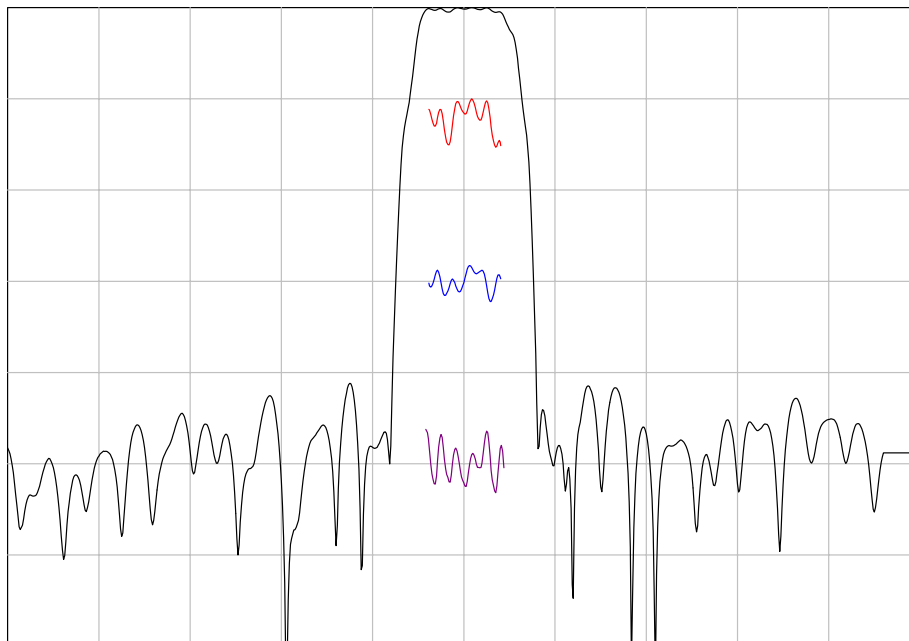


## DESCRIPTION

- 456 MHz, 2.5 MHz bandwidth high performance IF SAW filter in 7x 5 mm surface mount package.
- For WiMAX applications.
- RoHS compliant.

## TYPICAL PERFORMANCE



Horizontal: 3 MHz/div

Vertical from top:

