FilmTrim Variable Capacitors

7.5mm FilmTrim

Product Features

- Four Dielectrics:
  Standard PTFE/ High Temp PTFE
  Polypropylene
  Polycarbonate
- SMD and lead-through-hole mounting
- Top, Bottom and Side Mount models
- Wide capacitance ranges
- Low cost
- Linear capacitance change vs. rotation
- Compact size

Product Applications

Typical Applications:

- Antennas • Transmitters
- RF Equipment • Instruments

Modifications & Variations:

- Special capacitance ranges
- Special terminal sizes & shapes
- Extended Adjust shafts
- High temperature versions for PTFE
- Silver and/or Gold Plating

Specifications

Dielectrics	• High Temperature PTFE • Standard PTFE • Polypropylene (PP) • Polycarbonate (PC)
Voltage Rating/ Test Voltage	200/300 VDC
Other Voltage ratings on request	(to 300/600 VDC)
Contact Resistance	≤ 0.010mΩ
Insulation Resistance	≥10,000MΩ
Rotation Torque	Cmax <35pF 0.10…1.5Ncm Cmax >35pF 0.15…2.5Ncm

Production Qualification

FilmTrim Capacitors are in accordance with DIN IEC 418-1 and 4-former DIN 44261 part 3.

Testing methods for manufacturing quality are in accordance with MIL-STD-105D and IEC410 (former DIN44260).

Solderability or heat resistance for the FilmTrim Capacitors comply with DIN IEC 68-2-20 part 2, Test Ta and Tb.

Each FilmTrim Capacitor is tested for minimum and maximum capacitance value and is also subjected to full test voltage.

For requests for options such as special adjustments, pin configurations, dielectrics, etc., please contact PPI directly.

Part Numbering

PP	Z	B	2R0	00
PPI	Dielectric	Style	Capacitance	Options

Dielectrics

Dielectrics	
Code	**Description**
X	PTFE (Polytetrafluoroethylene)
Y	PP (Polypropylene)
Z	PC (Polycarbonate)

Style

Style	
Code	**Description**
A	7.5mm Top/Bottom Adjust
B	7.5mm Side Adjust
E*	7.5mm Top/Bottom Adjust
R*	7.5mm Side Adjust

** Extended Temperature range: -40 to +125°C*

For other modifications such as high temperature base material or special lead plating, contact PPI.

Capacitance

Capacitance Code
2R0 = 2.0pF
270 = 27pF

Special Options

Special Options (Top Adjust Models)	
Code	**Description**
00	Standard
02	7.5mm, 2 leads





Specifications

Dielectric	Capacitance (pF)		Q min (1MHz)	TCC (ppm/°C)	Operating Temperature (°C)	H max in/mm	Color Code	Model Number	
	min	max						3 Lead	2 Lead
PTFE	1.3	5.0	1500	-100±250	-40°C…+85°C	0.40 / 10.2	Grey	PPXA5R000	PPXA5R002
	1.5	9.0		-100±250		0.40 / 10.2	Yellow	PPXA9R000	PPXA9R002
	2.0	18.0		-100±200		0.40 / 10.2	Green	PPXA18000	PPXA18002
	3.9	27.0		-100±200		0.40 / 10.2	Red	PPXA27000	PPXA27002
	4.5	36.0		-100±200		0.45 / 11.4	Violet	PPXA36000	PPXA36002
	5.0	45.0		-100±200		0.45 / 11.4	Orange	PPXA45000	PPXA45002
PTFE	1.3	5.0	1500	-100±250	-40°C…+85°C	0.40 / 10.2	Grey	PPXB5R000	
	1.5	9.0		-100±250		0.40 / 10.2	Yellow	PPXB9R000	
	2.0	18.0		-100±200		0.40 / 10.2	Green	PPXB18000	
	3.9	27.0		-100±200		0.40 / 10.2	Red	PPXB27000	
	4.5	36.0		-100±200		0.45 / 11.4	Violet	PPXB36000	
	5.0	45.0		-100±200		0.45 / 11.4	Orange	PPXB45000	
PTFE High Temp	1.3	5.0	1500	-100±150	-40°C…+125°C	0.40 / 10.2	Grey	PPXE5R000	PPXE5R002
	1.5	9.0				0.40 / 10.2	Yellow	PPXE9R000	PPXE9R002
	2.6	18.0				0.40 / 10.2	Green	PPXE18000	PPXE18002
	3.5	27.0				0.40 / 10.2	Red	PPXE27000	PPXE27002
	4.5	36.0				0.45 / 11.4	Violet	PPXE36000	PPXE36002
	5.0	45.0				0.45 / 11.4	Orange	PPXE45000	PPXE45002
PTFE High Temp Non-Magnetic	1.3	5.0	1500	-100±200	-40°C…+125°C	0.40 / 10.2	Grey	PPXE5R000NM	
	1.5	9.0				0.40 / 10.2	Yellow	PPXE9R000NM	
	2.0	18.0				0.40 / 10.2	Green	PPXE18000NM	
	3.9	27.0				0.40 / 10.2	Red	PPXE27000NM	
	4.5	36.0				0.45 / 11.4	Violet	PPXE36000NM	
	5.0	45.0				0.45 / 11.4	Orange	PPXE45000NM	
Polycarbonate	2.5	30.0	200	+150±250	-40°C…+85°C	0.40 / 10.2	Red	PPZB30000	
	4.0	40.0		+150±250		0.40 / 10.2	Violet	PPZB40000	

