

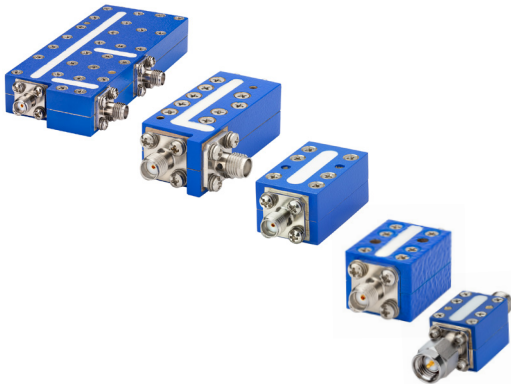
# Suspended Substrate Stripline Filters and Multiplexers

50Ω

DC to 40 GHz

## The Big Deal

- Low insertion loss
- Ultra-wide passband width
- Fast roll-off with wide stopband
- Good power handling and temperature stability
- Passband up to 40 GHz
- Stopband up to 40 GHz



## Product Overview

Mini-Circuits' Suspended Substrate Stripline filters offer low insertion loss by implementing printed circuit board suspended between two parallel ground planes, providing high Q. Low insertion loss combined with wide stop-band makes them an excellent choice for wideband instruments and systems like ECM, ECCM, ELINT and ultra-broadband receivers.

Low pass, high pass, band pass, band stop, diplexer and multiplexer designs can be realized with this technology. Advanced filter design and construction can achieve stopband width greater than 6x the center frequency, and temperature stability will be better than other printed circuit realizations because the fields are mainly in the air rather than in a dielectric. The inside walls of the housing hold the circuit and prevent movement that could be caused by vibration or mechanical shock, making these designs excellent candidates for harsh operating environments.

Suspended substrate stripline filters can be realized in small form factors with high-quality, precise machining for applications where size is critical. Excellent repeatability across units is achieved through precise tuning and process control.

## Key Features

Feature	Advantages
Low insertion loss	Low signal loss results in better SNR in receiver front end and better power delivery to antenna in transmitters
Fast roll-off	Higher selectivity results in better adjacent channel rejection and dynamic range
Wide stopband	Wide, spur-free stop band results in better receiver sensitivity
High power handling	Well suited for transmitter applications
Excellent temperature stability	Ensures minimal variation in electrical performance across temperature

**Notes**  
A. Performance and quality attributes and conditions not expressly stated in this specification document are intended to be excluded and do not form a part of this specification document.  
B. Electrical specifications and performance data contained in this specification document are based on Mini-Circuit's applicable established test performance criteria and measurement instructions.  
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# Suspended substrate stripline Diplexer

## ZDSS-5G6G-S+

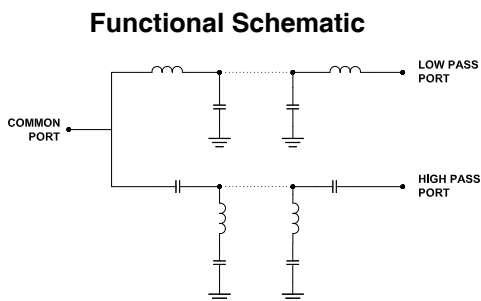
50Ω DC to 20000 MHz (DC-5000, 6000-20000 MHz)

### Maximum Ratings

Operating Temperature	-40°C to 85°C
Storage Temperature	-55°C to 100°C
RF Power Input	3 W max.
Permanent damage may occur if any of these limits are exceeded.	

### Coaxial Connections

Common Port	1
Low Pass Port	2
High Pass Port	3



### Outline Dimensions (inch mm)

A	B	C	D	E	F	G	H	J	K	L
1.77	.75	.60	.30	1.63	.61	1.47	.45	.26	.76	1.000
44.96	19.05	15.24	7.62	41.40	15.49	37.34	11.43	6.60	19.30	25.40
M	N	P	Q	R	S	T	U	WT		
.65	.540	.100	.19	1.181	.21	.440	.079	grams		
16.51	13.72	2.54	4.83	30.00	5.21	11.18	2.00	105		

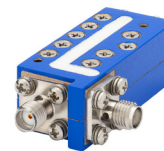
Note: Please refer to case style drawing for details

### Features

- Low passband insertion loss
- Good flatness
- High rejection
- Connectorized package

### Applications

- Radar
- Test and measurement setup



Generic photo used for illustration purposes only

CASE STYLE: QH2362

Connectors	Model
SMA-F	ZDSS-5G6G-S+

**+RoHS Compliant**

The +Suffix identifies RoHS Compliance. See our web site for RoHS Compliance methodologies and qualifications

