SAW Components

SAW Rx filter

WCDMA Band VIII

Series/Type:	**B8803**
Ordering code:	**B39941-B8803-P810**
Date:	July 25, 2013
Version:	2.0

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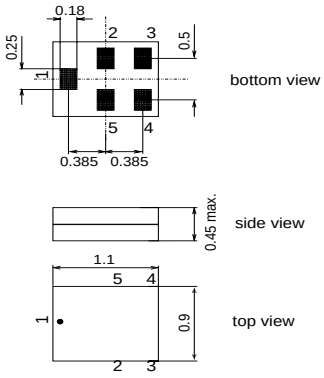
Sample Data

Application

- Low-loss RF filter for mobile telephone WCDMA Band VIII system, receive path (Rx)
- Suitable for diversity applications
- Impedance 50 ohm input and output
- Unbalanced /unbalanced operation
- Usable passband 35 MHz

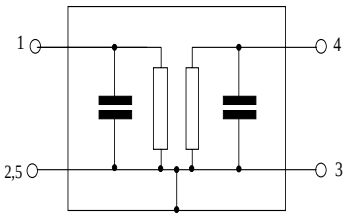
Features

- Package size 1.1 x 0.9 mm^2
- Maximum package height 0.45 mm
- RoHS compatible
- Approx. weight 0.001g
- Package for **S**urface **M**ount **T**echnology (**SMT**)
- Ni, gold-plated terminals
- **E**lectrostatic **S**ensitive **D**evice (**ESD**)
- **M**oisture **S**ensitive **L**evel 3



Pin configuration

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



Data Sheet SMD

Characteristics

Temperature range for specification: T = –20 ˚C to +90 ˚C
Terminating source impedance: Z_S = 50 Ω
Terminating load impedance: Z_L = 50 Ω

				min.	typ. @ 25˚C	max.	
Center frequency		f_C		—	942.5	—	MHz
Maximum insertion attenuation							
925.0 ... 960.0	MHz	α_{max}		—	2.6	4.0	dB
@$f_{Carrier}$ 927.4 ... 957.6	MHz	α_{WCDMA}	1)	—	2.0	2.7	dB
Amplitude ripple (p-p)		$\Delta\alpha$					
925.0 ... 960.0	MHz			—	1.2	2.7	dB
Error Vector Magnitude	2)						
@$f_{Carrier}$ 927.4 ... 957.6	MHz	EVM		—	8	12	%
Input VSWR							
925.0 ... 960.0	MHz			—	2.0	2.7	
Output VSWR							
927.0 ... 960.0	MHz			—	2.0	2.7	
Attenuation		α					
10.0 ... 880.0	MHz			45	52	—	dB
880.0 ... 915.0	MHz			30	46	—	dB
@$f_{Carrier}$ 882.4 ... 912.6	MHz	α_{WCDMA}	3)	44	48	—	dB
1045.0 ... 6000.0	MHz			27	33	—	dB
1710.0 ... 1785.0	MHz			39	43	—	dB
1920.0 ... 1980.0	MHz			39	43	—	dB
2400.0 ... 2500.0	MHz			33	39	—	dB
2775.0 ... 2880.0	MHz			31	37	—	dB
4900.0 ... 5950.0	MHz			28	34	—	dB

Sample Data

SMD

1) Attenuation of WCDMA signal ("Powertransferfunction", α_{WCDMA}) is determined by

$$\int_{-\infty}^{\infty} \left| S_{ds21}(f) H_{RRC}(f - f_{Carrier}) \right|^2 df$$

$f_{Carrier}$ according to 3GPP TS 25.101 (e.g. for band VIII RX passband, $f_{Carrier}$ ranges from 927.4 MHz (lowest Rx channel) to 957.6 MHz (highest Rx channel)). $H_{RRC}(f)$ is the transfer function of the root-raised cosine transmit pulse shaping filter according to 3GPP TS 25.101 with the following normalization:

$$\int_{-\infty}^{\infty} \left| H_{RRC}(f) \right|^2 df = 1$$

2) Error Vector Magnitude (EVM) based on definition given in 3GPP TS 25.141.

