



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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# SAW Components

## SAW Duplexer Automotive telematics

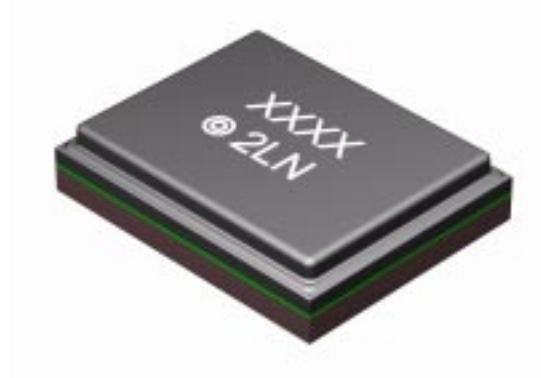
<b>Series/type:</b>	<b>B4406</b>
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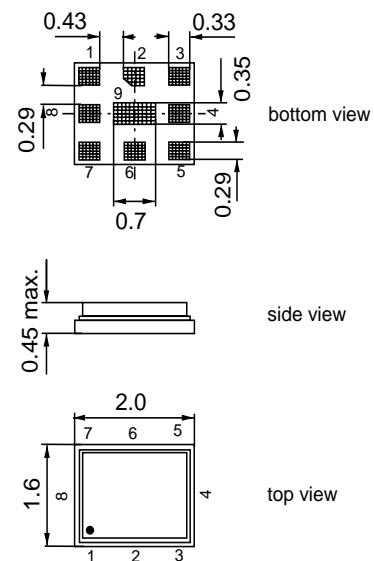
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**Application**

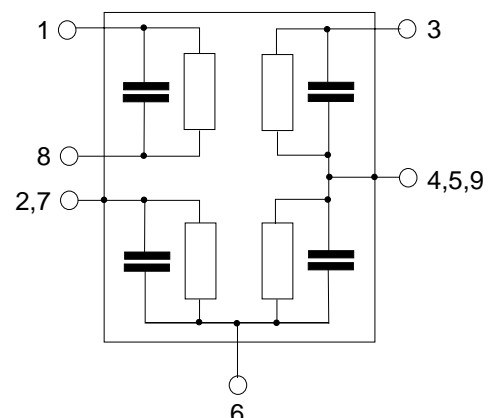
- Low-loss SAW duplexer for Band III systems
- Low insertion attenuation
- Low amplitude ripple
- Usable passband 75 MHz
- Single ended to balanced transformation in Antenna - Rx path
- Impedance transformation 50Ω to 100Ω in Antenna - Rx path
- high Tx - Rx isolation


**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:	$T = -30\text{ °C to }+85\text{ °C}$
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-ANT		min.	typ. @ 25°C	max.	
<b>Center frequency</b>	$f_C$	–	1747.5	–	MHz
<b>Maximum insertion attenuation</b>	$\alpha_{max}$				
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>	$\Delta\alpha$				
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>	$\alpha$				
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

