GENERAL INFORMATION

TYPICAL PROPERTIES AND APPLICATIONS.

POLYESTER FILM
Typical Properties:

- High dielectric constant.
- Very good ratio box and dip size capacitance.
- Very wide operating temperature range.
- Good stability.
- Excellent self-healing properties.

Typical Applications:

- Blocking and coupling.
- Decoupling.
- Timing.
- Low filtering.
- By-passing.
- Market sector with professional characteristics.

POLYPROPYLENE FILM
Typical Properties:

- Very low dielectric absorption.
- Good behaviour in frequency.
- Very high insulation resistance.
- Very good stability.
- Excellent self-healing properties.

Typical Applications:

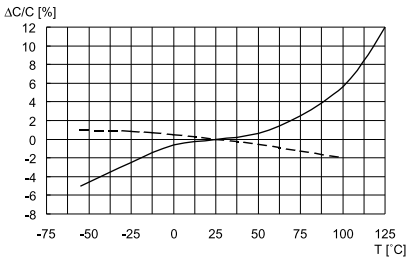
- Pulse applications.
- High current.
- AC Applications.
- SMPS & TV Set.
- Lighting.
- DC-LINK and filtering high Q.
- Timing with high stabililty.
- Industrial.

DIELECTRIC ABSORPTION(DA)
Typical Value 1KHz:

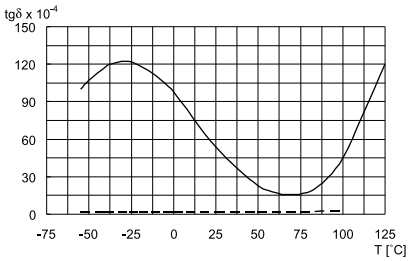
- Polyester: 0.5
- Polypropylene: 0.05

TYPICAL GRAPHS:

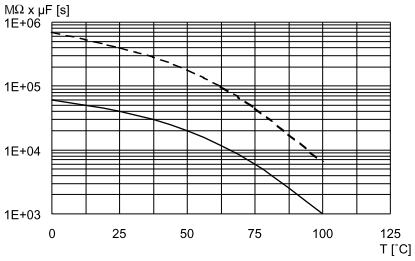
——— Polyester - - - - - - - - Polypropylene



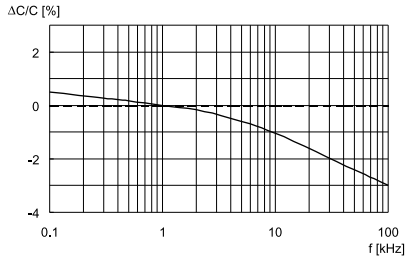
Capacitance change vs. temperature at 1kHz



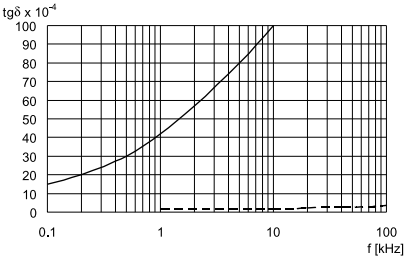
Dissipation factor vs. temperature at 1kHz



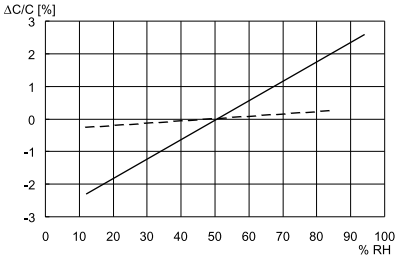
Time constant vs. temperature



Capacitance change vs. frequency (Room temperature)



Dissipation factor vs. frequency (Room temperature)



Capacitance change vs. relative humidity (RH)

Product

PPD series / Polypropylene Film foil Capacitors, Resin dipped.

PRODUCT CODE SYSTEM

The part number is for PPD as follows:

PPD									
1	2	3	4	5	6	7	8	9	10

Digit 1 PPD Standard Series name.

Digit 2 D.C. rated voltage
Y = 800Vdc; Q = 1000Vdc; R =1250Vdc; T = 1600Vdc.

