

Balanced ^{top hat} RF Transformer

75Ω 10 to 1800 MHz

TRS1-182-75+

Features

- suitable for tin/lead and RoHS solder systems
- wideband, 10 to 1800 MHz
- balanced transmission line
- good return loss, 20 dB typ. at 1 dB band
- excellent amplitude unbalance, 0.3 dB typ.
- aqueous washable
- excellent intermod suppression



Generic photo used for illustration purposes only

CASE STYLE: TT1618-1

+RoHS Compliant

The +Suffix identifies RoHS Compliance. See our web site for RoHS Compliance methodologies and qualifications

Available Tape and Reel at no extra cost

Reel Size	Devices/Reel
7"	10, 20, 50, 100, 200
13"	500

Electrical Specifications at 25°C

Parameter	Frequency (MHz)	Min.	Typ.	Max.	Unit
Impedance Ratio			1		Ohm
Frequency Range		10		1800	MHz
Insertion Loss*	50 -1200	—	0.6	1.0	dB
	10-1800	—	0.9	2.0	
Amplitude Unbalance	50-1000	—	0.3	0.7	dB
	1000-1200	—	0.5	0.7	
Phase Unbalance	10-1800	—	0.7	1.4	Degree
	50-1000	—	2	4	
Primary Return Loss (Input)	1000-1200	—	3	8	dB
	10-1800	—	7.5	15	
	50-500	16	22	—	
	500-1000	13	20	—	
Primary Return Loss (Input)	1000-1200	13	20	—	dB
	10-1800	8	12.5	—	

*Insertion Loss is referenced to mid-band loss, 0.25 dB typ.

Maximum Ratings

Parameter	Ratings
Operating Temperature	-40°C to 85°C
Storage Temperature	-55°C to 100°C
RF Power	1W
DC Current	30mA

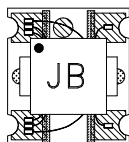
Permanent damage may occur if any of these limits are exceeded.

Pin Connections

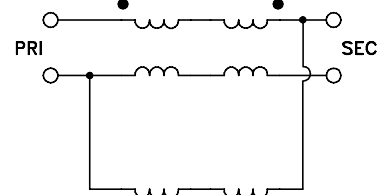
Function	Pin Number
PRIMARY DOT	4
PRIMARY	1
SECONDARY DOT	2
SECONDARY	3

Demo Board MCL P/N: TB-789+

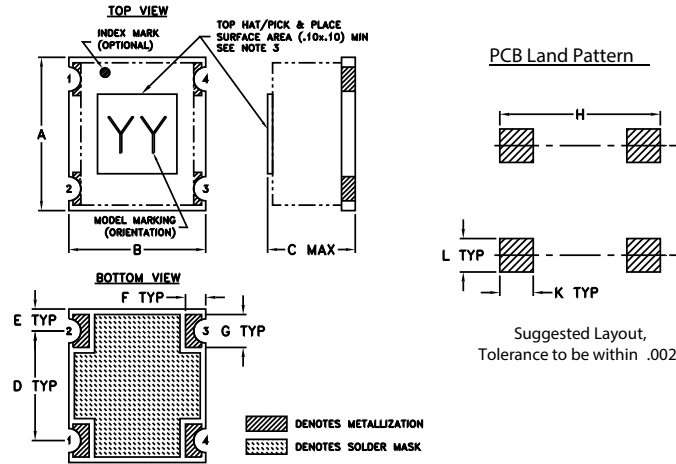
Product Marking



Config. K



Outline Drawing

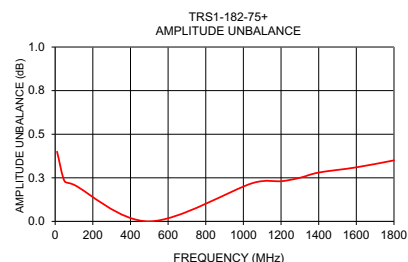
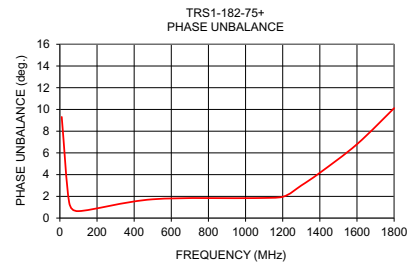
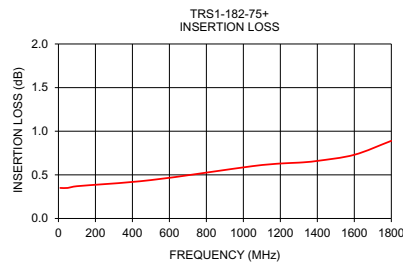


