

# MAFL-011013



## Broadband CATV Diplexer 5 - 42 / 54 - 1000 MHz

Rev.V1

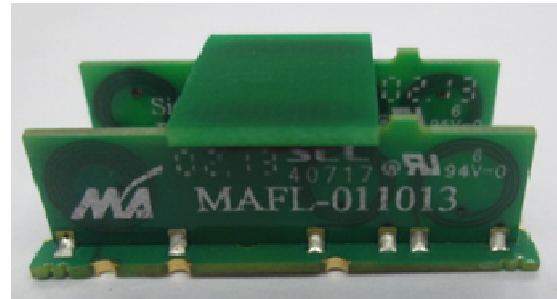
### Features

- 75 Ohm
- SMT unit
- RoHS compliant
- Excellent temperature stability
- Excellent repeatability

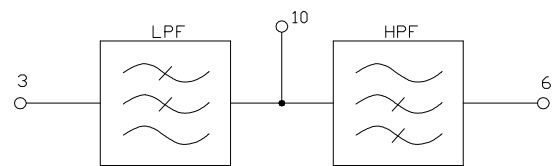
### Description

M/A-COM's MAFL-011013 is a low cost, SMT diplex filter designed for CATV, DTV, DBS, cable modem

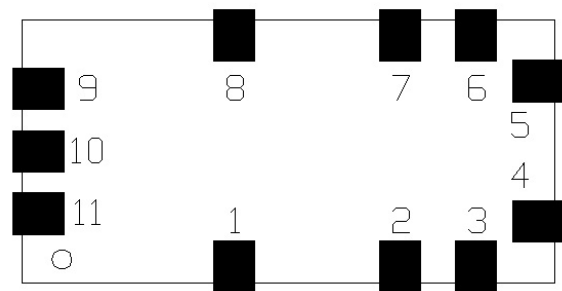
**Electrical specifications:  $T_A = 25^\circ\text{C}$ ,  $Z_0 = 75\Omega$**



### Schematic



### Pin Configuration



Function	Pin number
Ground	1, 2, 4, 5, 7, 8, 9, 11
Low pass port	3
High pass port	6
Common	10

Parameter	Units	Min.	Typ.	Max.	
<b>Insertion loss</b>					
	5-42 MHz	dB	—	0.5	1.1
	54-1000 MHz	dB	—	0.5	1.2
<b>Isolation</b>					
	5-37 MHz	dB	50	55	—
	37-42 MHz	dB	43	48	—
	42-54 MHz	dB	16	19	—
	54-100 MHz	dB	45	50	—
	100-600 MHz	dB	50	55	—
	600-1000 MHz	dB	45	50	—
<b>Return loss</b>					
	5-42 MHz	dB	12	16	—
	54-1000 MHz	dB	12	16	—

### Recommended Maximum Ratings

Parameter	Absolute maximum
RF power	250mW
DC current	30mA
Operating temperature	-40°C to +85°C
Storage temperature	-40°C to +85°C

\* Restrictions on Hazardous Substances, European Union Directive 2002/95/EC

**ADVANCED:** Data Sheets contain information regarding a product M/A-COM Technology Solutions is considering for development. Performance is based on target specifications, simulated results, and/or prototype measurements. Commitment to develop is not guaranteed.  
**PRELIMINARY:** Data Sheets contain information regarding a product M/A-COM Technology Solutions has under development. Performance is based on engineering tests. Specifications are typical. Mechanical outline has been fixed. Engineering samples and/or test data may be available. Commitment to produce in volume is not guaranteed.

• **North America** Tel: 800.366.2266 • **Europe** Tel: +353.21.244.6400  
 • **India** Tel: +91.80.43537383 • **China** Tel: +86.21.2407.1588  
 Visit [www.macomtech.com](http://www.macomtech.com) for additional data sheets and product information.

M/A-COM Technology Solutions Inc. and its affiliates reserve the right to make changes to the product(s) or information contained herein without notice.

