

## E-Series RF 1:4 Flux Coupled Step-up Transformer 2 - 800 MHz

Rev. V8

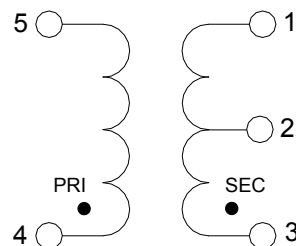
### Features

- 1:4 Impedance Ratio
- CT on Secondary
- Surface Mount
- Tape and Reel Packaging Available
- RoHS Compliant, Pb Free
- Termination Finish - Sn

### Description

The ETC4-1-2 is a 1:4 RF flux coupled step-up transformer in a surface mount package. Ideally suited for high volume cellular and wireless applications. Typical applications include single to balanced mode conversion and impedance matching. Parts are packaged in tape & reel.

### Functional Schematic



### Pin Configuration<sup>2</sup>

Pin #	Function	Pin #	Function
1	Secondary	4	Primary dot
2	Secondary CT	5	Primary
3	Secondary Dot		

2. MACOM recommends connecting unused package pins to ground.

### Electrical Specifications: Freq = 2 - 800 MHz, T<sub>A</sub> = 25°C, Z<sub>0</sub> = 50 Ω, P<sub>IN</sub> = 0 dBm

Parameter	Test Conditions & Frequency (MHz)	Units	Min.	Typ.	Max.
Insertion Loss	F <sub>L</sub> —F <sub>U</sub> 10 - 100	dB	—	— 1.21	1.0
	5 - 600				2.0
	2 - 800				3.0
Amplitude Balance	10 - 100	dB	—	—	0.25
	2 - 800				1.0
Phase Balance	10 - 500	Degrees	—	—	2.0
	2 - 800				10.0

### Ordering Information<sup>1</sup>

Part Number	Package
ETC4-1-2TR	2000 piece reel

1. Reference Application Note M513 for reel size information.

### Recommended Maximum Ratings<sup>3,4</sup>

Parameter	Absolute Maximum
DC Power <sup>5</sup>	250 mW
DC Current	30 mA
Operating Temperature	-55°C to +85°C

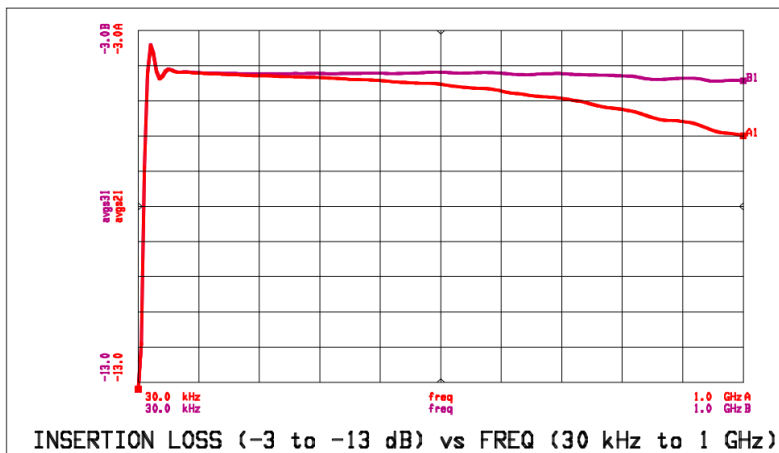
3. Exceeding anyone or combination of these limits may cause permanent damage to this device.  
 4. MACOM does not recommend sustained operation near these survivability limits.  
 5. Specified at +25°C only.

## E-Series RF 1:4 Flux Coupled Step-up Transformer 2 - 800 MHz

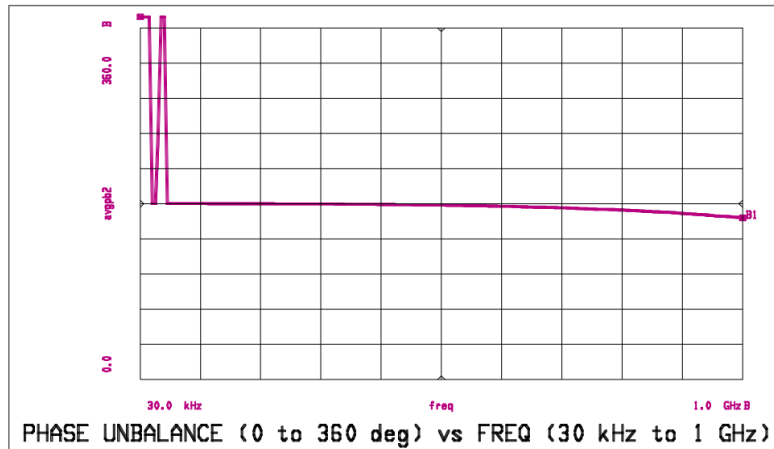
Rev. V8

Typical Performance Curves<sup>6</sup>:  $T_A = 25^\circ\text{C}$ ,  $Z_0 = 50\ \Omega$ ,  $P_{IN} = 0\ \text{dBm}$

