M/A-COM Technology Solutions,
4 Eastgate Road,
Little Island,
Co. Cork,
Ireland

20th Oct 2015

Digi-Key Corporation

701 Brooks Ave South

Thief River Falls, Minnesota 56701

ATTN: Quality/Purchasing Manager

Subject: Description, Functional Schematic, Recommended Maximum Ratings, Outline Drawing and PCB Layout and Application Schematic.

PCN #: 00788

PRODUCT CHANGE NOTICE

Dear Valued Customer,

Please accept this PCN letter as formal notification for the change to M/A-COM Technology Solutions below part numbers. Details of the changes are contained within this document.

Products Affected:

The devices listed on this page are the affected devices.

M/A-COM TECH P/N

MABA-011033

MABA-011040

Technical details of this Product Change follow on the next page(s).
Sincerely,

Alan Miller

Product Line Manager
M/A-COM Technology Solutions
Cell: +978-427-7482
Email: Alan. Miller@macomtech.com

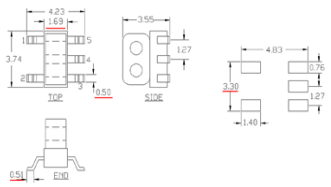
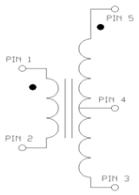
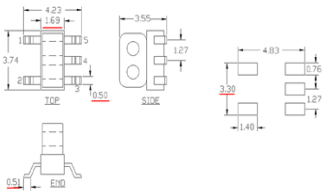
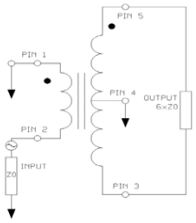
M/A-COM Technology Solutions,
4 Eastgate Road,
Little Island,
Co. Cork,
Ireland

PCN Number:	00788	**PCN Date:**	20 Oct 2015
Title:	**Description, Functional Schematic, Recommended Maximum Ratings, Outline Drawing and PCB Layout and Application Schematic.**		
Proposed 1st Ship Date:	N/A	**Estimated Sample Availability**	N/A
Change Type:			
Assembly Site	Design	Electrical Specification X	
Test Site	Assembly Process	Mechanical Specification	X
Test Process	Assembly Materials	Packing/Shipping/Label	

PCN Details

Description of Change:

Data Sheet has been updated as outlined below:

MABA-011033	**Product Description**		**Functional Schematic**	**Outline Drawing, PCB Layout**	**Recommended Maximum Ratings**
	From	The MABA-011033 is a 1:2 flux coupled transformer. This transformer is ideally suited for CATV and Broadband applications.	NO CHANGE	The outline drawing has been updated with new dimensions for carrier base, pin width and PCB layout 	From: Input power: 0.5 mW, DC Current: 0.5 mA
	Changed to	The MABA-011033 is a 1:2 flux coupled transformer. This transformer is ideally suited for DOCSIS 3.x upstream applications due to its high power and temperature performance.			Changed to: Input power: 2000 mW, DC Current: 1500 mA
MABA-011040	**Product Description**		**Functional Schematic**	**Outline Drawing, PCB Layout**	**Application schematic**
	From	The MABA-011040 is a 1:6 flux coupled transformer. This transformer is ideally suited for CATV and Broadband applications.	Functional Schematic has been added 	The outline drawing has been updated with new dimensions for carrier base, pin width and PCB layout 	Application schematic has been changed to correct input pin 
	Changed to	The MABA-011040 is a 1:6 flux coupled transformer. This transformer is ideally suited for DOCSIS 3.x upstream applications due to its high power and temperature performance.			

Reason for Change:
Market Requirement

Products Affected:
MABA-011033
MABA-011040

Anticipated impact on Fit, Form, Function, Quality or Reliability (positive / negative):

Fit: None.
Form: None.
Function: None.
Quality or Reliability: None.

