SAW Components

SAW Tx Filter

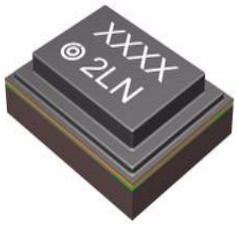
Automotive telematics

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

EPCOS AG is a TDK Group Company.

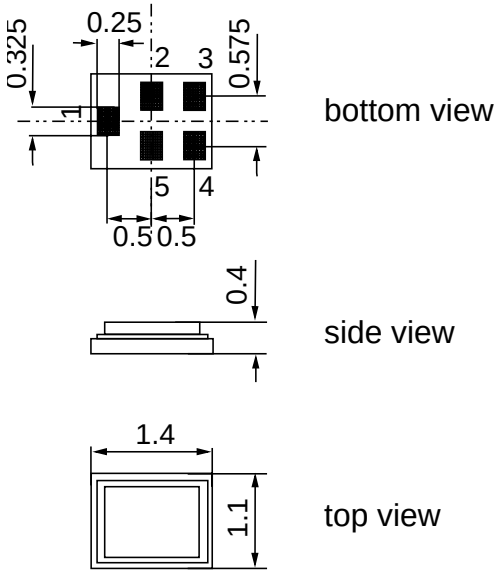
Application

- 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 mm³
- Package code QCS5P
- RoHS compatible
- Approximate weight 0.003 g
- Package for **S**urface **M**ount **T**echnology (**SMT**)
- Ni, gold-plated terminals
- AEC-Q200 qualified component family (operable temperature range –40˚C to +85˚C)
- **E**lectrostatic **S**ensitive **D**evice (**ESD**)



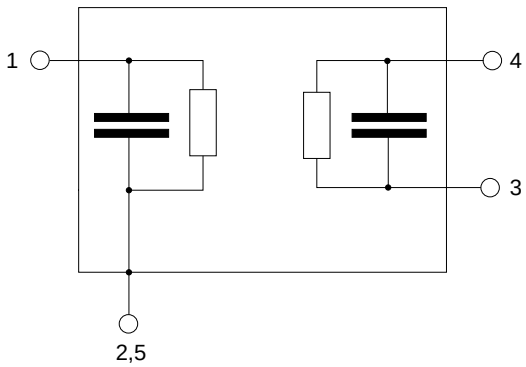
bottom view

side view

top view

Pin configuration

- 1 Input
- 4 Output
- 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}	—	2.3	3.6	dB
882.4 ... 912.6	MHz		α_{WCDMA} [1]	—	1.8	2.6	dB
Amplitude ripple (p-p)							
880.0 ... 915.0	MHz		$\Delta\alpha$	—	1.3	2.7	dB
880.0 ... 915.0	MHz		$\Delta\alpha_{5MHz}$ [2]	—	1.0	2.0	dB
Group delay ripple							
880.0 ... 915.0	MHz		$\Delta\tau_{5MHz}$ [2]	—	30	120	ns
Error Vector Magnitude							
@$f_{Carrier}$ 882.4 ... 912.6	MHz		EVM [3]	—	2.6	4.5	%
VSWR							
880.0 ... 915.0	MHz			—	2.1	2.4	
Attenuation							
50.0 ... 835.0	MHz			30	37	—	dB
835.0 ... 870.0	MHz			12	18	—	dB
925.0 ... 960.0	MHz			6	25	—	dB
@$f_{Carrier}$ 927.4 ... 957.6	MHz		α_{WCDMA} [1]	20 [4]	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.