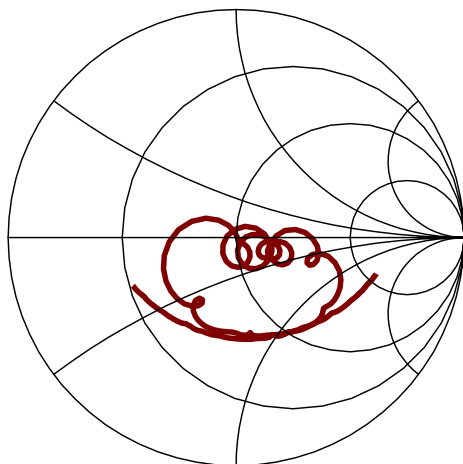
Relative Magnitude : 10 dB/div

Relative magnitude : 1 dB/div

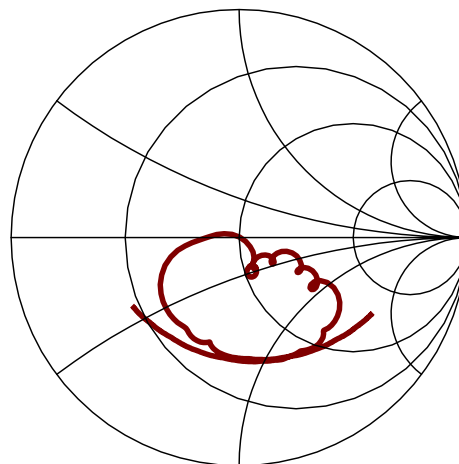
Phase Linearity : 10 deg/div

Group Delay Deviation : 100 ns/div

**S11 (441 to 471MHz)**



**S22 (441 to 471 MHz)**



## SPECIFICATION

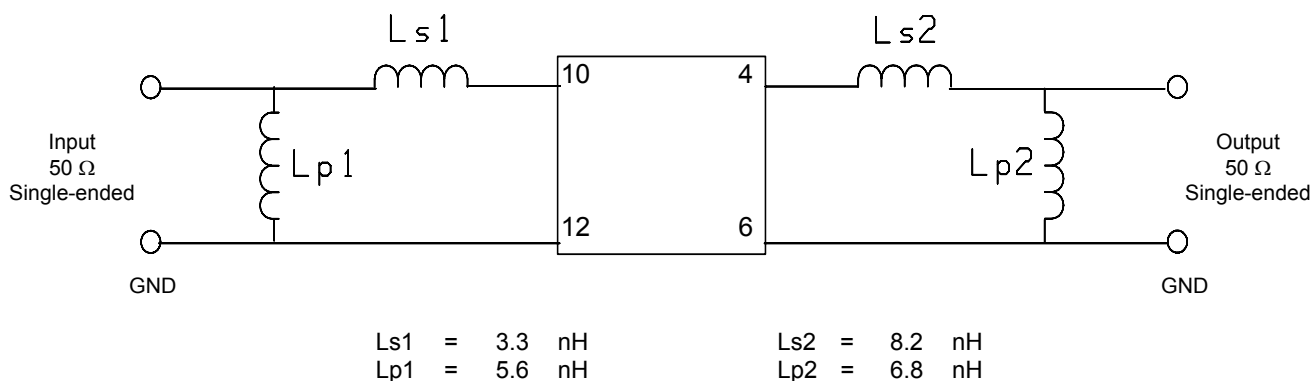
| Parameter                                 | Min   | Typ    | Max   | Units               |
|-------------------------------------------|-------|--------|-------|---------------------|
| Center Frequency (Fc) <sup>1</sup>        | 455.9 | 456.0  | 460.1 | MHz                 |
| Insertion Loss                            | -     | 10     | 13    | dB                  |
| Passband Ripple (456+/-1.15 MHz)          | -     | 0.7    | 1     | dB p-p              |
| Group Delay Ripple (456+/-1.25 MHz)       | -     | 100    | 150   | ns p-p              |
| Absolute Group Delay                      | -     | 0.77   | 3     | μs                  |
| 1 dB Bandwidth <sup>2</sup>               | 2.50  | 2.70   | -     | MHz                 |
| 3 dB Bandwidth <sup>2</sup>               | -     | 3.15   | -     | MHz                 |
| 30 dB Bandwidth <sup>2</sup>              | -     | 4.53   | 4.90  | MHz                 |
| 40 dB Bandwidth <sup>2</sup>              | -     | 4.80   | 5.20  | MHz                 |
| Rejection at 456+/-3 MHz <sup>2</sup>     | 40    | 45     | -     | dB                  |
| Rejection at 456+/-40 MHz <sup>2</sup>    | 45    | 50     | -     | dB                  |
| Rejection (580 to 870 MHz) <sup>2</sup>   | 30    | 60     | -     | dB                  |
| Input and Output Return Loss at 456 MHz   | 8     | 12     | -     | dB                  |
| Substrate Material                        | -     | Quartz | -     |                     |
| Ambient Temperature                       | -     | 25     | -     | °C                  |
| Temperature Coefficient of Frequency (Tc) | -     | -0.036 | -     | ppm/°C <sup>2</sup> |
| System Source and Load Impedance          | -     | 50     | -     | Ω                   |

Notes: 1. Average of lower & upper 30 dB frequencies.  
2. Rejection relative to insertion loss.

## MAXIMUM RATINGS

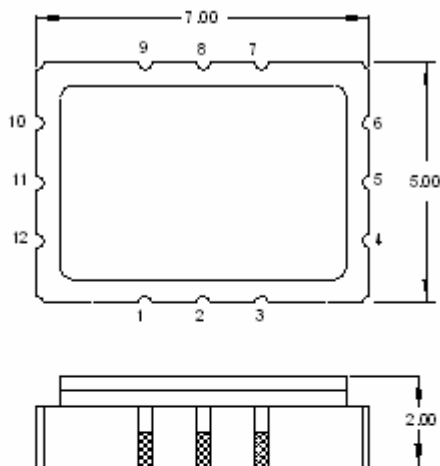
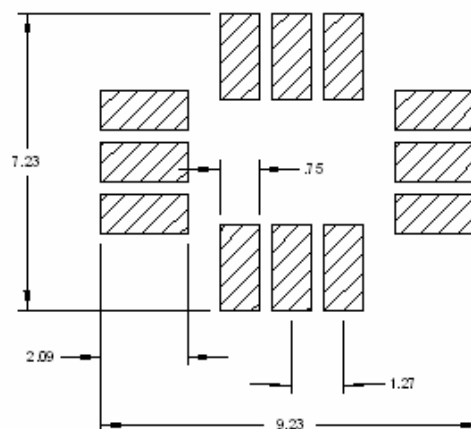
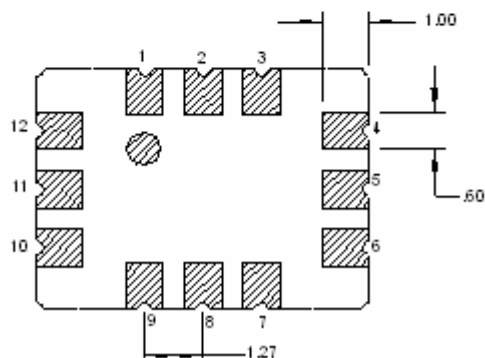
| Parameter                   | Min | Max | Units |
|-----------------------------|-----|-----|-------|
| Storage Temperature Range   | -40 | +85 | °C    |
| Operating Temperature Range | -40 | +85 | °C    |
| Input Power Level           | -   | +17 | dBm   |

## MATCHING CIRCUIT



Notes:  
1. Recommended component tolerances for inductors is  $\pm 1\%$  with minimum  $Q=40$ .  
2. Values shown are for reference only. Actual values are dependent upon board layout.

## PACKAGE OUTLINE AND RECOMMENDED PCB LAYOUT



| Pin Configuration: |               |
|--------------------|---------------|
| 10                 | Input         |
| 12                 | Input Return  |
| 4                  | Output        |
| 6                  | Output Return |
| All Others         | Ground        |

NOTES:  
 DIMENSIONS SHOWN ARE ALL  
 NOMINAL IN MILLIMETRES. ALL  
 TOLERANCES ARE  $\pm 0.15$ MM

Package Material:  
 Body:  $Al_2O_3$  ceramic  
 Lid: Kovar, Ni plated  
 Terminations: Au plating 1  $\mu$ m min,  
 over a 1.3-8.9  $\mu$ m Ni plating

ISO 9001  
 Registered

All specifications are believed to be accurate and reliable. However, Spectrum Microwave reserves the right to make changes without notice.  
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