Maximum ratings

Storage temperature range	T_{stg}	–40/+85 [1]	˚C	
DC voltage	V_{DC}	5 [2]	V	
ESD voltage	V_{ESD}	100 [3]	V	machine model, 10 pulse
Input Power at 880.0 ... 915.0 MHz	P_{IN}	TBD	dBm	Continuous wave for 2000h @ 55˚C

[1] extended upperlimit: 168h@125˚C acc. to IEC 60068-2-2 Bb

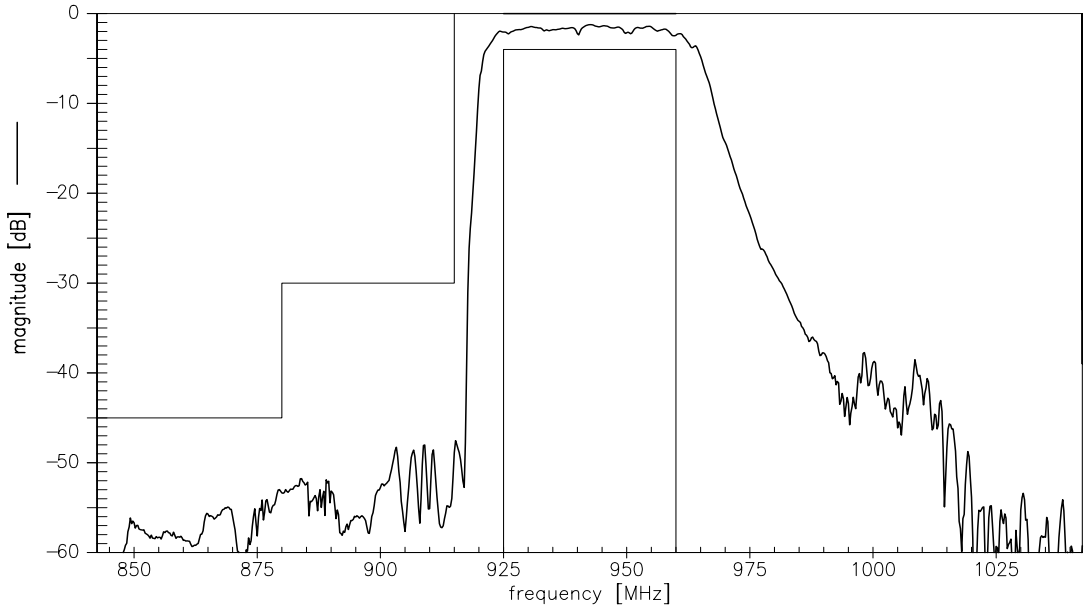
[2] 168h Damp Heat Steady State acc. to IEC 60068-2-67 Cy

[3] acc. to JESD22-A115A (machine model), 10 negative & 10 positive pulse.

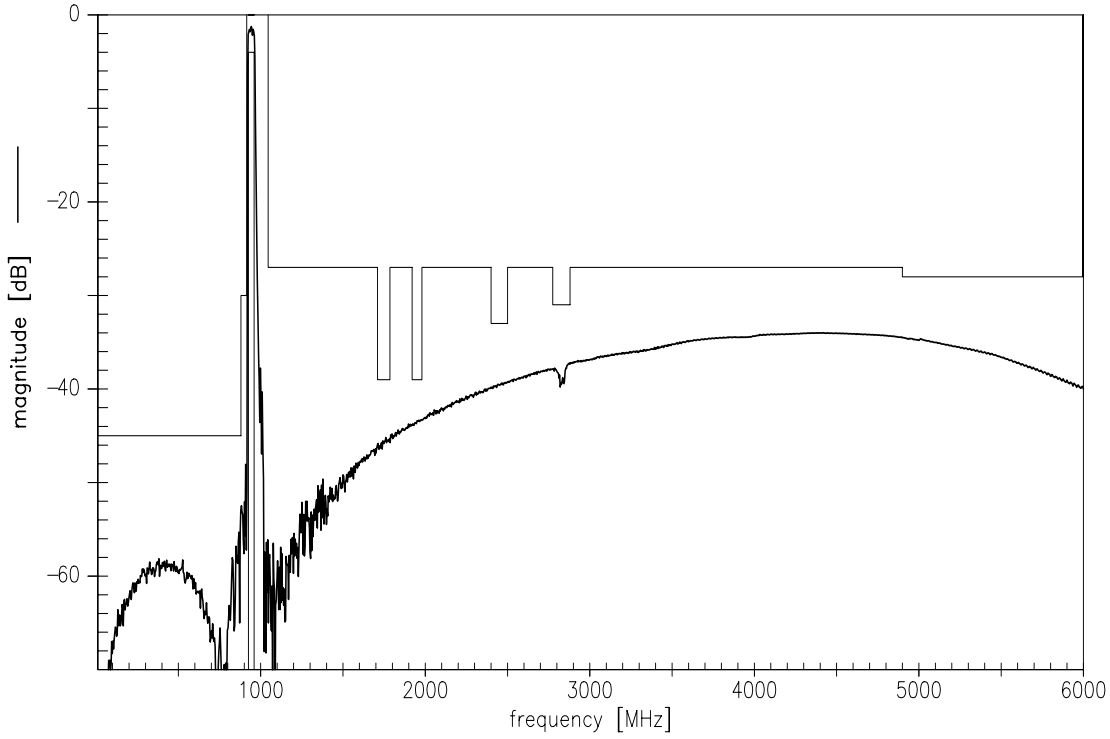
Sample Data

SMD

Transfer function (narrrowband)

