SPECTRUM CONTROL INC.

Tubular P_i Type Capacitors

Spectrum Control Technology Inc. P_i (π) type capacitors are ideally suited for connector and filter block applications requiring high capacitance values. Compared to feed-thru capacitors, the P_i capacitors have a much narrower transition band between the pass band and stop bands. P_i filters are effective in stopping high frequency interference without affecting necessary frequencies immediately below the stop band.

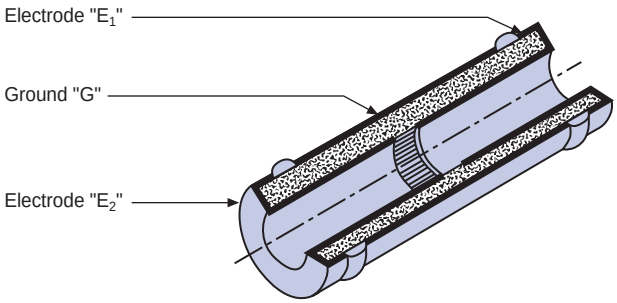
Our P_i capacitors consist of a unique tubular capacitor with an inner electrode imbedded within the ceramic material. This is in contrast to a solid tube capacitor whose inner electrode is on the inside diameter of the tube. Our embedded electrode P_i capacitor design offers several distinct advantages over other ceramic capacitors.

- ***Versatility in Capacitance Values and Voltage Ratings.*** The placement of the imbedded electrode can be chosen to optimize capacitor performance.
- ***Dimensional Constancy.*** The imbedded electrode makes it possible to change electrical performance without altering the inner or outer diameter of the ceramic tube for a given terminal size.
- ***High Mechanical Strength.*** In order to achieve increased capacitance in a plain tubular capacitor, manufacturers must utilize a thin wall tube. This decrease in wall thickness often leads to an increase in process problems. Spectrum's imbedded electrode permits the use of a thicker tubular wall, allowing for increased yields and minimal process problems in the assembly of connectors.

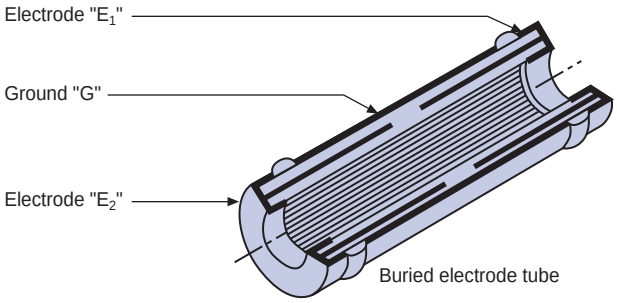
Features

- Effectively stops high frequency interference
- Miniature size - high ratio of capacitance to volume
- Low inductance, non-polar
- Ideal for multi-pin connector applications
- P_i filter - includes a ferrite inductor
- Impervious to moisture and contamination
- Excellent reliability
- -55°C to +125°C operation

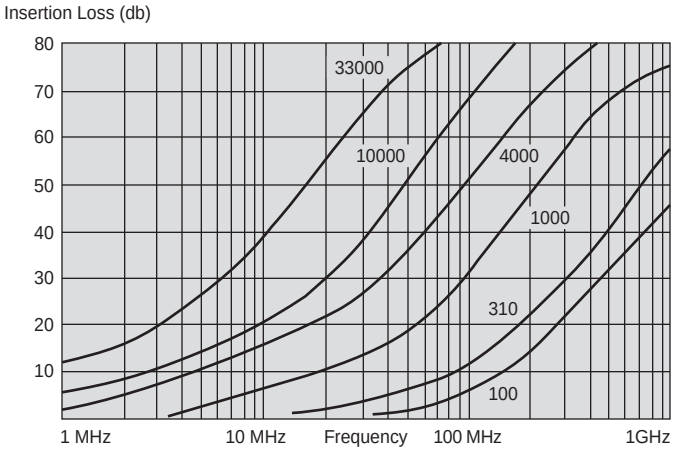
Solid



Embedded Electrode Tube



Insertion Loss



Typical Pi Filter Performance*

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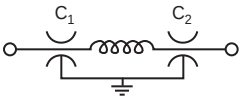
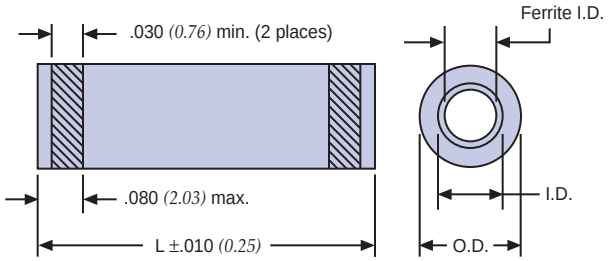
Specifications

50/100/200 VDCW + 125°C



Pi (π) Section
$C_1 + C_2 = C_{TOTAL}$



Part Number	VDCW at 125°C	Cap. Value GMV (µF)	Dimensions							Minimum Insertion Loss (db)					
			Ferrite		Tube										
			I.D.	Tol.	O.D.	Tol.	I.D.	Tol.	L	1 MHz	3 MHz	10 MHz	30 MHz	100 MHz	300 MHz to 10 GHz
51-109-008	200	10,000	.026 (0.66)	± .002 (± .05)	.082 (2.08)		.057 (1.45)	± .003 (± .08)	.425 (10.80)	—	11	20	48	65	70
51-109-009	100	12,000								5	13	23	50	65	70
51-109-010	50	15,000								7	14	28	55	70	70
51-134-001	200	12,000	.045 (1.14)	± .003 (± .08)	.098 (2.49)	± .003 (± .08)	.073 (1.85)	± .003 (± .08)	.445 (11.30)	5	13	20	48	68	70
51-134-002	100	15,000								7	14	25	52	70	70
51-134-003	50	22,000								10	16	32	57	70	70
51-107-007	200	15,000	.068 (17.3)	± .004 (± .10)	.135 (3.43)	± .004 (± .10)	.104 (2.64)	± .004 (± .10)		8	15	25	52	70	70
51-107-008	100	22,000								10	16	32	57	70	70
51-107-009	50	30,000								12	18	35	60	70	70

Notes:
1. Dimensions are in inches, dimensions shown in *( )* are in millimeters.
2. Capacitance value (C_1 plus C_2) is maximum available capacitance in GMV tolerance.
3. Other dimensional variations and capacitance values are available. Consult factory.