

RF360 Europe GmbH

A Qualcomm – TDK Joint Venture

## SAW Components

### SAW Tx Filter

Automotive telematics

Series/type: B4330  
Ordering code: B39901B4330P810

Date: January 23, 2014  
Version: 2.0

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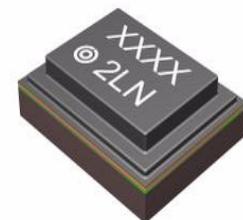
EPCOS AG is a TDK Group Company.

## Data sheet

SMD

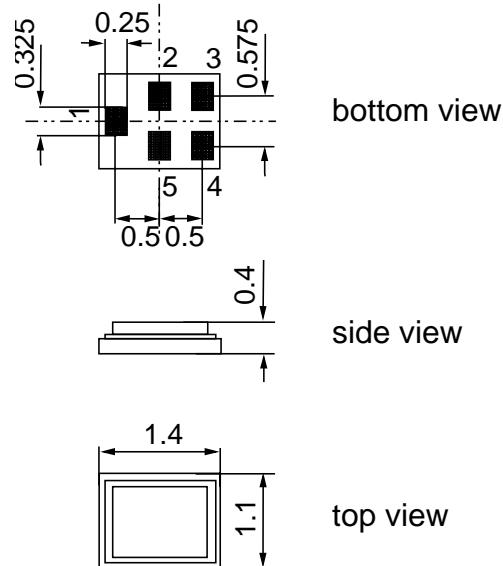
## Application

- 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



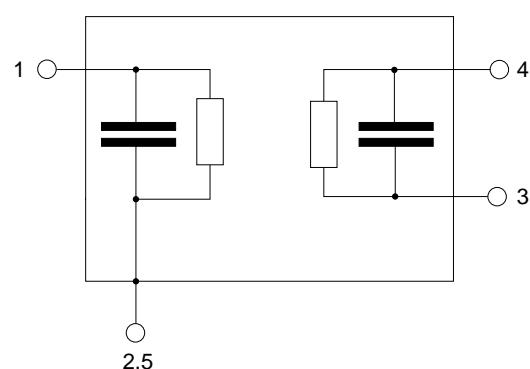
## Features

- 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



## SAW Components

B4330

## SAW Tx Filter

897.5 MHz

## Data sheet



## Characteristics

Temperature range for specification:  $T = -20^{\circ}\text{C}$  to  $+85^{\circ}\text{C}$ 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	$\alpha_{\text{max}}$		—	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>						
$\text{@} f_{\text{Carrier}}$ 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
$\text{@} f_{\text{Carrier}}$ 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

<sup>1)</sup> Attenuation of WCDMA signal ("Powertransferfunction"). Please refer to annotation on the next page.<sup>2)</sup> Ripple determined within any 5MHz channel.<sup>3)</sup> Error Vector Magnitude (EVM) based on definition given in 3GPP TS 25.141.<sup>4)</sup> Minimum attenuation of 28dB in the temperature range 0 °C to +85 °C.

**SAW Components**
**B4330**
**SAW Tx Filter**
**897.5 MHz**
**Data sheet**

**Annotation for characteristics section**

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

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

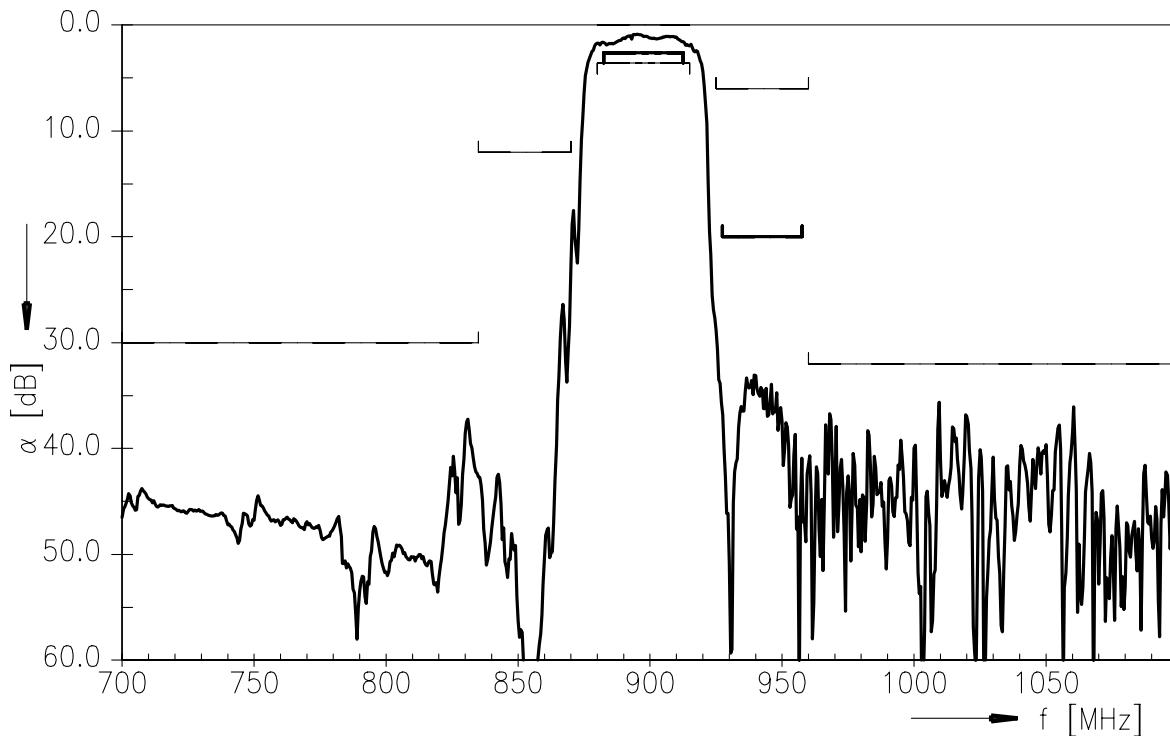
$f_{Carrier}$  according to 3GPP TS 25.101 (e.g. for Passband,  $f_{Carrier}$  ranges from 882.4 MHz (lowest Tx channel) to 912.6 MHz (highest Tx channel)).  $H_{RRC}(f)$  is the transfer function of the root-raised cosine transmit pulse shaping filter according to 3GPP TS 25.101 with the following normalization:

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

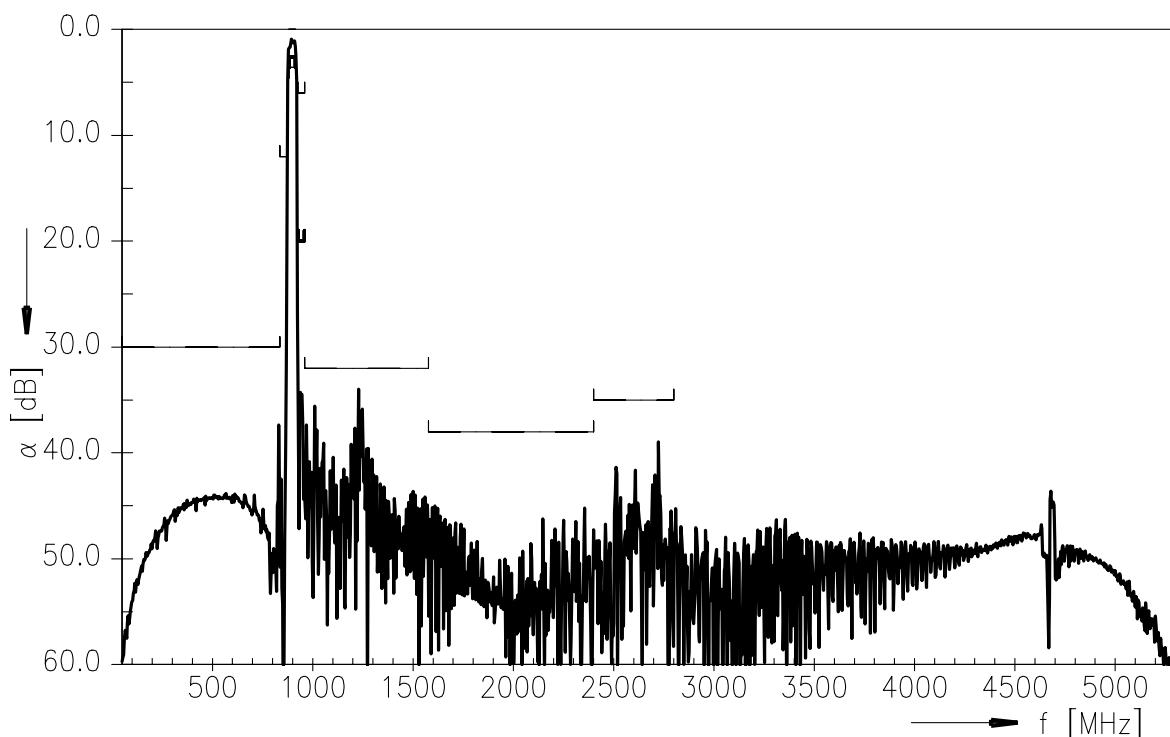
**Maximum ratings**

Operable temperature range	$T$	$-40/+85$	$^{\circ}\text{C}$	
Storage temperature range	$T_{stg}$	$-40/+85$	$^{\circ}\text{C}$	
DC voltage	$V_{DC}$	0	V	
Input Power	$P_{IN}$	13	dBm	cw signal

## Transfer function (S21, Narrowband)



## Transfer function (S21, Wideband)



<b>SAW Components</b>	<b>B4330</b>
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<b>Data sheet</b>	
<b>References</b>	

<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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