



RF360 Europe GmbH

A Qualcomm – TDK Joint Venture



SAW Components

SAW Rx filter

Cellular / WCDMA Band V

Series/type:	B9439
Ordering code:	B39881B9439M410
Date:	August 20, 2014
Version:	2.1

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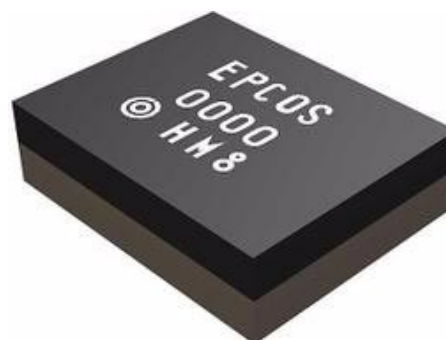
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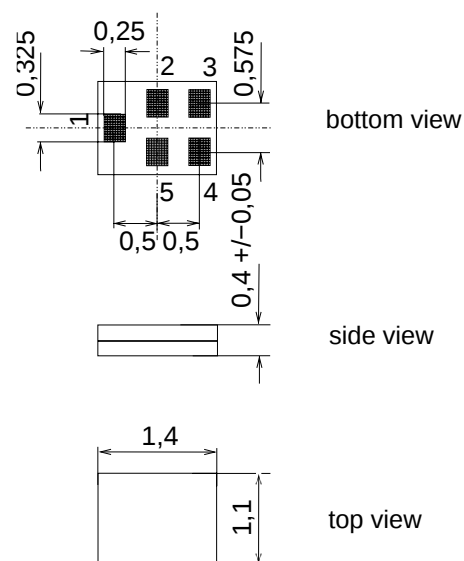
Data sheet

Application

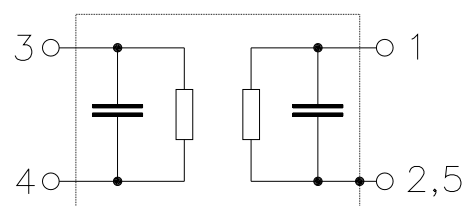
- Low-loss RF filter for mobile telephone
Cellular systems, receive path (RX)
- Suitable for diversity applications
- Impedance 50 Ω input and output
- Unbalanced / unbalanced operation
- Very high TX suppression
- Usable passband 25 MHz


Features

- Package size 1.4 x 1.1 x 0.4 mm³
- Package code QCS5I
- RoHS compatible
- Approximate weight 0.003 g
- Package for **Surface Mount Technology (SMT)**
- Ni, gold-plated terminals
- **Electrostatic Sensitive Device (ESD)**


Pin configuration

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



Data sheet

Characteristics

Temperature range for specification: $T = -30\text{ }^{\circ}\text{C}$ to $+85\text{ }^{\circ}\text{C}$
 Terminating source impedance: $Z_S = 50\text{ }\Omega$
 Terminating load impedance: $Z_L = 50\text{ }\Omega$

					min.	typ. @ 25 °C	max.	
Center frequency	f_C				—	881.5	—	MHz
Maximum insertion attenuation	$\alpha_{\max}$							
	869.0 ... 894.0 MHz				—	2.1	2.5	dB
@ f_{Carrier}	871.4 ... 891.6 MHz			$\alpha_{\text{WCDMA}}^{1)}$	—	1.9	2.2	dB
Amplitude ripple (p-p)	$\Delta\alpha$							
	869.0 ... 894.0 MHz				—	0.8	1.2	dB
Error Vector Magnitude²⁾	EVM							
@ f_{Carrier}	871.4 ... 891.6 MHz				—	1.9	2.5	%
Input VSWR								
	869.0 ... 894.0 MHz				—	1.7	2.0	
Output VSWR								
	869.0 ... 894.0 MHz				—	1.7	2.0	
Attenuation	α							
	0.0 ... 849.0 MHz				46	49	—	dB
@ f_{Carrier}	826.4 ... 846.6 MHz			$\alpha_{\text{WCDMA}}^{1)}$	46	52	—	dB
	910.0 ... 914.0 MHz				18	26	—	dB
	914.0 ... 950.0 MHz				25	32	—	dB
	950.0 ... 1850.0 MHz				40	52	—	dB
	1850.0 ... 2000.0 MHz				46	56	—	dB
	2000.0 ... 3500.0 MHz				35	38	—	dB
	3500.0 ... 4000.0 MHz				28	33	—	dB
	4000.0 ... 4500.0 MHz				20	23	—	dB
	4500.0 ... 5200.0 MHz				17	23	—	dB
	5200.0 ... 6000.0 MHz				13	23	—	dB

¹⁾ Attenuation of WCDMA signal ("Powertransferfunction"). Please refer to annotation on page (4).