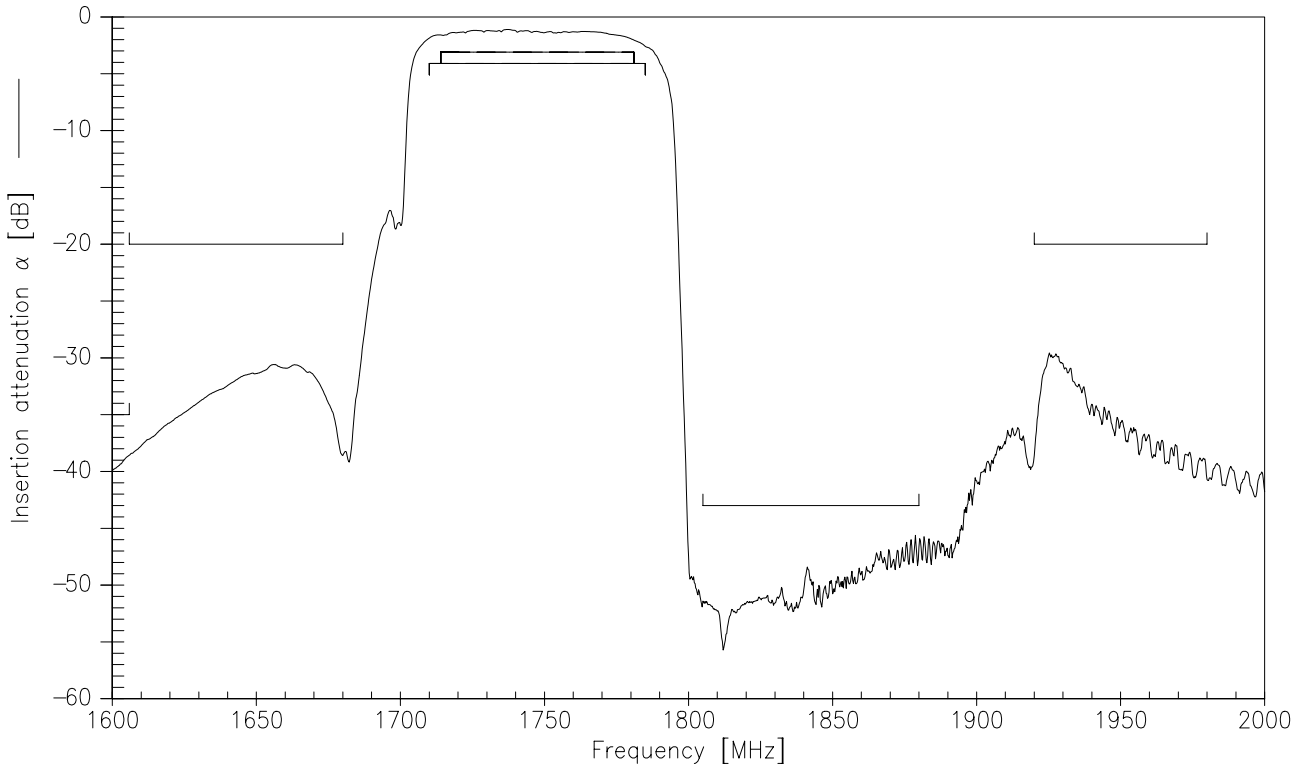
**Maximum ratings**

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	

