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# SAW Components

## SAW filter

WiMAX

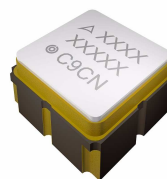
<b>Series/type:</b>	<b>B5139</b>
<b>Ordering code:</b>	<b>B39262B5139U410</b>
<b>Date:</b>	<b>June 18, 2013</b>
<b>Version:</b>	<b>2.2</b>

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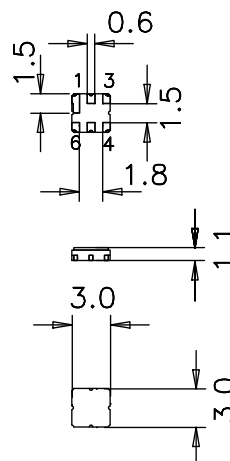
EPCOS AG is a TDK Group Company.

**Application**

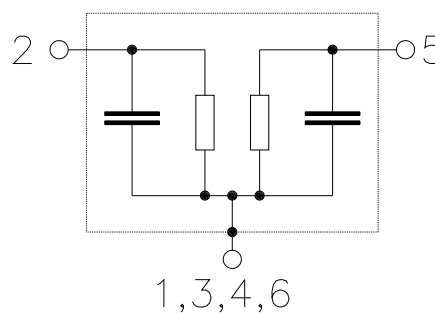
- Low-loss RF filter for WiMAX application
- Low amplitude ripple
- Matching network required for operation at 50Ω
- Usable passband 50 MHz
- Unbalanced to Unbalanced operation


**Features**

- Package size 3.0 x 3.0 x 1.1 mm<sup>3</sup>
- Package code DCC6C
- RoHS compatible
- Approximate weight 0.037 g
- Package for Surface Mount Technology (SMT)
- Ni, gold-plated terminals
- Electrostatic Sensitive Device (ESD)
- Moisture Sensitivity Level 1
- Filter surface passivated


**Pin configuration**

- 2 Input
- 5 Output
- 1,3,4,6 To be grounded



**Data sheet**

**Characteristics**

Temperature range for specification:  $T = -40\text{ °C to }+85\text{ °C}$   
 Terminating source impedance:  $Z_S = 50\Omega$  with matching network  
 Terminating load impedance:  $Z_L = 50\Omega$  with matching network

		min.	typ. @ 25 °C	max.	
<b>Center frequency</b>	$f_C$	—	2593.0	—	MHz
<b>Maximum insertion attenuation</b>	$\alpha_{\max}$				
2568.0 ... 2618.0 MHz		—	2.4	3.5	dB
<b>Amplitude ripple (p-p)</b>	$\Delta\alpha$				
2568.0 ... 2618.0 MHz		—	1.0	1.5	dB
<b>Input VSWR</b>					
2568.0 ... 2618.0 MHz		—	1.7	2.1	
<b>Output VSWR</b>					
2568.0 ... 2618.0 MHz		—	1.5	2.1	
<b>Attenuation</b>	$\alpha$				
10.0 ... 2450.0 MHz		20.0	30.0	—	dB
2450.0 ... 2500.0 MHz		25.0	27.0	—	dB
2500.0 ... 2525.0 MHz		11.0	13.0	—	dB
2662.0 ... 2670.0 MHz		10.0	24.0	—	dB
2670.0 ... 2690.0 MHz		17.0	31.0	—	dB
2690.0 ... 3500.0 MHz		25.0	27.0	—	dB
3500.0 ... 4000.0 MHz		25.0	38.0	—	dB

