SAW Components

SAW Tx filter

Cellular/WCDMA Band VIII

Series/Type:	**B9893**
Ordering code:	**B39901B9893P810**
Date:	September 11, 2013
Version:	2.0

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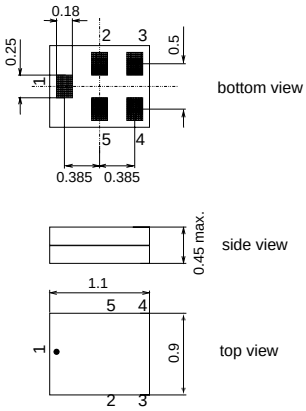
Application

- RF filter for mobile telephone
- WCDMA 900 systems,Transmit path (Tx)
- Usable passband 35 MHz
- Impedance 50 ohm input and output
- Unbalanced /unbalanced operation



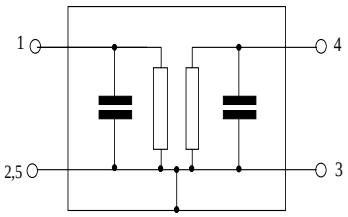
Features

- Package size 1.1 x 0.9 mm^2
- max. 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



Characteristics

Temperature range for specification: T = –20 ˚C to +85 ˚C
Terminating source impedance: Z_S = 50 Ω
Terminating load impedance: Z_L = 50 Ω

					min.	typ. @ 25˚C	max.	
Center frequency				f_C	—	897.5	—	MHz
Maximum insertion attenuation								
	880.0	... 915.0	MHz	α_{max}	—	1.9	2.5	dB
@$f_{Carrier}$	882.4	... 912.6	MHz	α_{WCDMA} [1]	—	1.5	2.0	dB
Amplitude ripple (p-p)				$\Delta\alpha$				
	880.0	... 915.0	MHz		—	1.3	1.9	dB
Error Vector Magnitude [2]								
@$f_{Carrier}$	882.4	... 912.6	MHz	EVM	—	3.0	6.0	%
Input VSWR								
	880.0	... 915.0	MHz		—	2.1	2.4	
Output VSWR								
	880.0	... 915.0	MHz		—	2.0	2.4	
Attenuation				α				
	10.0	... 850.0	MHz		20	32	—	dB
	925.0	... 960.0	MHz		8	21	—	dB
@$f_{Carrier}$	927.4	... 957.6	MHz	α_{WCDMA} [3]	16	24	—	dB
	960.0	... 1880.0	MHz		18	27	—	dB
	1880.0	... 2400.0	MHz		26	31	—	dB
	2400.0	... 2620.0	MHz		22	29	—	dB
	2620.0	... 2690.0	MHz		22	29	—	dB
	2690.0	... 2745.0	MHz		22	29	—	dB
	2745.0	... 6000.0	MHz		15	21	—	dB

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 TX passband, $f_{Carrier}$ ranges from 882.4MHz (lowest Tx channel) to 912.6MHz (highest Tx 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

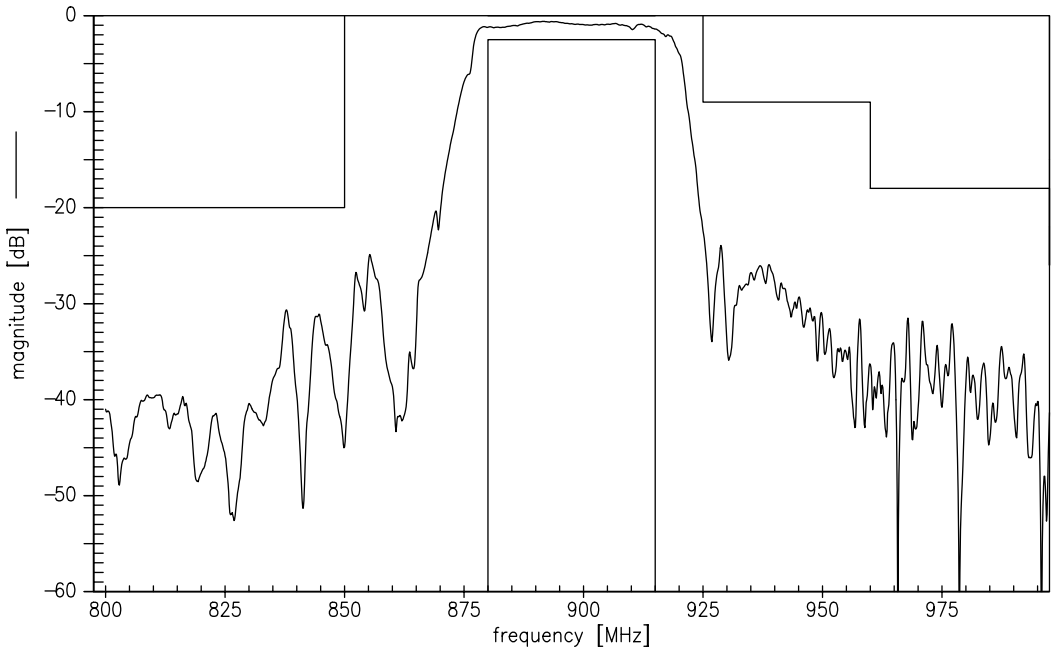
Storage temperature range	T_{stg}	–40/+85 [1)]	°C	
DC voltage	V_{DC}	5 [2)]	V	
ESD voltage	V_{ESD}	100 [3)]	V	machine model, 10 pulse
Input Power at 880.0... 915.0 MHz	P_{IN}	13	dBm	Continuous wave