Outline Dimensions (inch/mm)

A	B	C	D	E	F
.280	.250	.16	.200	.040	.037
7.11	6.35	4.06	5.08	1.02	0.94
G	H	J	K	L	wt.
.060	.293	.200	.061	.061	grams
1.52	7.44	5.08	1.55	1.55	3

Typical Performance Data

FREQUENCY (MHz)	INSERTION LOSS (dB)	INPUT R. LOSS (dB)	AMPLITUDE UNBALANCE (dB)	PHASE UNBALANCE (Deg.)
10.0	0.35	11.81	0.40	9.31
50.0	0.35	24.24	0.23	1.45
100.0	0.37	24.82	0.21	0.64
500.0	0.44	19.21	0.00	1.73
1000.0	0.60	18.90	0.22	1.84
1200.0	0.63	20.28	0.23	1.96
1300.0	0.64	21.30	0.25	3.00
1400.0	0.66	22.02	0.28	4.17
1600.0	0.73	21.17	0.31	6.80
1800.0	0.89	14.58	0.35	10.12



RF Transformer

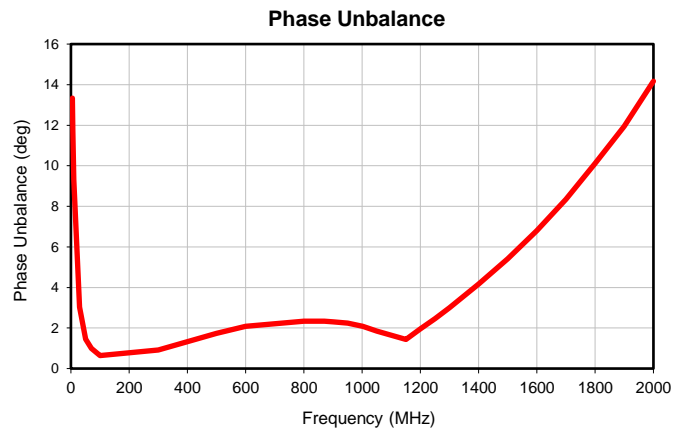
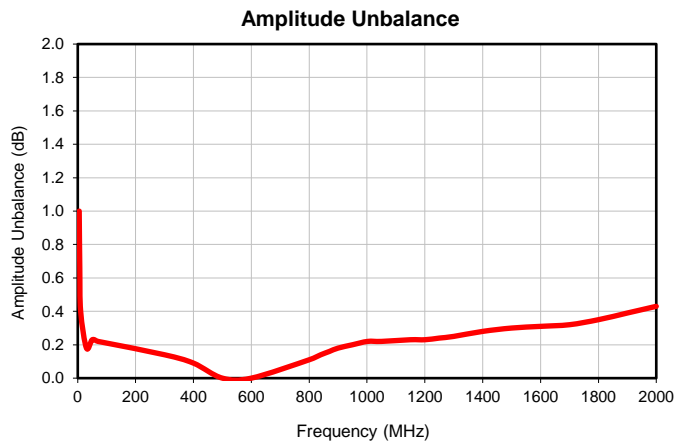
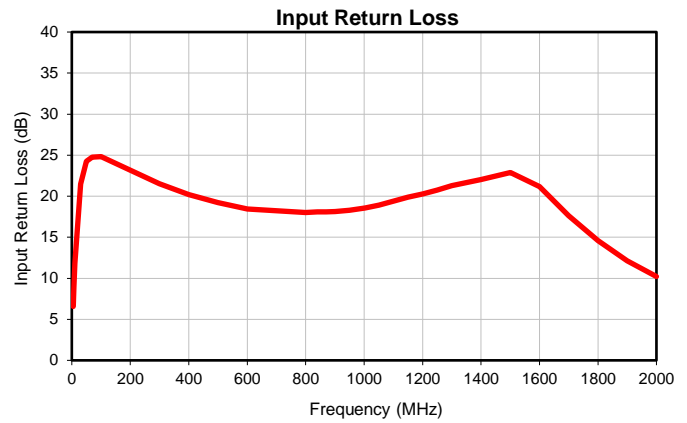
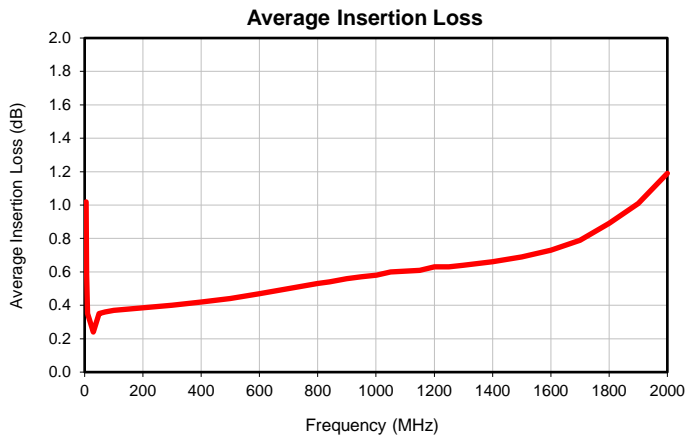
TRS1-182-75+