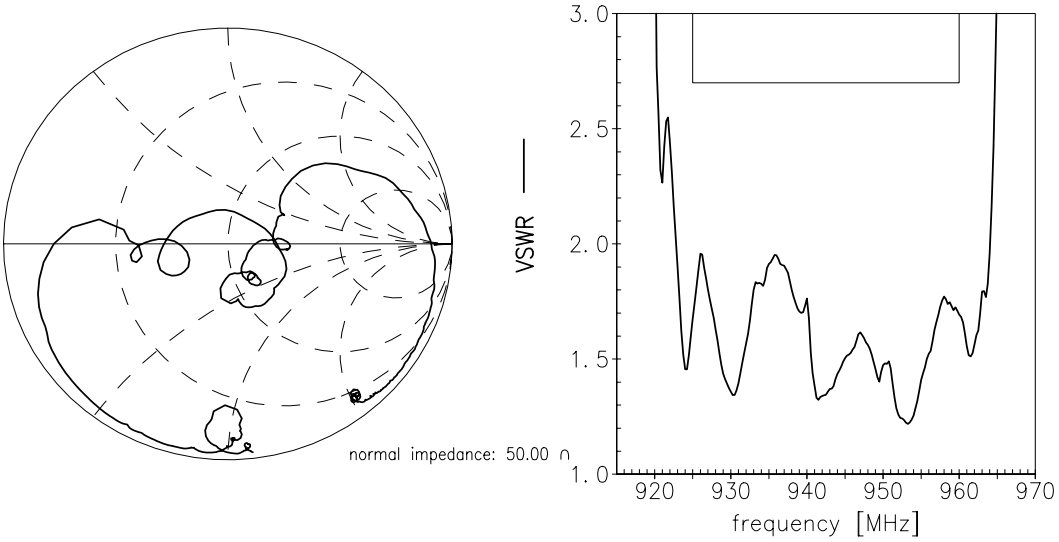


Transfer function (wideband)

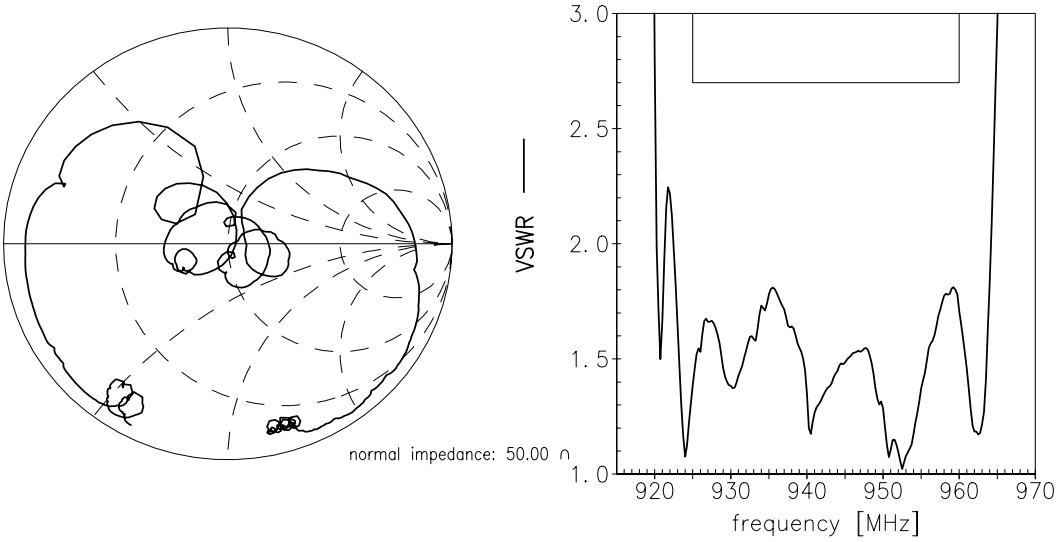


Smith charts

S_{11} function



S_{22} function



References

Type	B8803
Ordering code	B39941-B8803-P810
Marking and package	C61157-A8-A3
Packaging	F61074-V8237-Z000
Date codes	L_1126
S-parameters	B8803_NB.s3p, B8803_WB.s3p see file header for port/pin assignment table
Soldering profile	S_6001
RoHS compatible	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.
Moldability	Before using in overmolding environment, please contact your EPCOS sales office.
Matching coils	See Inductor pdf-catalog http://www.tdk.co.jp/tefe02/coil.htm#aname1 and Data Library for circuit simulation http://www.tdk.co.jp/etvcl/index.htm

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