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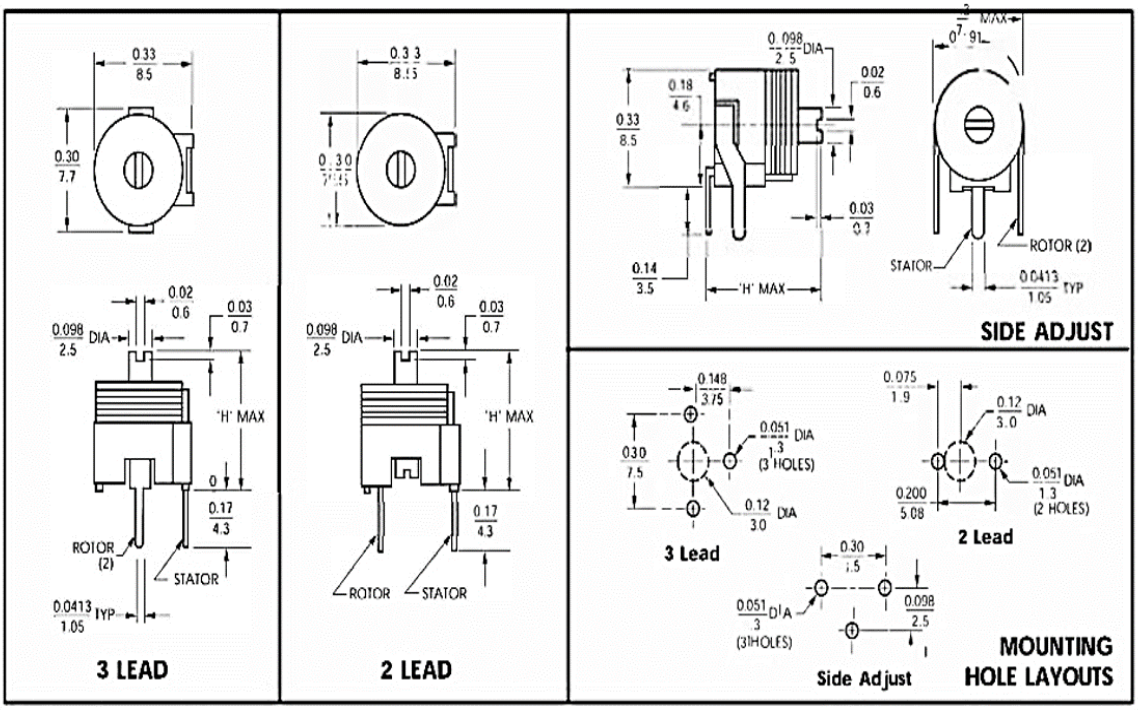
Specifications