<b>SAW Components</b>	<b>B5139</b>
<b>SAW filter</b>	<b>2593.0 MHz</b>

Data sheet

**SMD**

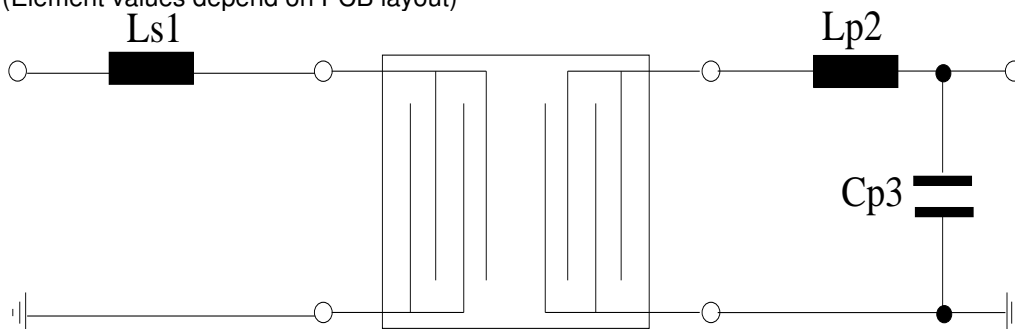
**Maximum ratings**

Operable temperature range	T	-45/+125	°C	
Storage temperature range	T <sub>stg</sub>	-45/+125	°C	
DC voltage	V <sub>DC</sub>	6	V	
ESD voltage	V <sub>ESD</sub>	50 <sup>1)</sup>	V	machine model, 10 pulses
Input power	P <sub>IN</sub>	14	dBm	CW, 10K hours, 85°C
2568.0 ... 2618MHz		13.5	dBm	CW, 20K hours, 85°C
		10.0	dBm	CW, 100K hours, 85°C

<sup>1)</sup> acc. to JESD22-A115B (machine model), 10 negative & 10 positive pulses.

**Testing Matching Network**

(Element values depend on PCB layout)



