SAW Components

SAW RF filter for base stations

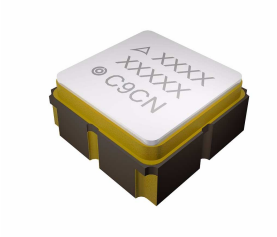
Band 3 downlink

Series/type:	**B4142**
Ordering code:	**B39182B4142U410**
Date:	Jul 29, 2014
Version:	2.1

EPCOS AG is a TDK Group Company.

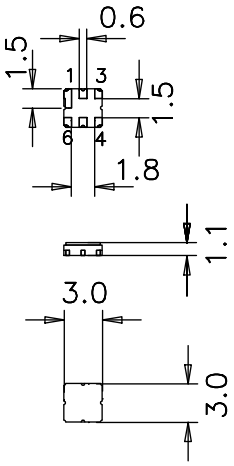
Application

- RF filter for mobile telephone PCN system, receive path
- Unbalanced to unbalanced operation
- High selectivity
- Usable passband 75 MHz
- No matching required for operation at 50 Ω



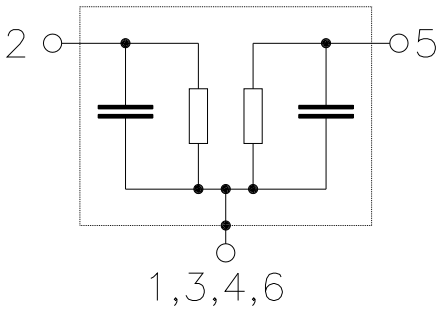
Features

- Package size 3.0 x 3.0 x 1.1 mm³
- Package code DCC6C
- RoHS compatible
- Approximate weight 0.037 g
- Package for **S**urface **M**ount **T**echnology (**SMT**)
- Ni, gold-plated terminals
- **E**lectrostatic **S**ensitive **D**evice (**ESD**)
- **M**oisture **S**ensitivity **L**evel 1
- Filter surface passivated



Pin configuration

■	2	Input
■	5	Output
■	1, 3, 4, 6	To be grounded



Data sheet SMD

Characteristics

Temperature range for specification: T = 25 +/– 2 ˚C
Terminating source impedance: Z_S = 50 Ω
Terminating load impedance: Z_L = 50 Ω

		min.	typ. @ 25 ˚C	max.	
Center frequency	f_C	—	1842.5	—	MHz
Maximum insertion attenuation	α_{max}				
1805.0 ... 1815.0 MHz		—	3.0	3.3	dB
1815.0 ... 1870.0 MHz		—	2.6	3.0	dB
1870.0 ... 1880.0 MHz		—	2.6	3.0	dB
Amplitude ripple (p-p)	$\Delta\alpha$				
1805.0 ... 1815.0 MHz		—	1.2	1.5	dB
1815.0 ... 1870.0 MHz		—	0.8	1.2	dB
1870.0 ... 1880.0 MHz		—	0.8	1.2	dB
Input VSWR					
1805.0 ... 1880.0 MHz		—	2.3:1	3.0:1	
Output VSWR					
1805.0 ... 1880.0 MHz		—	2.3:1	3.0:1	
Absolute attenuation	α_{abs}				
10.0 ... 1720.0 MHz		20	21	—	dB
1720.0 ... 1765.0 MHz		25	30	—	dB
1765.0 ... 1785.0 MHz		9	14	—	dB
1920.0 ... 1930.0 MHz		15	26	—	dB
1930.0 ... 3120.0 MHz		20	25	—	dB
3120.0 ... 4000.0 MHz		17	30	—	dB

Data sheet SMD

Characteristics

Temperature range for specification: T = –35 ˚C to –25 ˚C
Terminating source impedance: Z_S = 50 Ω
Terminating load impedance: Z_L = 50 Ω

		min.	typ. @ 25 ˚C	max.	
Center frequency	f_C	—	1842.5	—	MHz
Maximum insertion attenuation	α_{max}				
1805.0 ... 1815.0 MHz		—	3.1	3.9	dB
1815.0 ... 1870.0 MHz		—	2.8	3.0	dB
1870.0 ... 1880.0 MHz		—	2.6	3.0	dB
Amplitude ripple (p-p)	$\Delta\alpha$				
1805.0 ... 1815.0 MHz		—	1.3	2.1	dB
1815.0 ... 1870.0 MHz		—	1.0	1.2	dB
1870.0 ... 1880.0 MHz		—	0.8	1.2	dB
Input VSWR					
1805.0 ... 1880.0 MHz		—	2.3:1	3.0:1	
Output VSWR					
1805.0 ... 1880.0 MHz		—	2.3:1	3.0:1	
Absolute attenuation	α_{abs}				
10.0 ... 1720.0 MHz		20	21	—	dB
1720.0 ... 1765.0 MHz		25	30	—	dB
1765.0 ... 1785.0 MHz		9	14	—	dB
1920.0 ... 1930.0 MHz		15	26	—	dB
1930.0 ... 3120.0 MHz		20	25	—	dB
3120.0 ... 4000.0 MHz		17	30	—	dB

