



SURFACE MOUNT

# RF Transformer

## TRS278-122-75+

Mini-Circuits

75Ω 40 to 1250 MHz

### THE BIG DEAL

- Wideband, 40-1250 MHz
- Balanced transmission line with secondary center tap
- Suitable for tin/lead and RoHS solder systems
- Aqueous washable



CASE STYLE: TT2315-3

Generic photo used for illustration purposes only

**+RoHS Compliant**

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

### APPLICATIONS

- CATV
- DOCSIS 3.1
- DOCSIS 4.0
- FDX

### PRODUCT OVERVIEW

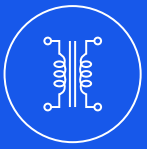
TRS278-122-75+ is a 75Ω surface-mount balanced to balanced transformer covering the 40 to 1250 MHz band, supporting bandwidth requirements for DOCSIS® 3.1 compliant systems and equipment. The transformer provides a 2.78:1 secondary/primary impedance ratio with 0.6 dB insertion loss, 0.3 dB amplitude unbalance, and ±1° phase unbalance typ. Featuring core and wire construction on a 6-pad printed laminate base with gold over nickel termination finish, the unit measures 0.250" x 0.280" x 0.165", accommodating dense circuit board layouts.

### KEY FEATURES

Feature	Advantages
Wide bandwidth, 40 to 1250 MHz	Wide frequency range covers bandwidth requirements for DOCSIS® 3.1 systems and equipment.
Low insertion loss, 0.6 dB	Provides excellent signal power transmission from input to output.
Secondary center tap	Allows DC feed up to 30mA and DC bias without adding bias tees into the signal chain.
Small footprint (0.250" x 0.280" x 0.165")	Accommodates tight space requirements for dense PCB layouts.

REV. B  
 ECO-011926  
 TRS278-122-75+  
 IG/CP/AM  
 220216





### ELECTRICAL SPECIFICATIONS AT 25°C

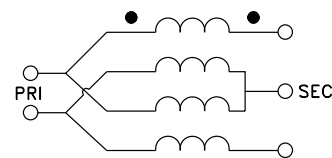
Parameter	Frequency (MHz)	Min.	Typ.	Max.	Units
Impedance Ratio (secondary/primary)			2.78		
Frequency Range		40		1250	MHz
Insertion Loss*	40-600		0.3	0.7	dB
	600-1250		1.0	1.5	
Amplitude Unbalance	40-600		0.2	0.5	dB
	600-1250		0.4	1.2	
Phase Unbalance	40-600		5	10	Degree
	600-1250		7	15	
Return Loss	40-600		30		dB
	600-1250		22		

\* Insertion Loss is referenced to mid-band loss, 0.3 dB typ. Measured in Balanced-to-Balanced Setup.

### MAXIMUM RATINGS

Parameter	Ratings
Operating temperature	-40°C to 65°C
Storage temperature	-55°C to 100°C
RF Power	0.25W
DC Current	30mA

### CONFIGURATION H



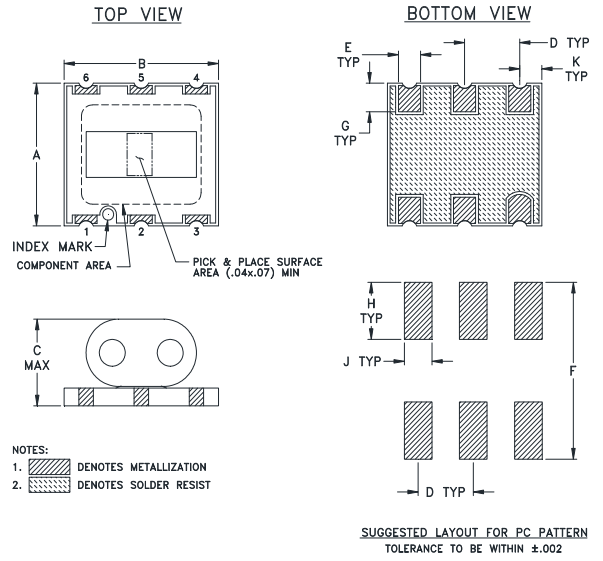


### PAD CONNECTIONS

Function	Pad Number
PRIMARY DOT	1
PRIMARY	3
SECONDARY DOT	6
SECONDARY	4
SECONDARY CT	2,5