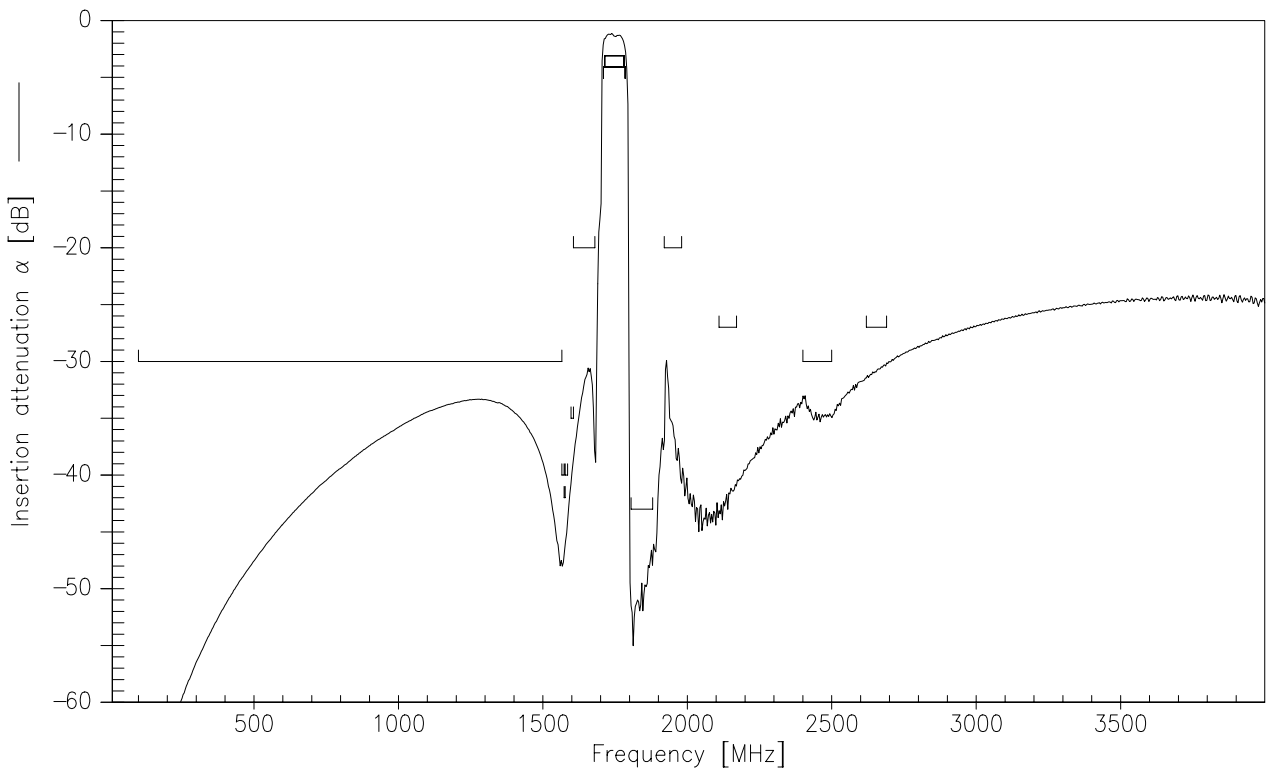
Data sheet



**Frequency Response Tx-ANT**



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

