

ETC1-1-13



E-Series Transformer, RF 1:1 Transmission Line
4.5 – 3000 MHz

Rev. V11

Features

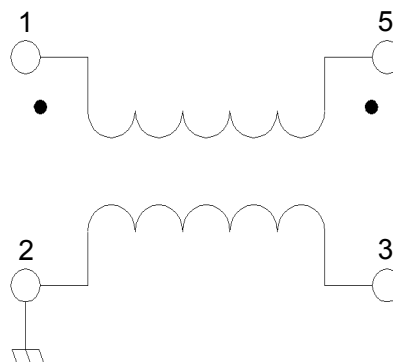
- Surface mount
- 1:1 Impedance ratio
- RoHS compliant
- 260°C reflow compatible
- Available on tape and reel

Description

MACOM's ETC1-1-13TR is a 1:1 transmission Line transformer in a low cost surface mount package. Ideally suited for high volume cellular and wireless applications.



Functional Schematic



Ordering Information

Part Number	Package
ETC1-1-13TR	Tape & Reel

Pin Configuration

Pin No.	Function
1	Primary Dot
2	Primary
3	Secondary
4	Not Connected (ground)
5	Secondary Dot

ETC1-1-13



E-Series Transformer, RF 1:1 Transmission Line
4.5 – 3000 MHz

Rev. V11

Electrical Specifications: $T_A = 25^\circ\text{C}$, $Z_0 = 50 \Omega$, $P_{in} = 0\text{dBm}$

Parameter	Conditions	Units	Min	Typ	Max
Frequency Range		MHz	4.5		3000
Impedance		Ω		50	
Impedance Ratio				1:1	
Insertion Loss	4.5 - 1000 MHz	dB	-	0.32	1.0
	1000 - 2000 MHz	dB	-	-	2.0
	2000 - 3000 MHz	dB	-	-	3.5
Amplitude Balance	-	dB	-	-	± 1.0
Phase Balance	-	$^\circ$	-	-	± 20

Recommended Maximum Ratings

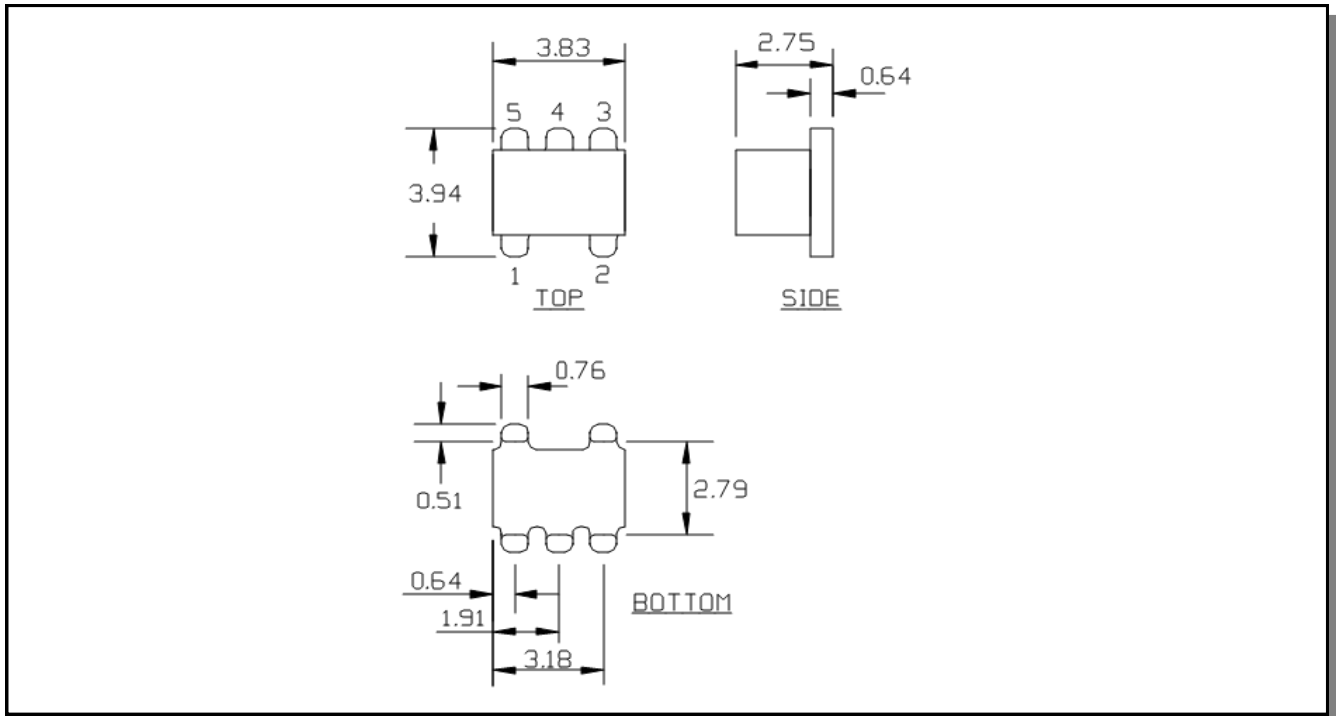
Parameter	Units	Min	Max
Input RF Power	mW		250
DC Current	mA		30
Operating Temperature Range	$^\circ\text{C}$	-55	+85