Digit 3 Pitch: (mm)
I=15; J=17.5; K=20; N=22.5; M=25; R=27.5;

Digit 4 to 7 Digits 5-6-7 indicate the first three digits of capacitance value and 4th digit indicates the number of zeros that must be added to obtain the rated capacitance in pF.

Digit 8 Mechanical version
4 = 18mm Min ; 5 = 25+5mm; J = 4.3±0.3mm; K = 3.2±0.3mm;
C= 5±0.5mm;

Digit 9 Capacitance tolerance:
H = ±3%, J = ±5%; K = ±10%

Digit 10 Internal use

GENERAL TECHNICAL DATA

Dielectric: Polypropylene film

Plates: Aluminum layer deposited by evaporation under vacuum.

Winding: Non-inductive type

Leads: Tinned wire
C
Protection: Flame-retardant epoxy resin coating (UL94V-0).

Marking: Capacitance, tolerance, DC rated voltage and Series name (for pitch = 7.5mm or higher only).

Related standard: IEC 60384-16

Specification of PPD Series

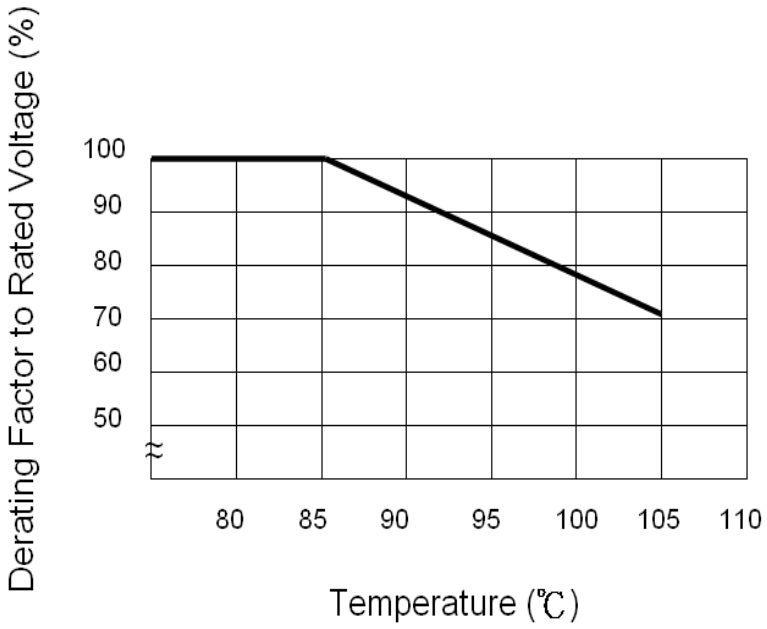
Electrical characteristics

Rated voltage (Vr)	800V, 1000V, 1250V, 1600Vdc.
Capacitance Range	800Vdc. 0.00027～0.047uf 1000Vdc. 0.00022～0.068uf 1250Vdc. 0.00027～0.022uf 1600Vdc. 0.00022～0.022uf
Rated temperature	-40℃ ~ +80℃(+105℃.)
Capacitance tolerance Temperature: +25℃ Frequency: 1KHz.	±3%, ±5%, ±10%,
D.F value Temperature: +25℃	C＞1μF, D.F≦0.001 at 1Khz C≦1μF, D.F≦0.001 at 1Khz and D.F≦0.0025 at 10Khz
Insulation Resistance 100Vdc Temperature: +25℃. Duration: 1 minute.	≧ 30000MΩ for C≦0.33μF. ≧ 10000MΩ for C＞0.33μF.
Dielectric strength	1.6 x Vr applied for 2 sec at +25℃

Temperature derated voltage:

* For temperature between +85℃ and +105℃ decreasing factor of 1.25% at per each 1℃. on the rated voltage Vr (dc & ac). has to applied.

1. When using capacitors at temperatures higher than the normally specified maximum temperature, it is necessary to reduce the working voltage as shown in the figures below.