M/A-COM Technology Solutions,
4 Eastgate Road,
Little Island,
Co. Cork,
Ireland

Changes to product identification resulting from this PCN: None.		
Qualification: N/A		
Test	**Conditions**	**Sample Size (Pass/Fail)**
N/A	N/A	N/A
Qualification:		
Reliability Test	**Conditions**	**Sample Size (PASS/FAIL)**
N/A		

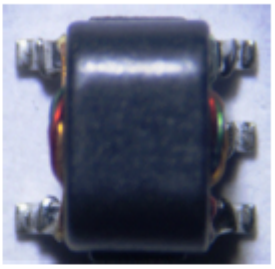
M/A-COM Technology Solutions,
4 Eastgate Road,
Little Island,
Co. Cork,
Ireland

MABA-011033

Balun Transformer, 1:2 Flux coupled
1 - 300 MHz Rev. V5

Features

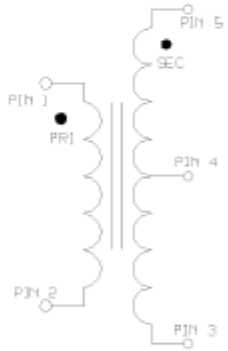
- 1:2 Impedance
- Surface Mount
- Excellent Temperature Stability
- 260° reflow compatible
- RoHS compliant and Pb free
- Available on tape and reel
- Suitable for all CATV, Broadband and FTTX applications



Description

The MABA-011033 is a 1:2 flux coupled transformer. This transformer is ideally suited for DOCSIS 3.x upstream applications due to its high power and temperature performance.

Functional Schematic



Ordering Information

Part Number	Package
MABA-011033	2000 piece reel
MABA-011033-TB	customer test board

Pin Configuration

Pin No.	Function
1	Primary Dot (input)
2	Primary (ground)
3	Secondary (output1)
4	Center tap (ground)
5	Secondary Dot (output2)

M/A-COM Technology Solutions,
4 Eastgate Road,
Little Island,
Co. Cork,
Ireland

MABA-011033

Balun Transformer, 1:2 Flux coupled
1 - 300 MHz Rev. V5

Electrical Specifications: T_A = 25°C, Z_0 = 75 Ω, P_{in} = 0 dBm

Parameter	Test Conditions	Units	Min.	Typ.	Max.
Impedance	—	Ω	—	75	—
Impedance Ratio	—	Ratio	—	1:2	—
Insertion Loss 1 (Pin1 - Pin3)	—	dB	—	0.6	1.0
Insertion Loss 2 (Pin1 - Pin5)	1 - 200 MHz 200 - 300 MHz	dB	—	0.6 0.8	1.0 1.2
Amplitude Balance	1 - 180 MHz 180 - 300 MHz	dB	—	0.01 0.2	0.2 0.5
Phase Balance (ref value 180°)	1 - 150 MHz 150 - 300 MHz	deg.	—	0.3 0.6	2.0 3.0
Input Return Loss (Pin1)	1 - 50 MHz 50 - 300 MHz	dB	13 15	20 18	—

Recommended Maximum Ratings

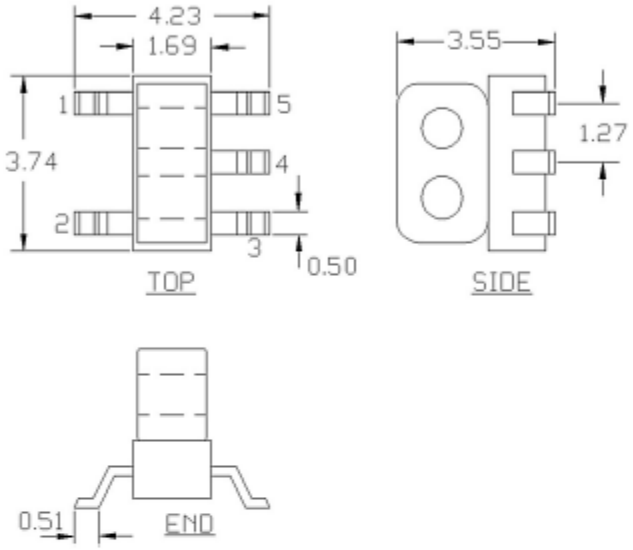
Parameter	Units	Min	Max
Input Power	mW		2000
DC Current	mA		1500
Operating Temperature Range	°C	-40	+125

