SYSTEMS

EXPLANATION OF ARTICLE CODE

APW-	106	K	16	A	44	L	L
1	2	3	4	5	6	7	8

1 Capacitor Type

TYPE	APW
CODE	APW-

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

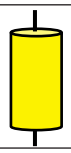
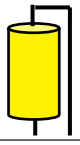
TOLERANCE	±5%	±10%	±20%
CODE	J	K	M

4 Rated Voltage

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

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

5 Lead Configuration

CODE	A	V
LEAD TYPE		

6 Lead Space (P)

Lead Pitch (mm)	22.0	28.0	34.0	44.0	48.0	58.0
CODE	22	28	34	44	48	58

7 Lead Forming Pitch

LEAD PITCH	N/A
CODE	A

8 Lead Length (Straight)

LEAD LENGTH	N/A
CODE	L

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PERFORMANCE NOTES

Rs: Equivalent series resistance - Ohmic resistances (Ohm)
Dielectric Dissipation Factor: tanδ0 (Polypropylene: 0.0002)
Ta: Ambient temperature
Rth: Thermal resistance °C/W, indicates hot spot temperature rise due to power disspation losses
Pj: Joule losses Pj=Rs*Irms2
Pd: Dielectric losses

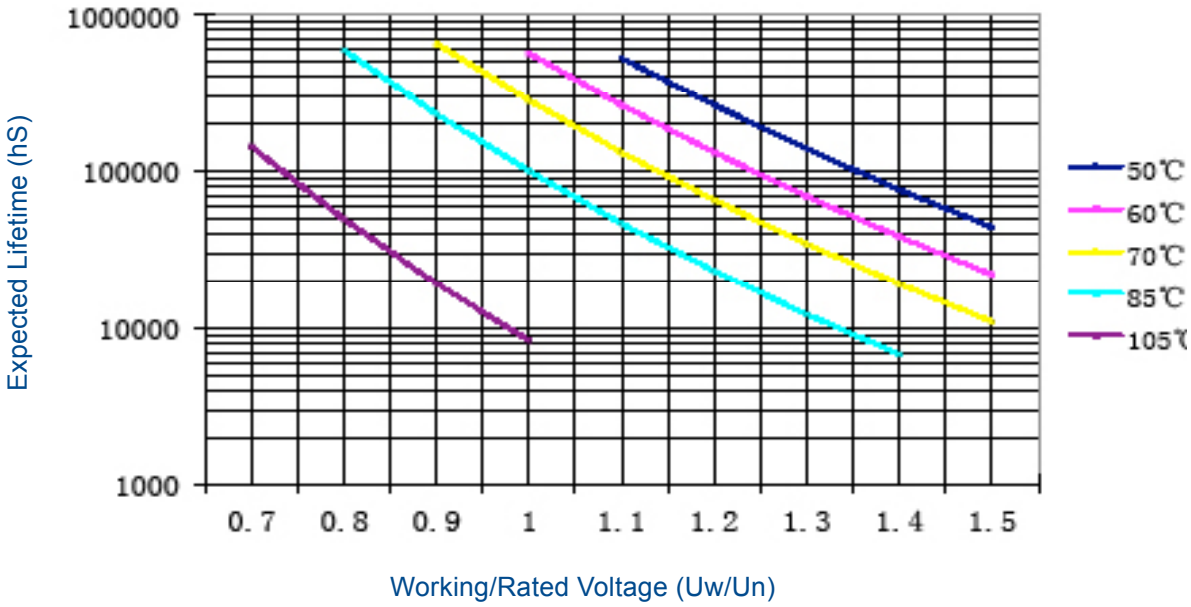
$$Pd = Xc*Irms2*\tan\delta = Irms2 / (2*\pi*f*C)*\tan\delta$$

Ths: Hot spot temperature whithin the capacitor

$$Ths = Ta + (Pj + Pd)*Rth$$

Design life: 100,000 hours at Un @ Hot-Spot temperature ≤+85°C

Expected Life Curve



CAUTIONS AND WARNING

- Don't exceed the upper category temperature.
- Do not use or store capacitor in corrosive atmosphere, in the dusty enviroments 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 strees.
- Don't move the capaciotr after soldered to the PC board,and don't pick up the PC bord by soldered capacitor.
- Don't place the capacitor on a PC board whose holes pacse 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.