

# MAFL-009055-CD4254



**Broadband CATV Diplexer**  
5 - 1000 MHz

**M/A-COM Products**  
Part Status: V1

## Features

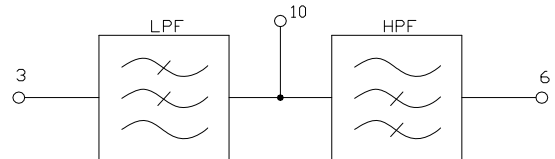
- 75 Ohm
- SMT Unit
- RoHS Compliant
- Excellent Temperature Stability
- Excellent Repeatability

## Description

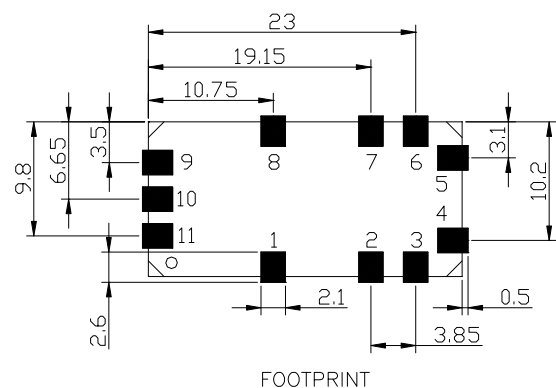
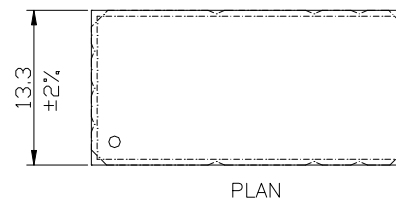
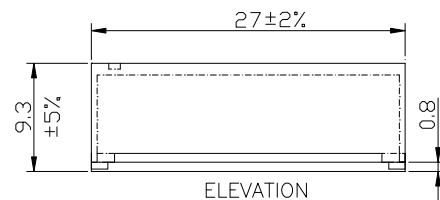
M/A-COM's MAFL-009055-CD4254 is a low cost, SMT diplex filter designed for CATV, DTV, DBS, cable modem and set top box applications. The technology used in this design is patent pending.



## Schematic



## Case Style SM-162



## Pin Configuration

Function	Pin Number
Ground	1, 2, 4, 5, 7, 8, 9, 11
Low Pass Port	3
High Pass Port	6
Common	10

## Ordering Information

Part Number	Package
MAFL-009055-CT4254	200 per reel
MAFL-009055-CT42TB	Customer test board

Dimensions are millimeters.

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

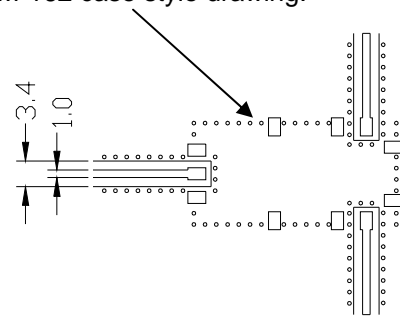
**Electrical Specifications:  $T_A = 25^\circ\text{C}$ ,  $Z_0 = 75\Omega$**

Parameter	Test Conditions	Units	Min.	Typ.	Max.
Frequency Range	5-42 MHz / 54-1000 MHz				
Insertion Loss	5-42 MHz	dB	—	0.5	1.1
	54-1000 MHz	dB	—	0.5	1.2
Isolation	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	—
Input Port Return Loss	5-42 MHz	dB	12	16	—
	54-1000 MHz	dB	12	16	—

Additional Specifications (MHz)	Group Delay (ns)	
	Typ.	Max
40.5 - 42	5	20
54 - 55.5	10	20

### Recommended PCB Configuration

Note: Pad size dimensions match size of those specified in SM-162 case style drawing.



Note: Substrate is 1.6mm thick FR-4. A ground plane is directly under diplexer. This is connected to the ground plane on the bottom of the PCB. This forms a 75 Ohm co-planar wave guide for input and output transmission lines.

### Absolute Maximum Ratings

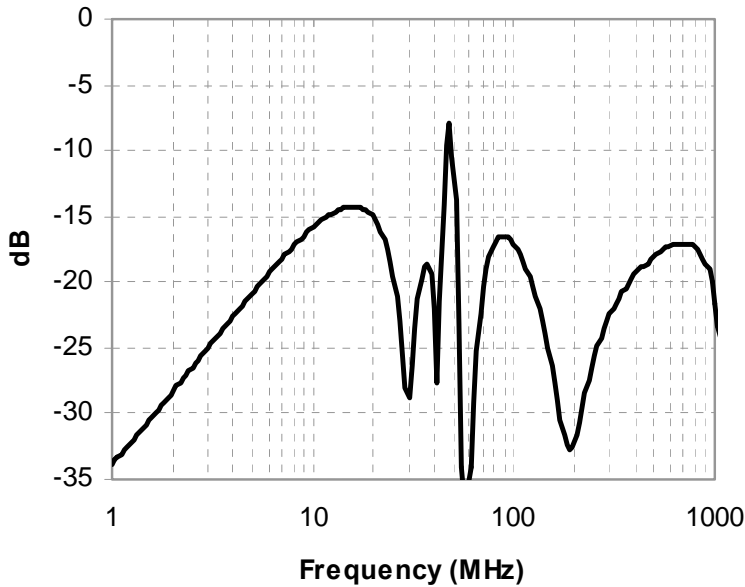
Parameter	Absolute Maximum
RF Power	250mW
DC Current	30mA
Operating Temperature	-40°C to +85°C
Storage Temperature	-40°C to +85°C

