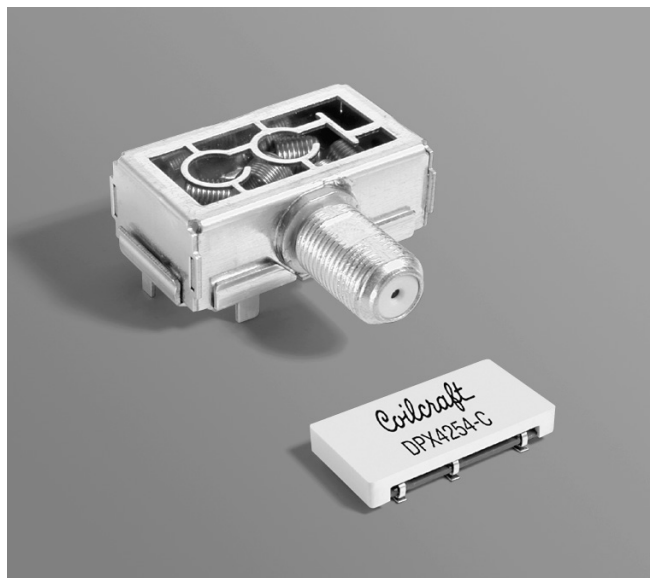


# Diplex Filters

For DOCSIS 1.0, 1.1, 2.0



These diplex filter modules provide both low pass and high pass filtering in low cost units that meet the requirements of the DOCSIS 1.0, 1.1 and 2.0 standards. They are intended for two-way broadcast applications like cable modems, set-top boxes and HFC cable network equipment.

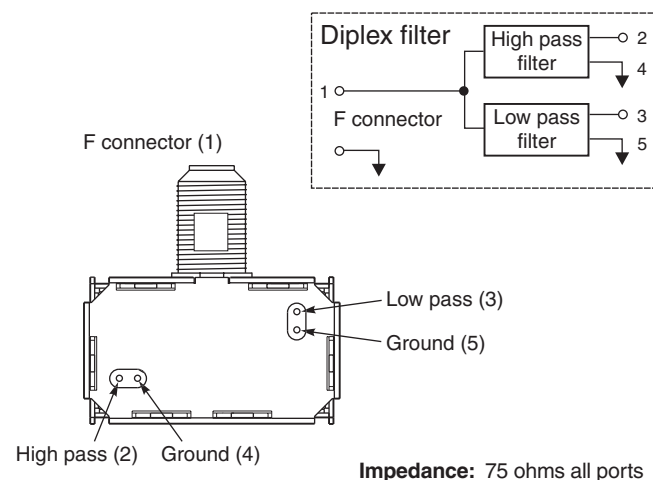
The DPX-C parts are low-profile surface mount units that require a minimum of board space. The DPX-B are shielded and come with an integrated coaxial F connector.

In addition to the designs shown here, Coilcraft can custom-engineer diplexers for specific applications. For free evaluation samples, contact Coilcraft or order them on-line at [www.coilcraft.com](http://www.coilcraft.com).

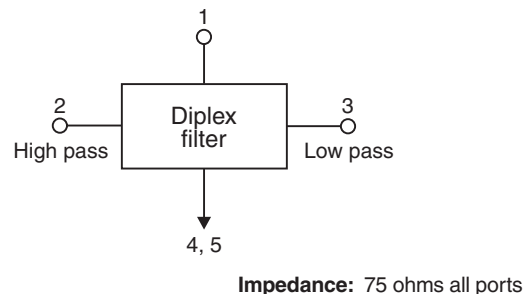
Part number	DOCSIS standard	Low pass filter			High pass filter			I <sub>rms</sub> <sup>1</sup> (mA)
		Passband	Insertion loss	Return loss	Passband	Insertion loss	Return loss	
DPX4254-B	1.0	5 – 42 MHz	≤1.0 dB	≥15 dB	54 – 860 MHz	≤1.5 dB	≥15 dB	500
DPX4254-C	1.0	5 – 42 MHz	≤1.5 dB	≥15 dB	54 – 860 MHz	≤1.5 dB	≥15 dB	150
DPX4288-B	1.1, 2.0	5 – 42 MHz	≤1.5 dB	≥10 dB	88 – 860 MHz	≤1.5 dB	≥10 dB	500
DPX4288-C	1.1, 2.0	5 – 42 MHz	≤1.5 dB	≥10 dB	88 – 860 MHz	≤1.5 dB	≥10 dB	150

1. Current that causes a 15°C temperature rise from 25°C ambient.
2. Operating temperature range -40°C to +85°C.
3. Electrical specifications at 25°C.

