

## Features

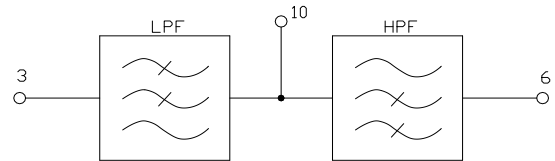
- 75 Ohm
- SMT unit
- RoHS compliant
- Excellent temperature stability
- Excellent repeatability

## Description

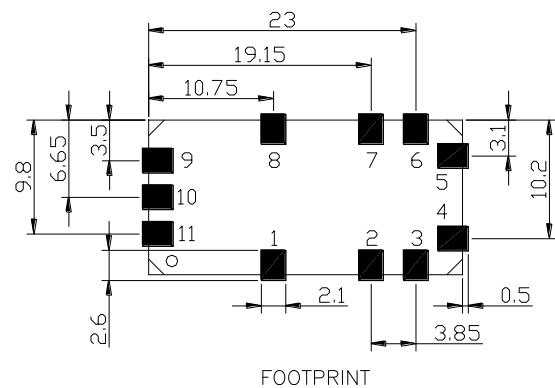
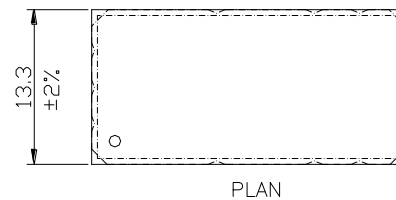
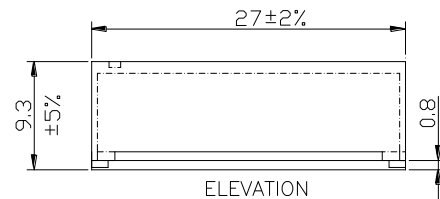
M/A-COM's MAFL-009055-CD4254 is a low cost, SMT diplex filter designed for CATV, DTV, DBS, cable modem and set top box applications.



## Schematic



## Case style SM-162



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

## 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 |

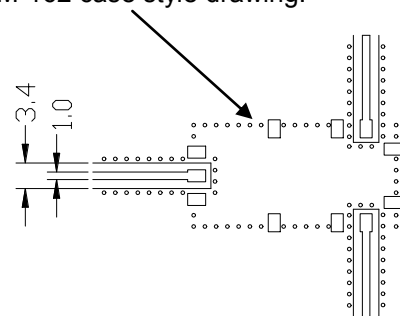
**Electrical specifications:  $T_A = 25^\circ\text{C}$ ,  $Z_0 = 75\Omega$**

| 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

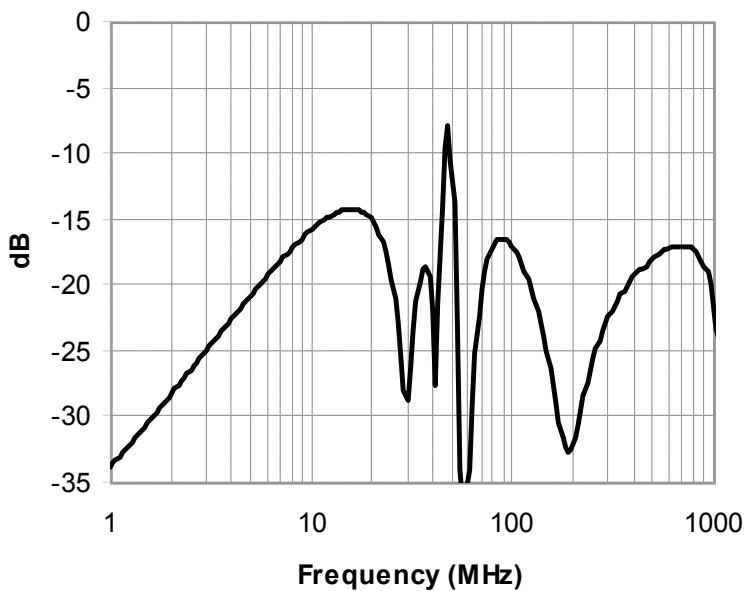
| Parameter             | Absolute maximum |
|-----------------------|------------------|
| RF power              | 250mW            |
| DC current            | 30mA             |
| Operating temperature | -40°C to +85°C   |
| Storage temperature   | -40°C to +85°C   |