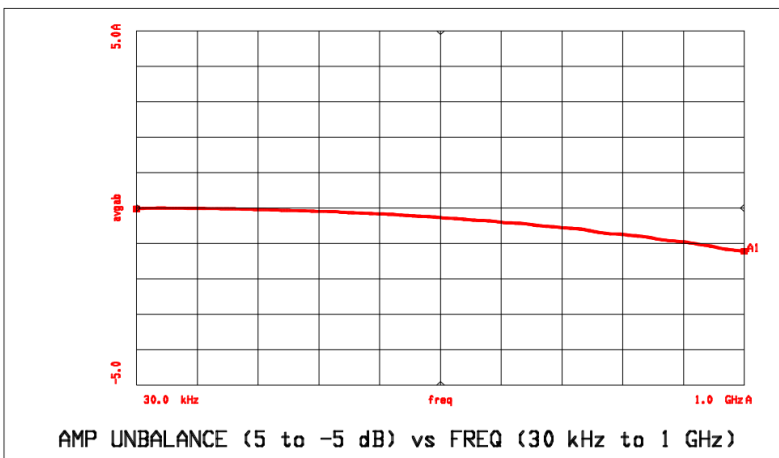
**Insertion Loss**



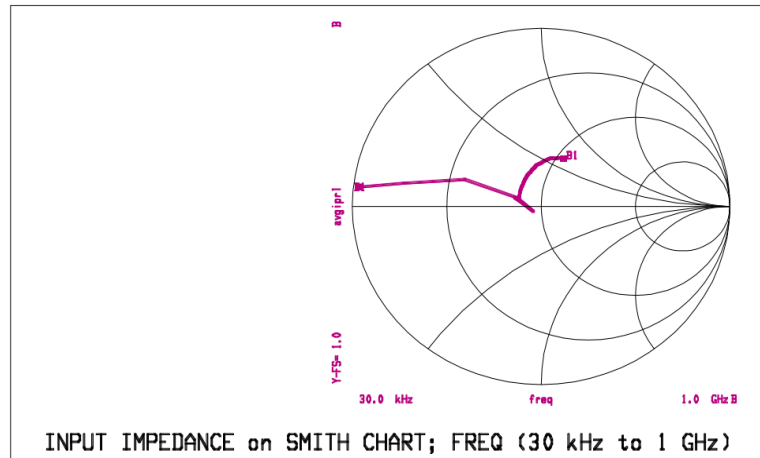
**Phase Balance**



**Amplitude Balance**



**Input Impedance**

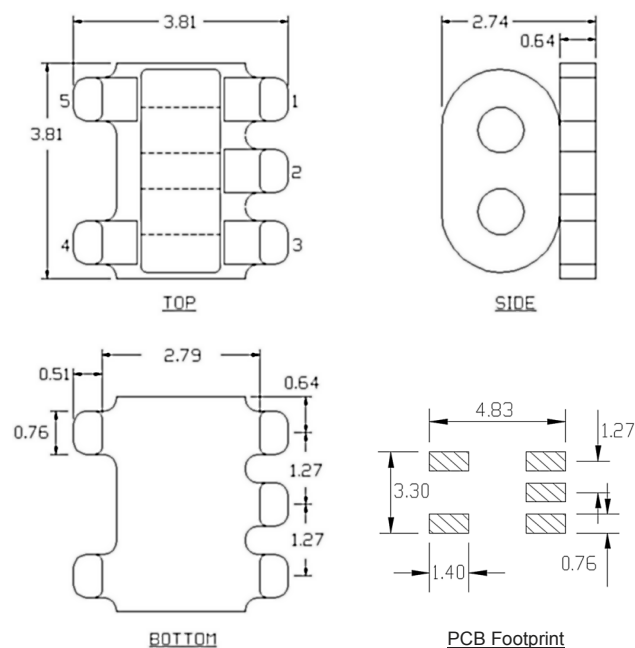


6. Full temperature plots available on request.

## E-Series RF 1:4 Flux Coupled Step-up Transformer 2 - 800 MHz

Rev. V8

### Outline Drawing<sup>7,8,9,10</sup>



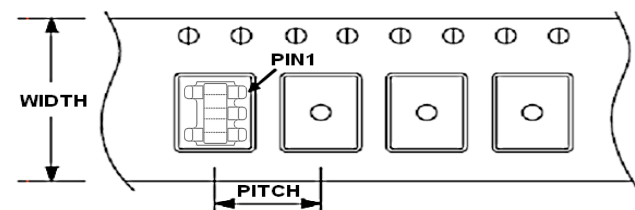
7. Dimensions in mm.  
8. Tolerance:  $\pm 0.2$  mm unless otherwise noted.  
9. Model number and lot code are printed on the reel.  
10. Finish: Tin (Sn).

### PCB Layout<sup>11</sup>



11. Recommended PCB layout shown above uses 0.8 mm FR4, Grounded coplanar wave guide, transmission line width 0.25 mm and gap 0.90 mm.

### Carrier Tape Orientation



### Tape & Reel Information

Parameter	Units	Value
Qty per reel	-	2000
Reel Size	mm	330
Tape Width	mm	12.00
Pitch	mm	8.00
Orientation	-	F5
Reference Application Note ANI-019 for orientation		

MACOM Technology Solutions Inc. All rights reserved.

Information in this document is provided in connection with MACOM 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 estoppel 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.

# Mouser Electronics

Authorized Distributor

Click to View Pricing, Inventory, Delivery & Lifecycle Information:

[MACOM:](#)

[ETC4-1-2TR](#)