



RF360 Europe GmbH

A Qualcomm – TDK Joint Venture

## SAW Components

### SAW Duplexer

Automotive telematics

Series/type:	B4406
Ordering code:	B39182B4406P810
Date:	June 13, 2014
Version:	2.3

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Automotive telematics

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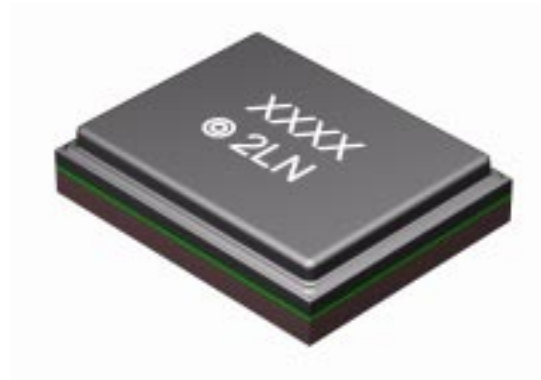
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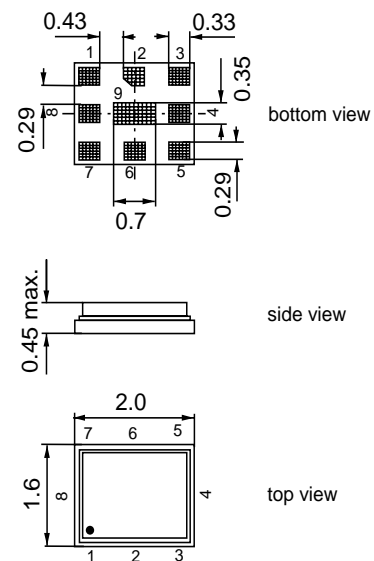
Data sheet


**Application**

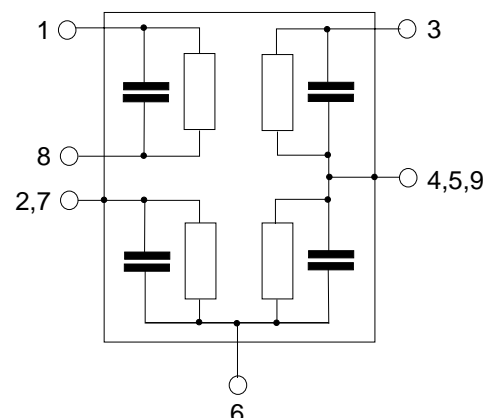
- Low-loss SAW duplexer for Band III systems
- Low insertion attenuation
- Low amplitude ripple
- Usable passband 75 MHz
- Single ended to balanced transformation in Antenna - Rx path
- Impedance transformation 50Ω to 100Ω in Antenna - Rx path
- high Tx - Rx isolation


**Features**

- Package size 2.0 \* 1.6 mm<sup>2</sup>
- Package height max. 0.45 mm
- RoHS compatible
- Approx. weight 0.005 g
- Package for **Surface Mount Technology (SMT)**
- Ni terminals, Au-plated
- **Electrostatic Sensitive Device (ESD)**
- AEC-Q200 qualified component family (operable temperature range -40°C to +85°C)


**Pin configuration**

- 3 Tx input
- 1, 8 Rx output (balanced)
- 6 Antenna
- 2, 4, 5, 7, 9 To be grounded



Data sheet


**Characteristics**

Temperature range for specification:	T = -30 °C to +85 °C
ANT terminating impedance:	Z <sub>ANT</sub> = 50 Ω    3.9nH
Rx terminating impedance:	Z <sub>RX</sub> = 100 Ω (balanced)   12nH
Tx terminating impedance:	Z <sub>TX</sub> = 50 Ω

Characteristics Tx-ANT		min.	typ. @ 25°C	max.	
<b>Center frequency</b>	f <sub>C</sub>	–	1747.5	–	MHz
<b>Maximum insertion attenuation</b>	α <sub>max</sub>				
1714.00 ... 1781.00 MHz		–	2.0	3.1	dB
1710.00 ... 1785.00 MHz		–	2.5	4.1	dB
<b>Amplitude ripple per 5MHz channel</b>	Δα				
1710.00 ... 1785.00 MHz		–	0.6	1.4	dB
<b>VSWR</b>					
Tx port 1710.00 ... 1785.00 MHz		–	1.5	2.0	
ANT port 1710.00 ... 1785.00 MHz		–	1.5	2.0	
<b>Attenuation</b>	α				
100.00 ... 1565.42 MHz		30	33	–	dB
1565.42 ... 1573.38 MHz		40	46	–	dB
1573.38 ... 1577.46 MHz		42	47	–	dB
1577.46 ... 1585.42 MHz		40	44	–	dB
1597.55 ... 1605.88 MHz		35	39	–	dB
1605.88 ... 1680.00 MHz		20	30	–	dB
1805.00 ... 1880.00 MHz		43	46	–	dB
1920.00 ... 1980.00 MHz		20	30	–	dB
2110.00 ... 2170.00 MHz		27	40	–	dB
2400.00 ... 2500.00 MHz		30	34	–	dB
2620.00 ... 2690.00 MHz		27	31	–	dB