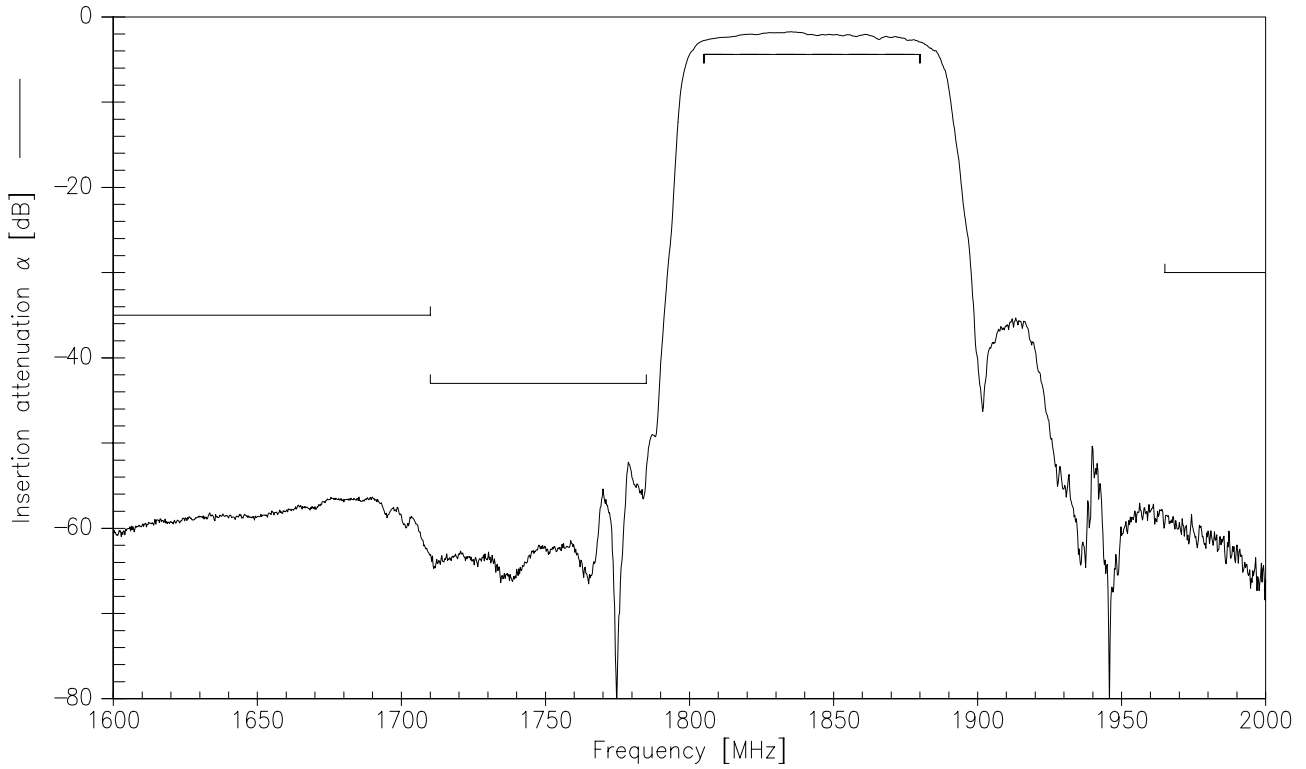




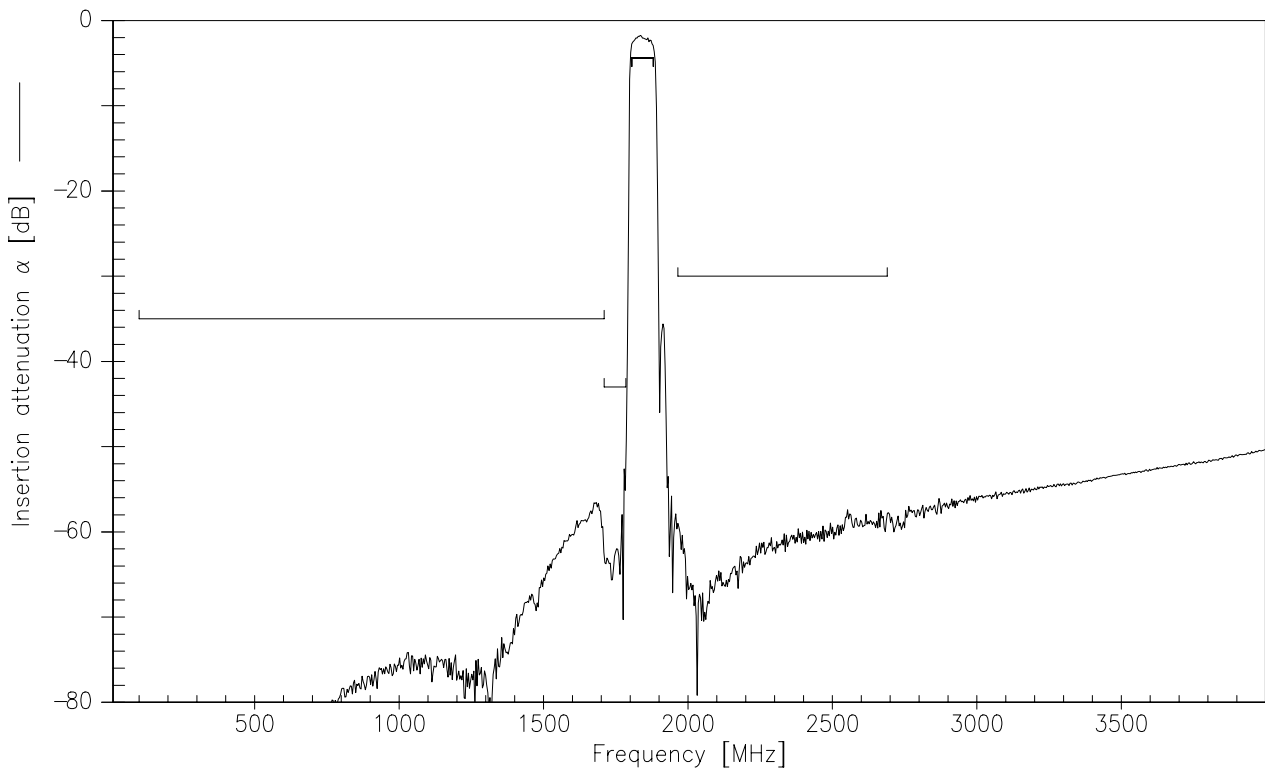