Specification of PPD Series

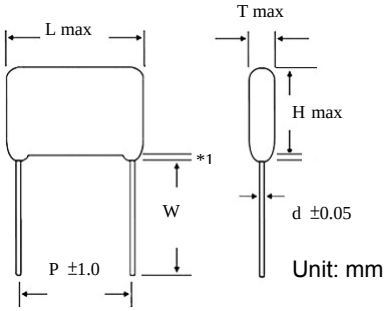
Test Item and performance

Test item	Test condition	Performance
Damp heat, steady state	Temperature: +40℃ Humidity: 93% Duration:	|△C/C| ≦ 3% D.F increase ≦ 0.0005 at 1Khz I.R ≦ 50% of initial value
Dry heat test	Temperature: +85℃ Duration: 16Hrs Removal from chamber for test less 4hrs for temperature recovery	|△C/C| ≦ 3% C＞1μF, D.F change≦0.0005 at 1Khz C≦1μF, D.F change≦0.0008 at 10Khz I.R ≦ 50% of initial value
Cold test	Temperature: -40℃ Duration: 2Hrs Removal from chamber for test less 4hrs for temperature recovery	|△C/C| ≦ 3% C＞1μF, D.F change≦0.0005 at 1Khz C≦1μF, D.F change≦0.0008 at 10Khz I.R ≦ 50% of initial value
Solder ability	Soldering temperature: 230±5℃. Duration: 2±0.5 seconds Dipping/removing speed: 25mm/ sec	Leads shall be covered with solder more than 95%.
Soldering heat resistance	Soldering temperature: 260±5℃. Duration: 10 ± 1 seconds	|△C/C| ≦ 3% C＞1μF, D.F change≦0.0005 at 1Khz C≦1μF, D.F change≦0.0008 at 10Khz I.R ≦ 50% of initial value
Vibration resistance	It should be no short circuits or open circuits in the element and state of the connection shall be stable. It should be no anomalies in appearance after test.	The frequency shall be varied uniformly from 10Hz to 55Hz at 0.75mm amplitude and back to 10Hz in approximately 1 min intervals. The test shall be applied 2 Hrs per each direction, total 6 Hrs.
Termination strength	Without mechanical damage. as break of terminal damage.	The capacitors shall be fixed and unless otherwise specified. a tensile force of 10N shall be gradually applied to the axial of leads. Then maintained for 30±5 seconds.
Load life test (Endurance)	Temperature: +85℃ Test voltage: 1.25x Vr Duration: 500Hrs Removal from chamber for test less 4hrs for temperature recovery	|△C/C| ≦ 3% C＞1μF, D.F change≦0.0005 at 1Khz C≦1μF, D.F change≦0.0008 at 10Khz I.R ≦ 50% of initial value
Long term stability	Temperature: -40℃ ~ +85℃ Humidity≦70% for yearly average Duration≦12 months	|△C/C| ≦ 2%

Specification of PPD Series

Dimension

Part Number	Cap(uF)	800 Vdc /250 Vac				
		L	H	T	P	d
PPDYF0270___	0.00027	12.5	8.9	5.4	10.0	0.6
PPDYF0390___	0.00039	12.5	8.9	5.0	10.0	0.6
PPDYF0680___	0.00068	12.5	10.7	5.4	10.0	0.6
PPDYI0750___	0.00075	18.5	11.0	5.5	15.0	0.8
PPDYI0820___	0.00082	18.5	11.0	6.0	15.0	0.8
PPDYI1100___	0.001	18.5	11.0	6.0	15.0	0.8
PPDYI1120___	0.0012	18.5	12.5	6.8	15.0	0.8
PPDYI1150___	0.0015	18.5	13.0	7.0	15.0	0.8
PPDYI1180___	0.0018	18.5	14.8	7.5	15.0	0.8
PPDYI1220___	0.0022	18.5	11.0	6.0	15.0	0.8
PPDYI1270___	0.0027	18.5	12.0	6.2	15.0	0.8
PPDYI1330___	0.0033	18.5	11.5	5.2	15.0	0.8
PPDYI1390___	0.0039	18.5	11.5	5.5	15.0	0.8
PPDYI1470___	0.0047	18.5	12.0	6.1	15.0	0.8
PPDYI1560___	0.0056	18.5	13.5	6.5	15.0	0.8
PPDYI1650___	0.0065	18.5	14.0	6.7	15.0	0.8
PPDYI1720___	0.0072	18.5	14.2	6.8	15.0	0.8
PPDYI1750___	0.0075	18.5	14.3	7.0	15.0	0.8
PPDYI1820___	0.0082	18.5	15.2	7.7	15.0	0.8
PPDYI2100___	0.01	19.0	15.5	8.0	15.0	0.8
PPDYI2120___	0.012	19.0	16.5	7.3	15.0	0.8
PPDYI2150___	0.015	19.0	16.7	7.5	15.0	0.8
PPDYI2180___	0.018	19.0	16.8	7.8	15.0	0.8
PPDYI2270___	0.027	19.0	17.0	10.0	15.0	0.8
PPDYK2330___	0.033	22.5	17.5	10.0	20.0	0.8
PPDYK2360___	0.036	22.5	19.0	10.5	20.0	0.8
PPDYK2470___	0.047	22.5	20.5	11.0	20.0	0.8