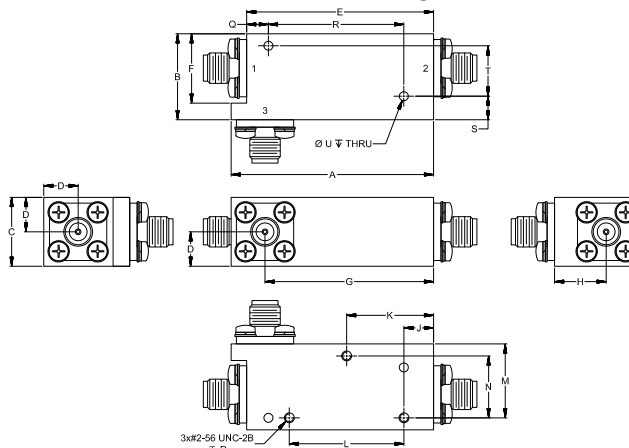
### Electrical Specifications at 25°C

Parameter		Port	Frequency (MHz)	Min.	Typ.	Max.	Unit
Pass Band	Insertion Loss	Low Pass	DC-5000	-	1.5	2.0	dB
		High Pass	6000-20000	-	2.5	3.0	
	Return Loss	Low Pass	DC-5000	-	10	-	dB
		High Pass	6000-20000	-	8	-	
			DC-5000	-	10	-	
		Common	6000-20000	-	8	-	
Stop Band Isolation		Low Pass	6000-7200	20	30	-	dB
			7200-10000	60	80	-	
			10000-20000	-	90	-	
		High Pass	DC-4000	40	50	-	dB
			4000-5000	20	30	-	

### Typical Performance Data at 25°C

Frequency (MHz)	Insertion Loss (dB)		Return Loss (dB)		
	Low Pass Port	High Pass Port	Common Port	Low Pass Port	High Pass Port
10	0.01	81.59	43.99	44.47	0.00
2500	0.59	63.37	13.14	12.85	0.14
4000	0.68	53.55	17.33	18.05	0.26
5000	1.09	35.20	24.68	22.57	0.65
5075	1.22	30.65	23.09	19.95	0.81
5200	1.78	21.16	14.68	12.71	1.48
5300	3.34	12.75	9.39	7.45	3.98
5725	18.38	3.00	9.02	1.03	11.55
5775	21.29	2.70	9.35	0.84	10.26
5975	30.87	2.00	11.14	0.55	10.60
6000	32.01	1.92	11.53	0.53	10.99
7200	73.53	0.83	17.00	0.30	16.74
10000	95.22	0.83	10.18	0.26	10.25
15000	99.02	0.80	10.18	0.12	10.39
20000	101.08	0.61	13.04	0.31	12.27

### Outline Drawing



#### Notes

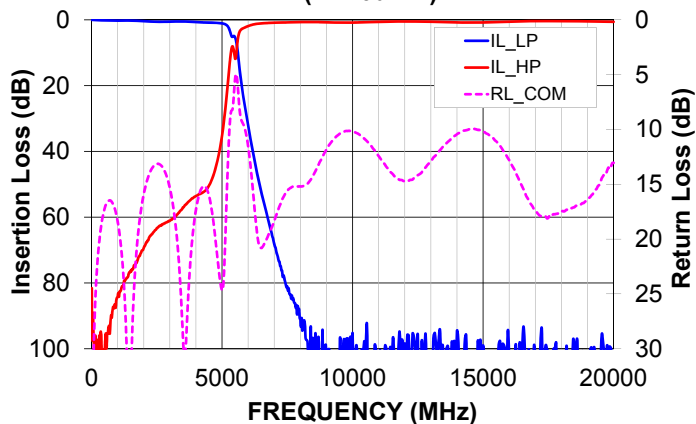
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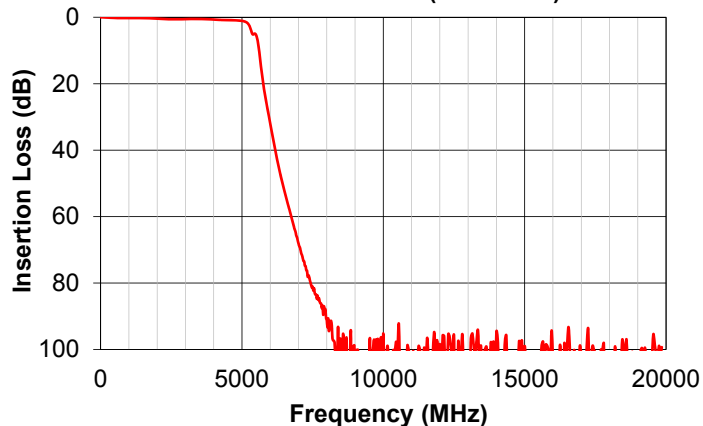
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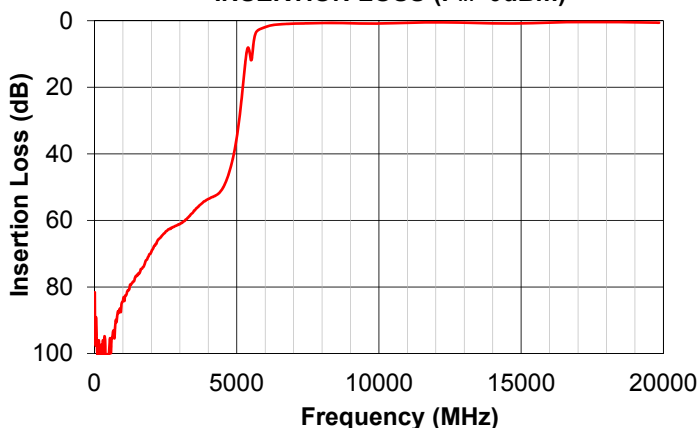
**ZDSS-5G6G-S+ IL-LP Vs IL-HP Vs RL-COM (Pin=0dBm)**