1) extended upperlimit : 168h @ 125°C acc. to IEC60068-2-67 Cy

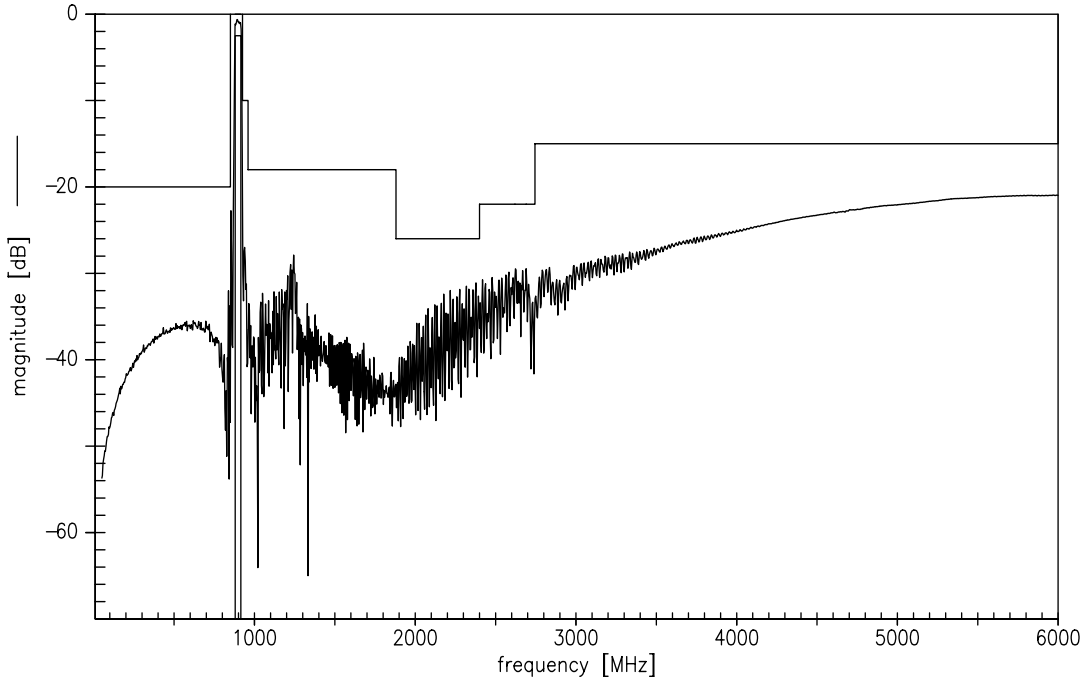
2) 168h damp Heat Steady State acc. to IEC60068-2-67 Cy

3) acc. to JESD22-A115B (machine model), 10 negative & 10 positive pulses.