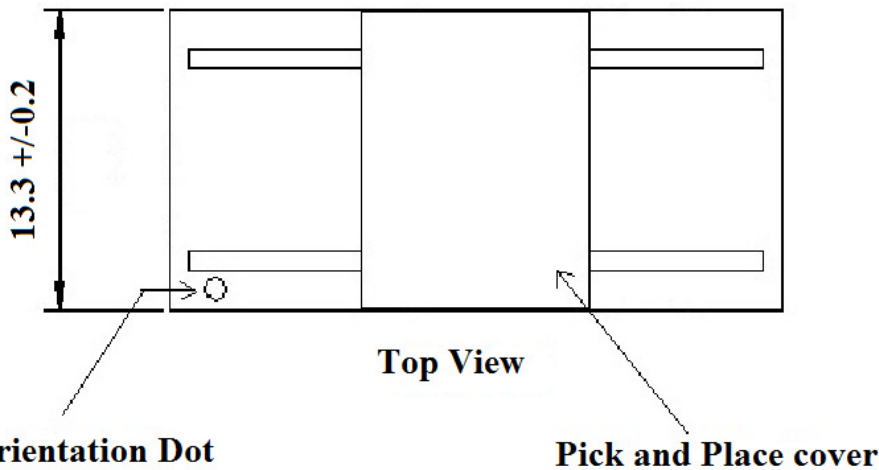
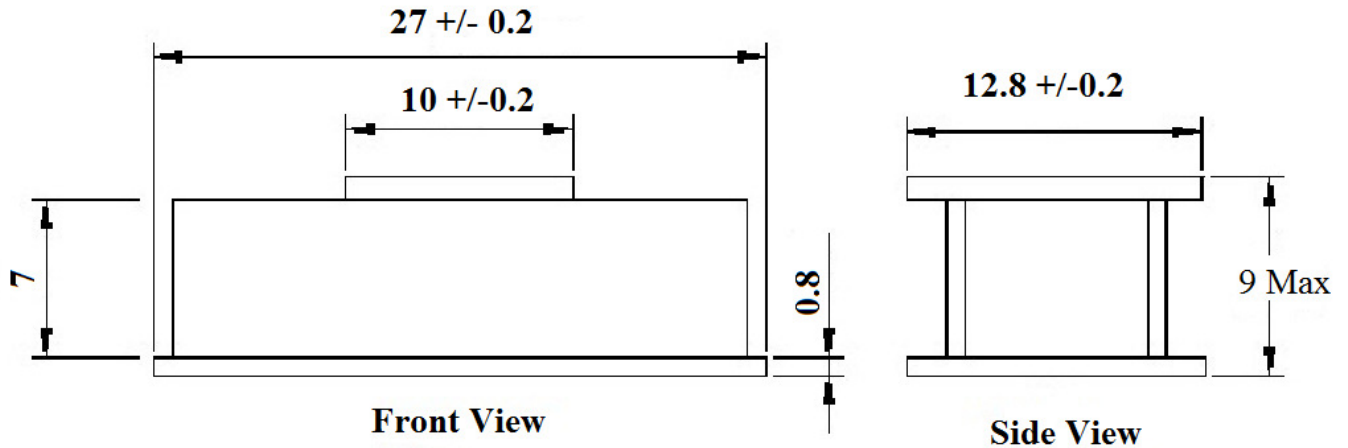
# MAFL-011013



