

100 to 75Ω

5 to 1800 MHz

The Big Deal

- Very wide band balun, with excellent performance from 50 MHz to 1800 MHz
- Excellent amplitude unbalance, 0.4 dB typ and phase unbalance, 5°typ.
- Good return loss, 20 dB typ.



CASE STYLE: AT1521

Product Overview

The TC1.33-182X-75+ is a balanced-to-unbalanced 75Ω transmission line transformer. This rugged, wire welded, rectangular core with top hat design is rated for up to 0.25W maximum power, in an aqueous washable case suitable for both RoHS and tin/lead solder systems.

Feature	Advantages
Very wide bandwidth	50-1800 MHz bandwidth covers CATV (forward & return), medical wireless and D2A/A2D, and other communications applications
Excellent amplitude and phase unbalance	0.4 dB amplitude and 5° phase unbalance aid rejection of even harmonics (in push-pull amplifiers) and common mode signals (when used as a balun)
Good return loss	Provides excellent matching for 75Ω circuitry
Low and flat insertion loss	Consistently low signal loss, ±0.2dB across all 100-1218 MHz CATV bands

Balanced to Unbalanced RF Transformer

100 to 75Ω 5 to 1800 MHz

TC1.33-182X-75+

Features

- suitable for tin/lead and RoHS solder systems
- wideband, 5 to 1800 MHz
- balanced transmission line
- good return loss, 20 dB typ. at 1 dB band
- excellent amplitude unbalance, 0.4 dB typ. and phase unbalance, 5° typ.
- aqueous washable

Applications

- balanced to unbalanced transmission
- push-pull amplifiers
- PCS/DCS
- cable TV
- cellular
- Docsys 3.1



Generic photo used for illustration purposes only

CASE STYLE: AT1521

+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"	20, 50, 100, 200, 500
13"	1000, 2000

Electrical Specifications at 25°C

Parameter	Frequency (MHz)	Min.	Typ.	Max.	Unit
Impedance Ratio (<i>secondary/primary</i>)			1.33		Ohm
Frequency Range		5	—	1800	MHz
Insertion Loss*	5 - 1800	—	1.2	2.3	dB
Amplitude Unbalance	5 - 1200	—	0.4	1.0	dB
	1200 - 1800	—	1.3	2.1	dB
Phase Unbalance	5 - 1800	—	5	10	Degree

* Insertion Loss is referenced to mid-band loss, 1.0 dB typ. Measured in 75Ω system.

Maximum Ratings

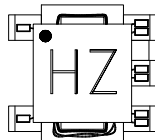
Parameter	Ratings
Operating Temperature	-40°C to 85°C
Storage Temperature	-55°C to 100°C
RF Power	0.25W
DC Current	30mA

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

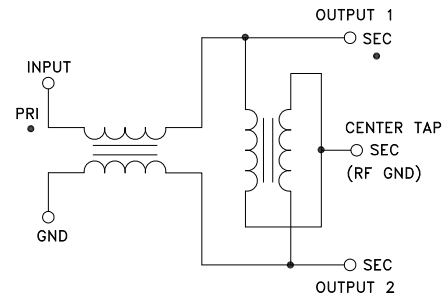
Pin Connections

Function	Pin Number
PRIMARY DOT	6
PRIMARY	4
SECONDARY DOT	1
SECONDARY	3
SECONDARY CT	2

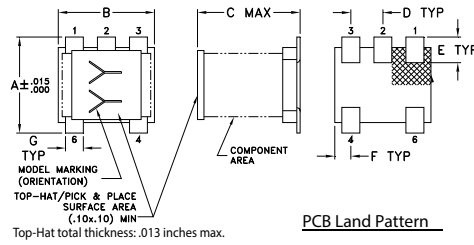
Product Marking



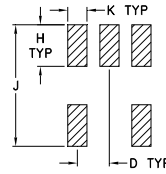
Config. M1



Outline Drawing



PCB Land Pattern



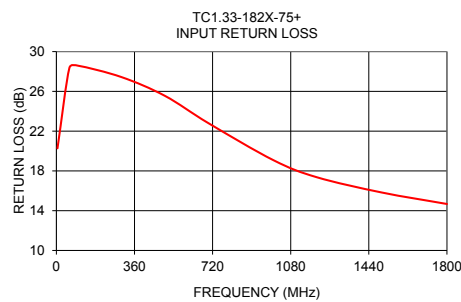
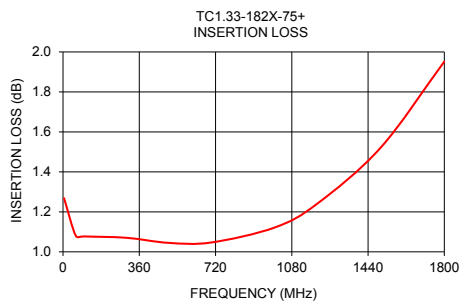
Suggested Layout,
Tolerance to be within $\pm .002$

Outline Dimensions (inch)

A	B	C	D	E	F	G	H	J
.150	.150	.160	.050	.040	.025	.028	.065	.190
3.81	3.81	4.06	1.27	1.02	0.64	0.71	1.65	4.83

Typical Performance Data

FREQUENCY (MHz)	INSERTION LOSS (dB)	INPUT R. LOSS (dB)	AMPLITUDE UNBALANCE (dB)	PHASE UNBALANCE (Deg.)
5	1.27	20.27	0.01	0.04
60	1.08	28.36	0.02	0.49
100	1.08	28.58	0.03	0.62
300	1.07	27.44	0.09	2.01
500	1.04	25.55	0.13	2.79
700	1.05	22.81	0.09	3.26
1000	1.12	19.08	0.07	3.06
1200	1.24	17.37	0.27	2.36
1500	1.52	15.83	0.63	0.75
1800	1.95	14.67	1.09	1.40



Additional 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-Circuit's applicable established test performance criteria and measurement instructions.
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