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RF360 Europe GmbH

A Qualcomm – TDK Joint Venture

## SAW Components

### SAW RF low loss filter

Satellite CSS

Series/type:	B1649
Ordering code:	B39162B1649B510
Date:	December 10, 2012
Version:	2.0

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<b>SAW Components</b>	<b>B1649</b>
<b>SAW RF low loss filter</b>	<b>1680.0 MHz</b>

Data sheet



**Revision History: Changes compared to previous iteration issue**

ISSUE	ORIGINATOR	DETAIL SPEC CHANGES	DATE
DGLW68S01			
0.1	HuA	Initial release	01.03.2010
LW68A			
1.0	HuA	First sample run release	12.03.2010
LW68B			
1.0	QuekJ	Improvement of CMDR	15.09.2010
LW68C			
1.0	QuekJ	Improvement of stop band attenuation	28.02.2011
1.1	HuA	Revision history page included	17.10.2011
B1649			
2.0	HuA	Mass Production Release	28.11.2012

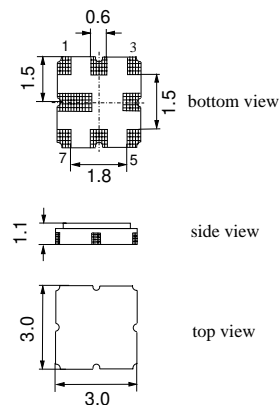
Data sheet


**Application**

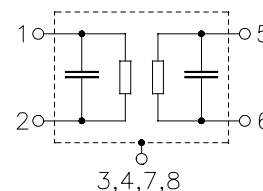
- Low loss RF filter for satellite CSS
- Usable passband 60.0 MHz
- Balanced to balanced operation


**Features**

- Package size 3.0 x 3.0 x 1.1 mm<sup>3</sup>
- Maximum height of 1.225 mm
- Package code QCC8F
- RoHS compatible
- Approximate weight 0.037 g
- Package for **Surface Mount Technology (SMT)**
- Ni, gold-plated terminals
- **Electrostatic Sensitive Device (ESD)**


**Pin configuration**

- 1 Input
- 2 Input
- 5 Output
- 6 Output
- 3,7 To be grounded
- 4,8 Case ground, to be grounded



**SAW Components**
**B1649**
**SAW RF low loss filter**
**1680.0 MHz**

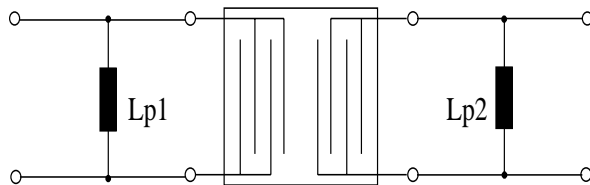
Data sheet


**Characteristics**

Temperature range for specification:  $T = -40\text{ °C to }+85\text{ °C}$   
 Terminating source impedance:  $Z_S = 150\ \Omega$  (balanced) and matching network  
 Terminating load impedance:  $Z_L = 150\ \Omega$  (balanced) and matching network

		min.	typ. @ 25 °C	max.	
<b>Nominal frequency</b>	$f_N$	—	1680.0	—	MHz
<b>Maximum insertion attenuation</b>	$\alpha_{\max}$	—	3.7	5.5	dB
1650.0 ... 1710.0 MHz					
<b>Pass bandwidth</b>	$B_{1.5\text{ dB}}$	—	73.0	—	MHz
$\alpha_{\text{rel}} \leq 1.5\text{ dB}$					
<b>Amplitude ripple (p-p)</b>	$\Delta\alpha$	—	1.0	2.5	dB
1650.0 ... 1710.0 MHz					
<b>Input return loss</b>		7.4	12.5	—	dB
<b>Output return loss</b>		7.4	10.0	—	dB
<b>Group delay ripple (p-p)</b>	$\Delta\tau$	—	20.0	40.0	ns
1650.0 ... 1710.0 MHz					
<b>CMDR</b>		20.0	28.0	—	dB
1650.0 ... 1710.0 MHz					
<b>Deviation from linear phase (rms)</b>		—	4.0	6.0	°
in any 30 MHz band					
1650.0 ... 1710.0 MHz					
<b>Attenuation</b>	$\alpha$	40	48	—	dB
50.0 ... 1580.0 MHz					
1800.0 ... 3000.0 MHz		38	42	—	
3000.0 ... 4000.0 MHz		35	52	—	
4000.0 ... 6000.0 MHz		30	35	—	dB