Annotation for characteristics section

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

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

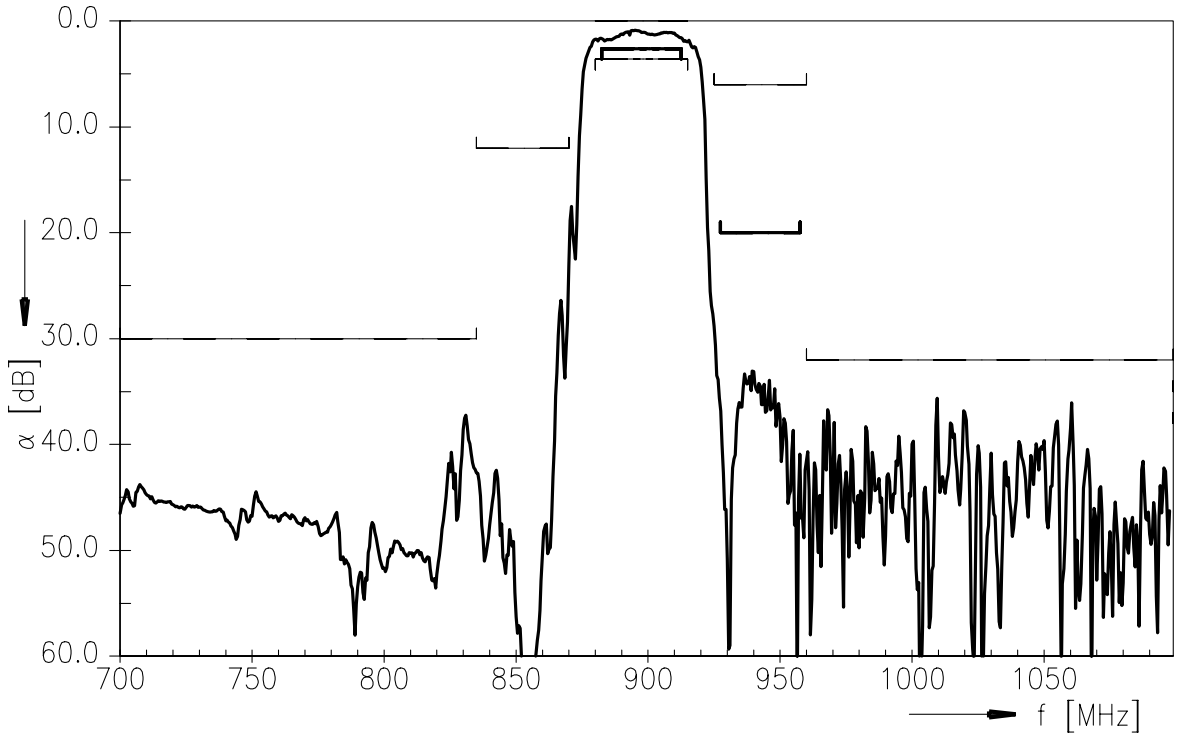
$f_{Carrier}$ according to 3GPP TS 25.101 (e.g. for Passband, $f_{Carrier}$ ranges from 882.4 MHz (lowest Tx channel) to 912.6 MHz (highest Tx channel)). $H_{RRC}(f)$ is the transfer function of the root-raised cosine transmit pulse shaping filter according to 3GPP TS 25.101 with the following normalization:

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

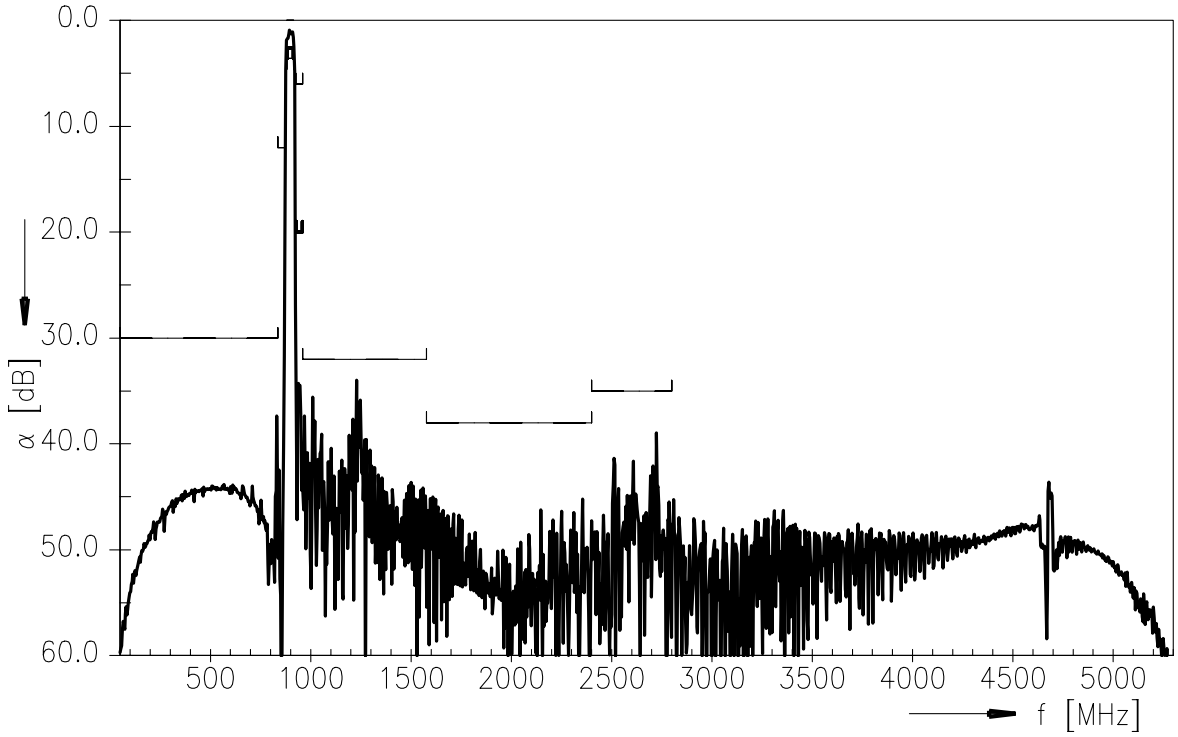
Maximum ratings

Operable temperature range	T	–40/+85	˚C	
Storage temperature range	T_{stg}	–40/+85	˚C	
DC voltage	V_{DC}	0	V	
Input Power	P_{IN}	13	dBm	cw signal

Transfer function (S21, Narrowband)



Transfer function (S21, Wideband)



References

Type	B4330
Ordering code	B39901B4330P810
Marking and package	C61157-A8-A9
Packaging	F61074-V8212-Z000
Date codes	L_1126
S-parameters	B4330_NB.s2p, B4330_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 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

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

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