

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

Rev. V8

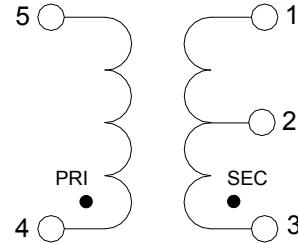
Features

- 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 Configuration²

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_A = 25°C, Z₀ = 50 Ω, P_{IN} = 0 dBm

Parameter	Test Conditions & Frequency (MHz)	Units	Min.	Typ.	Max.	
Insertion Loss	F _L —F _U	dB	—	—	1.0	
	10 - 100					2.0
	5 - 600					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 Information¹

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

1. Reference Application Note M513 for reel size information.

Recommended Maximum Ratings^{3,4}

Parameter	Absolute Maximum
DC Power ⁵	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.

ETC4-1-2TR

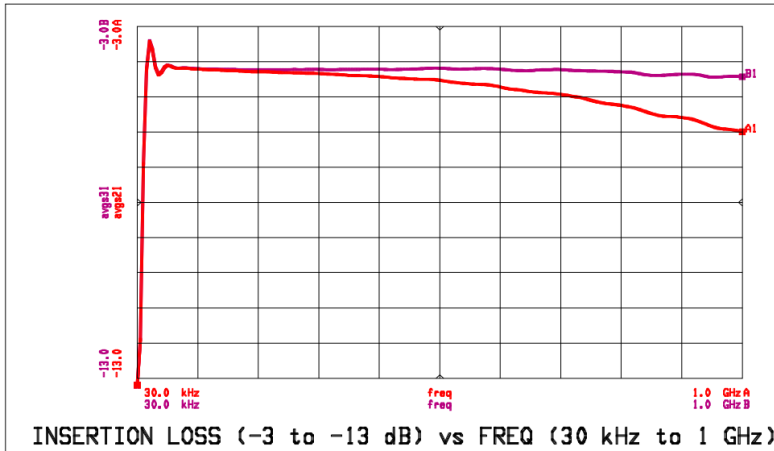


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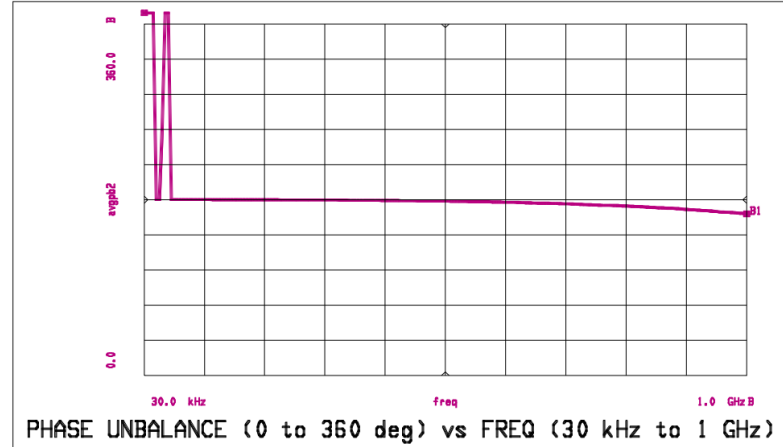
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Typical Performance Curves⁶: $T_A = 25^\circ\text{C}$, $Z_0 = 50 \Omega$, $P_{IN} = 0 \text{ dBm}$

