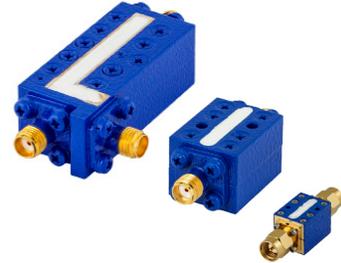


Suspended Substrate Stripline Filters and Multiplexers

50Ω DC to 26 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 26 GHz
- Stopband up to 26.5 GHz can extend 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 stopband 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

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Suspended substrate stripline Diplexer

ZDSS-5G6G-S+

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

Maximum Ratings

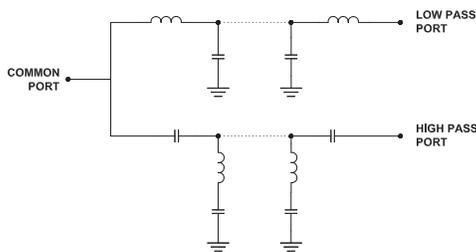
| | |
|-----------------------|----------------|
| Operating Temperature | -40°C to 85°C |
| Storage Temperature | -55°C to 100°C |
| RF Power Input | 3 W max. |

Permanent damage may occur if any of these limits are exceeded.

Coaxial Connections

| | |
|----------------|---|
| Common Port | 1 |
| Low Pass Port | 2 |
| High Pass Port | 3 |

Functional Schematic



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 | - | |
| Common | | DC-5000 6000-20000 | - | 10 8 | - - | | |
| Stop Band Isolation | Low Pass | 6000-7200 | 20 | 30 | - | dB | |
| | | 7200-10000 | 60 | 80 | - | | |
| | High Pass | DC-4000 | 40 | 50 | - | dB | |
| | | 4000-5000 | 20 | 30 | - | | |

Typical Performance Data at 25°C

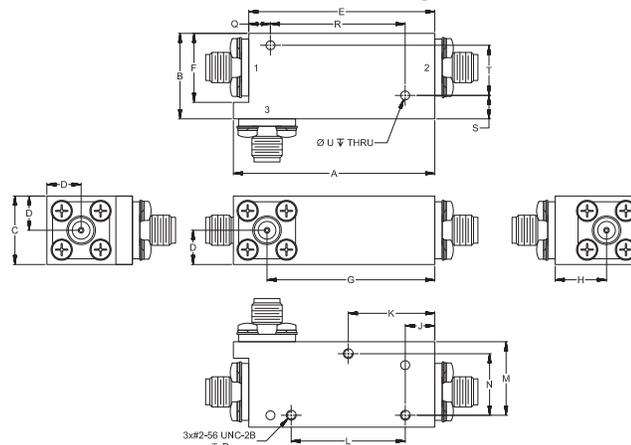
| Frequency (MHz) | Insertion Loss (dB) | | Return Loss (dB) | | |
|-----------------|---------------------|----------------|------------------|---------------|----------------|
| | Low Pass Port | High Pass Port | Common Port | Low Pass Port | High Pass Port |
| 10 | 0.01 | 81.59 | 43.99 | 44.47 | 0.00 |
| 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 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

