



SAW Components

SAW RF filter for base stations

Band 3 downlink

Series/type: B4142
Ordering code: B39182B4142U410

Date: Jul 29, 2014
Version: 2.1

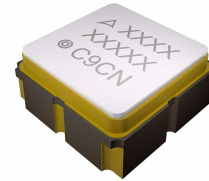
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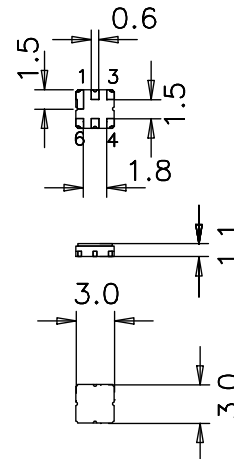
Data sheet

Application

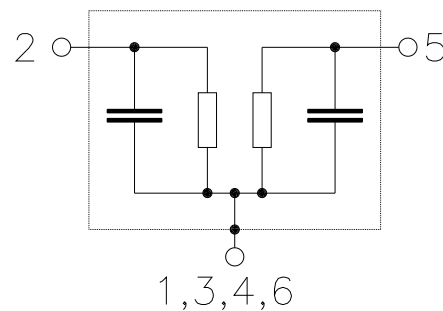
- RF filter for mobile telephone PCN system, receive path
- Unbalanced to unbalanced operation
- High selectivity
- Usable passband 75 MHz
- No matching required for operation at 50 Ω


Features

- Package size 3.0 x 3.0 x 1.1 mm³
- Package code DCC6C
- RoHS compatible
- Approximate weight 0.037 g
- Package for **Surface Mount Technology (SMT)**
- Ni, gold-plated terminals
- **Electrostatic Sensitive Device (ESD)**
- **Moisture Sensitivity Level 1**
- Filter surface passivated


Pin configuration

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



SAW Components
B4142
SAW RF filter
1842.50 MHz

Data sheet


Characteristics

Temperature range for specification: $T = 25 \pm 2 \text{ }^\circ\text{C}$
 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	—	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

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Characteristics

Temperature range for specification: $T = -35\text{ °C to }-25\text{ °C}$
 Terminating source impedance: $Z_S = 50\ \Omega$
 Terminating load impedance: $Z_L = 50\ \Omega$

		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

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)	Δα				
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

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SAW RF filter	1842.50 MHz

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SMD

Characteristics

Temperature range for specification: $T = +15\text{ }^{\circ}\text{C}$ to $+75\text{ }^{\circ}\text{C}$
 Terminating source impedance: $Z_S = 50\ \Omega$
 Terminating load impedance: $Z_L = 50\ \Omega$

		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

SAW Components
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SAW RF filter
1842.50 MHz

Data sheet


Characteristics

Temperature range for specification: $T = +75\text{ °C to }+85\text{ °C}$
 Terminating source impedance: $Z_S = 50\ \Omega$
 Terminating load impedance: $Z_L = 50\ \Omega$

		min.	typ. @ 25 °C	max.	
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	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

SAW Components	B4142
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SAW RF filter	1842.50 MHz
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Data sheet



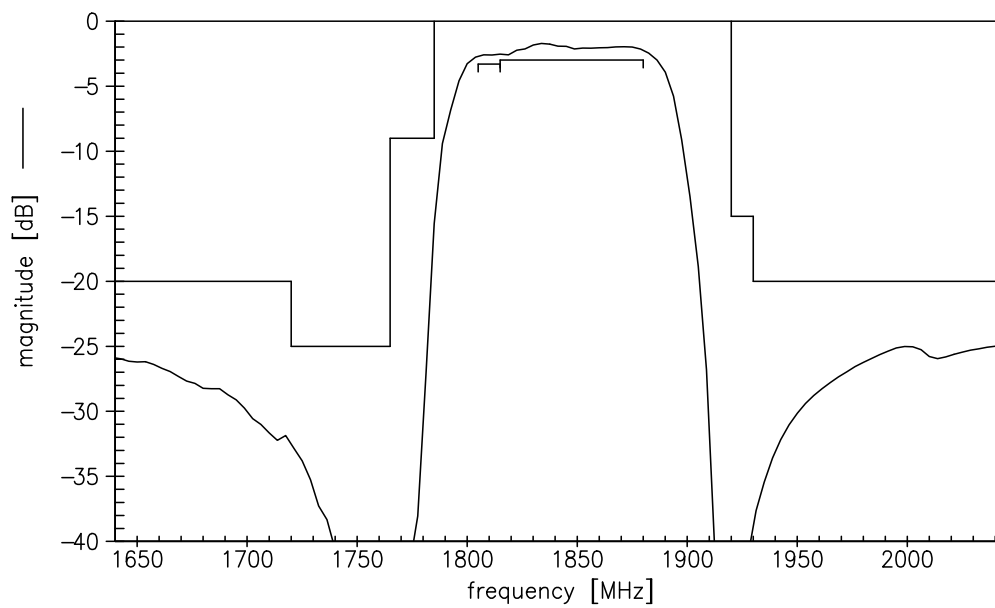
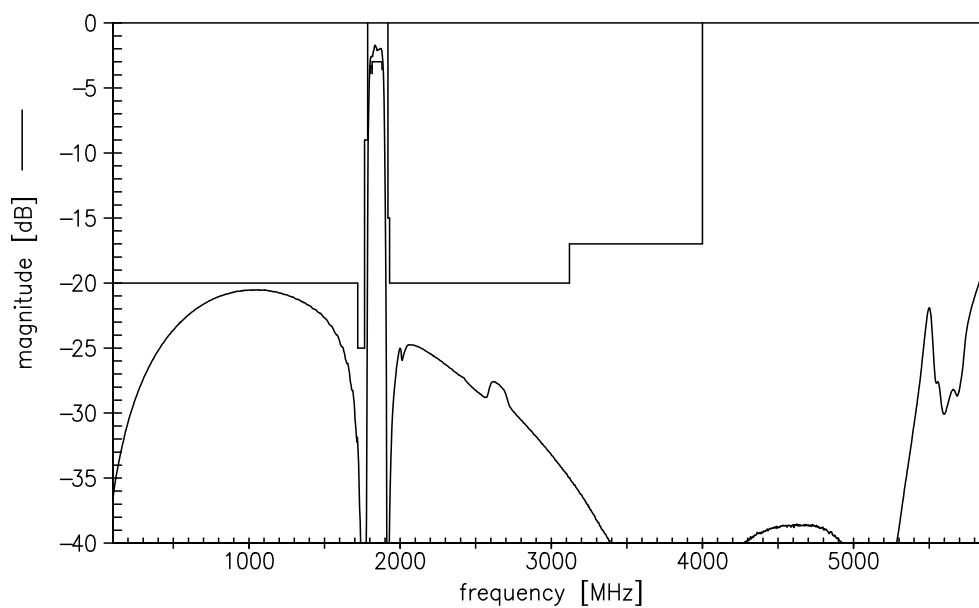
Maximum ratings

