



Mini-Circuits

SURFACE MOUNT

RF Transformer

TRS278-182-75+

75Ω 1:2.78 Ratio 45 to 1800 MHz

KEY FEATURES

- Wideband, 45 to 1800 MHz
- Balanced transmission line with secondary center tap
- Suitable for RoHS solder systems

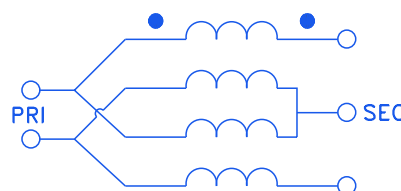


Generic photo used for illustration purposes only

APPLICATIONS

- CATV
- DOCSIS® 3.1
- DOCSIS® 4.0
- FDX

CONFIGURATION H



PRODUCT OVERVIEW

TRS278-182-75+ is a 75Ω surface-mount balanced to balanced transformer covering the 45 to 1800 MHz band, supporting bandwidth requirements for DOCSIS® 3.1/4.0 compliant systems and equipment. The transformer provides a 2.78:1 secondary/primary impedance ratio with 0.7 dB insertion loss, 0.4 dB amplitude unbalance, and $\pm 2^\circ$ phase unbalance typ. Featuring core and wire construction on a 5-pad printed laminate base with SN/AG/CU solder termination finish, the unit measures 0.146" x 0.235" x 0.145", accommodating dense circuit board layouts.

ELECTRICAL SPECIFICATIONS¹ AT +25°C

Parameter	Frequency (MHz)	Min.	Typ.	Max.	Units
Impedance Ratio (secondary/primary)			2.78		
Frequency Range		45		1800	MHz
Insertion Loss	45 - 1800		0.7	1.3	dB
Amplitude Unbalance	45 - 1800		0.4	2.1	dB
Phase Unbalance	45 - 1800		2	10	Degree
Return Loss (Input)	45 - 1800	9	18		dB

1. Measured in Balanced-to-Balanced Setup.

ABSOLUTE MAXIMUM RATINGS²

Operating Temperature	-40°C to +65°C
Storage Temperature	-55°C to +100°C
Input Power	0.25 W
DC Current	30 mA

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

REV. OR
ECO-024695
TRS278-182-75+
MCL NY
250312





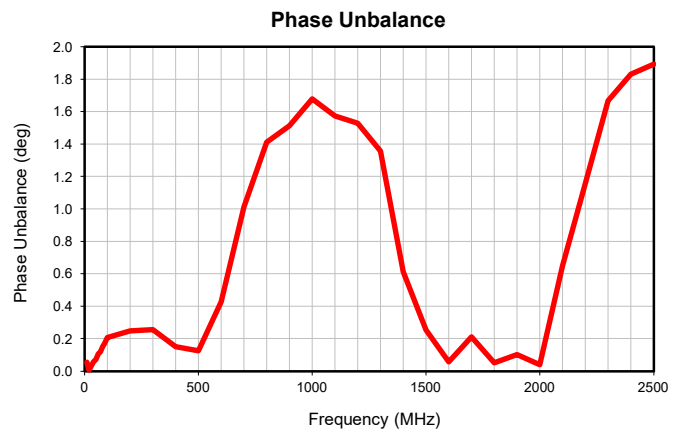
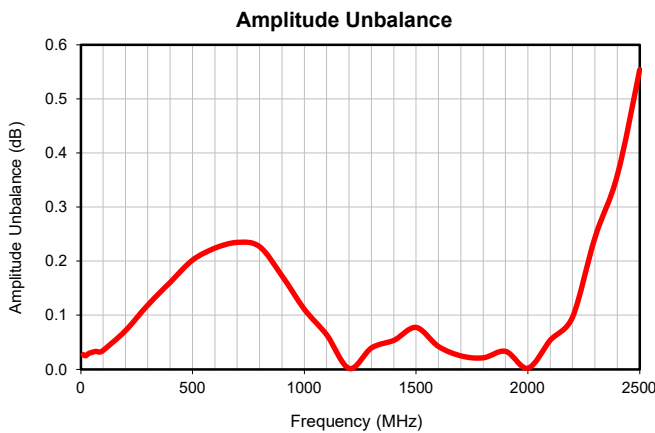
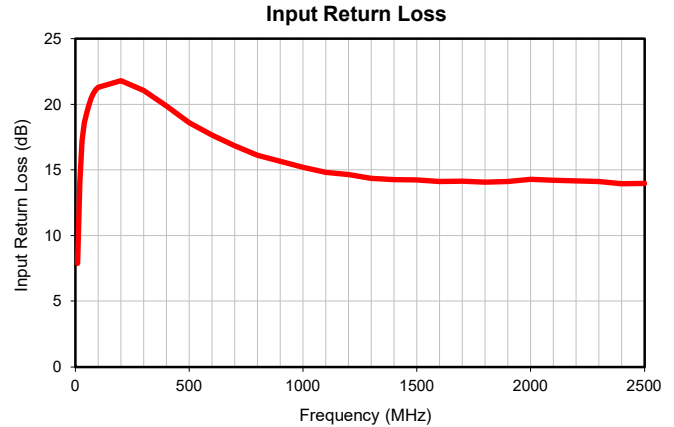
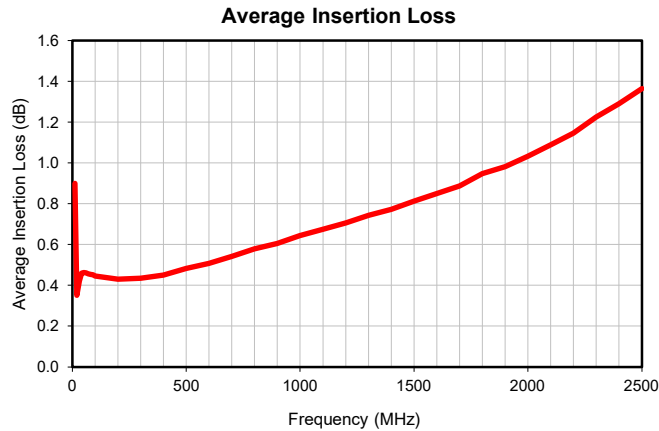
SURFACE MOUNT