Typical Performance Data

FREQUENCY MHz	AVERAGE INSERTION LOSS (dB)	INPUT RETURN LOSS (dB)	AMPLITUDE UNBALANCE (dB)	PHASE UNBALANCE (deg.)
5	1.02	6.57	1.00	13.33
7	0.59	8.98	0.66	11.72
10	0.35	11.81	0.40	9.31
30	0.24	21.48	0.18	3.03
50	0.35	24.24	0.23	1.45
70	0.36	24.77	0.22	0.99
100	0.37	24.82	0.21	0.64
300	0.40	21.53	0.14	0.91
400	0.42	20.19	0.09	1.33
500	0.44	19.21	0.00	1.73
600	0.47	18.45	0.00	2.09
800	0.53	18.01	0.11	2.33
840	0.54	18.08	0.14	2.34
870	0.55	18.08	0.16	2.34
900	0.56	18.13	0.18	2.31
950	0.57	18.28	0.20	2.24
1002	0.58	18.57	0.22	2.08
1050	0.60	18.90	0.22	1.84
1150	0.61	19.87	0.23	1.44
1200	0.63	20.28	0.23	1.96
1250	0.63	20.73	0.24	2.46
1300	0.64	21.30	0.25	3.00
1400	0.66	22.02	0.28	4.17
1500	0.69	22.90	0.30	5.41
1600	0.73	21.17	0.31	6.80
1700	0.79	17.62	0.32	8.34
1800	0.89	14.58	0.35	10.12
1900	1.01	12.12	0.39	11.95
2000	1.19	10.23	0.43	14.17