## Broadband CATV Diplexer 5 - 1000 MHz

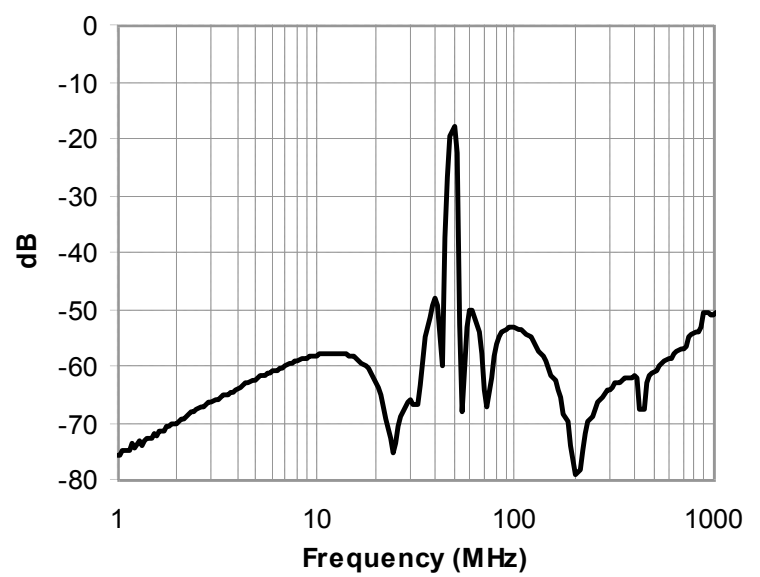
Rev. V3

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

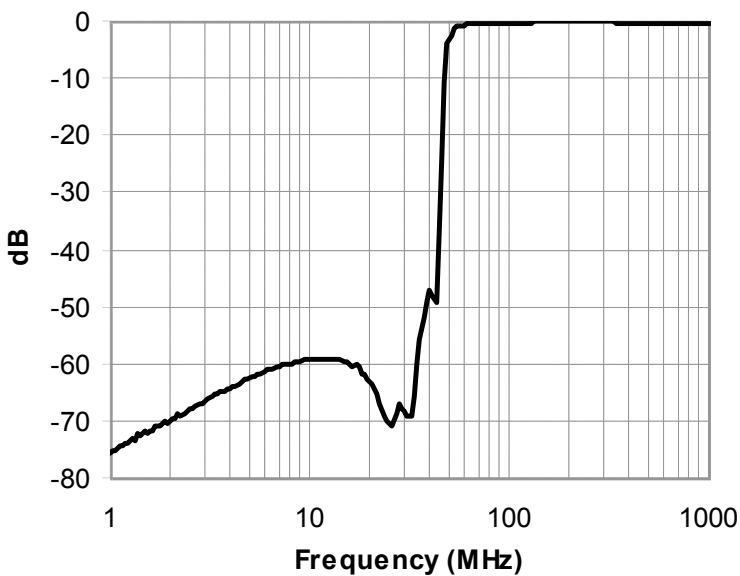
### Input return loss



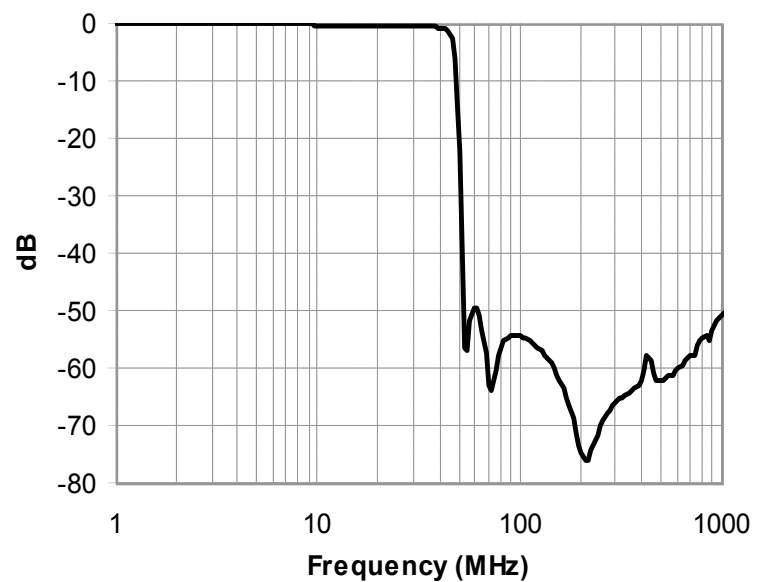
### Isolation



### High pass filter insertion loss



### Low pass filter insertion loss



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