Data sheet


**Characteristics**

Temperature range for specification:	$T = -30\text{ °C to }+85\text{ °C}$
ANT terminating impedance:	$Z_{ANT} = 50\ \Omega \parallel 3.9\text{nH}$
Rx terminating impedance:	$Z_{RX} = 100\ \Omega \text{ (balanced)} \parallel 12\text{nH}$
Tx terminating impedance:	$Z_{TX} = 50\ \Omega$

Characteristics ANT-Rx		min.	typ. @ 25°C	max.	
<b>Center frequency</b>	$f_C$	–	1842.5	–	MHz
<b>Maximum insertion attenuation</b> 1805.00 ... 1880.00 MHz	$\alpha_{max}$	–	3.2	4.4	dB
<b>Amplitude ripple</b> per 5MHz channel 1805.00 ... 1880.00 MHz	$\Delta\alpha$	–	0.7	1.8	dB
<b>Common mode rejection ratio</b> 1805.00 ... 1880.00 MHz		20 <sup>1)</sup>	25	–	dB
<b>VSWR</b>					
Rx port 1805.00 ... 1880.00 MHz		–	1.6	2.0	
ANT port 1805.00 ... 1880.00 MHz		–	1.6	2.0	
<b>Attenuation</b>	$\alpha$				
100.00 ... 1710.00 MHz		35	55	–	dB
1710.00 ... 1785.00 MHz		43	50	–	dB
1965.00 ... 2690.00 MHz		30	52	–	dB

1) A combination of 10° phase balance and 1 dB amplitude balance corresponds to 19.6 dB CMRR

**SAW Components**
**B4406**
**SAW Duplexer**
**1747.5 / 1842.5 MHz**

Data sheet


**Characteristics**

Temperature range for specification:	$T = -30\text{ °C to }+85\text{ °C}$
ANT terminating impedance:	$Z_{ANT} = 50\ \Omega \parallel 3.9\text{nH}$
Rx terminating impedance:	$Z_{RX} = 100\ \Omega \text{ (balanced)} \parallel 12\text{nH}$
Tx terminating impedance:	$Z_{TX} = 50\ \Omega$

Characteristics Tx-Rx		min.	typ. @ 25°C	max.	
<b>Differential Mode Isolation</b>	$\alpha$				
	1710.00 ... 1785.00 MHz	50	55	–	dB
	1805.00 ... 1880.00 MHz	50	53	–	dB
<b>Common Mode Isolation</b>					
	1710.00 ... 1785.00 MHz	50	55	–	dB