Transfer function (narrowband

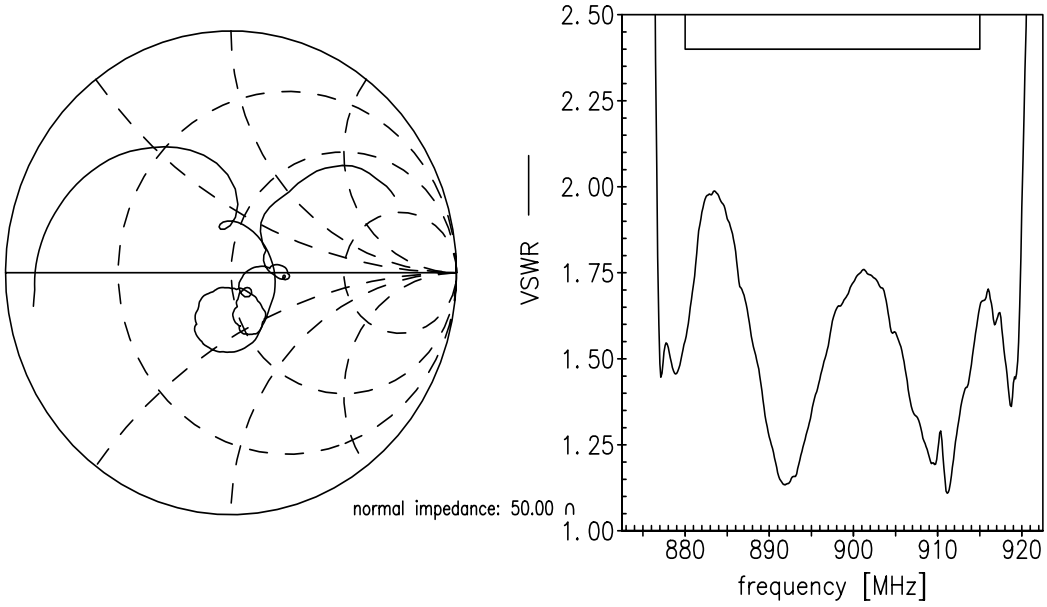


Transfer function (wideband)

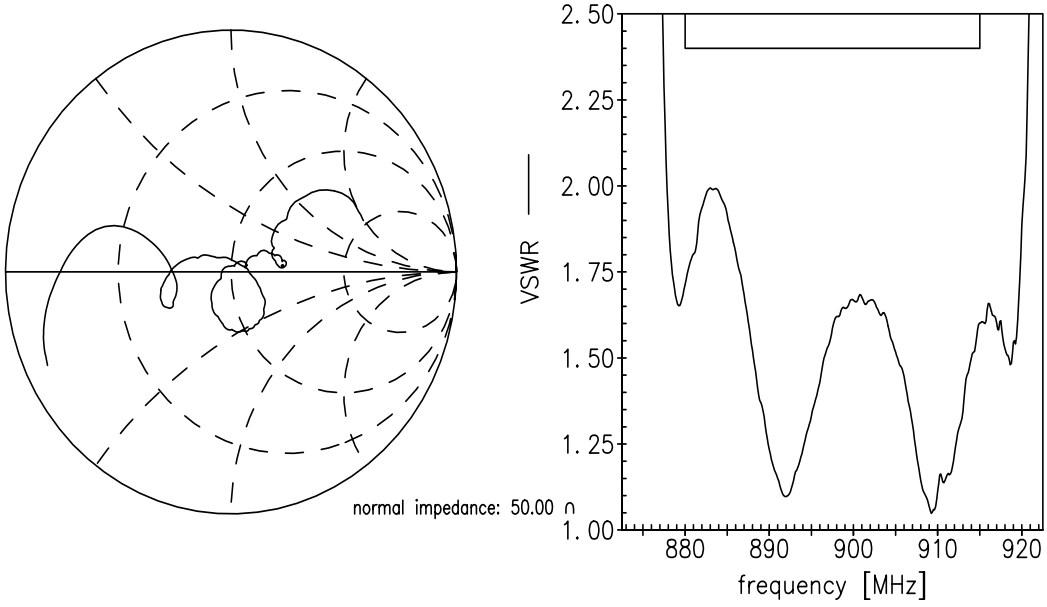


Smith charts

S_{11} function



S_{22} function



References

Type	B9893
Ordering code	B39901B9893P810
Marking and package	C61157-A8-A56
Packaging	F61074-V8255-Z000
Date codes	L_1126
S-parameters	B9893_NB.s2p B9893_WB.s2p See file header for port/pin assignment table.
Soldering profile	S_6001
RoHS compatible	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."
Moldability	Before using in overmolding environment, please contact your EPCOS sales office.
Matching Coils	See http://www.tdk.co.jp/tefe02/coil.htm#aname1 http://www.tdk.co.jp/etvcl/index.htm for a large variety of matching coils.

For further information please contact your local EPCOS sales office or visit our webpage at www.epcos.com .

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