## Schematic – Shielded Filters (-B)

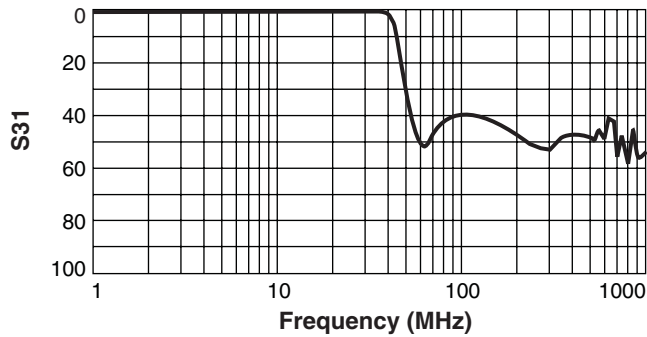


## Schematic – Surface Mount Filters (-C)

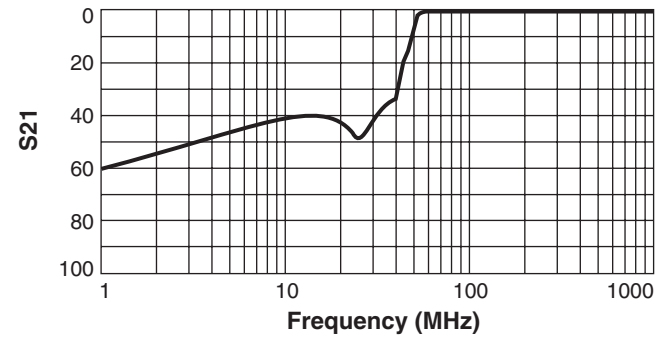


## Shielded Diplex Filter – DPX4254-B

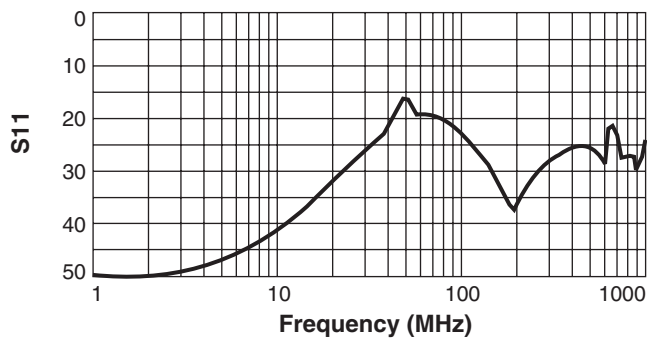
Low pass response



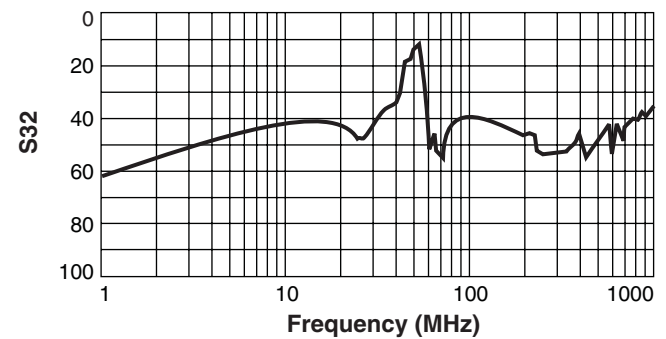
High pass response



Return loss

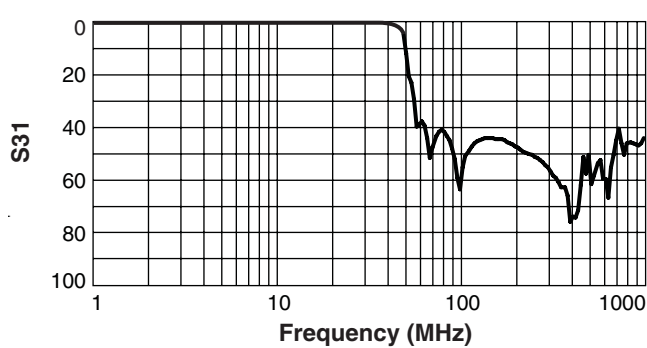


Isolation

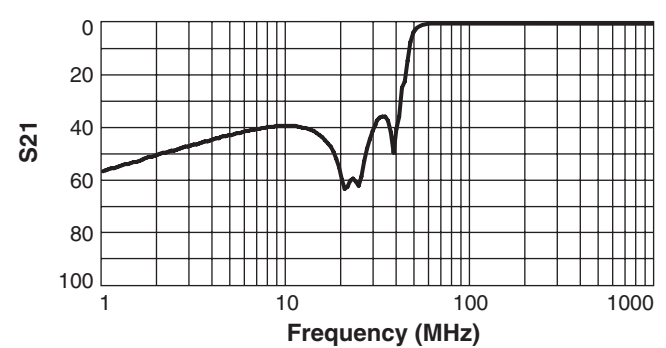


## Unshielded Diplex Filter – DPX4254-C

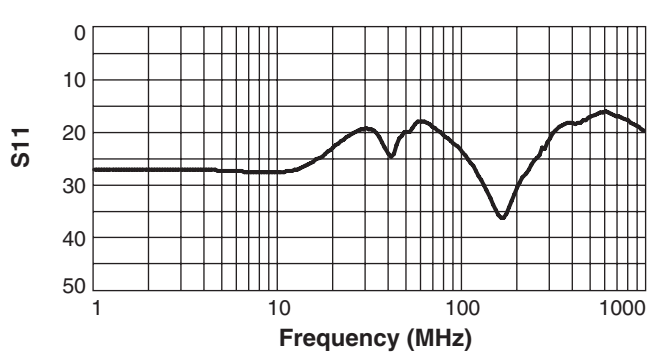
Low pass response