Broadband CATV Diplexer  
5 - 42 / 54 - 1000 MHz

Rev.V1

## Filter Dimensions



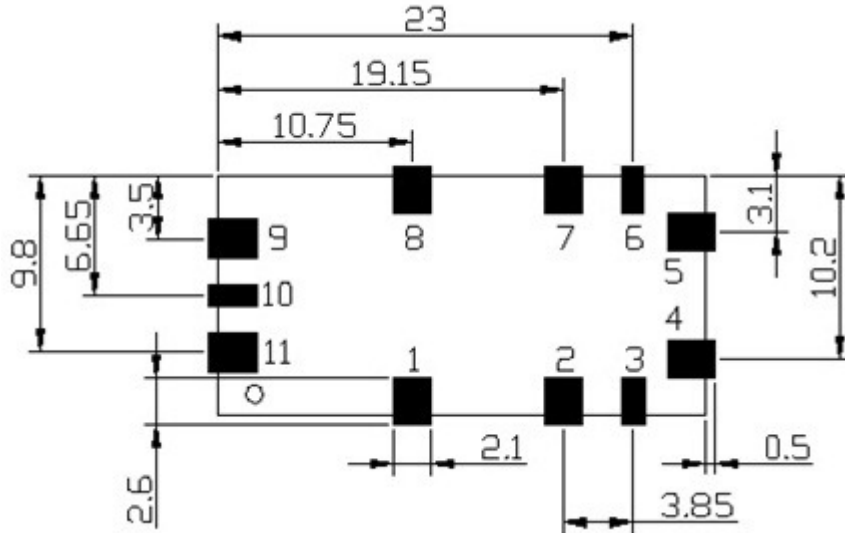
Dimensions are millimeters.  
Tolerance: ± 0.2mm

**ADVANCED:** Data Sheets contain information regarding a product M/A-COM Technology Solutions is considering for development. Performance is based on target specifications, simulated results, and/or prototype measurements. Commitment to develop is not guaranteed.  
**PRELIMINARY:** Data Sheets contain information regarding a product M/A-COM Technology Solutions has under development. Performance is based on engineering tests. Specifications are typical. Mechanical outline has been fixed. Engineering samples and/or test data may be available. Commitment to produce in volume is not guaranteed.

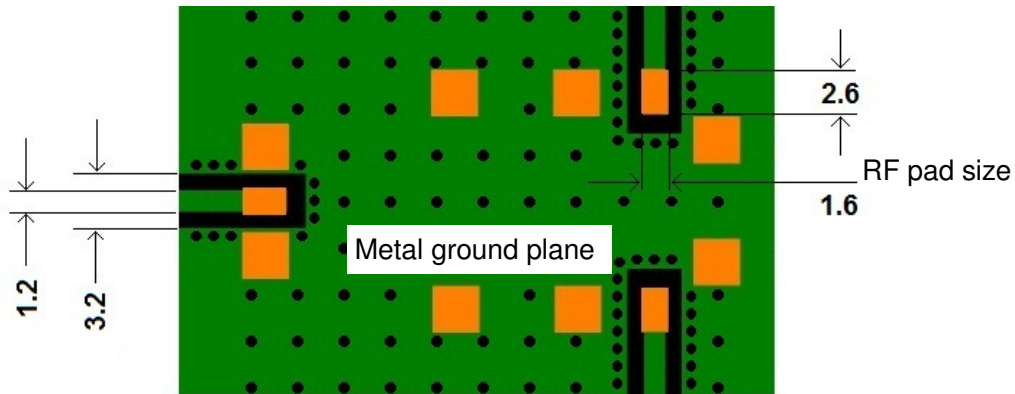
• North America Tel: 800.366.2266 • Europe Tel: +353.21.244.6400  
• India Tel: +91.80.43537383 • China Tel: +86.21.2407.1588  
Visit [www.macomtech.com](http://www.macomtech.com) for additional data sheets and product information.

M/A-COM Technology Solutions Inc. and its affiliates reserve the right to make changes to the product(s) or information contained herein without notice.

## Recommended application PCB



Footprint (As viewed from the top side)



Layout (As viewed from the top side)

Dimensions are millimeters.  
Tolerance: .x ± 0.1, .xx ± 0.05, except where specified.

### Layout notes:

- Track dimension = 1.2mm
- Gap dimension = 1.0mm
- It is not recommended to run RF tracks under the filter unless they are greater than 1.6mm below the base of the filter.
- RF shield should be kept a minimum of 20mm above the filter.
- The filter substrate is 0.8mm thick FR-4 material. A metal ground is required on the top layer of the Application PCB directly underneath the filter. This metal ground plane of the application PCB is connected to the ground plane on the bottom of the filter substrate and forms a 75 Ω co-planar wave guide for the input and output RF transmission lines.