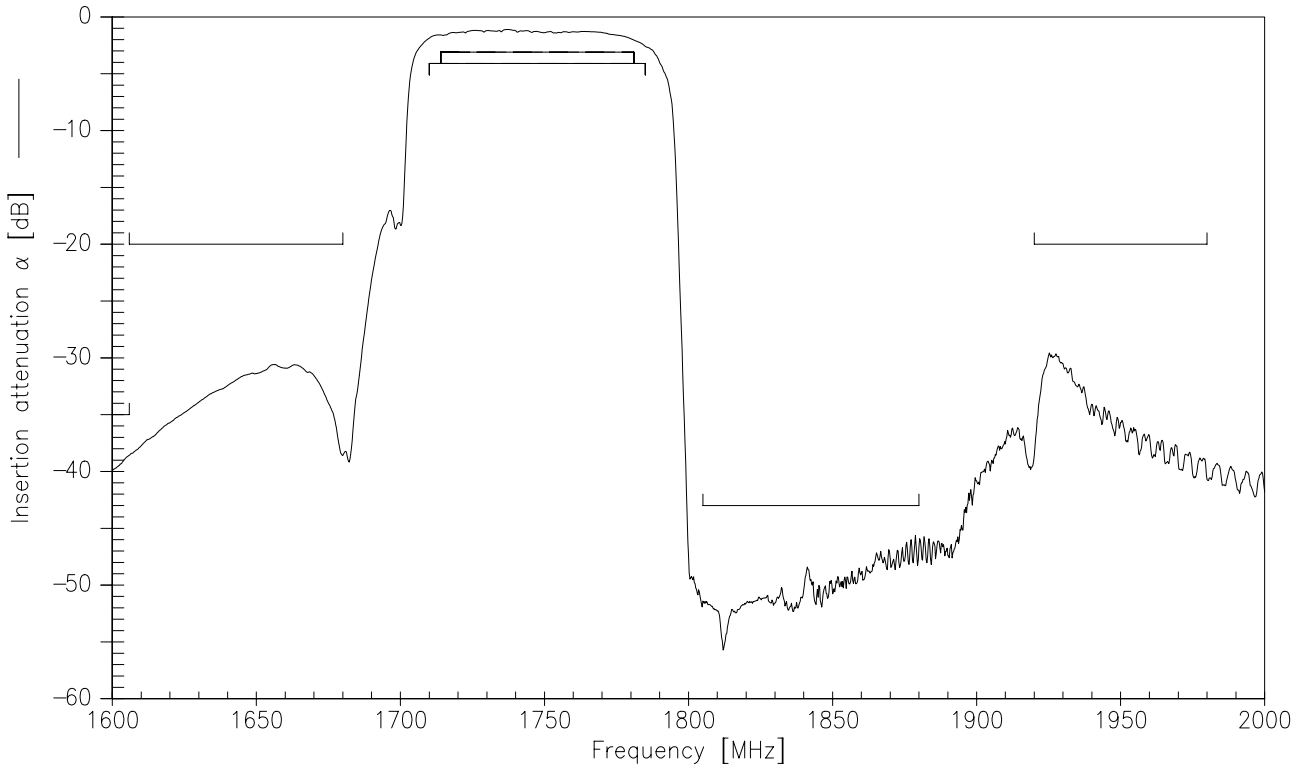
**Maximum ratings**

Operable temperature range	$T$	–40/+85	°C	
Storage temperature range	$T_{stg}$	–40/+85	°C	
DC voltage	$V_{DC}$	0	V	
Input Power at 1710.0 ... 1785.0 MHz	$P_{IN}$	29	dBm	} continuous wave $T = 55\text{ °C}, 5000\text{ h}$
elsewhere		10	dBm	