**Data sheet**

**Matching network** (element values depend on PCB layout)


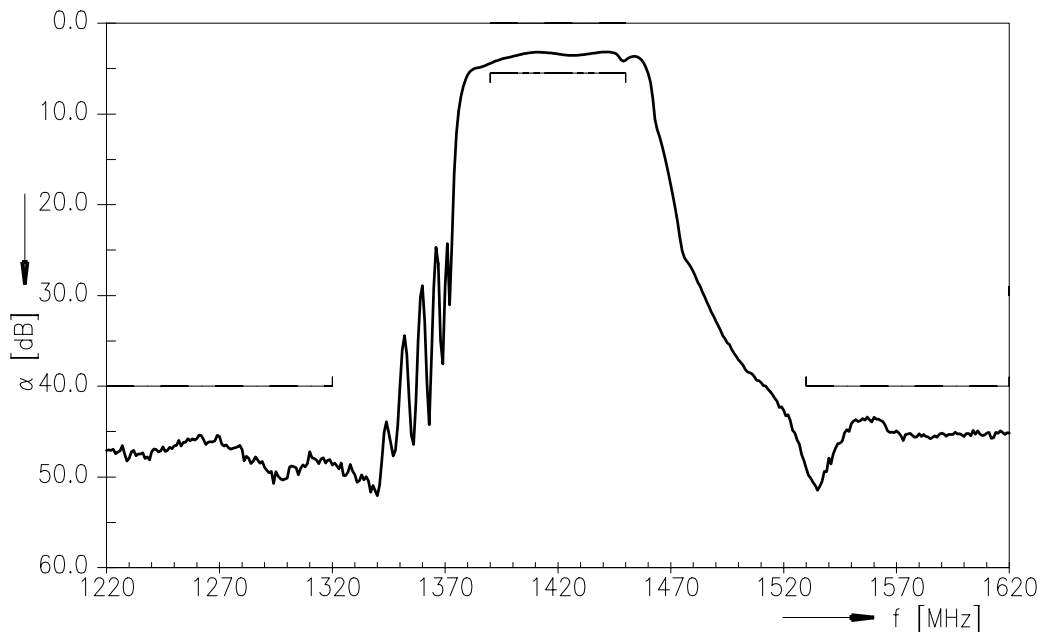
$$L_{p1} = 15 \text{ nH}$$

$$L_{p2} = 13 \text{ nH}$$

**Maximum ratings**

Operable temperature range	T	-40/+85	°C	
Storage temperature range	T <sub>stg</sub>	-40/+85	°C	
DC voltage	V <sub>DC</sub>	0	V	
ESD voltage	V <sub>ESD</sub>	50 <sup>1)</sup>	V	machine model, 1 pulse
Input power at 1650.0... 1710.0 MHz	P <sub>IN</sub>	0	dBm	source impedance 150 Ω

<sup>1)</sup> acc. to JESD22-A115A (machine model), 1 negative & 1 positive pulse.