Full temperature plots available on request

Tape & Reel Information

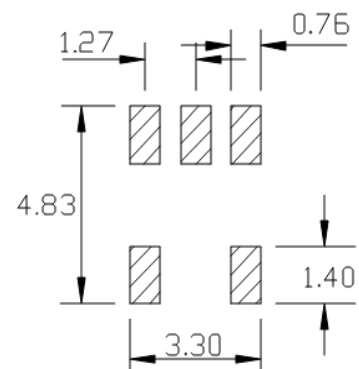
Parameter	Units	Value
Qty per reel	-	2000
Reel size	mm	330
Tape width (W)	mm	12.00
Pitch (P_1)	mm	8.00
A_0	mm	4.0
B_0	mm	4.0
K_0	mm	2.9
Orientation	-	F5
Reference Application note ANI-019 for orientation		

Outline Drawing



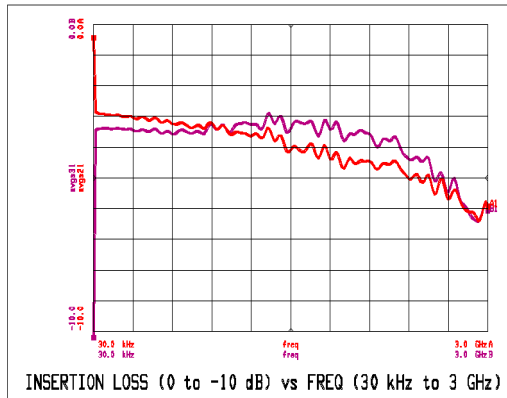
1. Dimensions in mm.
2. Tolerance: ± 0.2 mm unless otherwise noted.
3. Model number and lot code are printed on the reel.
4. Lead finish: Sn