M/A-COM Technology Solutions,
4 Eastgate Road,
Little Island,
Co. Cork,
Ireland

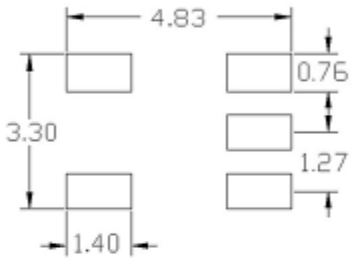
MABA-011033

Balun Transformer, 1:2 Flux coupled
1 - 300 MHz Rev. V5

Outline Drawing

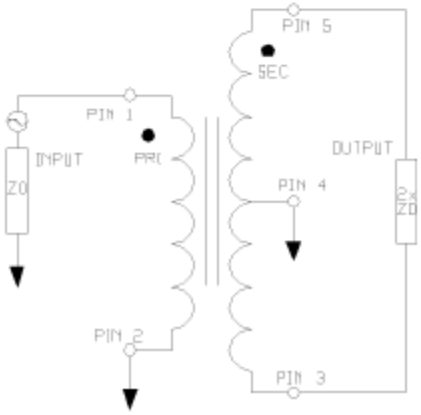


PCB Layout



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 plating (CuSn6) Lead finish SAC-305.

Application Circuit



Tape & Reel Information

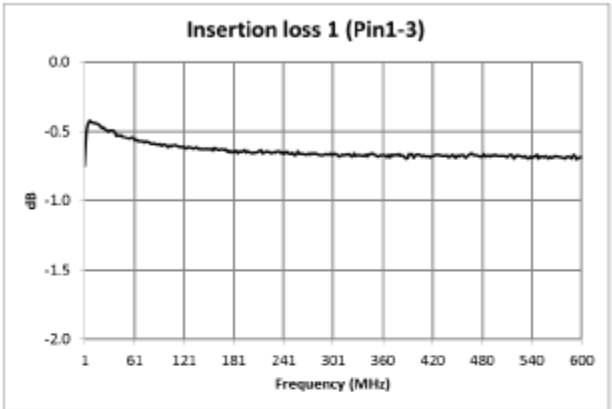
Parameter	Units	Value
Qty per reel	-	2000
Reel Size	mm	330
Tape Width	mm	12.00
Pitch	mm	8.00
Ao	mm	4.40
Bo	mm	4.00
Ko	mm	3.90
Orientation	-	F26
Reference Application Note ANI-019 for orientation		

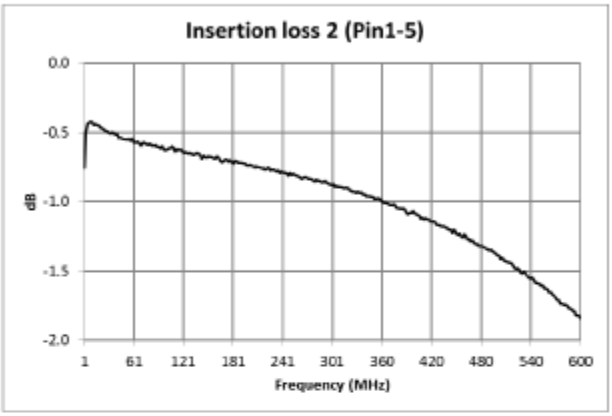
M/A-COM Technology Solutions,
4 Eastgate Road,
Little Island,
Co. Cork,
Ireland

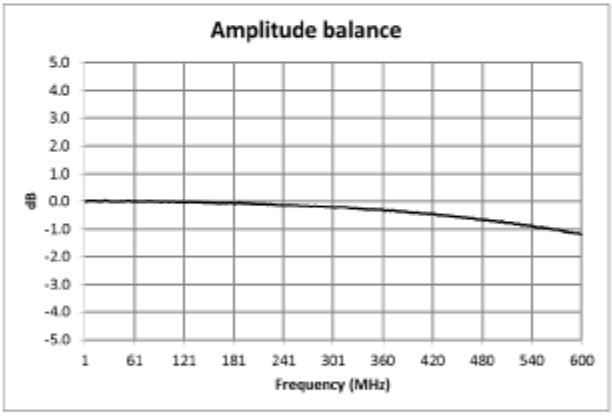
MABA-011033

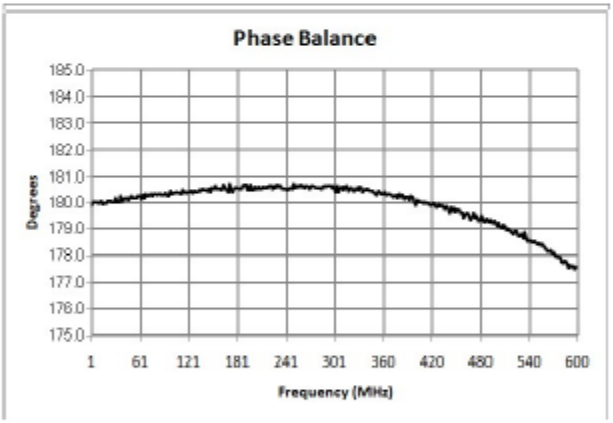
Balun Transformer, 1:2 Flux coupled
1 - 300 MHz Rev. V5