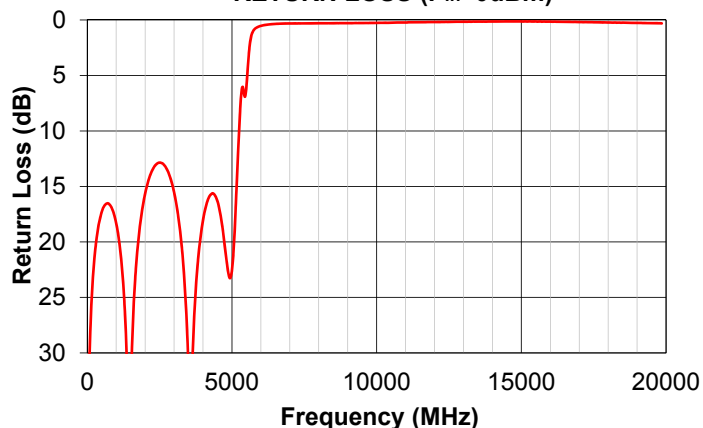
**ZDSS-5G6G-S+ LOW PASS PORT INSERTION LOSS (Pin=0dBm)**



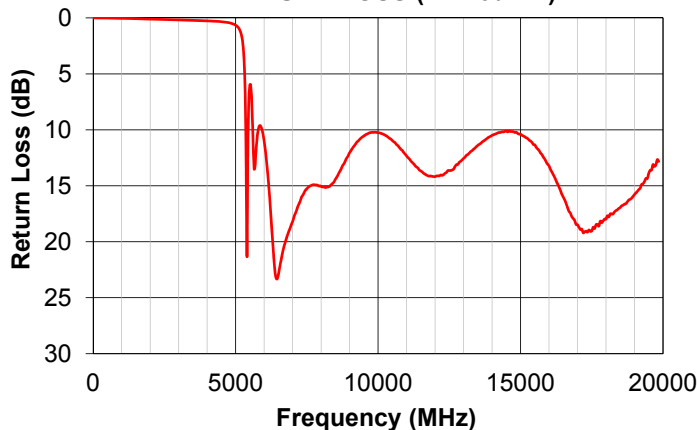
**ZDSS-5G6G-S+ HIGH PASS PORT INSERTION LOSS (Pin=0dBm)**



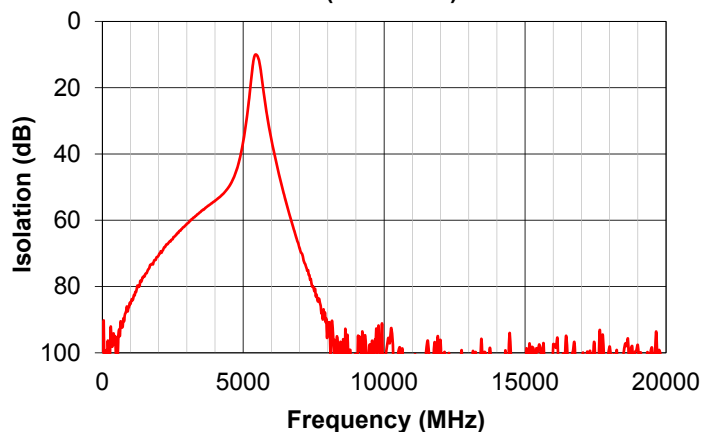
**ZDSS-5G6G-S+ LOW PASS PORT RETURN LOSS (Pin=0dBm)**



**ZDSS-5G6G-S+ HIGH PASS PORT RETURN LOSS (Pin=0dBm)**



**ZDSS-5G6G-S+ CROSS OVER ISOLATION (Pin=0dBm)**



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