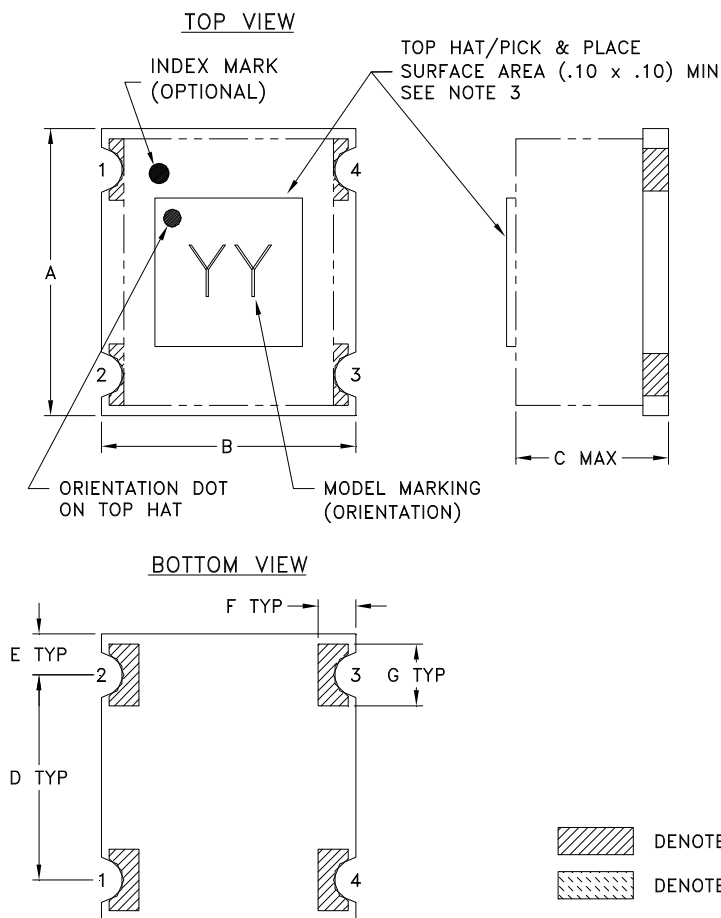


Typical Performance Data

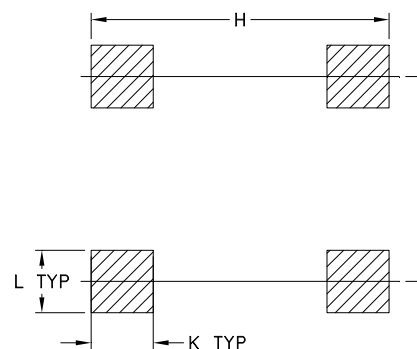


Outline Dimensions

TT1618-1



PCB Land Pattern



SUGGESTED LAYOUT
TOLERANCE TO BE WITHIN ± 0.02

CASE #	A	B	C	D	E	F	G	H	J	K	L	WT GRAMS
TT1618-1	.280 (7.11)	.250 (6.35)	.16 (4.06)	.200 (5.08)	.040 (1.02)	.037 (.94)	.060 (1.52)	.293 (7.44)	.200 (5.08)	.061 (1.55)	.061 (1.55)	3.00

Dimensions are in inches (mm). Tolerances: 2Pl. $\pm .01$; 3 Pl. $\pm .005$

Notes:

- Open style, Base material: Printed wiring laminate.
- Termination finish: 3-5 μ inch (.08-.13 microns) Gold over 120-240 μ inch (3.05-6.10 microns) Nickel plate.
All models, (+) suffix.
- Top-Hat total thickness: .013 inches MAX.
- Orientation Dot on Top Hat & PCB corresponds to Pin #1.



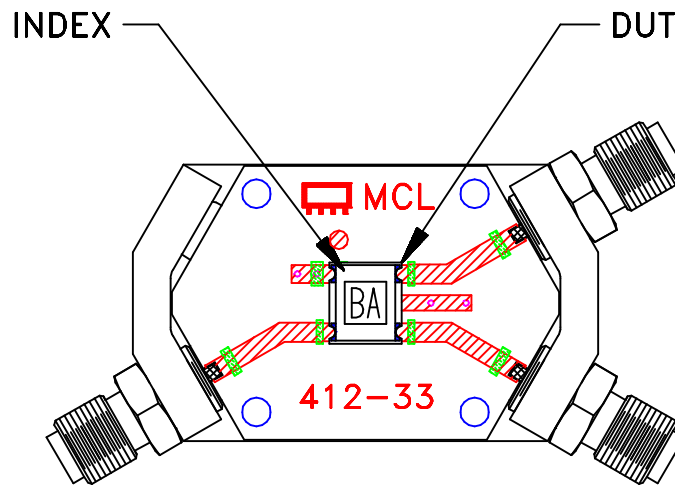
P.O. Box 350166, Brooklyn, New York 11235-0003 (718) 934-4500 Fax (718) 332-4661 For detailed performance specs & shopping online see Mini-Circuits web site