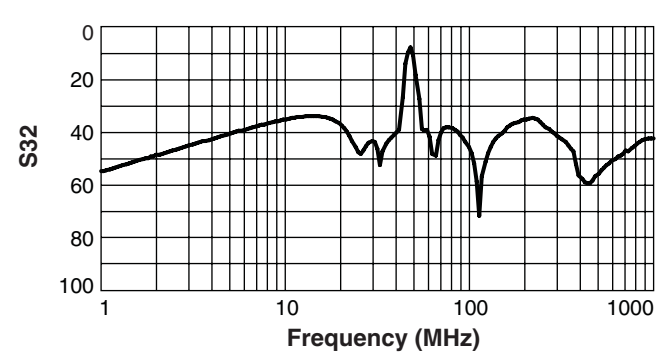
High pass response



Return loss

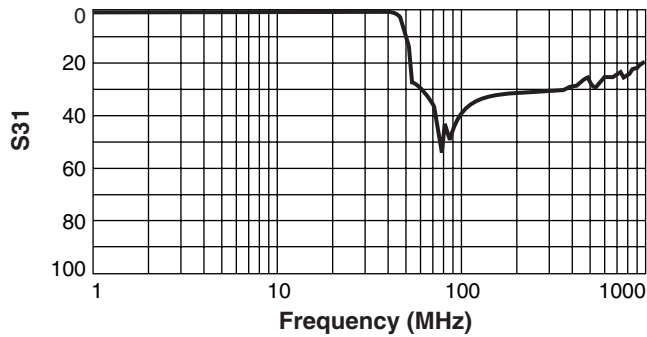


Isolation

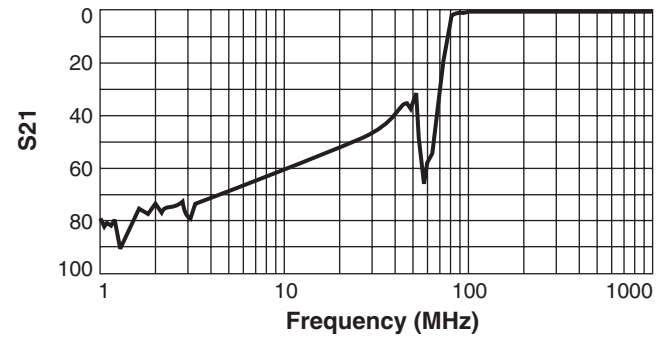


## Shielded Diplex Filter – DPX4288-B

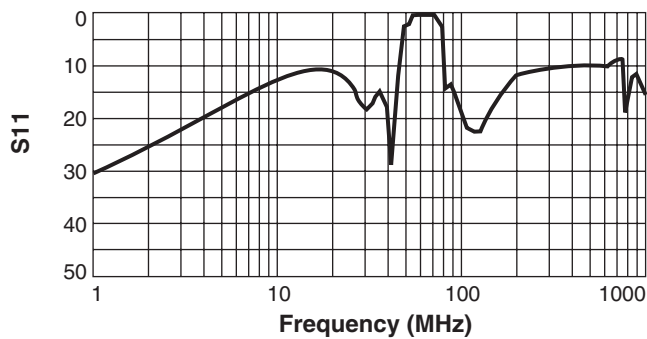
Low pass response



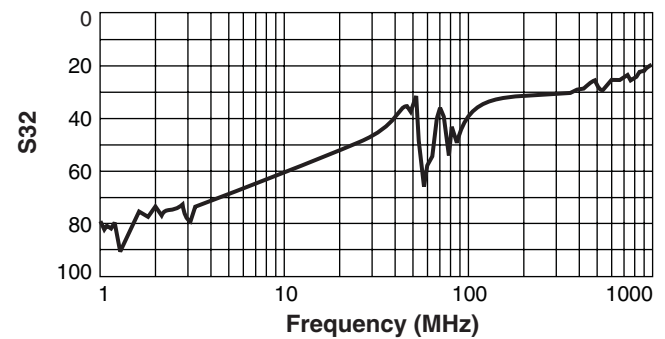
High pass response



Return loss

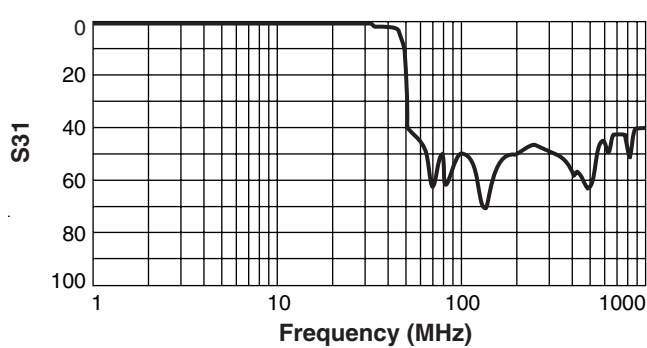


Isolation

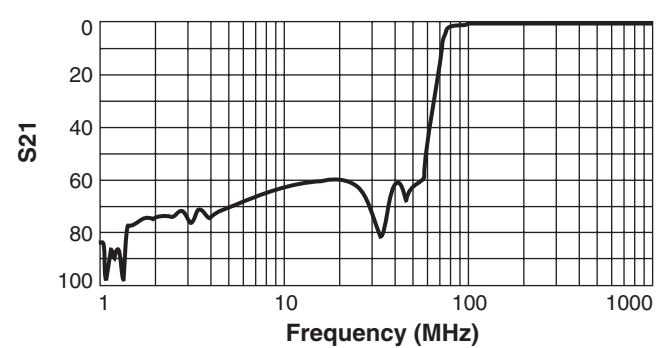


## Unshielded Diplex Filter – DPX4288-C

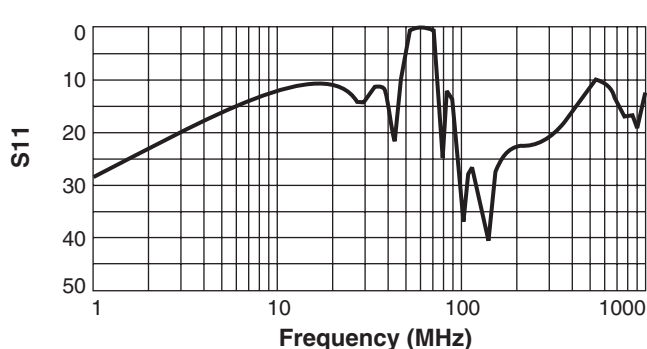
Low pass response



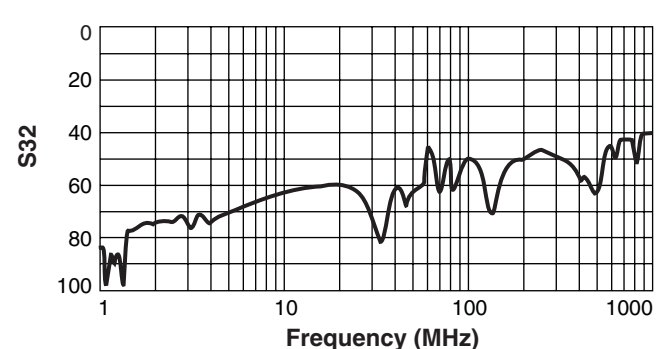
