## RF 1:1 Flux Coupled Transformer 0.3 - 200 MHz

### Features

- Surface Mount
- 1:1 impedance
- Available on Tape and Reel
- RoHS Compliant and Lead free
- 260°C Reflow Compatible

### Description

MABAES0060 is a RoHS compliant device that is equivalent to the ETC1-1T transformer. This device is a 1:1 RF flux coupled transformer in a SM-22 surface mount package and is designed to be utilized in both standard reflow and high temperature soldering

Ideally suited for high volume cellular and wireless applications. Typical applications include single to balanced mode conversion and impedance matching.

### Functional Schematic



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

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

MACOM recommends connecting unused package pins to ground.

Parameter	Test Conditions & Frequency (MHz)	Units	Min.	Тур.	Max.	
ο = 50 Ω						
Insertion Loss	0.3 - 200	dB			1.5	
Amplitude Balance	0.3 - 50 0.3 - 200	dB			0.1 0.5	
Phase Balance	0.3 - 50 0.3 - 200	Degree	_	—	1.0 5.0	
Input Return Loss	0.3 - 200 5 - 120	dB	_	—	10.0 15.0	
ν <sub>0</sub> = 75 Ω						
Insertion Loss	0.3 - 5 5 - 200	dB	_	_	1.7 0.9	
Amplitude Balance	0.3 - 50 0.3 - 200	dB	_	_	0.1 0.5	
Phase Balance	0.3 - 50 0.3 - 200	Degree	—	—	2.0 5.0	
Input Return Loss	0.3 - 5 5 - 120 120 - 200	dB	7 19 15	_	_	

## Electrical Specifications: Freq. = 0.3 - 200 MHz, T<sub>A</sub> = $25^{\circ}$ C, P<sub>in</sub> = 0 dBm

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

Part Number	Package	
MABAES0060	2000 piece reel	

1. Reference Application Note M513 for reel size information.

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## Absolute Maximum Ratings<sup>1,2</sup>

Parameter	Units
DC Power	500 mW
DC Current	500 mA
Operating Temperature	-40°C to +85°C

1. Exceeding any one or combination of these limits may cause permanent damage to this device.

2. The maximum DC current applies to the secondary center tap in applications where the secondary is balanced.

### **Application Schematic**



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## RF 1:1 Flux Coupled Transformer 0.3 - 200 MHz

## Typical Performance Curves: Freq. = 0.3 - 200 MHz, $T_A = 25^{\circ}C$ , $Z_0 = 50 \Omega$ , $P_{IN} = 0 \text{ dBm}$







Input Return Loss

#### Amplitude Balance



Phase Balance



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# RF 1:1 Flux Coupled Transformer 0.3 - 200 MHz

### Typical Performance Curves: Freq. = 0.3 - 200 MHz, $T_A = 25^{\circ}C$ , $Z_0 = 75 \Omega$ , $P_{IN} = 0 \text{ dBm}$

#### Insertion Loss (pin 4\_3)



Insertion Loss (pin 4\_1) 0.00.

#### Amplitude Balance



Phase Balance



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### **Outline Drawing**



### PCB Layout



Dimensions in mm.

Tolerance: ±0.38 mm unless otherwise noted.

Model number and lot code are printed on the reel.

Lead plating: ENIG on both sides, 0.05 to 0.1  $\mu m$  gold over 3 to 6  $\mu m$  nickel.

## **Carrier Tape Orientation**



### **Tape & Reel Information**

Parameter	Units	Value		
Qty per reel	-	2000		
Reel Size	mm	330		
Tape Width	mm	12		
Pitch	mm	8		
Orientation	-	F5		
Reference Application Note ANI-019 for orientation				

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