

# Application Note

## AN - 4005



### MAFL-009272 Improved rejection circuit 5 - 1002 / 1125 - 1550 MHz

Released Rev. V1

#### Features

- Improved Rejection
- RoHS Compliant
- Lead Free
- 75 Ohm

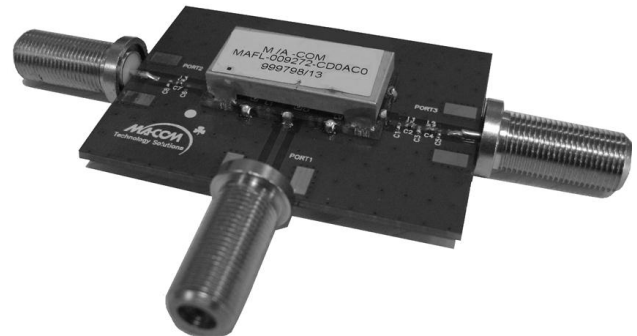
#### Description

• M/A-COM Technology Solutions' MAFL-009272-CD0AC0 is a surface mount diplex filter unit designed for MoCA applications.

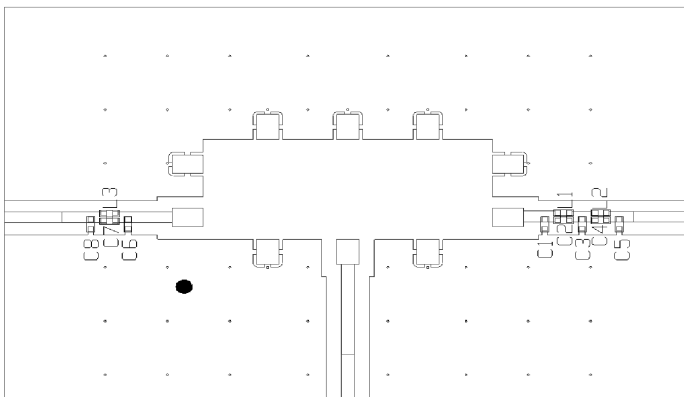
This filter includes the addition of an off chip circuit external to the diplex filter. This circuit improves rejection between 2GHz - 3GHz.

Recommended rejection circuit configuration, Recommended component values and typical spec table are given below.

#### Product Image



#### Recommended Rejection Circuit Configuration



#### Recommended Component Values

Description	Ref Des	Qty
CAP, SMT, 0402, 0.3pF, +/- 2% 50V,COG	C1	1.00
CAP, SMT, 0402, 1.2pF, +/- 2% 50V,COG	C2	1.00
CAP, SMT, 0402, 0.82pF, +/- 2% 50V,COG	C3	1.00
CAP, SMT, 0402, 1.1pF, +/- 2% 50V,COG	C4	1.00
CAP, SMT, 0402, 0.5pF, +/- 2% 50V,COG	C5	1.00
Not Stuffed	C6	-
CAP, SMT, 0402,1.8pF, +/- 2% 50V,COG	C7	1.00
CAP, SMT, 0402, 0.5pF, +/- 2% 50V,COG	C8	1.00
IND, SMT, 0402, 3.3nH, +/-5%, 500mA	L1	1.00
IND, SMT, 0402, 2.7nH, +/-5%, 500mA	L2	1.00
IND, SMT, 0402, 4.7nH, +/-5%, 500mA	L3	1.00

#### Typical spec

Parameter	Units	Typ
<b>Common To Low</b>		
Insertion Loss		
5-42 MHz	dB	0.1
42 – 860 MHz	dB	0.6
860 – 1002 MHz	dB	1.5
Rejection		
1130 – 1550 MHz	dB	40
<b>Common to High</b>		
Insertion Loss		
1125 – 1550 MHz	dB	1.7
Rejection		
5-1002 MHz	dB	40
2250 – 2400 MHz	dB	35
2400 – 2600 MHz	dB	50
2600 – 3000 MHz	dB	34
<b>Common Port Return Loss</b>		
5-600 MHz	dB	16
600 – 950 MHz	dB	12
950 – 1002 MHz	dB	13
1125 – 1200 MHz	dB	12
1200 – 1550 MHz	dB	12
Common Port voltage transient	V	200