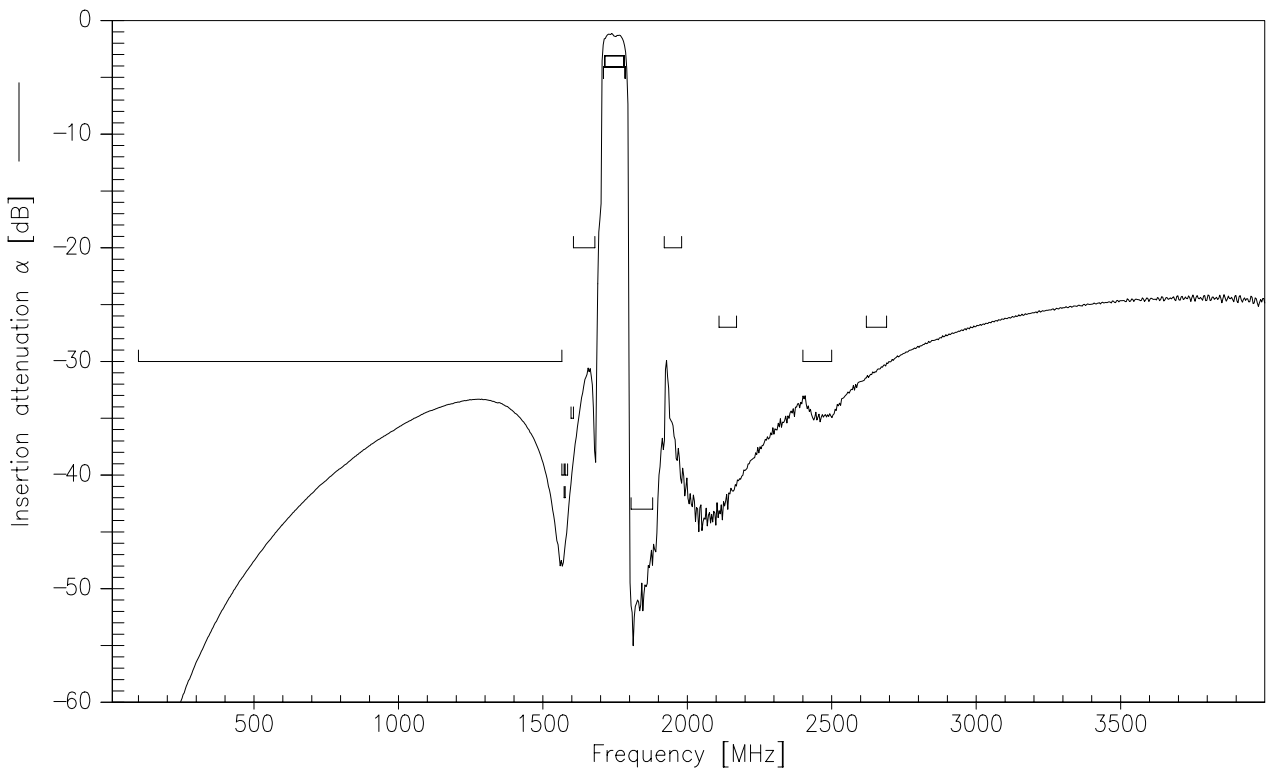
Data sheet



**Frequency Response Tx-ANT**



**Frequency Response Tx-ANT (wideband)**

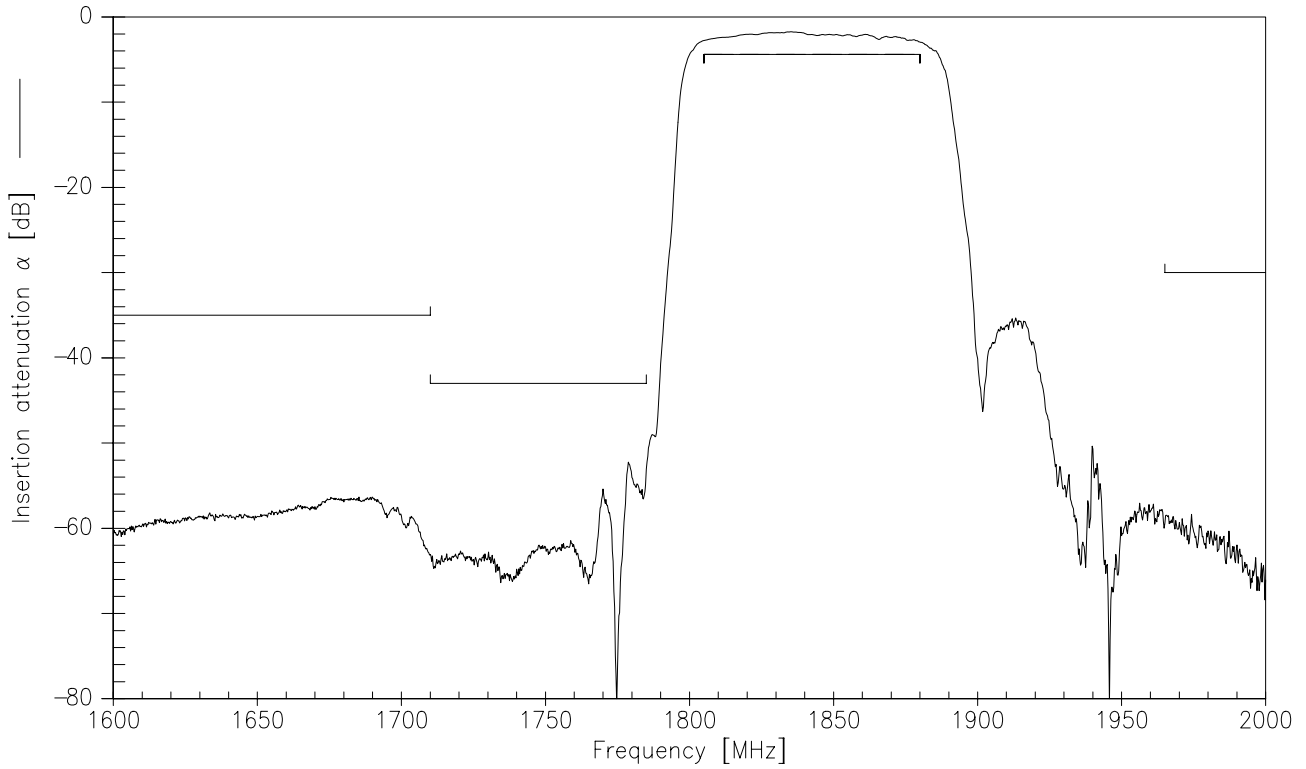