Data sheet SMD

Characteristics

Temperature range for specification: T = –25 ˚C to +15 ˚C
Terminating source impedance: Z_S = 50 Ω
Terminating load impedance: Z_L = 50 Ω

		min.	typ. @ 25 ˚C	max.	
Center frequency	f_C	—	1842.5	—	MHz
Maximum insertion attenuation	α_{max}				
1805.0 ... 1815.0 MHz		—	3.1	3.8	dB
1815.0 ... 1870.0 MHz		—	2.8	3.0	dB
1870.0 ... 1880.0 MHz		—	2.6	3.0	dB
Amplitude ripple (p-p)	$\Delta\alpha$				
1805.0 ... 1815.0 MHz		—	1.3	2.0	dB
1815.0 ... 1870.0 MHz		—	1.0	1.2	dB
1870.0 ... 1880.0 MHz		—	0.8	1.2	dB
Input VSWR					
1805.0 ... 1880.0 MHz		—	2.3:1	3.0:1	
Output VSWR					
1805.0 ... 1880.0 MHz		—	2.3:1	3.0:1	
Absolute attenuation	α_{abs}				
10.0 ... 1720.0 MHz		20	21	—	dB
1720.0 ... 1765.0 MHz		25	30	—	dB
1765.0 ... 1785.0 MHz		9	14	—	dB
1920.0 ... 1930.0 MHz		15	26	—	dB
1930.0 ... 3120.0 MHz		20	25	—	dB
3120.0 ... 4000.0 MHz		17	30	—	dB

Data sheet SMD

Characteristics

Temperature range for specification: T = +15 ˚C to +75 ˚C
Terminating source impedance: Z_S = 50 Ω
Terminating load impedance: Z_L = 50 Ω

		min.	typ. @ 25 ˚C	max.	
Center frequency	f_C	—	1842.5	—	MHz
Maximum insertion attenuation	α_{max}				
1805.0 ... 1815.0 MHz		—	3.0	3.3	dB
1815.0 ... 1870.0 MHz		—	2.8	3.0	dB
1870.0 ... 1880.0 MHz		—	2.9	3.6	dB
Amplitude ripple (p-p)	$\Delta\alpha$				
1805.0 ... 1815.0 MHz		—	1.2	1.5	dB
1815.0 ... 1870.0 MHz		—	1.0	1.2	dB
1870.0 ... 1880.0 MHz		—	1.1	1.8	dB
Input VSWR					
1805.0 ... 1880.0 MHz		—	2.3:1	3.0:1	
Output VSWR					
1805.0 ... 1880.0 MHz		—	2.3:1	3.0:1	
Absolute attenuation	α_{abs}				
10.0 ... 1720.0 MHz		20	21	—	dB
1720.0 ... 1765.0 MHz		25	30	—	dB
1765.0 ... 1785.0 MHz		7.5	9	—	dB
1920.0 ... 1930.0 MHz		15	26	—	dB
1930.0 ... 3120.0 MHz		20	25	—	dB
3120.0 ... 4000.0 MHz		17	30	—	dB

Data sheet SMD

Characteristics

Temperature range for specification: T = +75 ˚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	—	1842.5	—	MHz
Maximum insertion attenuation	α_{max}				
1805.0 ... 1815.0 MHz		—	3.0	3.3	dB
1815.0 ... 1870.0 MHz		—	2.8	3.0	dB
1870.0 ... 1880.0 MHz		—	2.9	3.6	dB
Amplitude ripple (p-p)	$\Delta\alpha$				
1805.0 ... 1815.0 MHz		—	1.2	1.5	dB
1815.0 ... 1870.0 MHz		—	1.0	1.2	dB
1870.0 ... 1880.0 MHz		—	1.1	1.8	dB
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Output VSWR					
1805.0 ... 1880.0 MHz		—	2.3:1	3.0:1	
Absolute attenuation	α_{abs}				
10.0 ... 1720.0 MHz		20	21	—	dB
1720.0 ... 1765.0 MHz		25	30	—	dB
1765.0 ... 1785.0 MHz		7	9	—	dB
1920.0 ... 1930.0 MHz		15	26	—	dB
1930.0 ... 3120.0 MHz		20	25	—	dB
3120.0 ... 4000.0 MHz		17	30	—	dB