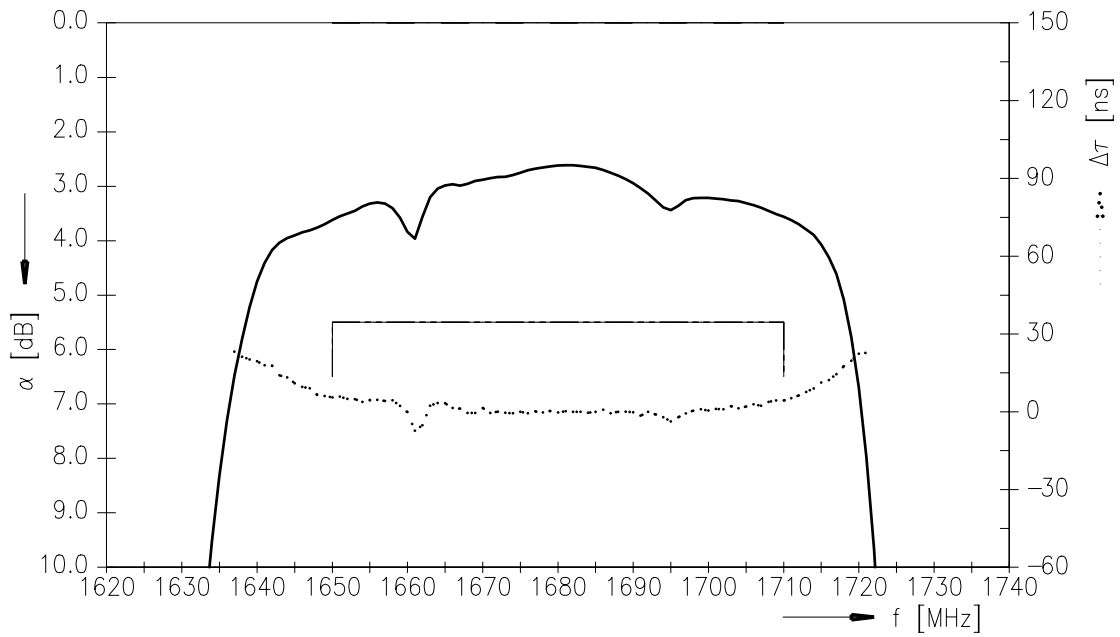
**Transfer function S<sub>dd21</sub>**




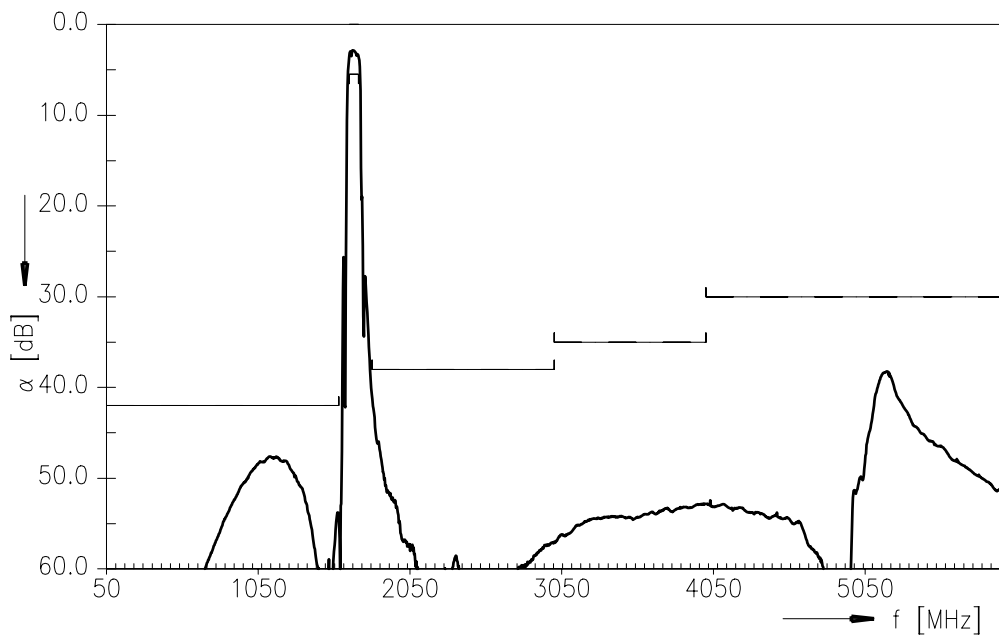
Data sheet



Transfer function  $S_{dd21}$  (passband)



Transfer function  $S_{dd21}$  (wideband)



Please read *cautions and warnings* and *important notes* at the end of this document.

<b>SAW Components</b>	<b>B1649</b>
<b>SAW RF low loss filter</b>	<b>1680.0 MHz</b>

Data sheet



## References

<b>Type</b>	B1649
<b>Ordering code</b>	B39162B1649B510
<b>Marking and package</b>	C61157-A7-A72
<b>Packaging</b>	F61074-V8168-Z000
<b>Date codes</b>	L_1126
<b>S-parameters</b>	B1649_NB.s4p; B1649_WB.s4p
<b>Soldering profile</b>	S_6001
<b>RoHS compatible</b>	defined as compatible with the following documents: "DIRECTIVE 2002/95/EC OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 27 January 2003 on the restriction of the use of certain hazardous substances in electrical and electronic equipment. 2005/618/EC from April 18th, 2005, amending Directive 2002/95/EC of the European Parliament and of the Council for the purposes of establishing the maximum concentration values for certain hazardous substances in electrical and electronic equipment."
<b>Moldability</b>	Before using in overmolding environment, please contact your EPCOS sales office.
<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>

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