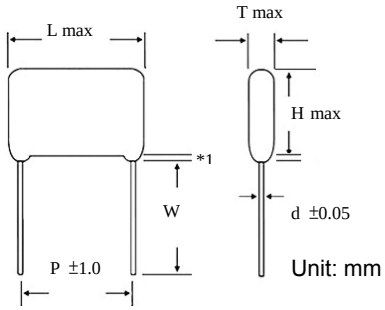
*1 : Max value 1.5mm

W : Please refer to the mechanical version in the product code system.

Specification of PPD Series

Dimension

Part Number	Cap(uF)	1000 Vdc/400 Vac				
		L	H	T	P	d
PPDQD0220___	0.00022	10.0	8.0	5.4	7.5	0.6
PPDQF0270___	0.00027	12.5	8.9	5.4	10.0	0.6
PPDQF0390___	0.00039	12.5	8.9	5.0	10.0	0.6
PPDQF0680___	0.00068	12.5	10.7	5.4	10.0	0.6
PPDQI0750___	0.00075	18.5	11.0	5.5	15.0	0.8
PPDQI0820___	0.00082	18.5	11.0	6.0	15.0	0.8
PPDQI1100___	0.001	18.5	11.0	6.0	15.0	0.8
PPDQI1150___	0.0015	18.5	13.0	7.0	15.0	0.8
PPDQI1220___	0.0022	18.5	11.0	6.0	15.0	0.8
PPDQI1240___	0.0024	18.5	11.5	6.0	15.0	0.8
PPDQI1270___	0.0027	18.5	12.0	6.2	15.0	0.8
PPDQI1330___	0.0033	18.5	11.5	5.2	15.0	0.8
PPDQI1360___	0.0036	18.5	11.5	5.3	15.0	0.8
PPDQI1470___	0.0047	18.5	12.0	6.1	15.0	0.8
PPDQI1560___	0.0056	18.5	13.5	6.5	15.0	0.8
PPDQI1680___	0.0068	18.5	14.0	6.7	15.0	0.8
PPDQI1720___	0.0072	18.5	14.2	6.8	15.0	0.8
PPDQI1820___	0.0082	18.5	15.2	7.7	15.0	0.8
PPDQI2100___	0.01	19.0	15.5	8.0	15.0	0.8
PPDQI2120___	0.012	19.0	16.5	7.3	15.0	0.8
PPDQI2150___	0.015	19.0	19.0	9.0	15.0	0.8
PPDQK2180___	0.018	22.5	14.5	7.5	20.0	0.8
PPDQK2270___	0.027	22.5	16.8	8.0	20.0	0.8
PPDQK2330___	0.033	22.5	17.5	10.0	20.0	0.8
PPDQK2390___	0.039	22.5	19.5	11.0	20.0	0.8
PPDQK2470___	0.047	22.5	20.5	11.0	20.0	0.8
PPDQK2680___	0.068	23.5	20.0	10.0	20.0	0.8



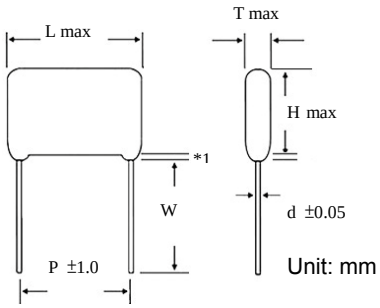
*1 : Max value 1.5mm

W : Please refer to the mechanical version in the product code system.