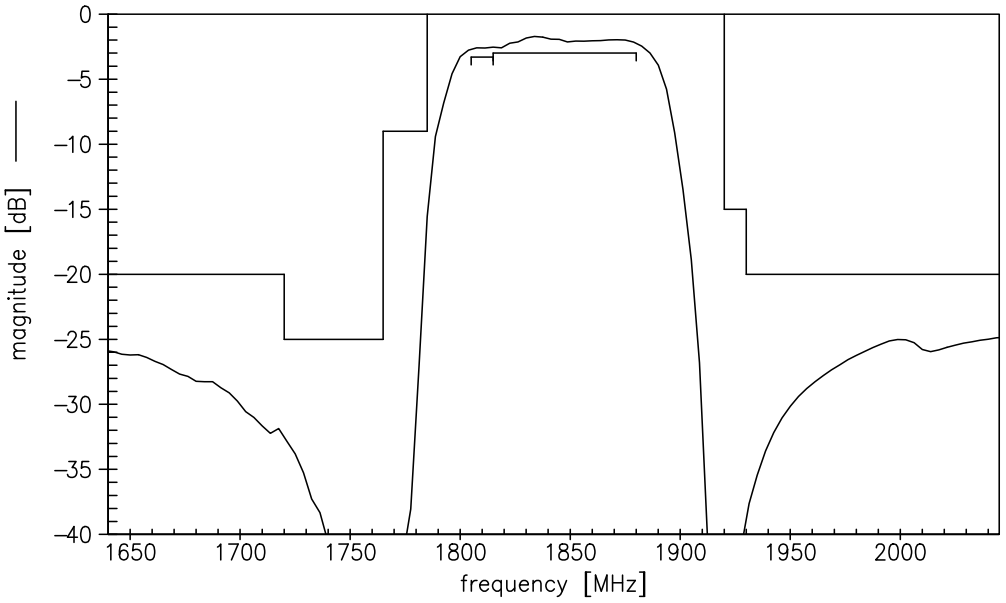
Maximum ratings

Operable temperature range	T	–40/+85	°C	
Storage temperature range	T_{stg}	–40/+85	°C	
DC voltage	V_{DC}	0	V	
ESD voltage	V_{ESD}	50[1)]	V	Machine Model
		200[2)]	V	Human Body Model
Input power	P_{IN}			
GSM850, GSM900				effective power in the on-state, duty cycle 4:8
GSM1800, GSM1900		15	dBm	
Tx bands				

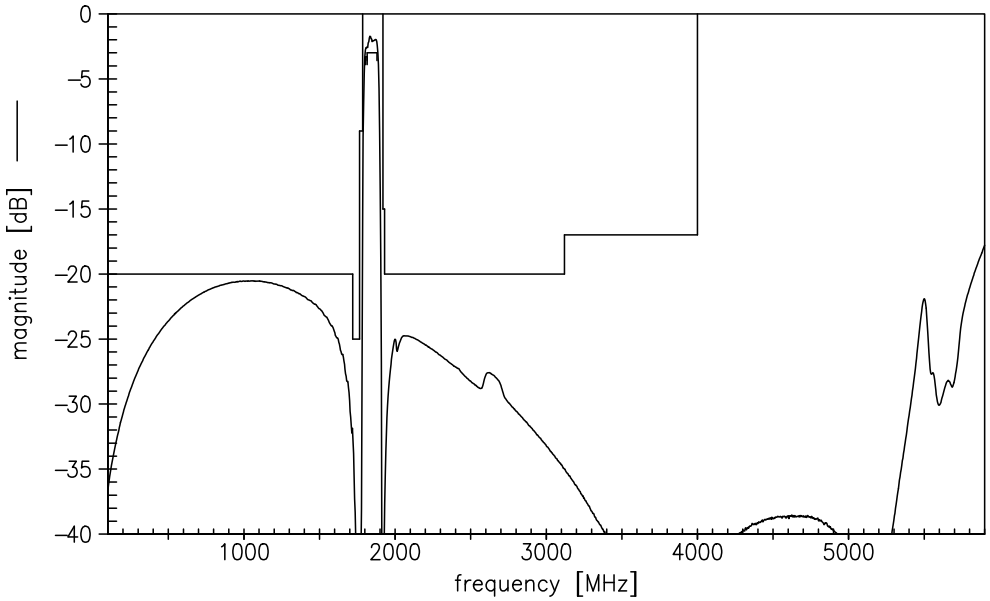
1) acc. to JESD22-A115B (MM - Machine Model), 10 negative & 10 positive pulses