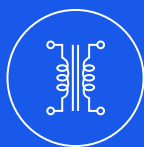
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TYPICAL PERFORMANCE GRAPHS





CONFIGURATION H

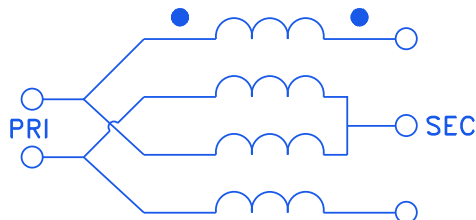
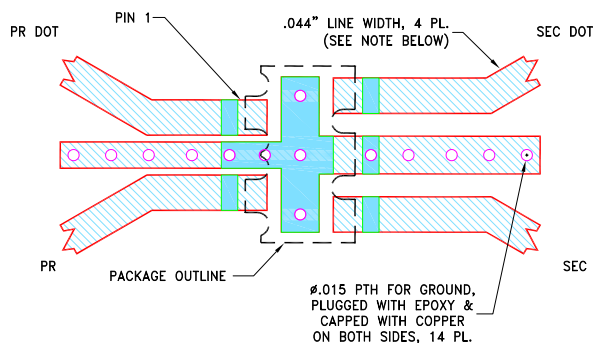


Figure 1. TRS278-182-75+ Configuration

PAD DESCRIPTION

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

SUGGESTED PCB LAYOUT (PL-809)



NOTES:

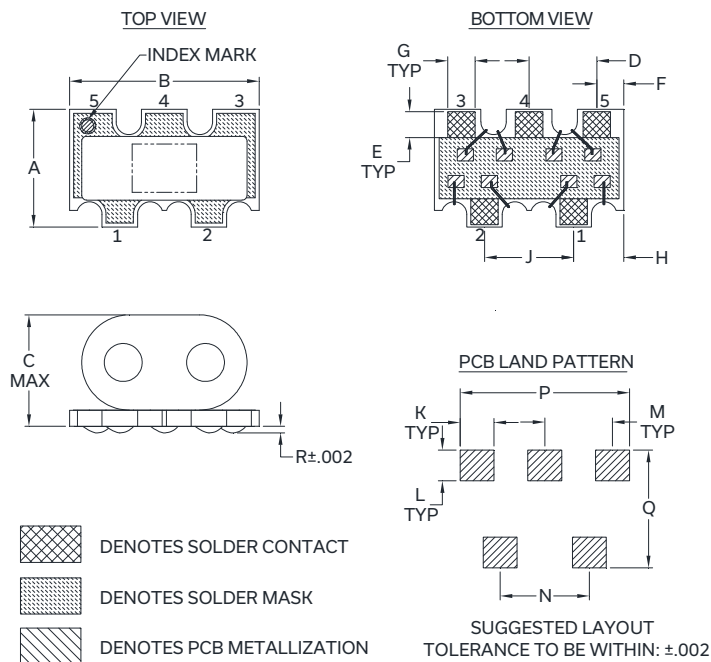
1. LINE WIDTH IS SHOWN FOR ROGERS RO4350B, DIELECTRIC THICKNESS: $.020 \pm .0015$ \"/>

2. BOTTOM SIDE OF THE PCB IS CONTINUOUS GROUND PLANE.

- DENOTES PCB COPPER LAYOUT WITH SMOBC (SOLDER MASK OVER BARE COPPER).
- DENOTES COPPER LAND PATTERN FREE OF SOLDER MASK.

Figure 2. Suggested PCB Layout PL-809

CASE STYLE DRAWING



OUTLINE DIMENSIONS (Inch/mm)

A	B	C	D	E	F	G	H	J
.146	.235	.145	.084	.032	.034	.034	.062	.111
3.71	5.97	3.68	2.13	0.81	0.86	0.86	1.57	2.82
K	L	M	N	P	Q	R		wt
.042	.038	.084	.111	.210	.146	.009		grams
1.07	0.97	2.13	2.82	5.33	3.71	0.23		0.15

Tolerances: 3 Pl. $\pm .004$

PRODUCT MARKING*: N/A

*Marking may contain other features or characters for internal lot control.



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ADDITIONAL DETAILED INFORMATION IS AVAILABLE ON OUR DASHBOARD.

[CLICK HERE](#)

Performance Data & Graphs	Data Graphs S-Parameter (S4P Files) Data Set (.zip file) De-embedded to device pads
Case Style	AT3278 Lead Finish: SN/AG/CU Solder
RoHS Status	Compliant
Tape and Reel	F76
Suggested Layout for PCB Design	PL-809
Evaluation Board	TB-TRS27818275+ Gerber File
Environmental Rating	ENV02T1

NOTES

- 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.
- Electrical specifications and performance data contained in this specification document are based on Mini-Circuits' applicable established test performance criteria and measurement instructions.
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