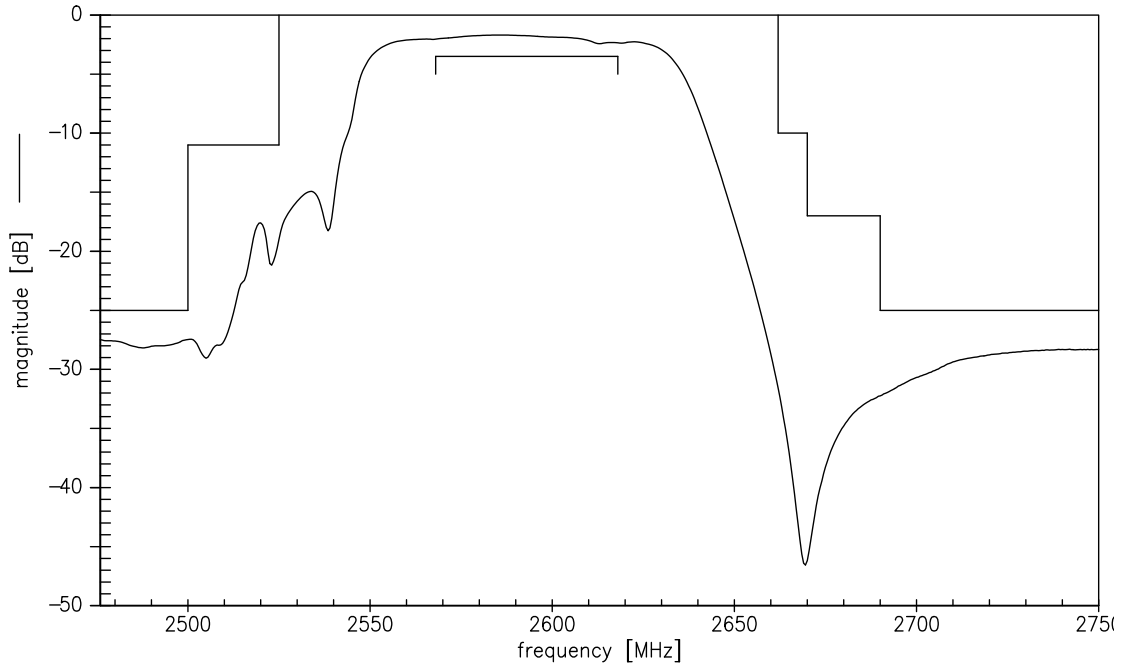
Ls1 = 1.0 nH

Lp2 = 1.0nH

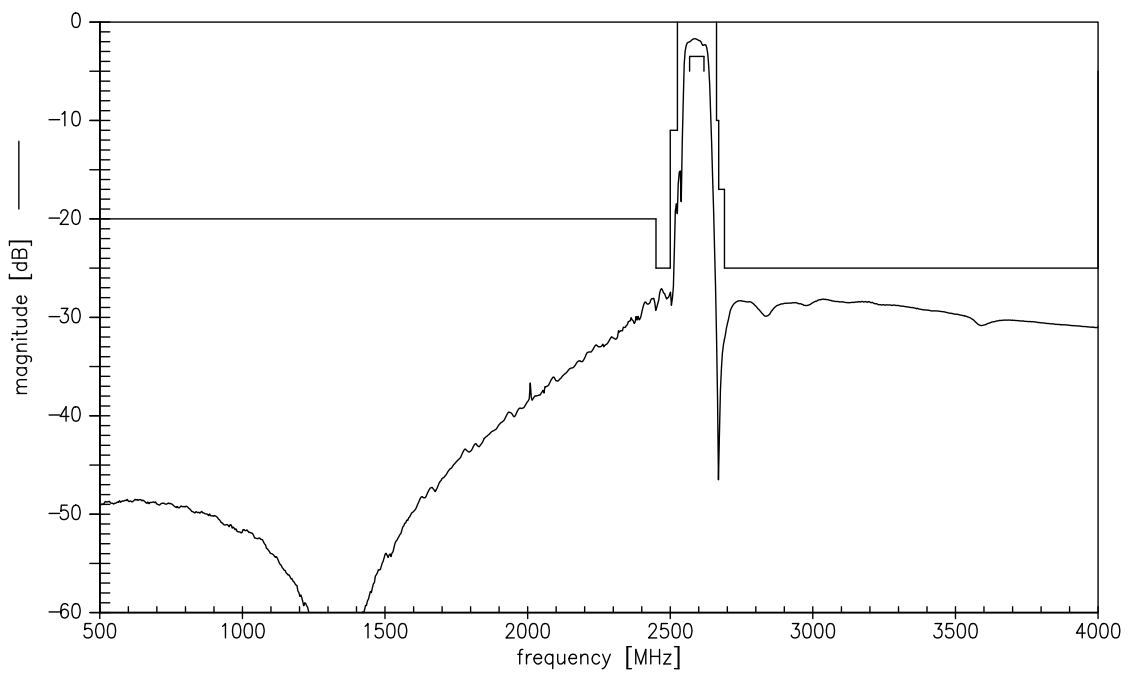
Cp3 = 1.0pF

Element values depend upon board layout.

**Transfer function**



**Transfer function (wideband)**



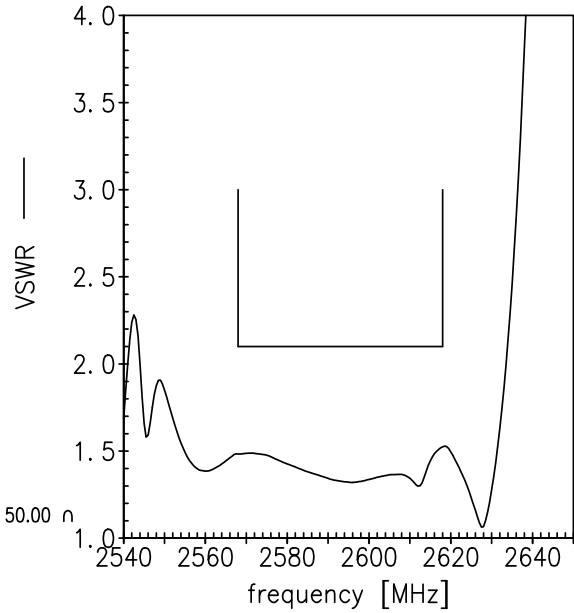
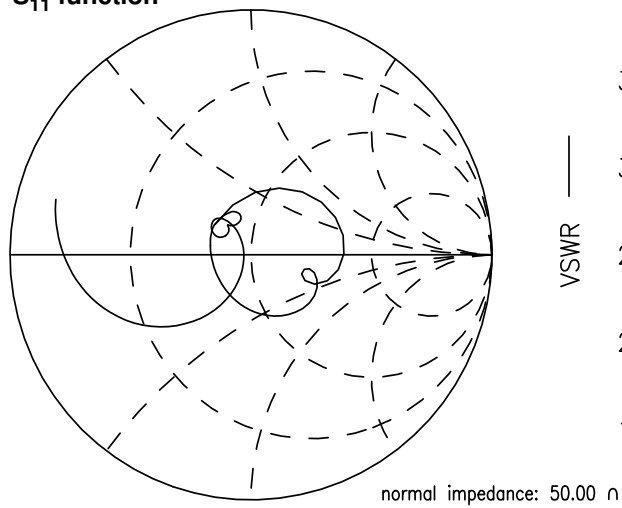