Specification of PPD Series

Dimension

Part Number	Cap(uF)	1250 Vdc/400 Vac				
		L	H	T	P	d
PPDRF0270___	0.00027	12.5	8.9	5.4	10.0	0.6
PPDRF0390___	0.00039	12.5	8.9	5.0	10.0	0.6
PPDRF0680___	0.00068	12.5	10.7	5.4	10.0	0.6
PPDRI0750___	0.00075	18.5	11.0	5.5	15.0	0.8
PPDRI0820___	0.00082	18.5	11.0	6.0	15.0	0.8
PPDRI1100___	0.001	18.5	11.0	6.0	15.0	0.8
PPDRI1120___	0.0012	18.5	12.5	6.8	15.0	0.8
PPDRI1150___	0.0015	18.5	13.0	7.0	15.0	0.8
PPDRI1180___	0.0018	18.5	14.8	7.5	15.0	0.8
PPDRI1220___	0.0022	18.5	11.0	6.0	15.0	0.8
PPDRI1240___	0.0024	18.5	11.5	6.0	15.0	0.8
PPDRI1270___	0.0027	18.5	12.0	6.2	15.0	0.8
PPDRI1330___	0.0033	18.5	11.7	6.5	15.0	0.8
PPDRI1390___	0.0039	18.5	13.0	6.5	15.0	0.8
PPDRI1470___	0.0047	18.5	13.0	7.0	15.0	0.8
PPDRI1560___	0.0056	18.5	14.0	7.3	15.0	0.8
PPDRI1680___	0.0068	18.5	15.5	7.8	15.0	0.8
PPDRI1720___	0.0072	18.5	16.0	8.3	15.0	0.8
PPDRI1820___	0.0082	18.5	17.0	9.4	15.0	0.8
PPDRI2100___	0.01	19.0	19.0	9.5	15.0	0.8
PPDRK2120___	0.012	22.5	14.0	7.5	20.0	0.8
PPDRK2150___	0.015	22.5	14.2	7.8	20.0	0.8
PPDRK2180___	0.018	22.5	15.2	8.0	20.0	0.8
PPDRK2220___	0.022	22.5	16.5	7.5	20.0	0.8



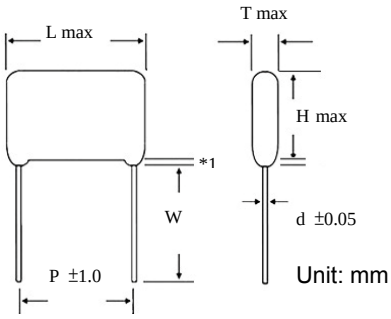
*1 : Max value 1.5mm

W : Please refer to the mechanical version in the product code system.

Specification of PPD Series

Dimension

Part Number	Cap(uF)	1600Vdc/450Vac				
		L	H	T	P	d
PPDTI0220___	0.00022	18.5	8.0	5.5	15.0	0.6
PPDTI0330___	0.00033	18.5	8.0	5.5	15.0	0.6
PPDTI0470___	0.00047	18.5	8.5	6.0	15.0	0.6
PPDTN1100___	0.001	25.0	11.5	6.5	22.5	0.8
PPDTN1120___	0.0012	25.0	11.5	6.5	22.5	0.8
PPDTN1150___	0.0015	25.0	12.5	7.0	22.5	0.8
PPDTN1180___	0.0018	25.0	13.5	7.5	22.5	0.8
PPDTN1220___	0.0022	25.0	15.0	8.0	22.5	0.8
PPDTN1270___	0.0027	25.0	16.0	8.5	22.5	0.8
PPDTN1330___	0.0033	25.0	17.0	9.5	22.5	0.8
PPDTN1390___	0.0039	25.0	18.5	10.0	22.5	0.8
PPDTN1470___	0.0047	25.0	20.0	10.5	22.5	0.8
PPDTR1560___	0.0056	31.0	20.0	10.0	27.5	0.8
PPDTR1680___	0.0068	31.0	21.0	10.5	27.5	0.8
PPDTR1820___	0.0082	31.0	22.0	11.0	27.5	0.8
PPDTR2100___	0.01	31.0	23.0	12.0	27.5	0.8
PPDTR2120___	0.012	31.0	24.0	13.5	27.5	0.8
PPDTR2150___	0.015	31.0	26.0	16.0	27.5	0.8
PPDTR2180___	0.018	31.0	28.0	18.0	27.5	0.8
PPDTR2220___	0.022	31.0	30.0	20.0	27.5	0.8