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



Annotation for characteristics section

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

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

f_{Carrier} according to 3GPP TS 25.101 (e.g. for Passband, f_{Carrier} ranges from 871.4 MHz (lowest Tx channel) to 891.6 MHz (highest Tx channel)). $H_{\text{RRC}}(f)$ is the transfer function of the root-raised cosine transmit pulse shaping filter according to 3GPP TS 25.101 with the following normalization:

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

Maximum ratings

Storage temperature range	T_{stg}	−40/+85	°C	Machine Model
DC voltage	V_{DC}	5 ¹⁾	V	
ESD voltage	V_{ESD}	100 ²⁾	V	
Input power	P_{IN}	15	dBm	

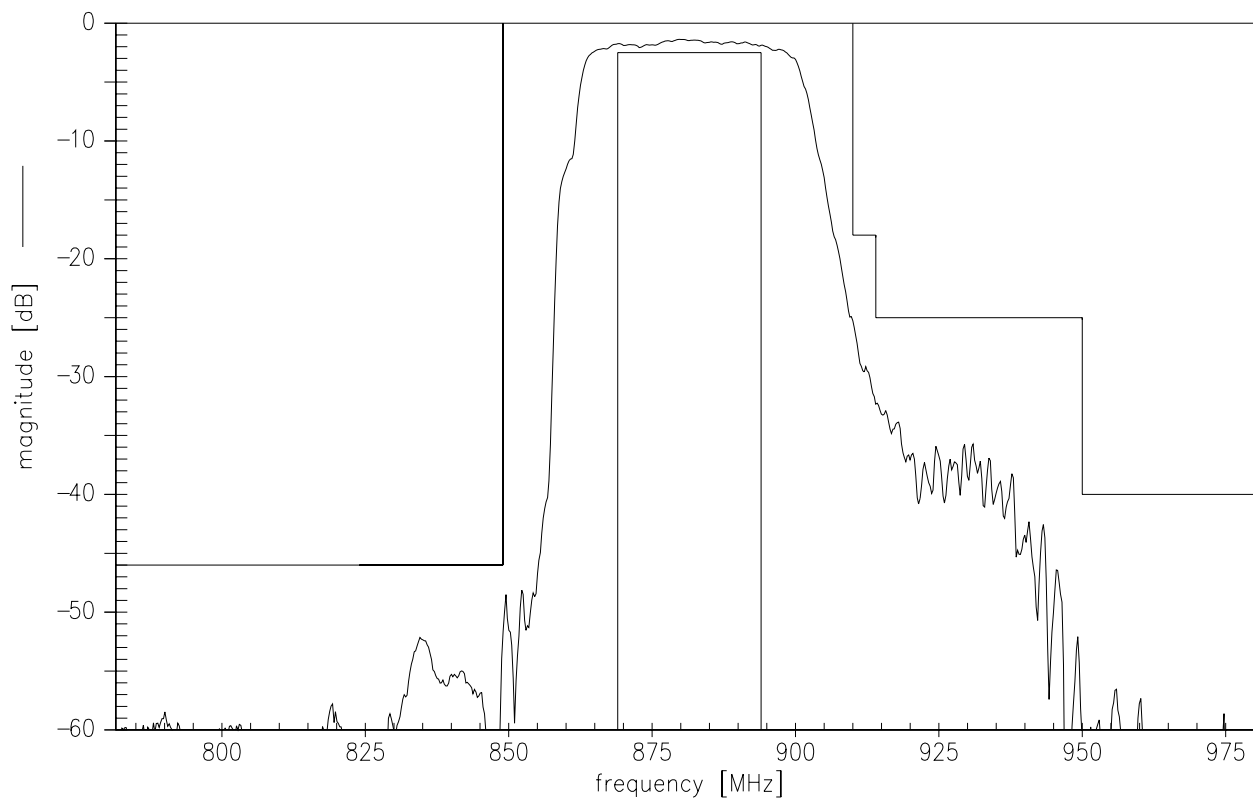
¹⁾ 168h Damp Heat Steady State acc. to IEC 60068-2-67 Cy.

²⁾ acc. to JESD22-A115B (MM - Machine Model), 10 negative and 10 positive pulses.