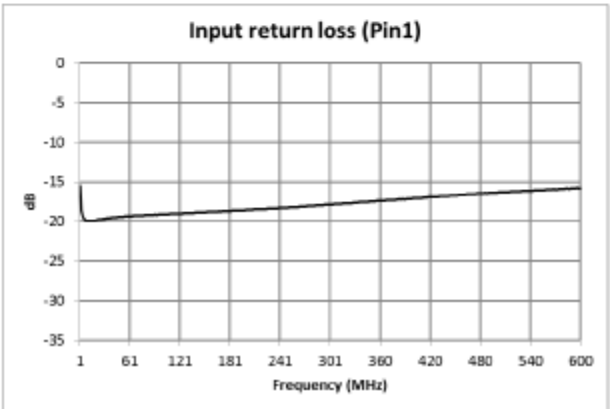
Typical Performance Curves

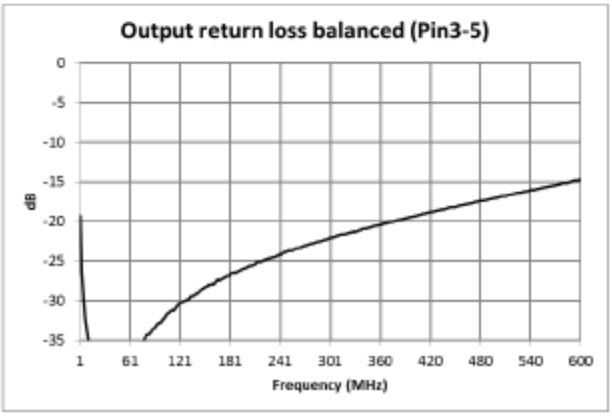












M/A-COM Technology Solutions,
4 Eastgate Road,
Little Island,
Co. Cork,
Ireland

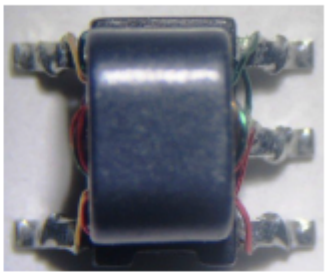
MABA-011040

Balun transformer, 1:6
1 – 300 MHz

Rev. V2

Features

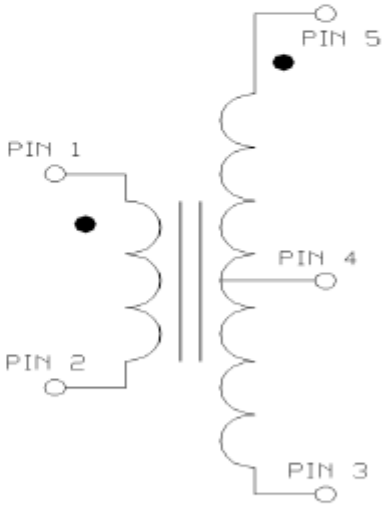
- 1:6 impedance
- Surface mount
- Available on tape and reel
- 260° reflow compatible
- RoHS compliant and Pb free
- Excellent temperature stability
- Suitable for all CATV, Broadband and FTTX applications



Description

MACOM's MABA-011040 is a 1:6 flux coupled transformer. This transformer is ideally suited for DOCSIS 3.x upstream applications due to its high power and temperature performance.

Functional Schematic



Ordering Information

Part Number	Package
MABA-011040	Tape & Reel

Pin Configuration

Pin No.	Function
1	Primary Dot (ground)
2	Primary (input)
3	Secondary (output2)
4	Center tap (ground)
5	Secondary Dot (output1)