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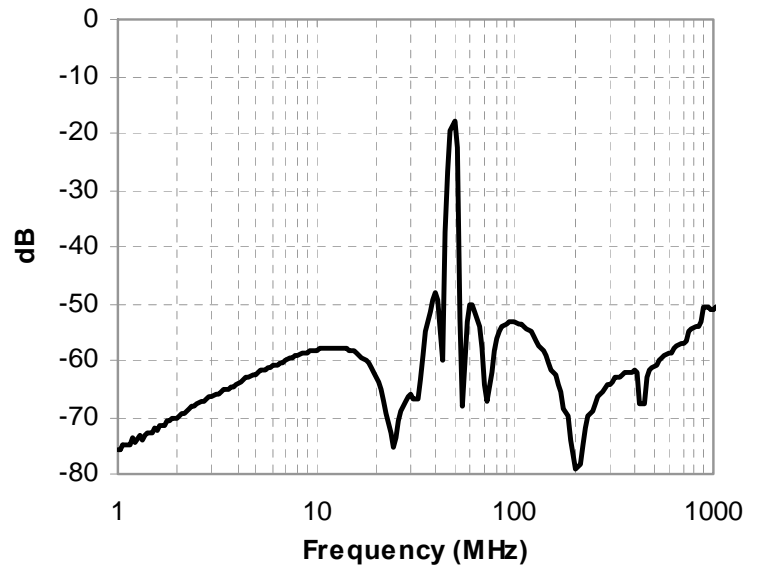
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Typical Performance:  $T_A = 25^\circ\text{C}$ ,  $Z_0 = 75\Omega$

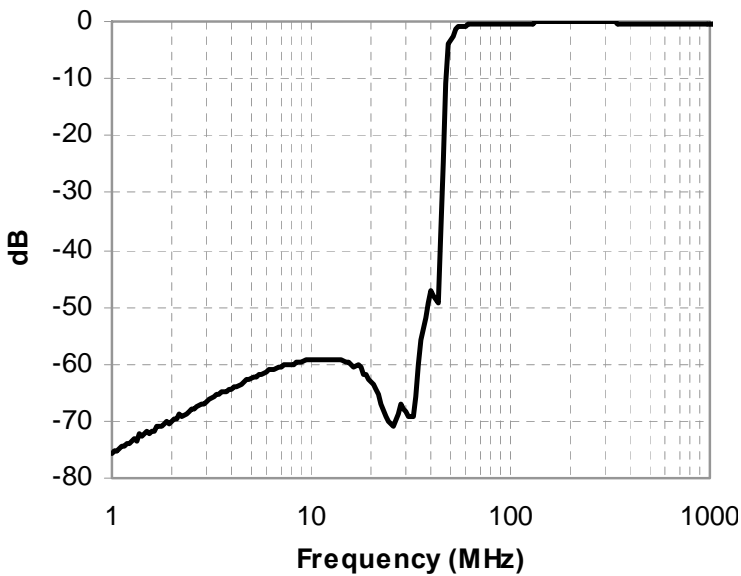
**Input Return Loss**



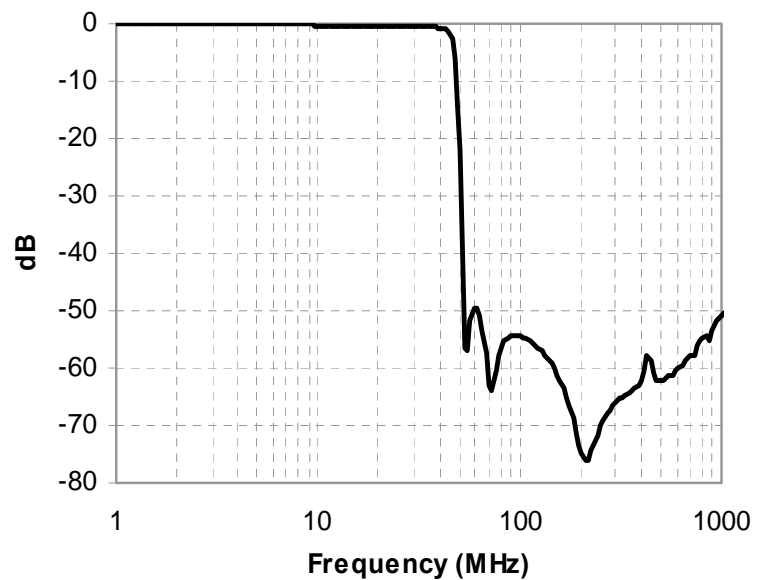
**Isolation**



**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.

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