Dielectric	Capacitance (pF) min	Capacitance (pF) max	Q min (1MHz)	TCC (ppm/°C)	Operating Temperature (°C)	H max in/mm	Color Code	Model Number 3 Lead	Model Number 2 Lead
PTFE High Temp	1.3	5.0	1500	-100±150	-40°C…+125°C	0.40 / 10.2	Grey	PPXR5R000	
	1.5	9.0				0.40 / 10.2	Yellow	PPXR9R000	
	2.6	18.0				0.40 / 10.2	Green	PPXR18000	
	3.5	27.0				0.40 / 10.2	Red	PPXR27000	
	4.5	36.0				0.45 / 11.4	Violet	PPXR36000	
	5.0	45.0				0.45 / 11.4	Orange	PPXR45000	
Polypropylene	1.3	5.0	1000	0±300	-40°C…+70°C	0.40 / 10.2	Grey	PPYA5R000	PPYA5R002
	1.5	10.0		0±300		0.40 / 10.2	Yellow	PPYA10000	PPYA10002
	2.0	15.0		-100±300		0.40 / 10.2	Blue	PPYA15000	PPYA15002
	2.2	22.0		-100±300		0.40 / 10.2	Green	PPYA22000	PPYA22002
	2.3	27.0		-100±250		0.40 / 10.2	Red	PPYA27000	PPYA27002
	3.0	36.0		-100±200		0.40 / 10.2	Violet	PPYA36000	PPYA36002
Polypropylene	1.3	5.0	1000	0±300	-40°C…+70°C	0.40 / 10.2	Grey	PPYB5R000	
	1.5	10.0		0±300		0.40 / 10.2	Yellow	PPYB10000	
	2.0	15.0		-100±300		0.40 / 10.2	Blue	PPYB15000	
	2.2	22.0		-100±300		0.40 / 10.2	Green	PPYB22000	
	2.3	27.0		-100±250		0.40 / 10.2	Red	PPYB27000	
Polycarbonate	2.5	30.0	200	+150±250	-40°C…+85°C	0.40 / 10.2	Red	PPZA30000	PPZA30002
	4.0	40.0		+150±250		0.40 / 10.2	Violet	PPZA40000	PPZA40002

All dimensions are in/mm.



Gold plated metal parts are standard on GXE and GXR models shown above.

Specifications Notes

1. Parts are 100% tested for capacitance range and dielectric withstanding voltage.
2. Capacitance range specified is that which is guaranteed and is measured at 1 MHz at room temperature.
3. Q factor is measured at maximum rated capacitance and at room temperature.
4. Dielectric strength is measured at maximum rated capacitance and room temperature, with test voltage (as listed for each model) applied for 60 seconds.
5. Insulation resistance is measured at maximum rated capacitance and room temperature and at rated voltage, unless otherwise specified.
6. Temperature coefficient of capacitance (TCC) is measured at 1 MHz over the operating temperature range, with capacitor set at maximum rated capacitance.
7. Axial load during tuning should not exceed 200 grams force. At maximum axial load, capacitance change is no more than 15%.
8. Capacitors should not be operated outside of rated capacitance range and working voltage.

Soldering FilmTrim Capacitors

Dip soldering:
260°C ± 10°C for 7 seconds maximum.

Hand Soldering
(for lead-through-hole models):
Tip temperature 350°C ± 10°C for 3 to 4 seconds

Cleaning FilmTrim Capacitors

1. Water soluble fluxes and detergents with a water flush after soldering of the boards can be used for all parts.
2. Do not immerse FilmTrim models in chlorinated or fluorinated hydrocarbon solvents as this would adversely affect the plastic dielectrics and base materials.
   Some customers have successfully used X models in scrubbers or sprayers where only bottom of the printed circuit boards is exposed to solvents.
   If the process requires immersion in solvents for cleaning boards, the FilmTrim capacitors should be hand soldered to board after the boards have been cleaned.