M/A-COM Technology Solutions,
4 Eastgate Road,
Little Island,
Co. Cork,
Ireland

MABA-011040

Balun transformer, 1:6
1 – 300 MHz

Rev. V2

Electrical Specifications: T_A = 25°C, Z_0 = 50 Ω, P_{in} = 0dBm

Parameter	Test Conditions	Units	Min.	Typ.	Max.
Frequency Range		MHz	1		300
Impedance		Ω		50	
Impedance Ratio				1:6	
Insertion Loss 1 (Pin2 - Pin5)	1 - 5 MHz 5 - 150 MHz 150 - 300 MHz	dB dB dB	- - -	0.6 0.7 0.9	1.4 1.0 1.4
Insertion Loss 2 (Pin2 - Pin3)	1 - 5 MHz 5 - 150 MHz 150 - 300 MHz	dB dB dB	- - -	0.7 0.7 0.8	1.2 1.0 1.1
Amplitude Balance	1 - 300 MHz	dB	-	0.07	±0.4
Phase Balance (ref value 180°)	1 - 150 MHz 150 - 300 MHz	° °	- -	0.4 1.0	±2.0 ±3.5
Input Return Loss (Pin2)	1 - 5 MHz 5 - 150 MHz 150 - 300 MHz	dB dB dB	13 20 15	24 29 24	- - -

Recommended Maximum Ratings

Parameter	Units	Min	Max
Input Power	mW		500
DC Current	mA		500
Operating Temperature Range	°C	-40	+125

Full temperature plots available on request

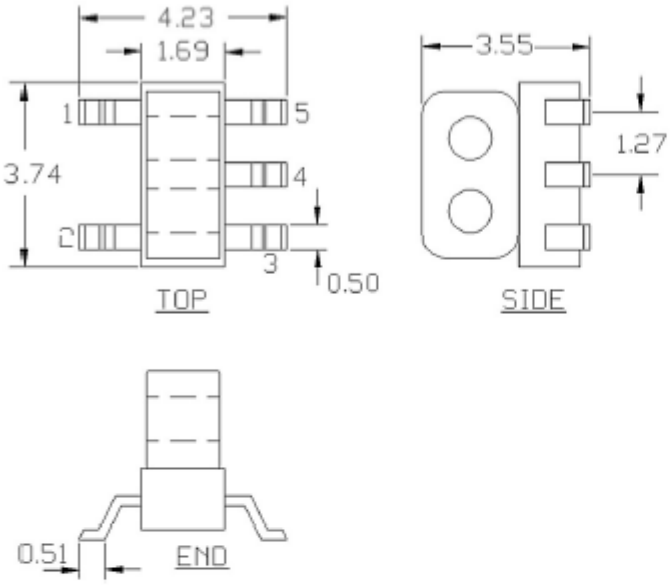
M/A-COM Technology Solutions,
4 Eastgate Road,
Little Island,
Co. Cork,
Ireland

MABA-011040

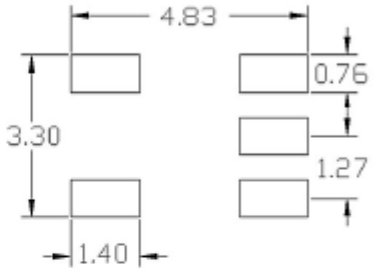
Balun transformer, 1:6
1 – 300 MHz

Rev. V2

Outline Drawing

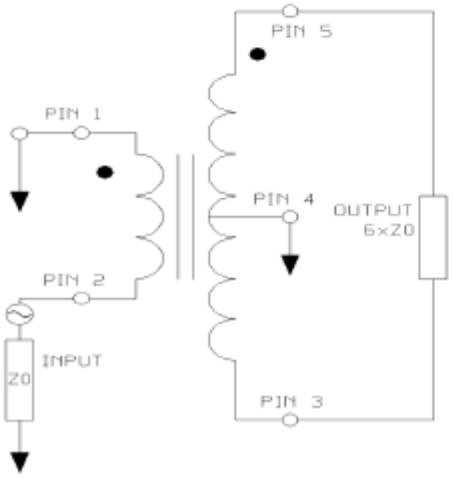


PCB Layout



1. Dimensions in mm.
2. Tolerance: ±0.2mm unless otherwise noted.
3. Model number and lot code are printed on the reel.
4. Lead plating (CuSn6) Lead finish SAC-305.

Application Schematic



Tape & Reel Information

Parameter	Units	Value
Qty per reel	-	2000
Reel Size	mm	330
Tape Width	mm	12.00
Pitch	mm	8.00
Ao	mm	4.40
Bo	mm	4.00
Ko	mm	3.90
Orientation	-	F26
Reference Application Note ANI-019 for orientation		

M/A-COM Technology Solutions,
4 Eastgate Road,
Little Island,
Co. Cork,
Ireland

MABA-011040

Balun transformer, 1:6
1 – 300 MHz

Rev. V2

Typical Performance Curves