



RF360  
Europe GmbH

## SAW Components

### SAW Tx Filter

Automotive telematics

Series/type:	B4330
Ordering code:	B39901B4330P810
Date:	January 23, 2014
Version:	2.0

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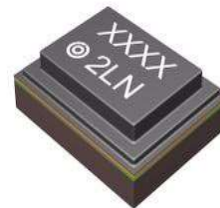
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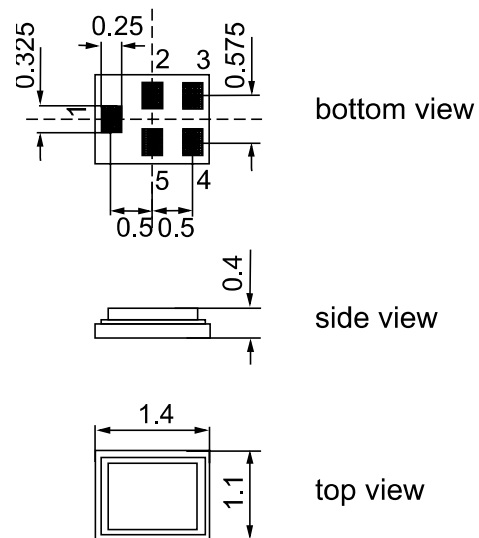
Data sheet


**Application**

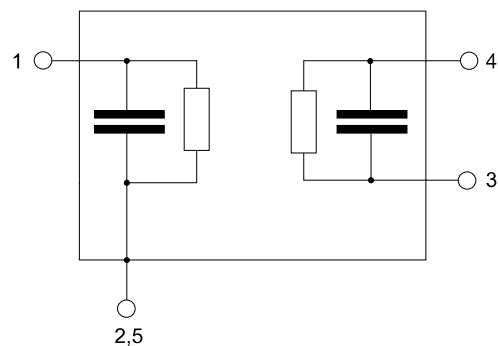
- Low-loss RF filter for WCDMA 900 systems, transmit path (Tx)
- Usable passband 35.0 MHz
- Unbalanced to unbalanced operation
- Low insertion attenuation
- Suitable for GPRS class 1 to 12


**Features**

- Package size 1.4 x 1.1 x 0.4 mm<sup>3</sup>
- Package code QCS5P
- RoHS compatible
- Approximate weight 0.003 g
- Package for **Surface Mount Technology (SMT)**
- Ni, gold-plated terminals
- AEC-Q200 qualified component family (operable temperature range -40°C to +85°C)
- **Electrostatic Sensitive Device (ESD)**


**Pin configuration**

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



**Data sheet**

**Characteristics**

Temperature range for specification:  $T = -20\text{ °C to }+85\text{ °C}$   
 Terminating source impedance:  $Z_S = 50\ \Omega$   
 Terminating load impedance:  $Z_L = 50\ \Omega$

					min.	typ. @ 25 °C	max.	
<b>Center frequency</b>	$f_C$				—	897.5	—	MHz
<b>Maximum insertion attenuation</b>								
	880.0 ... 915.0 MHz	$\alpha_{\max}$			—	2.3	3.6	dB
	882.4 ... 912.6 MHz	$\alpha_{\text{WCDMA}}^{1)}$			—	1.8	2.6	dB
<b>Amplitude ripple (p-p)</b>								
	880.0 ... 915.0 MHz	$\Delta\alpha$			—	1.3	2.7	dB
	880.0 ... 915.0 MHz	$\Delta\alpha_{5\text{MHz}}^{2)}$			—	1.0	2.0	dB
<b>Group delay ripple</b>								
	880.0 ... 915.0 MHz	$\Delta\tau_{5\text{MHz}}^{2)}$			—	30	120	ns
<b>Error Vector Magnitude</b>								
	@ $f_{\text{Carrier}}$ 882.4 ... 912.6 MHz	EVM <sup>3)</sup>			—	2.6	4.5	%
<b>VSWR</b>								
	880.0 ... 915.0 MHz				—	2.1	2.4	
<b>Attenuation</b>								
	50.0 ... 835.0 MHz				30	37	—	dB
	835.0 ... 870.0 MHz				12	18	—	dB
	925.0 ... 960.0 MHz				6	25	—	dB
	@ $f_{\text{Carrier}}$ 927.4 ... 957.6 MHz	$\alpha_{\text{WCDMA}}^{1)}$			20 <sup>4)</sup>	33	—	dB
	960.0 ... 1576.5 MHz				32	35	—	dB
	1576.5 ... 2400.0 MHz				38	42	—	dB
	2400.0 ... 2800.0 MHz				35	38	—	dB

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

2) Ripple determined within any 5MHz channel.

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

4) Minimum attenuation of 28dB in the temperature range 0 °C to +85 °C.