# MAFL-011013

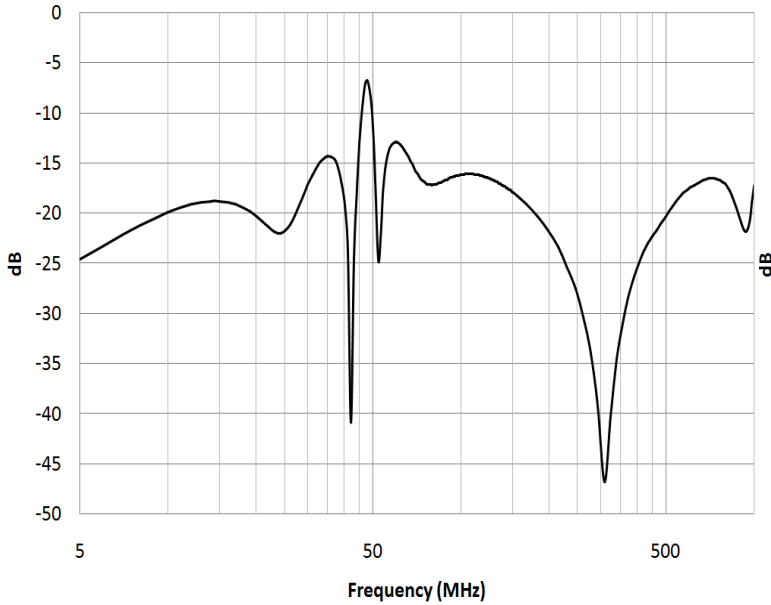


## Broadband CATV Diplexer 5 - 42 / 54 - 1000 MHz

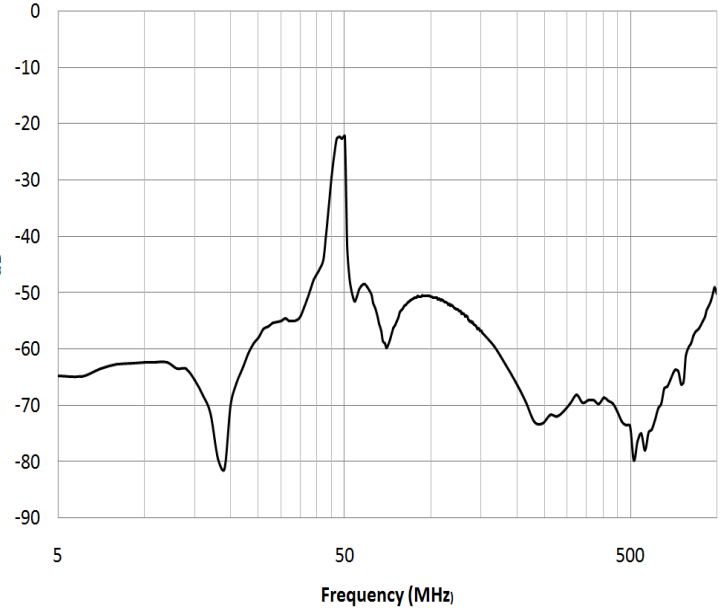
Rev.V1

Typical performance:  $T_A = 25^\circ\text{C}$ ,  $Z_0 = 75\Omega$

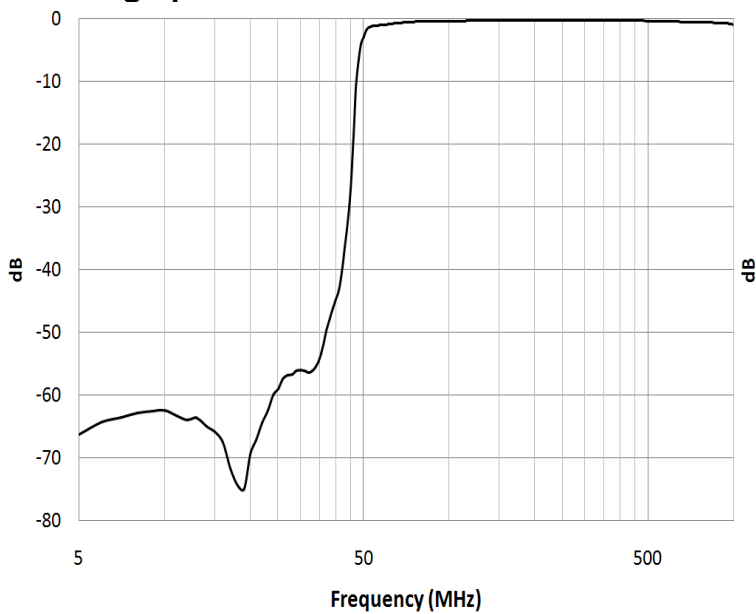
### Input return loss



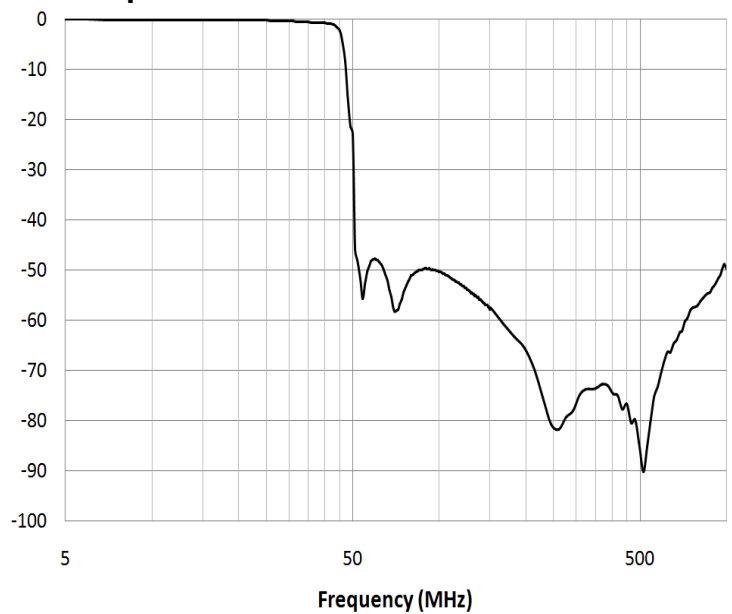
### Isolation



### High pass filter insertion loss



### Low pass filter insertion loss



**ADVANCED:** Data Sheets contain information regarding a product M/A-COM Technology Solutions is considering for development. Performance is based on target specifications, simulated results, and/or prototype measurements. Commitment to develop is not guaranteed.  
**PRELIMINARY:** Data Sheets contain information regarding a product M/A-COM Technology Solutions has under development. Performance is based on engineering tests. Specifications are typical. Mechanical outline has been fixed. Engineering samples and/or test data may be available. Commitment to produce in volume is not guaranteed.

• **North America** Tel: 800.366.2266 • **Europe** Tel: +353.21.244.6400  
• **India** Tel: +91.80.43537383 • **China** Tel: +86.21.2407.1588  
Visit [www.macomtech.com](http://www.macomtech.com) for additional data sheets and product information.

M/A-COM Technology Solutions Inc. and its affiliates reserve the right to make changes to the product(s) or information contained herein without notice.