DEMO BOARD MCL P/N: TB-1119+

### OUTLINE DRAWING



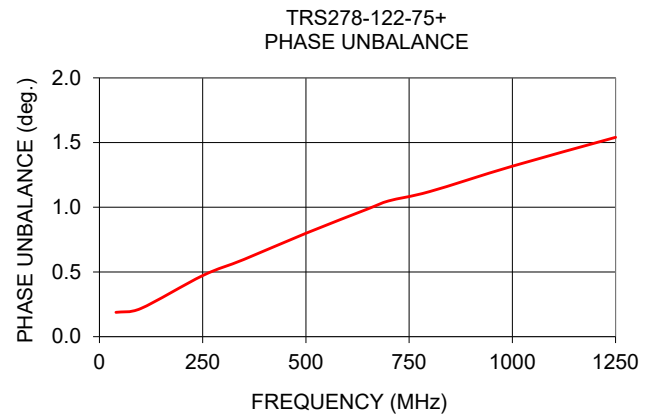
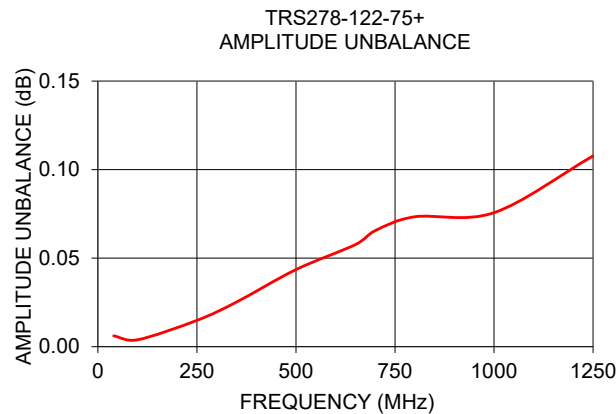
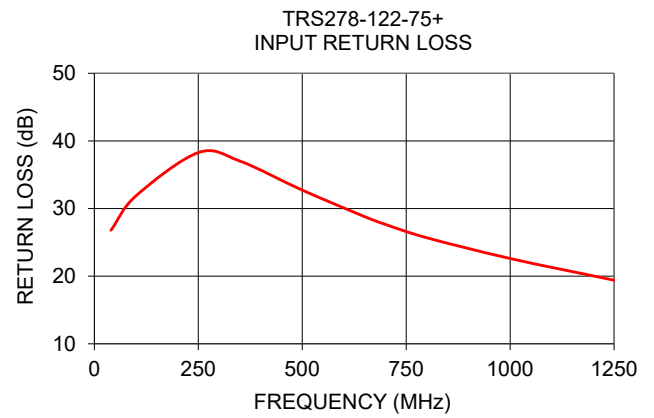
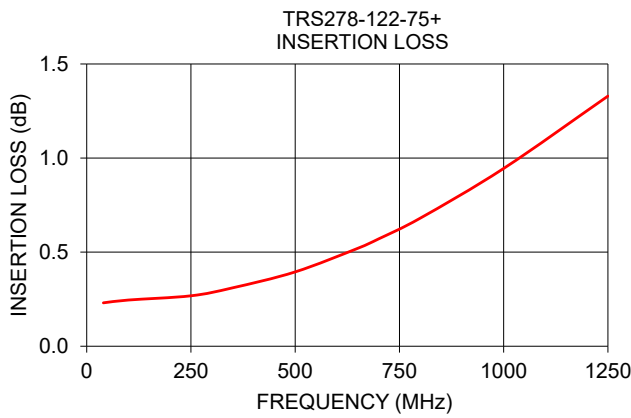
### OUTLINE DIMENSIONS (INCH/MM)

A	B	C	D	E	F	G	H	J	K	wt grams
.250	.280	.165	.100	.040	.310	.050	.100	.050	.040	0.20
6.35	7.11	4.19	2.54	1.02	7.87	1.27	2.54	1.27	1.02	



### TYPICAL PERFORMANCE DATA

Frequency (MHz)	Insertion Loss (dB)	Return Loss (dB)	Amplitude Unbalance (dB)	Phase Unbalance (deg)
40	0.23	26.80	0.01	0.19
100	0.25	31.87	0.00	0.22
250	0.27	38.27	0.01	0.47
350	0.31	37.02	0.03	0.60
500	0.40	32.72	0.04	0.80
650	0.52	28.81	0.06	0.99
700	0.57	27.65	0.07	1.05
800	0.68	25.67	0.07	1.12
1000	0.94	22.61	0.08	1.32
1250	1.33	19.41	0.11	1.54



- NOTES**
- A. Performance and quality attributes and conditions not expressly stated in this specification document are intended to be excluded and do not form a part of this specification document.
  - B. Electrical specifications and performance data contained in this specification document are based on Mini-Circuit's applicable established test performance criteria and measurement instructions.
  - C. The parts covered by this specification document are subject to Mini-Circuits standard limited warranty and terms and conditions (collectively, "Standard Terms"); Purchasers of this part are entitled to the rights and benefits contained therein. For a full statement of the standard. Terms and the exclusive rights and remedies thereunder, please visit Mini-Circuits' website at [www.minicircuits.com/MCLStore/terms.jsp](http://www.minicircuits.com/MCLStore/terms.jsp)