Data sheet


**Annotation for characteristics section**

Attenuation of WCDMA signal ("Powertransferfunction",  $\alpha_{\text{WCDMA}}$ ) is determined by

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

$f_{\text{Carrier}}$  according to 3GPP TS 25.101 (e.g. for Passband,  $f_{\text{Carrier}}$  ranges from 882.4 MHz (lowest Tx channel) to 912.6 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:

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

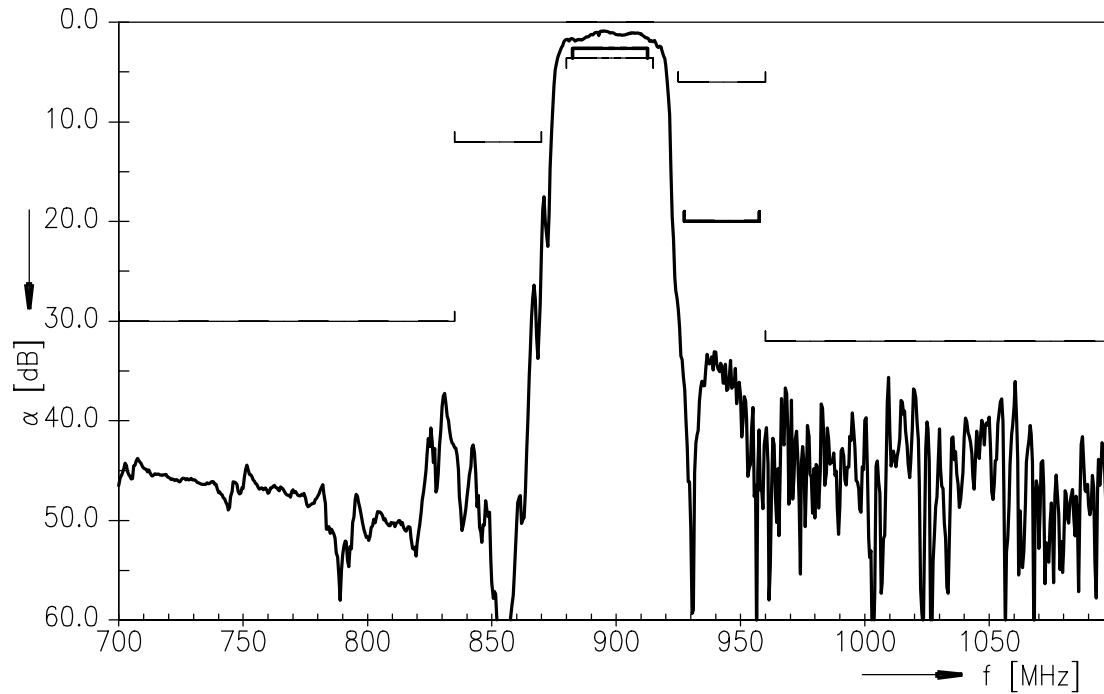
**Maximum ratings**

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	
Input Power	P <sub>IN</sub>	13	dBm	cw signal

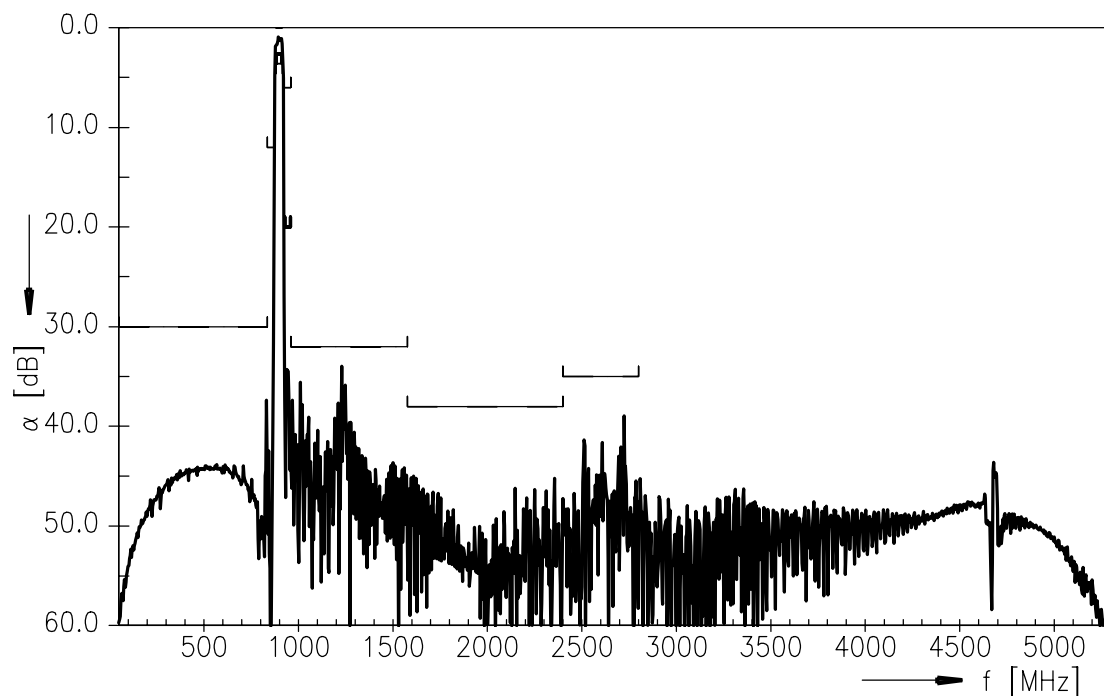
Data sheet



Transfer function (S21, Narrowband)



Transfer function (S21, Wideband)



<b>SAW Components</b>	<b>B4330</b>
<b>SAW Tx Filter</b>	<b>897.5 MHz</b>

Data sheet



References

<b>Type</b>	B4330
<b>Ordering code</b>	B39901B4330P810
<b>Marking and package</b>	C61157-A8-A9
<b>Packaging</b>	F61074-V8212-Z000
<b>Date codes</b>	L_1126
<b>S-parameters</b>	B4330_NB.s2p, B4330_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 8 <sup>th</sup> , 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.
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<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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