High pass response



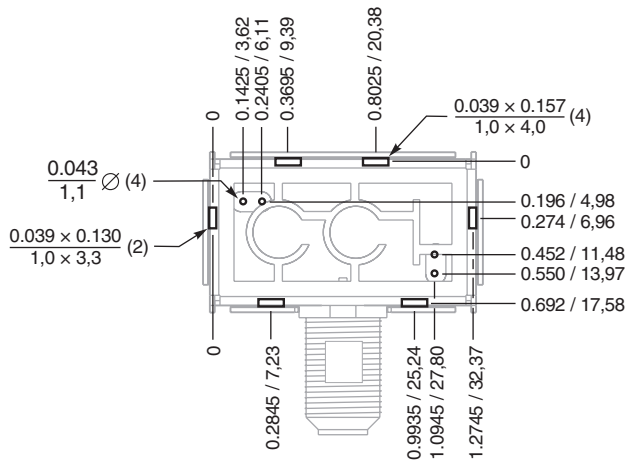
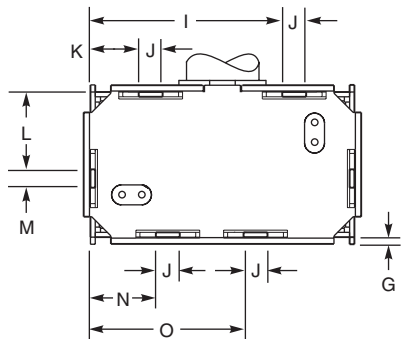
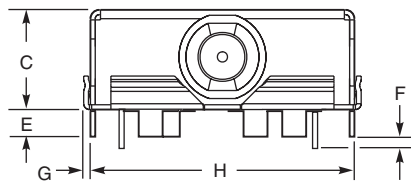
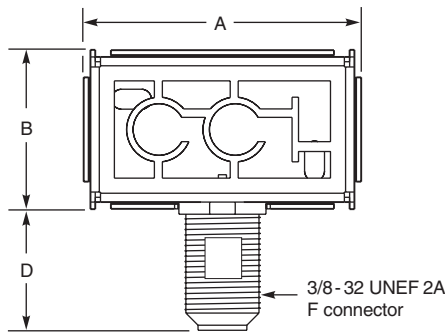
Return loss



Isolation



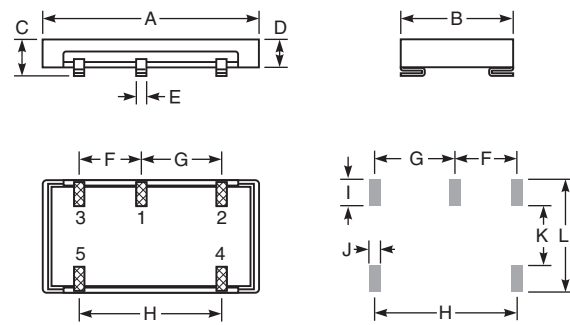
Dimensions – DPX4254-B, DPX4288-B      Dimensions – DPX4254-C



Recommended Board Layout

Packaged 25 per tray

Amax	Bmax	Cmax	D	E	F	G	H
1.40	0.81	0.51	0.580	0.124	0.005	0.035	1.303
35,56	20,57	12,95	14,73	3,15	1,27	0,89	33,10
I	J	K	L	M	N	O	
0.855	0.118	0.229	0.378	0.091	0.311	0.753	inches