PCB Layout

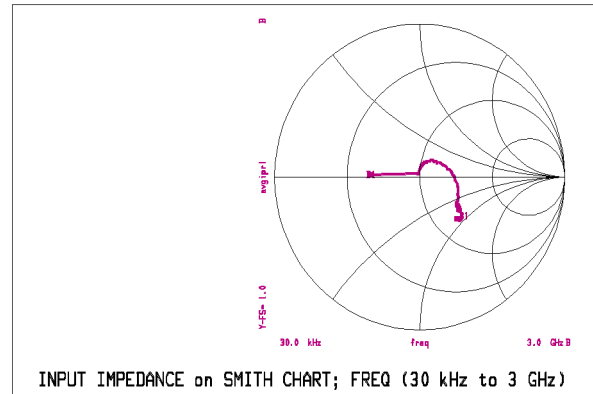


Typical Performance Curves

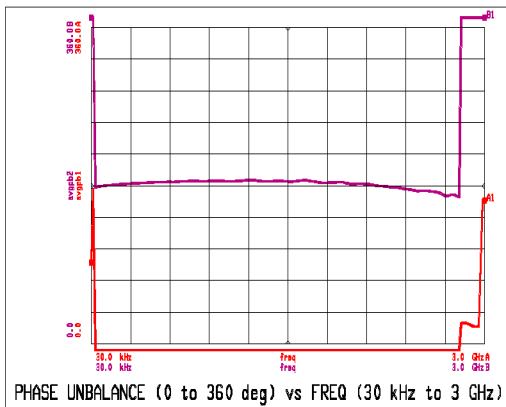
Insertion Loss



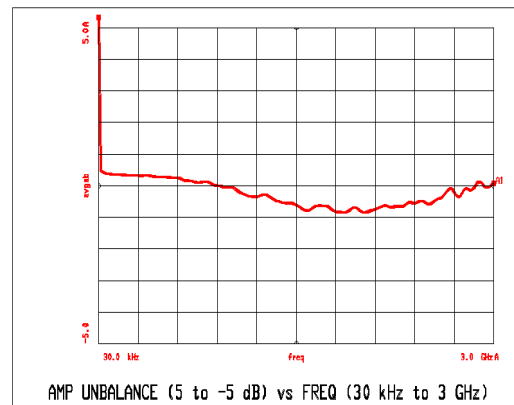
Input Impedance



Phase Unbalance



Amplitude Unbalance



Electrical Specifications: $Z_0 = 50\Omega$, $T_A = 25^\circ\text{C}$, $P_{in} = 0\text{dBm}$

M/A-COM Technology Solutions Inc. All rights reserved.

Information in this document is provided in connection with M/A-COM Technology Solutions Inc ("MACOM") products. These materials are provided by MACOM as a service to its customers and may be used for informational purposes only. Except as provided in MACOM's Terms and Conditions of Sale for such products or in any separate agreement related to this document, MACOM assumes no liability whatsoever. MACOM assumes no responsibility for errors or omissions in these materials. MACOM may make changes to specifications and product descriptions at any time, without notice. MACOM makes no commitment to update the information and shall have no responsibility whatsoever for conflicts or incompatibilities arising from future changes to its specifications and product descriptions. No license, express or implied, by estoppels or otherwise, to any intellectual property rights is granted by this document.

THESE MATERIALS ARE PROVIDED "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESS OR IMPLIED, RELATING TO SALE AND/OR USE OF MACOM PRODUCTS INCLUDING LIABILITY OR WARRANTIES RELATING TO FITNESS FOR A PARTICULAR PURPOSE, CONSEQUENTIAL OR INCIDENTAL DAMAGES, MERCHANTABILITY, OR INFRINGEMENT OF ANY PATENT, COPYRIGHT OR OTHER INTELLECTUAL PROPERTY RIGHT. MACOM FURTHER DOES NOT WARRANT THE ACCURACY OR COMPLETENESS OF THE INFORMATION, TEXT, GRAPHICS OR OTHER ITEMS CONTAINED WITHIN THESE MATERIALS. MACOM SHALL NOT BE LIABLE FOR ANY SPECIAL, INDIRECT, INCIDENTAL, OR CONSEQUENTIAL DAMAGES, INCLUDING WITHOUT LIMITATION, LOST REVENUES OR LOST PROFITS, WHICH MAY RESULT FROM THE USE OF THESE MATERIALS.

MACOM products are not intended for use in medical, lifesaving or life sustaining applications. MACOM customers using or selling MACOM products for use in such applications do so at their own risk and agree to fully indemnify MACOM for any damages resulting from such improper use or sale.