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 • **India** Tel: +91.80.4155721 • **China** Tel: +86.21.2407.1588  
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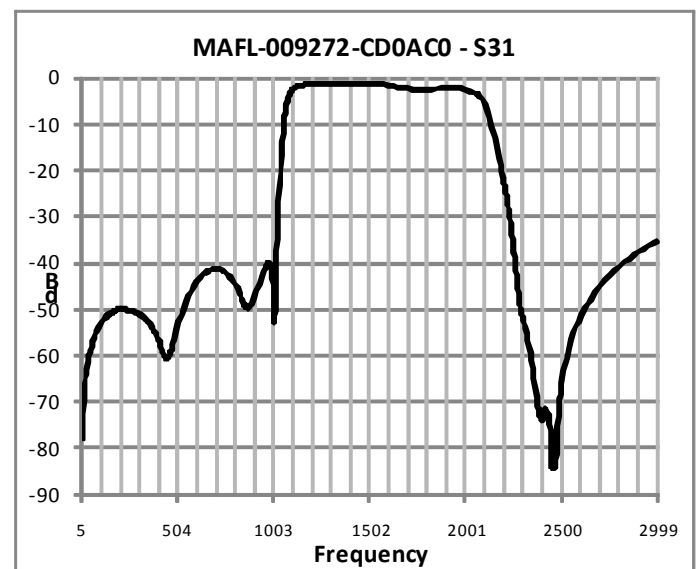
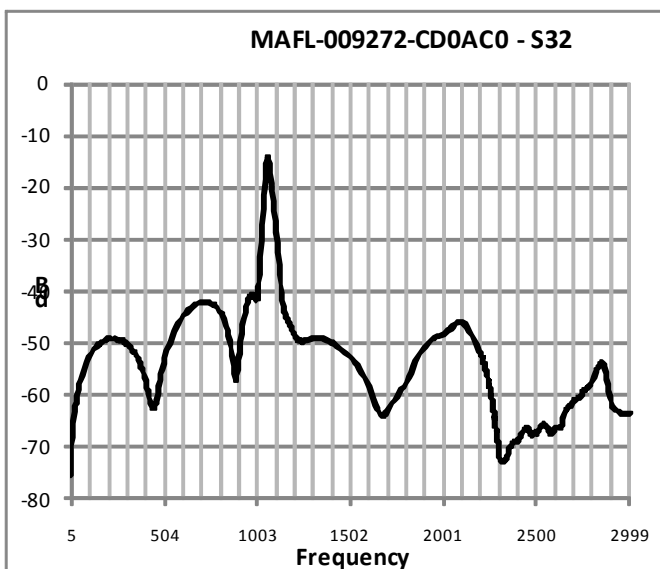
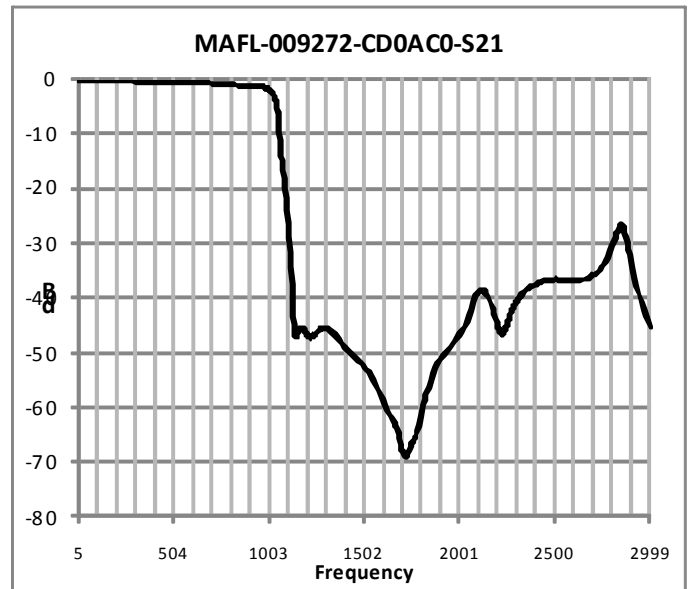
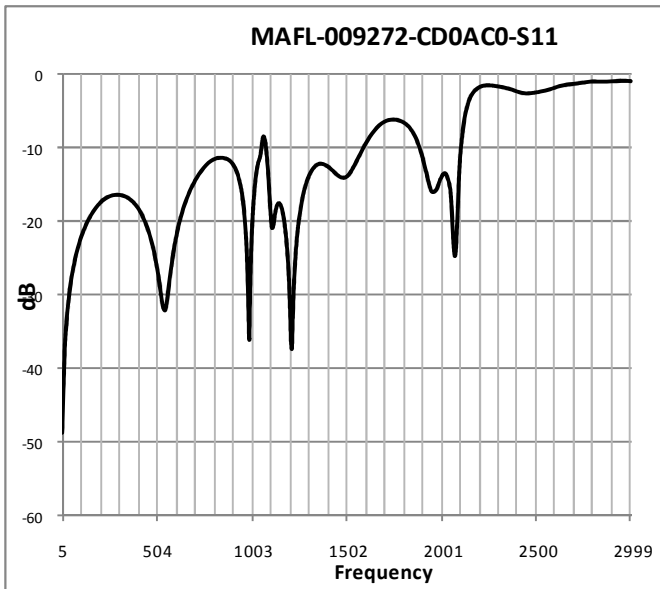
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#### Typical Filter Performance with off chip circuit



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