21,72	3,00	5,82	9,60	2,31	7,90	19,13	mm

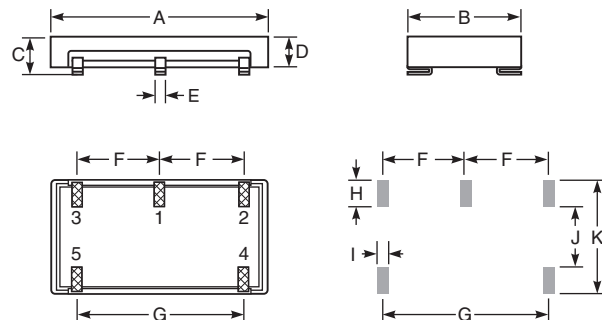


Recommended Land Pattern

Packaged 32 per tray

A	B	C	D	E	F	G	H	I	J	K	L
max	max	max	typ								
1.065	0.560	0.215	0.155	0.050	0.300	0.400	0.700	0.120	0.070	0.305	0.545
27,05	14,22	5,46	3,94	1,27	7,62	10,16	17,78	3,05	1,78	7,75	13,84

Dimensions – DPX4288-C



Recommended Land Pattern

Packaged 32 per tray

A	B	C	D	E	F	G	H	I	J	K
max	max	max	typ							
1.065	0.560	0.215	0.155	0.050	0.400	0.800	0.120	0.070	0.305	0.545
27,05	14,22	5,46	3,94	1,27	10,16	20,32	3,05	1,78	7,75	13,84