# MAFL-011013



## Broadband CATV Diplexer 5 - 42 / 54 - 1000 MHz

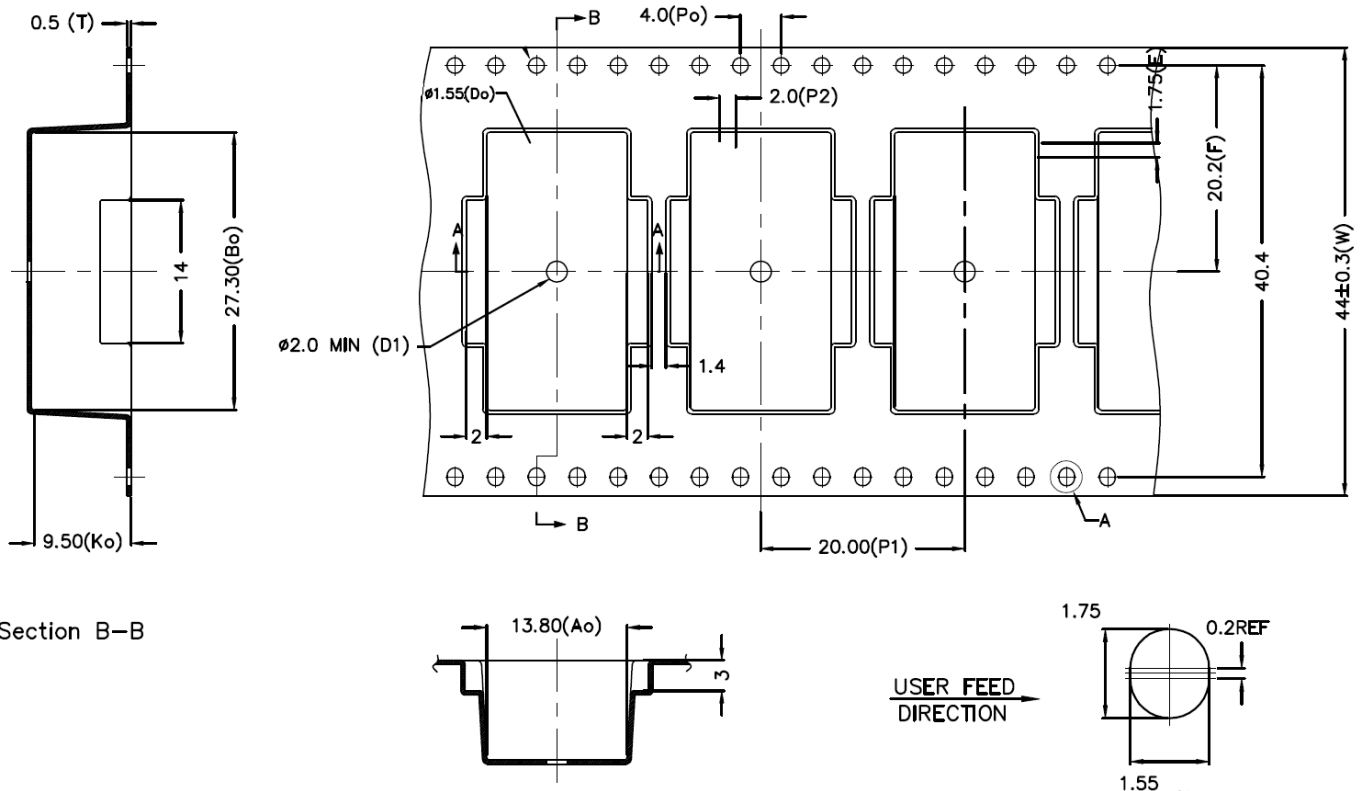
Rev.V1

### Tape & Reel Information

Parameter	Units	Value
Qty per reel	-	200
Reel Size	mm	330
Tape Width	mm	44.00
Pitch	mm	20.00
Ao	mm	13.80
Bo	mm	27.30
Ko	mm	9.50
Orientation	-	F30
Reference Application Note ANI-019 for orientation		

### Ordering Information

Part Number	Package
MAFL-011013	Tape & Reel



**ADVANCED:** Data Sheets contain information regarding a product M/A-COM Technology Solutions is considering for development. Performance is based on target specifications, simulated results, and/or prototype measurements. Commitment to develop is not guaranteed.  
**PRELIMINARY:** Data Sheets contain information regarding a product M/A-COM Technology Solutions has under development. Performance is based on engineering tests. Specifications are typical. Mechanical outline has been fixed. Engineering samples and/or test data may be available. Commitment to produce in volume is not guaranteed.

• **North America** Tel: 800.366.2266 • **Europe** Tel: +353.21.244.6400  
 • **India** Tel: +91.80.43537383 • **China** Tel: +86.21.2407.1588  
 Visit [www.macomtech.com](http://www.macomtech.com) for additional data sheets and product information.

M/A-COM Technology Solutions Inc. and its affiliates reserve the right to make changes to the product(s) or information contained herein without notice.