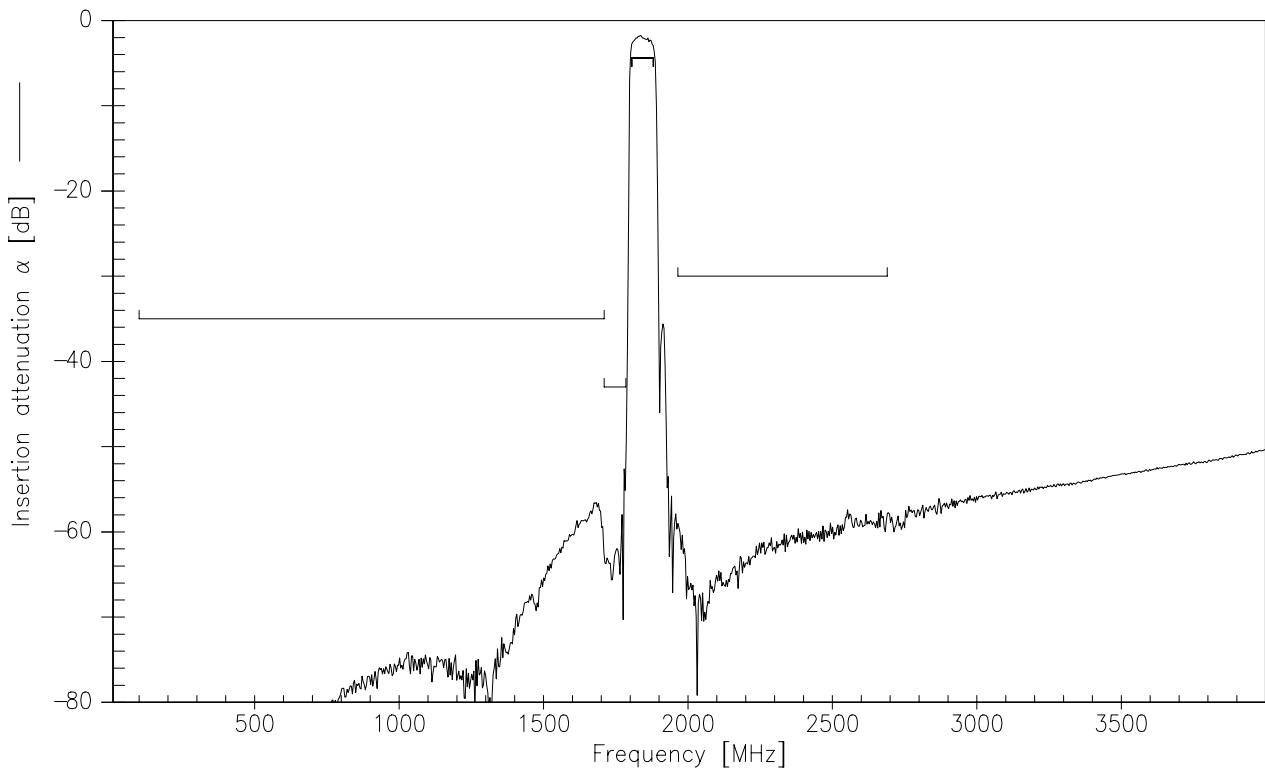
Data sheet



Frequency Response Rx-ANT



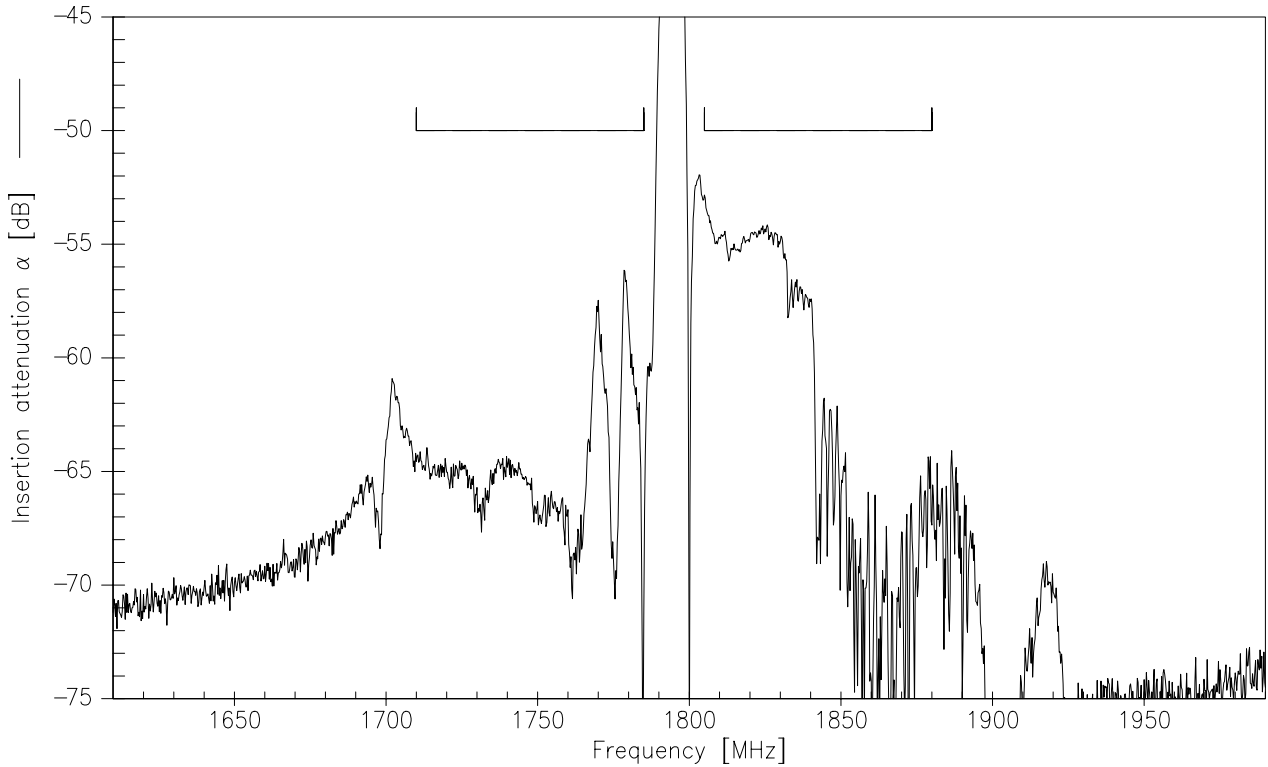
Frequency Response Rx-ANT (wideband)