*1 : Max value 1.5mm

W : Please refer to the mechanical version in the product code system.

Specification of PPD Series

Soldering suggestions

1. Max soldering temperature:

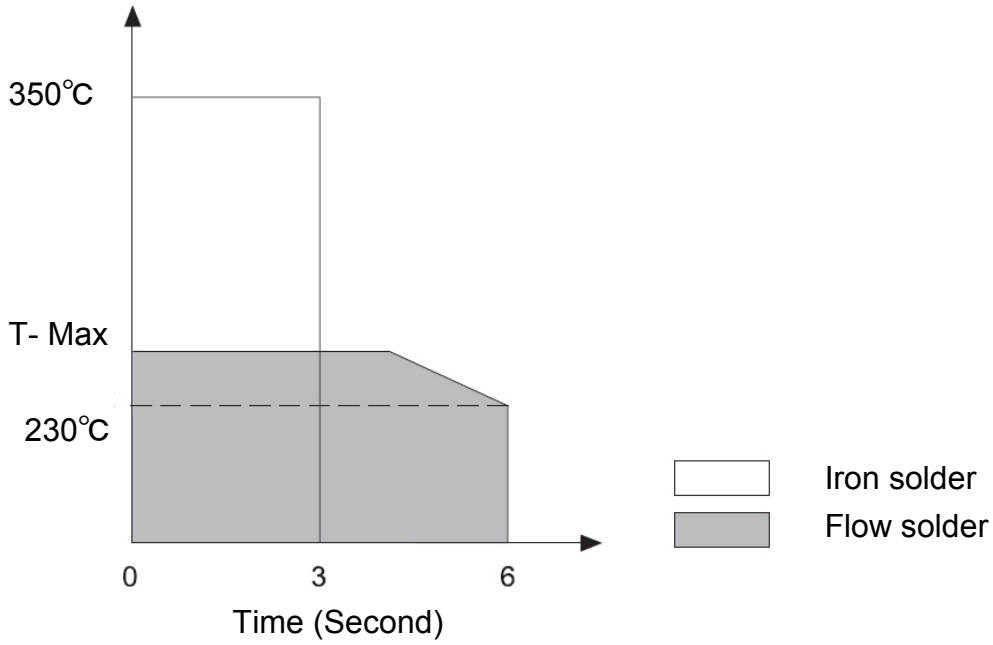
Max temperature (T-Max) for MKT (Pitch ≧ 7.5mm): 265±5℃ for 4 seconds.

Max temperature (T-Max) for MKT (Pitch 5mm): 260℃ for 4 seconds.

Max temperature (T-Max) for MKP: 260℃ for 4 seconds.

Temperature

Pre-Heating	Temperature	Time
	110℃	1 Min
	100℃	1 Min for KP & MKP≦P:7.5mm



2. Additional condition:

If two time soldering are needed, please apply a recovery time until the temperature on the surface of capacitor is below 50℃.

Avoid applying the reflow soldering with both leaded parts and SMD parts.

Storage suggestions:

In order to keep the electrical characteristic of capacitor in line with the specification, please store the capacitors in the following condition:

Storage duration: ≦ 12 months from the date which showed on the label.

Temperature: -40℃ to 80℃.

Humidity: ≦ 70%.

Specification of PPD Series

Marking:

The marking on each capacitor should contain Capacitance, Tolerance and Rated voltage.

Packing:

For Bulk type, small inner cardboard box / PVC bag with desiccants and label packed in one standard export carton.