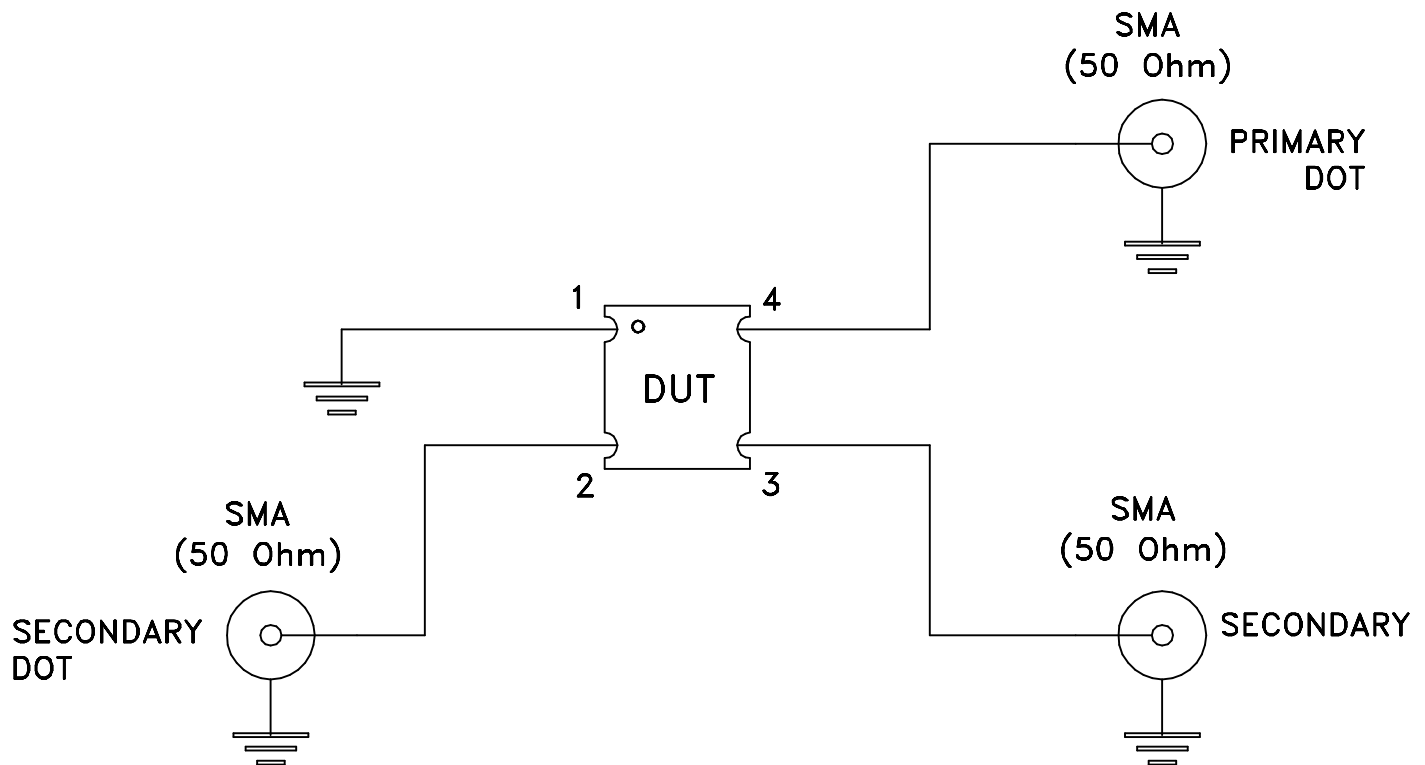
The Design Engineers Search Engine Provides ACTUAL Data Instantly From MINI-CIRCUITS At: www.minicircuits.com

RF/IF MICROWAVE COMPONENTS

Evaluation Board and Circuit




TB-789+



Schematic Diagram

Notes:

1. 50 Ohm SMA Female connectors.
2. PCB Material: R04350 or equivalent,
Dielectric Constant=3.5, Thickness=.030 inch.

 **Mini-Circuits®**

All Mini-Circuits products are manufactured under exacting quality assurance and control standards, and are capable of meeting published specifications after being subjected to any or all of the following physical and environmental test.

Specification	Test/Inspection Condition	Reference/Spec
Operating Temperature	-40° to 85°C Ambient Environment	Individual Model Data Sheet
Storage Temperature	-55° to 100° C Ambient Environment	Individual Model Data Sheet
Humidity	90 to 95% RH, 240 hours, 50°C	MIL-STD-202, Method 103, Condition A, Except 50°C and end-point electrical test done within 12 hours
Thermal Shock	-55° to 100°C, 100 cycles	MIL-STD-202, Method 107, Condition A-3, except +100°C
Solder Reflow Heat	Sn-Pb Eutetic Process: 225°C peak Pb-Free Process 245° - 250°C peak	J-STD-020, Table 4-1, 4-2 and 5-2, Figure 5-1
Solderability	10X Magnification	J-STD-002, 95% Coverage
Vibration (High Frequency)	20g peak, 10-2000 Hz, 12 times in each of three perpendicular directions (total 36)	MIL-STD-202, Method 204, Condition D
Mechanical Shock	50g, 11 ms, 1/2-sine, 18 shocks: 3 each direction, each of 3 axes	MIL-STD-202, Method 213, Condition A
Marking Resistance to Solvents	Isopropyl alcohol + mineral spirits at 25°C; terpene defluxer at 25°C; distilled water + proylene glycol monomethyl ether + monoethanolamine at 63°C to 70°C	MIL-STD-202, Method 215