Data sheet

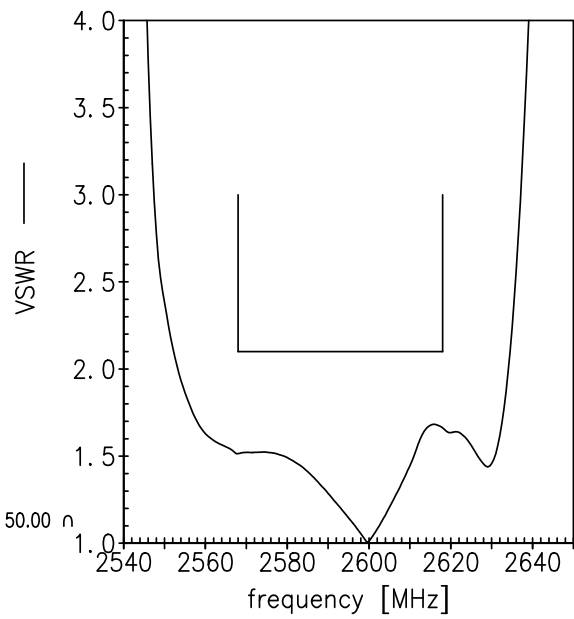
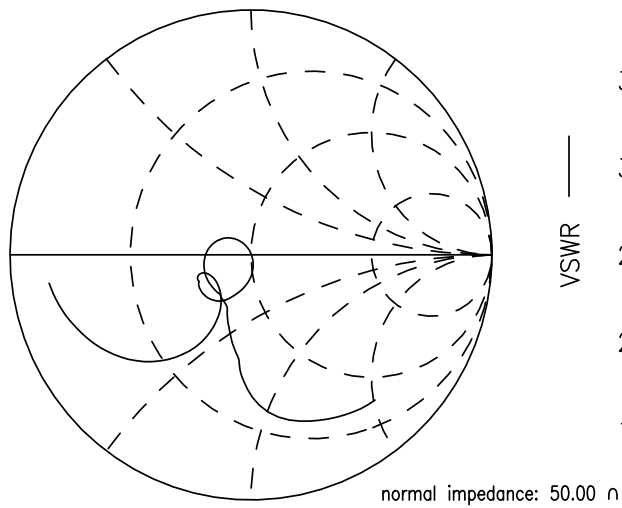
**SMD**

Smith charts

**S<sub>11</sub> function**



**S<sub>22</sub> function**



<b>SAW Components</b>	<b>B5139</b>
<b>SAW filter</b>	<b>2593.0 MHz</b>

Data sheet



#### References

<b>Type</b>	B5139
<b>Ordering code</b>	B39262B5139U410
<b>Marking and package</b>	C61157-A8-A67
<b>Packaging</b>	F61074-V8168-Z000
<b>Date codes</b>	L_1126
<b>S-parameters</b>	B5139_NB.s2p B5139_WB.s2p see file header for port/pin assignment table
<b>Soldering profile</b>	S_6001
<b>RoHS compatible</b>	RoHS-compatible means that products are compatible with the requirements according to Art. 4 (substance restrictions) of Directive 2011/65/EU of the European Parliament and of the Council of June 8th, 2011, on the restriction of the use of certain hazardous substances in electrical and electronic equipment ("Directive") with due regard to the application of exemptions as per Annex III of the Directive in certain cases.
<b>Matching coils</b>	See Inductor pdf-catalog <a href="http://www.tdk.co.jp/tefe02/coil.htm#aname1">http://www.tdk.co.jp/tefe02/coil.htm#aname1</a> and Data Library for circuit simulation <a href="http://www.tdk.co.jp/etvcl/index.htm">http://www.tdk.co.jp/etvcl/index.htm</a> for a large variety of matching coils.

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