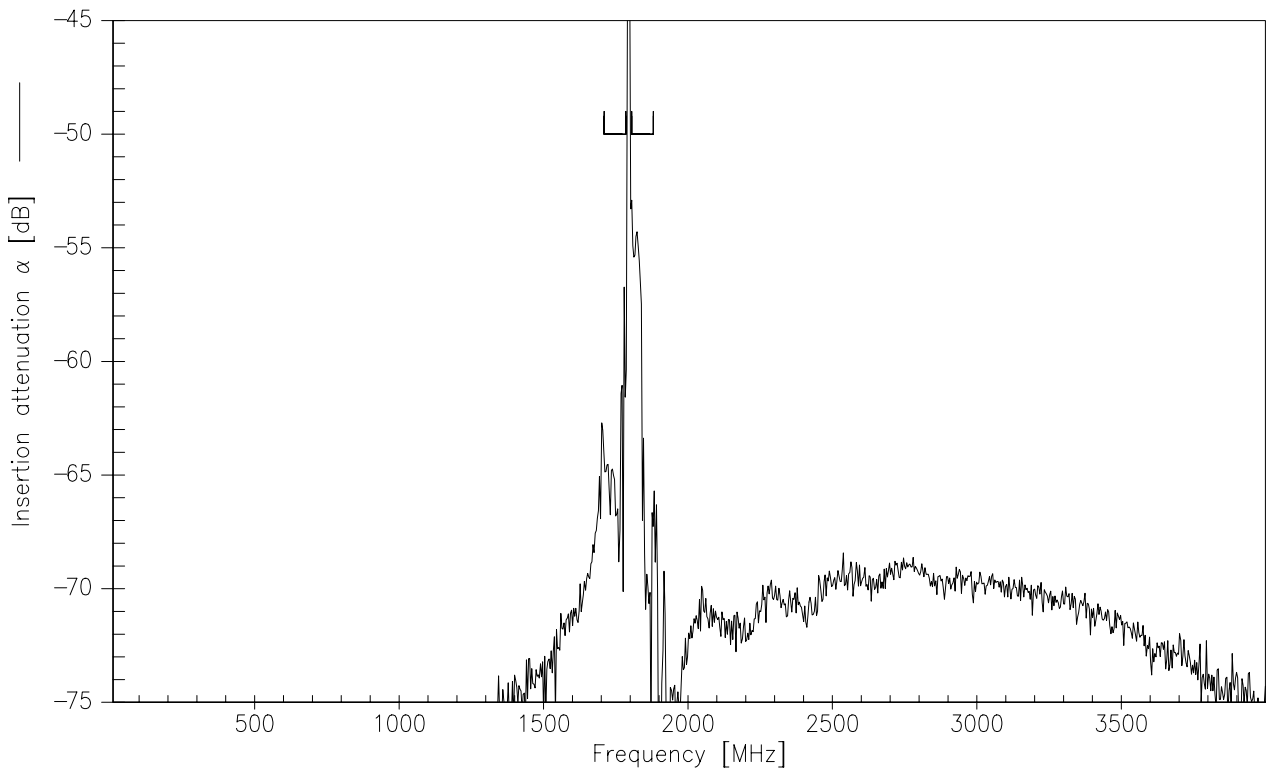
Data sheet



**Frequency Response Tx-Rx (differential mode)**



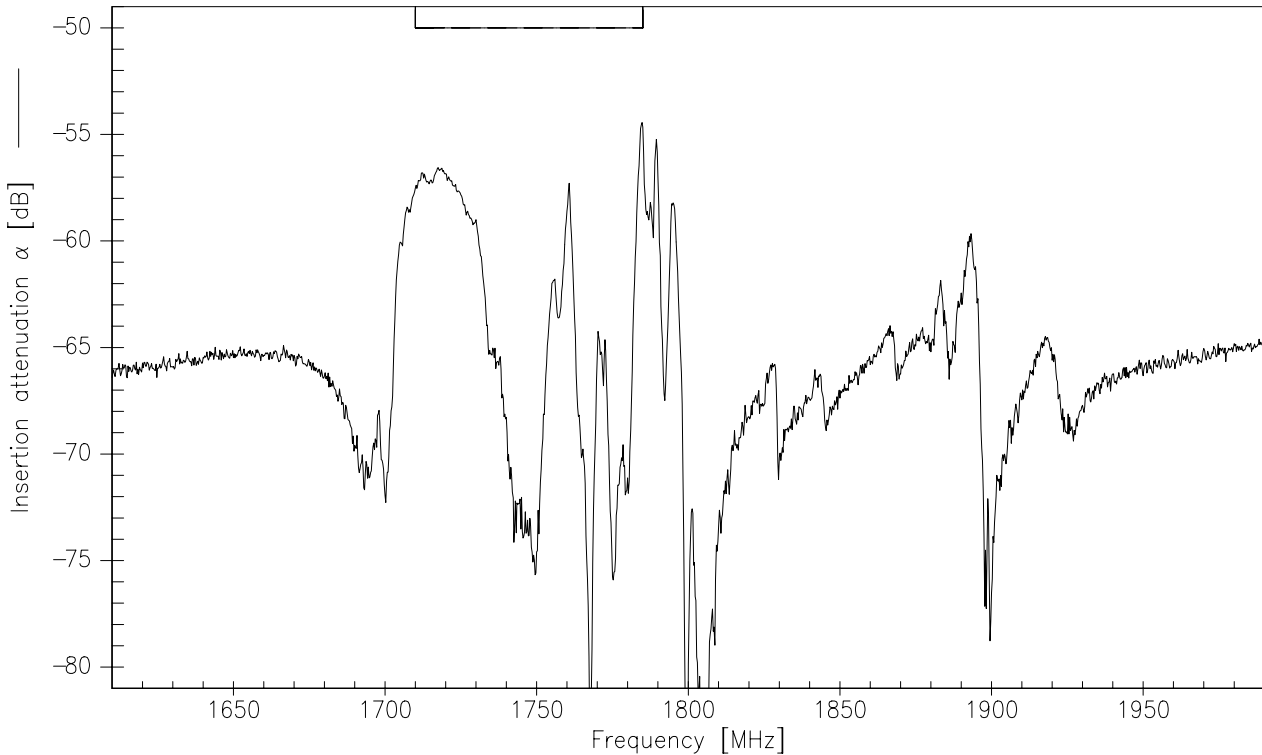
**Frequency Response Tx-Rx (differential mode, wideband)**