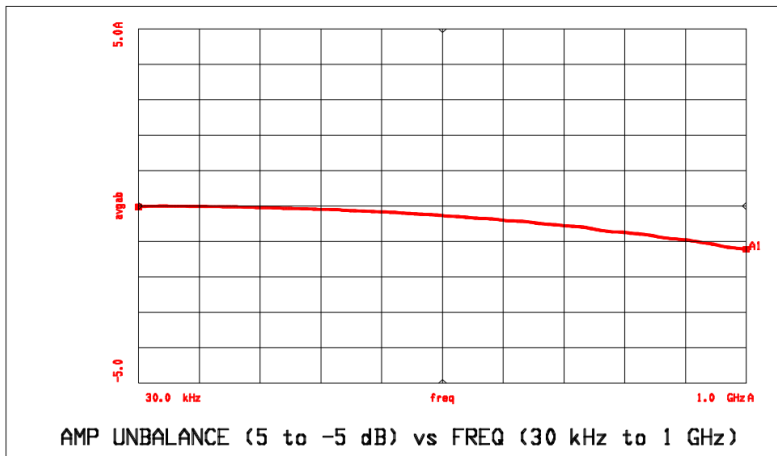
Insertion Loss



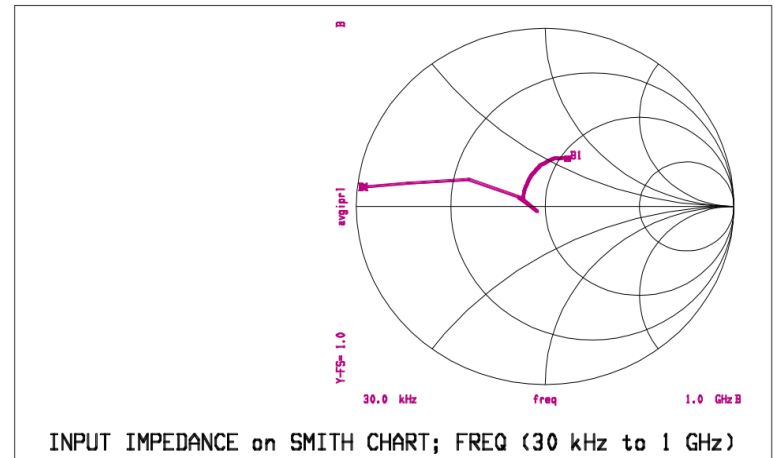
Phase Balance



Amplitude Balance

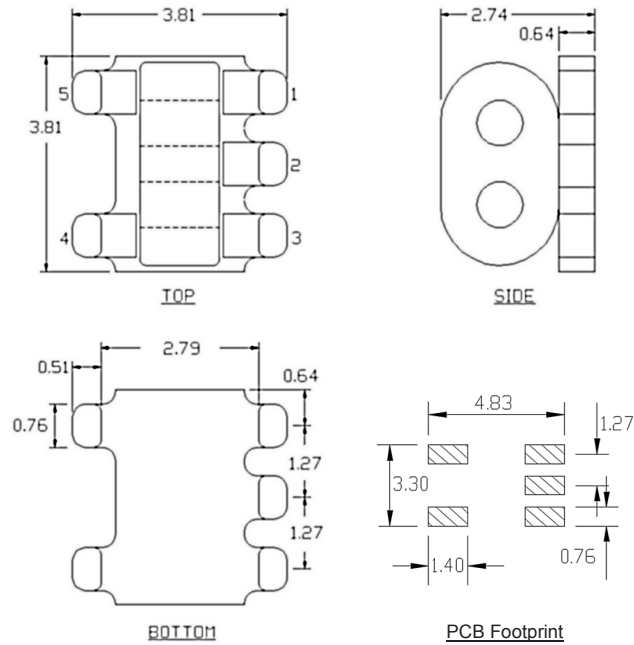


Input Impedance

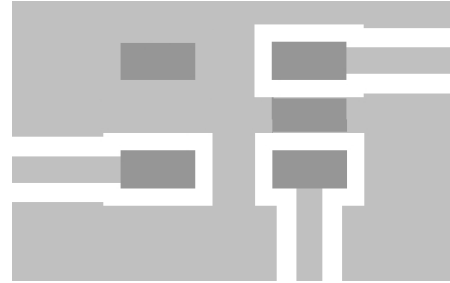


6. Full temperature plots available on request.

Outline Drawing^{7,8,9,10}



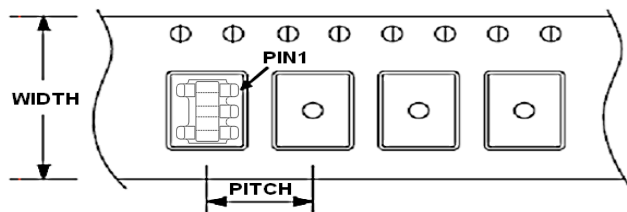
PCB Layout¹¹



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.

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

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		

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