Operable temperature range	T	-40/+85	°C	Machine Model Human Body Model effective power in the on-state, duty cycle 4:8
Storage temperature range	T _{stg}	-40/+85	°C	
DC voltage	V _{DC}	0	V	
ESD voltage	V _{ESD}	50 ¹⁾	V	
		200 ²⁾	V	
Input power	P _{IN}			
GSM850, GSM900				
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

Data sheet

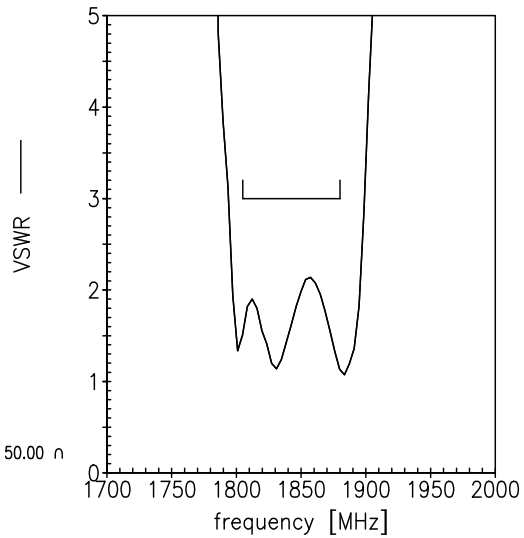
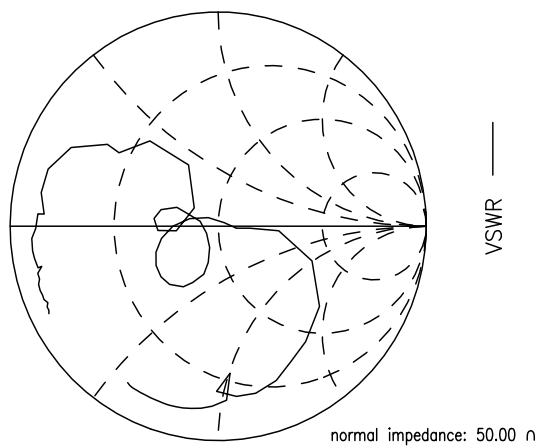

Transfer function (S21, narrowband, spec for 25°C)

Transfer function (S21, wideband)


Data sheet

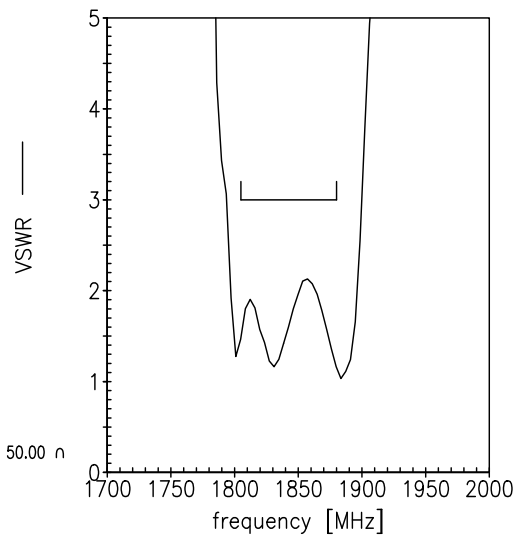
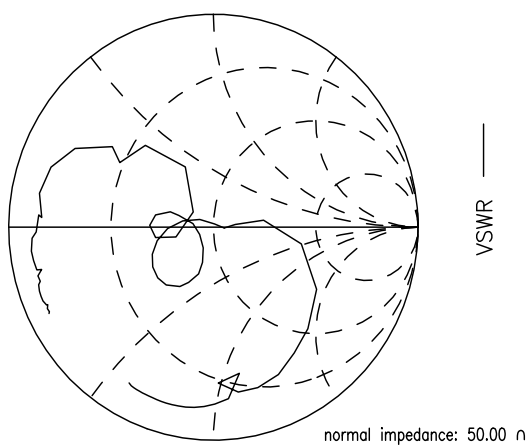
SMD

Smith charts

S₁₁ function



S₂₂ function



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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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