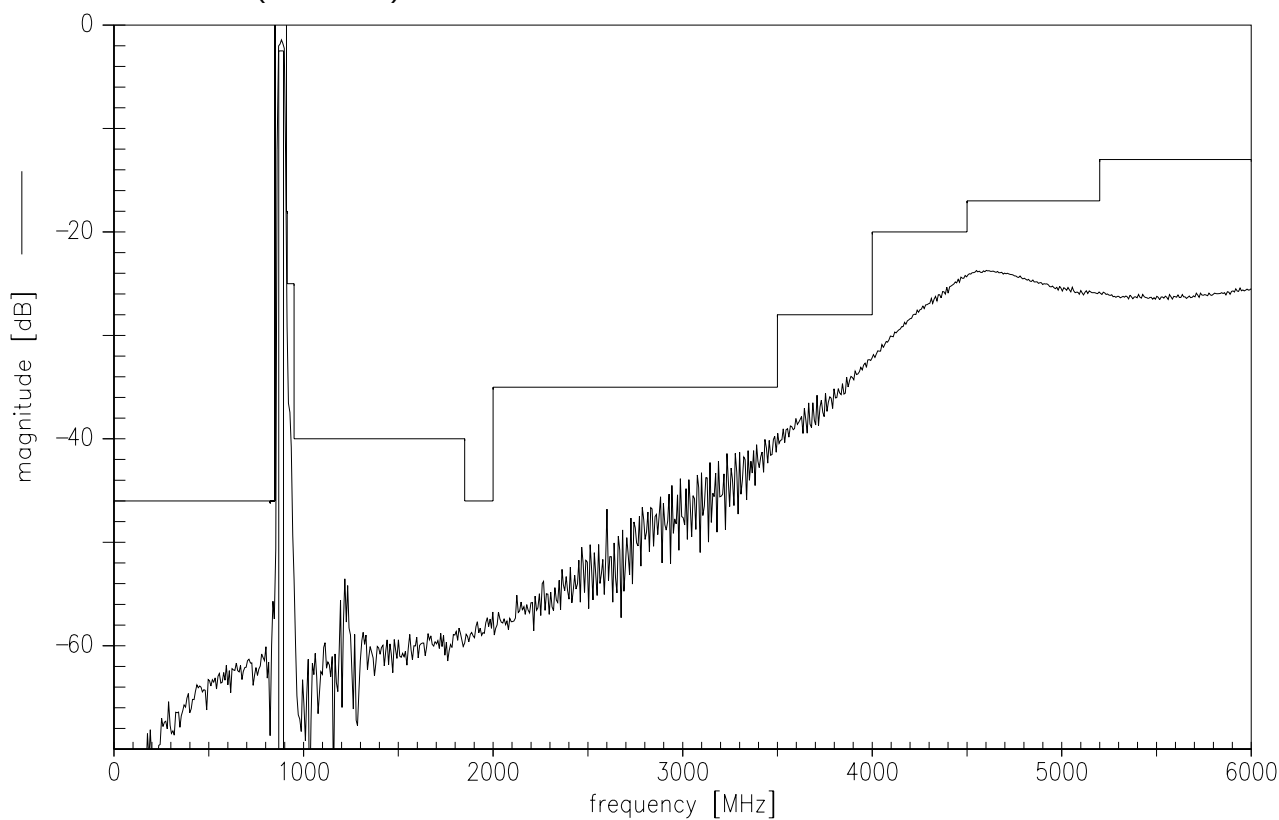
Data sheet



Transfer function



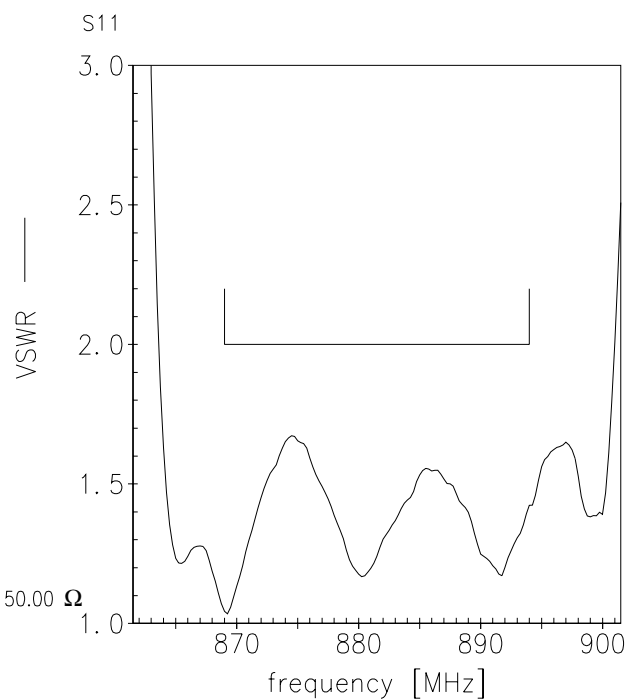
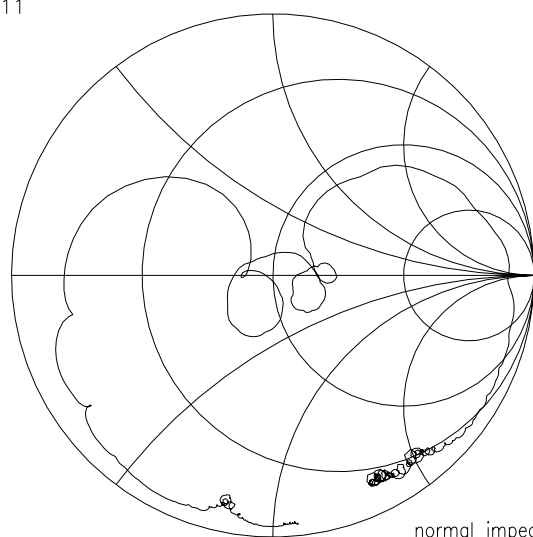
Transfer function (wideband)



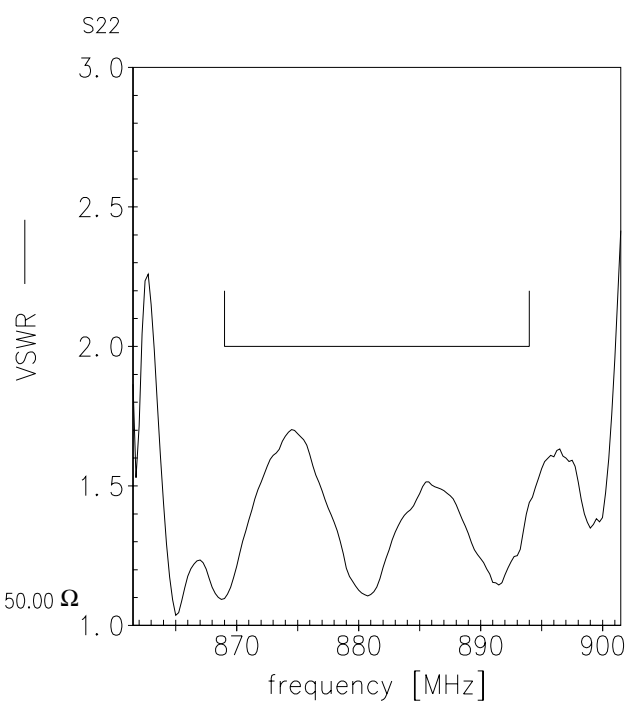
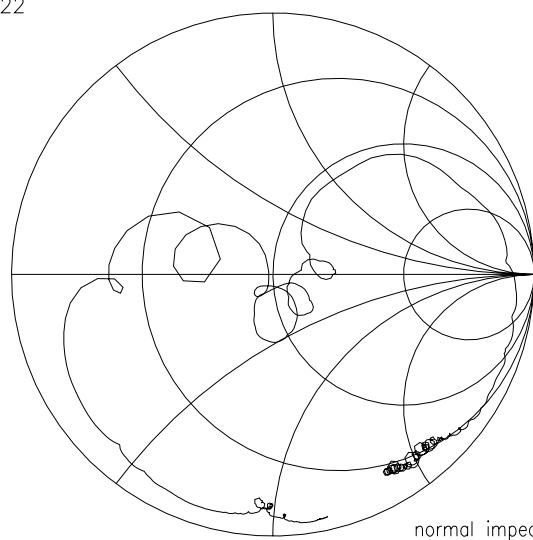
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Smith charts
S₁₁ function

S11


S₂₂ function

S22



SAW Components
B9439
SAW Rx filter
881.5 MHz

Data sheet



References

Type	B9439
Ordering code	B39881B9439M410
Marking and package	C61157-A8-A3
Packaging	F61074-V8237-Z000
Date codes	L_1126
S-parameters	B9439_NB.s2p, B9439_WB.s2p 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 8 th , 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

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

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