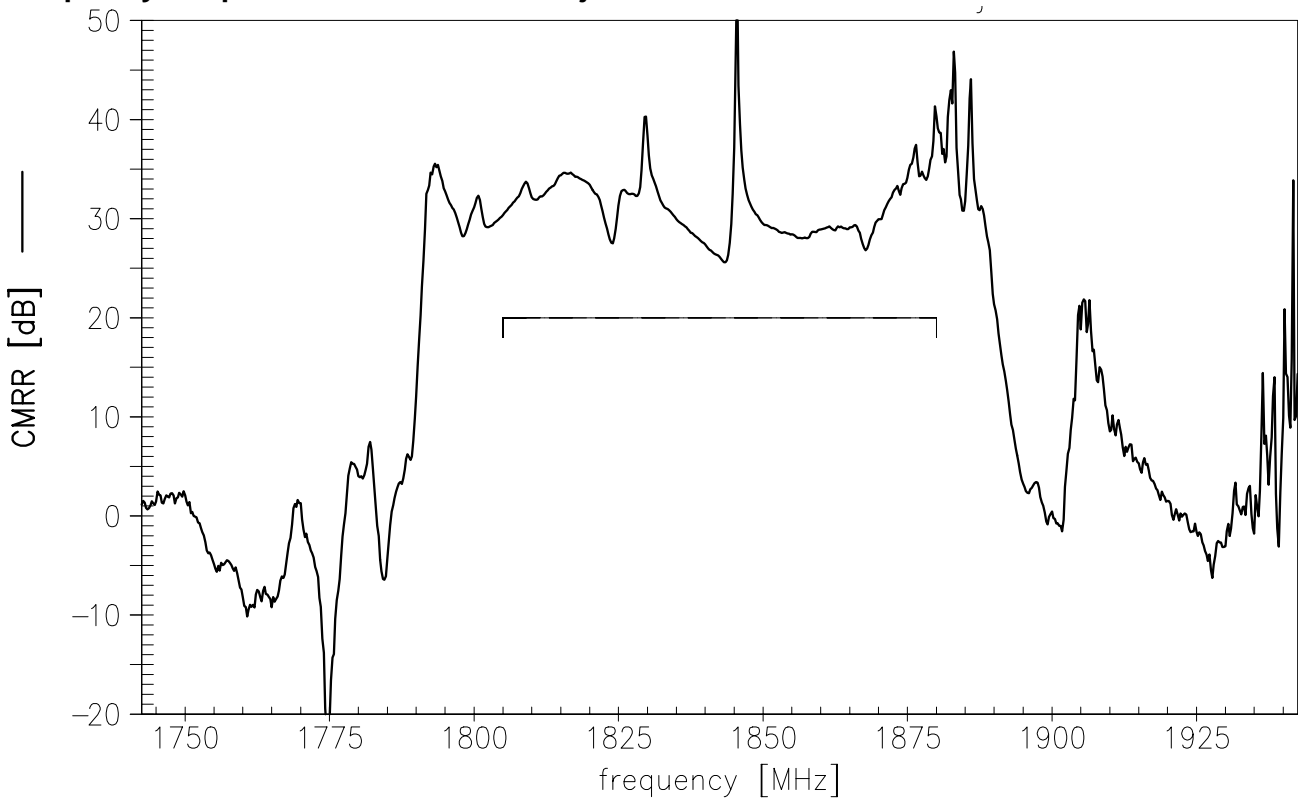
Data sheet



Frequency Response Tx-Rx (common mode)