Outline Drawing



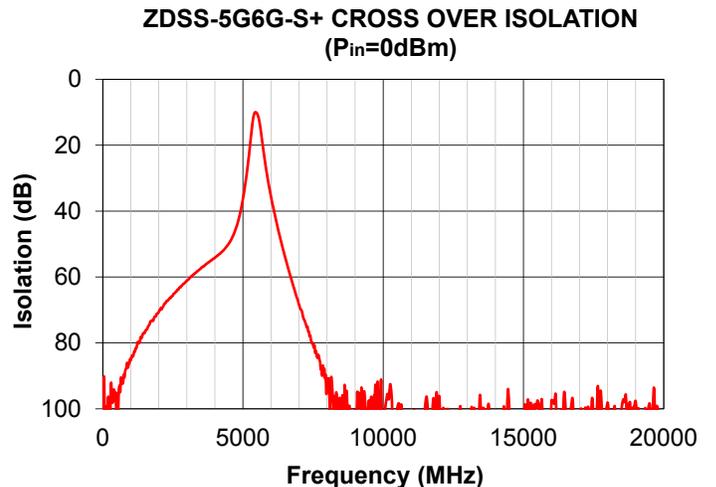
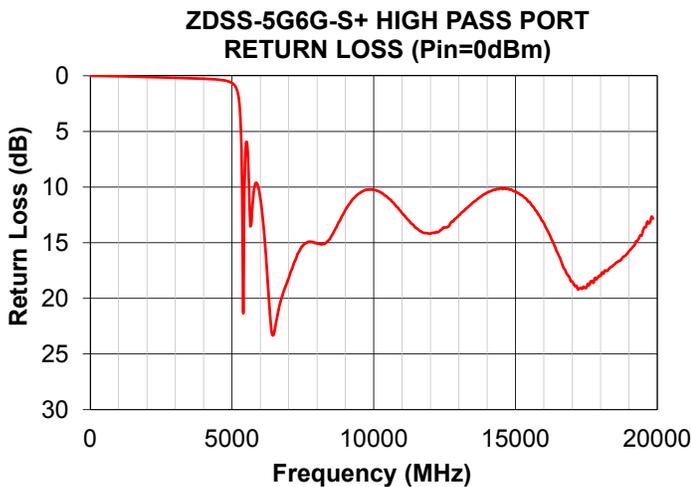
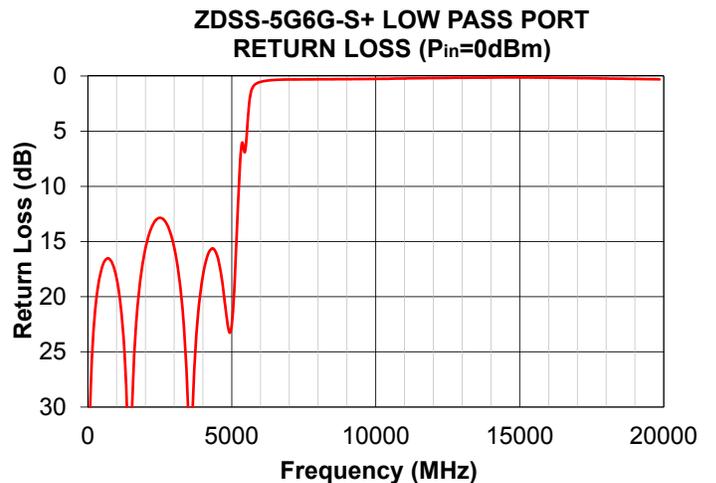
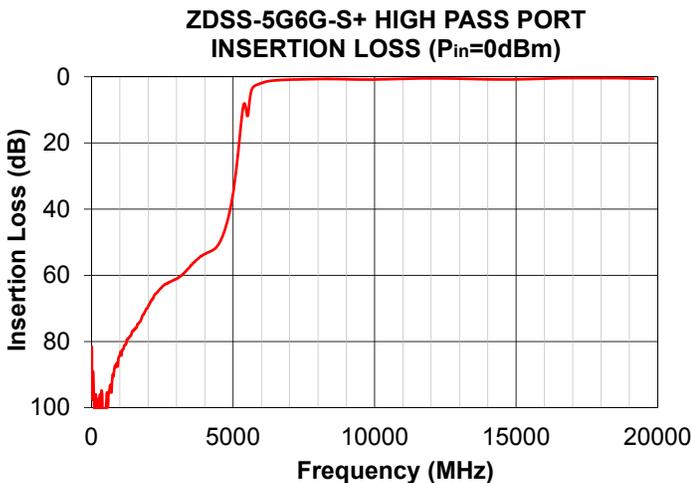
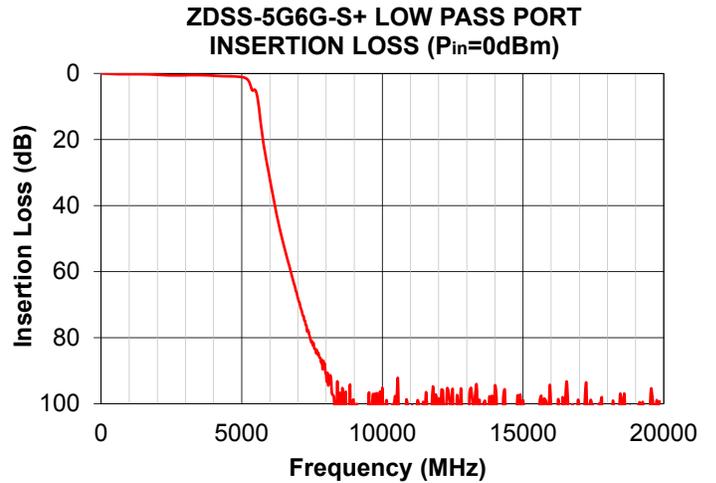
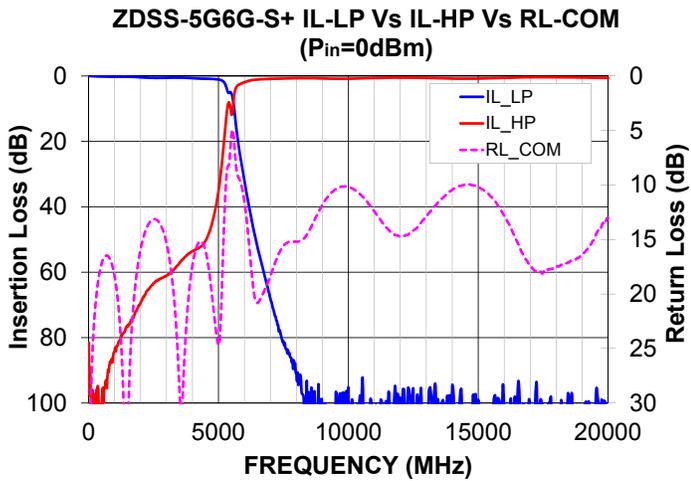
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