2) acc. to JESD22-A114F (HBM - Human Body Model), 1 negative & 1 positive pulses

Transfer function (S21, narrowband, spec for 25˚C)

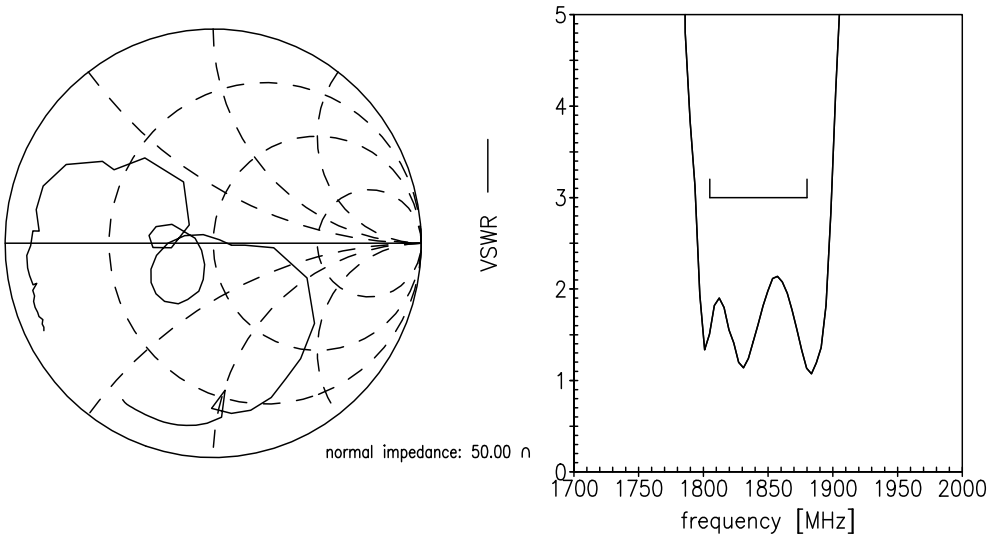


Transfer function (S21, wideband)

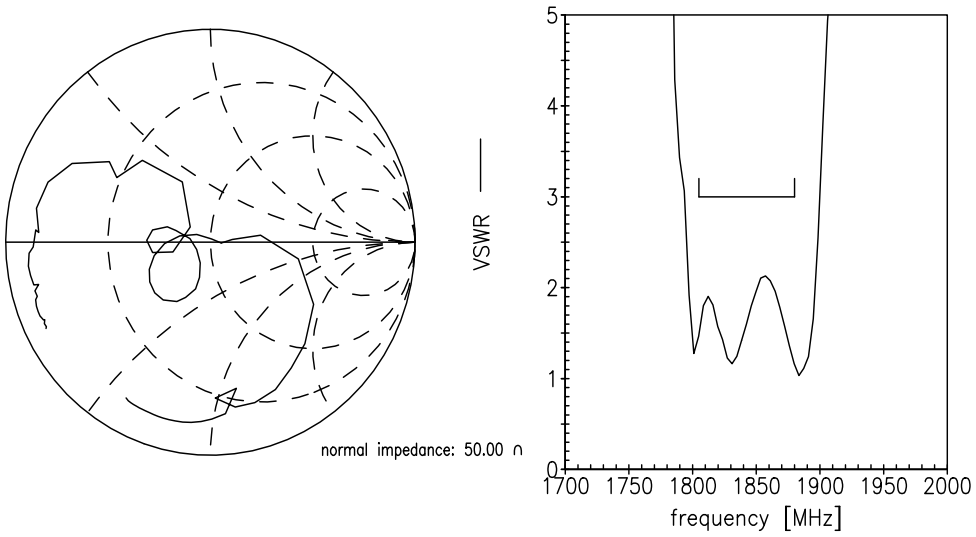


Smith charts

S_{11} function



S_{22} function



References

Type	B4142
Ordering code	B39182B4142U410
Marking and package	C61157-A7-A67
Packaging	F61074-V8168-Z000
Date codes	L_1126
S-parameters	B4142_NB.s2p B4142_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.
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 a large variety of matching coils.

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