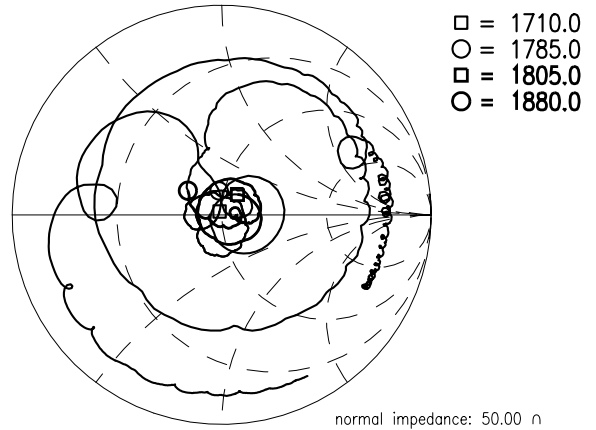
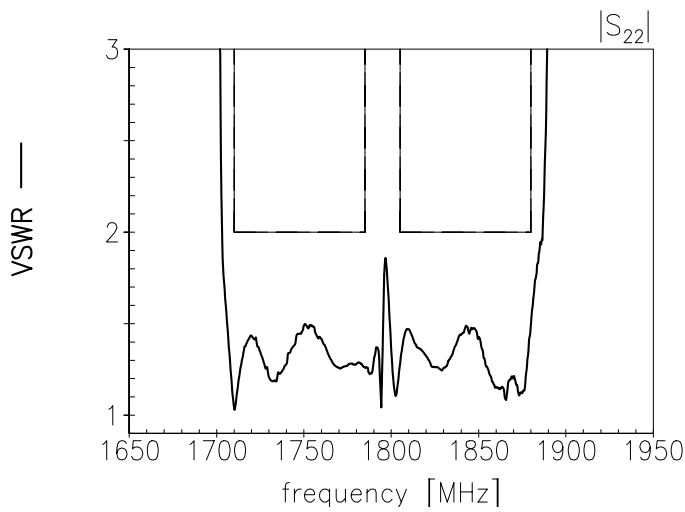
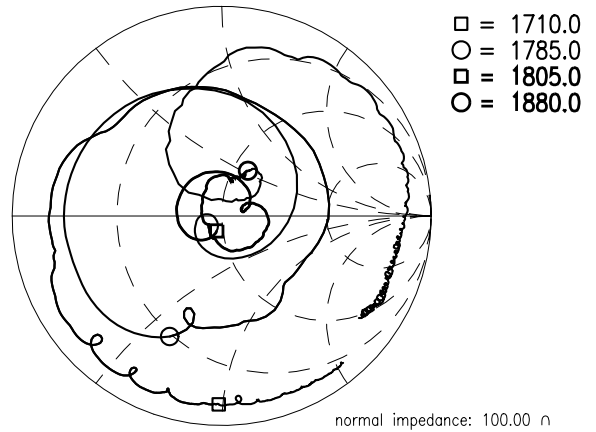
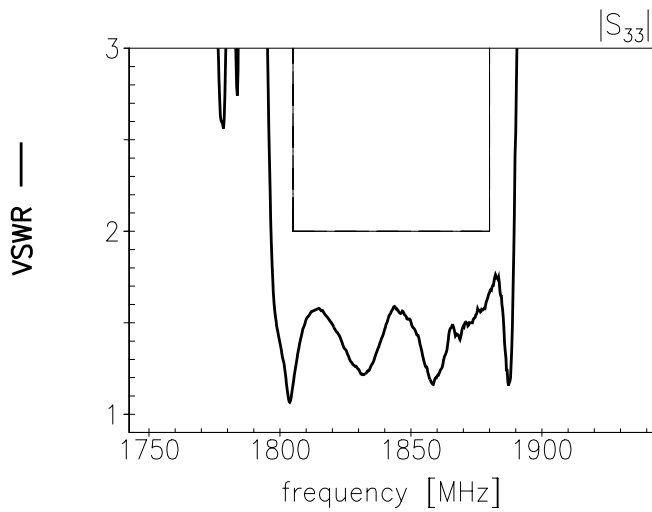
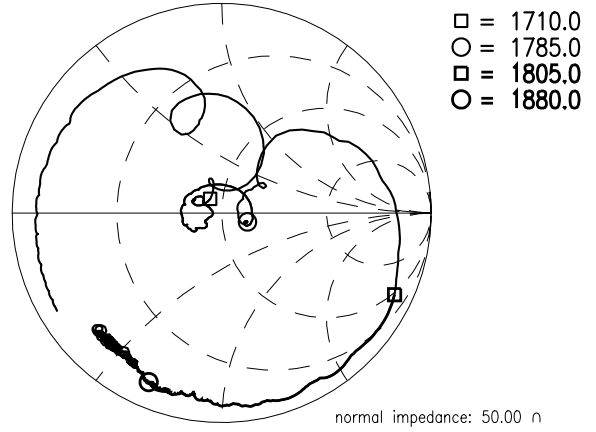
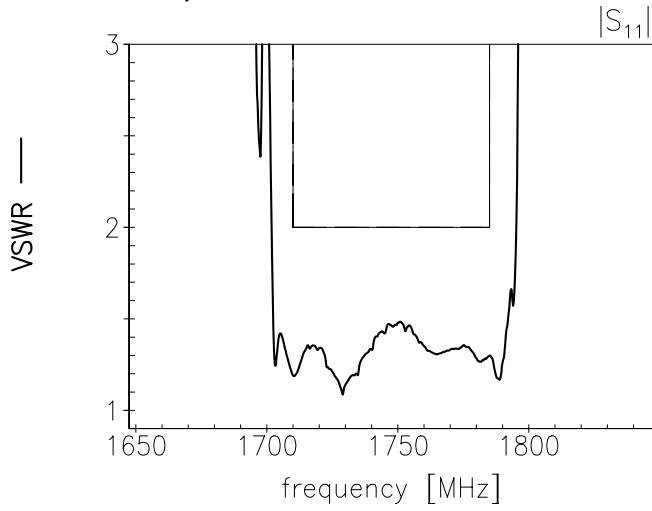
Frequency Response Common Mode Rejection Ratio



Data sheet



VSWR at Tx-, Rx- and Antenna



**SAW Components**
**B4406**
**SAW Duplexer**
**1747.5 / 1842.5 MHz**

Data sheet



References

<b>Type</b>	B4406
<b>Ordering code</b>	B39182B4406P810
<b>Marking and Package</b>	C61157-A8-A64
<b>Packaging</b>	F61074-V8247-Z000
<b>Date Codes</b>	L_1126
<b>S-Parameters</b>	B4406_NB_UN.s4p, B4406_WB_UN.s4p See file header for pin/port 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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