Data sheet



Frequency Response Rx-ANT



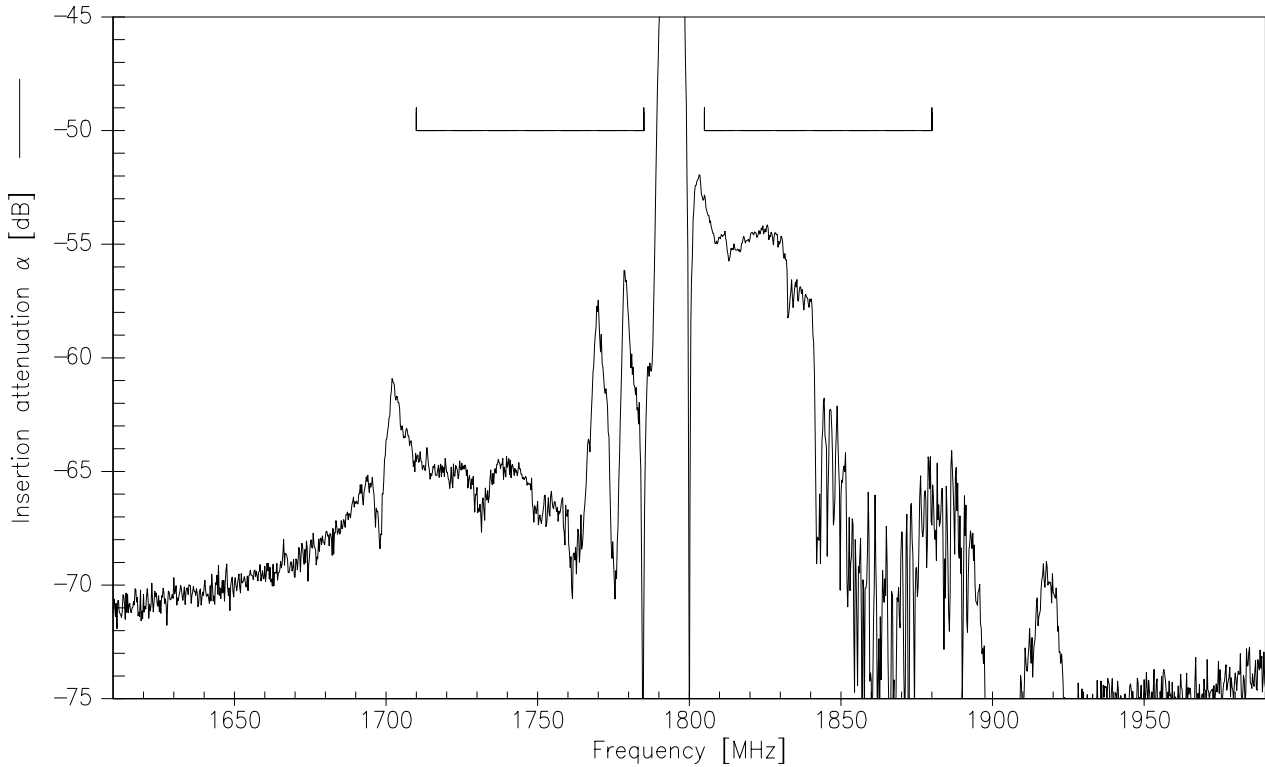
Frequency Response Rx-ANT (wideband)



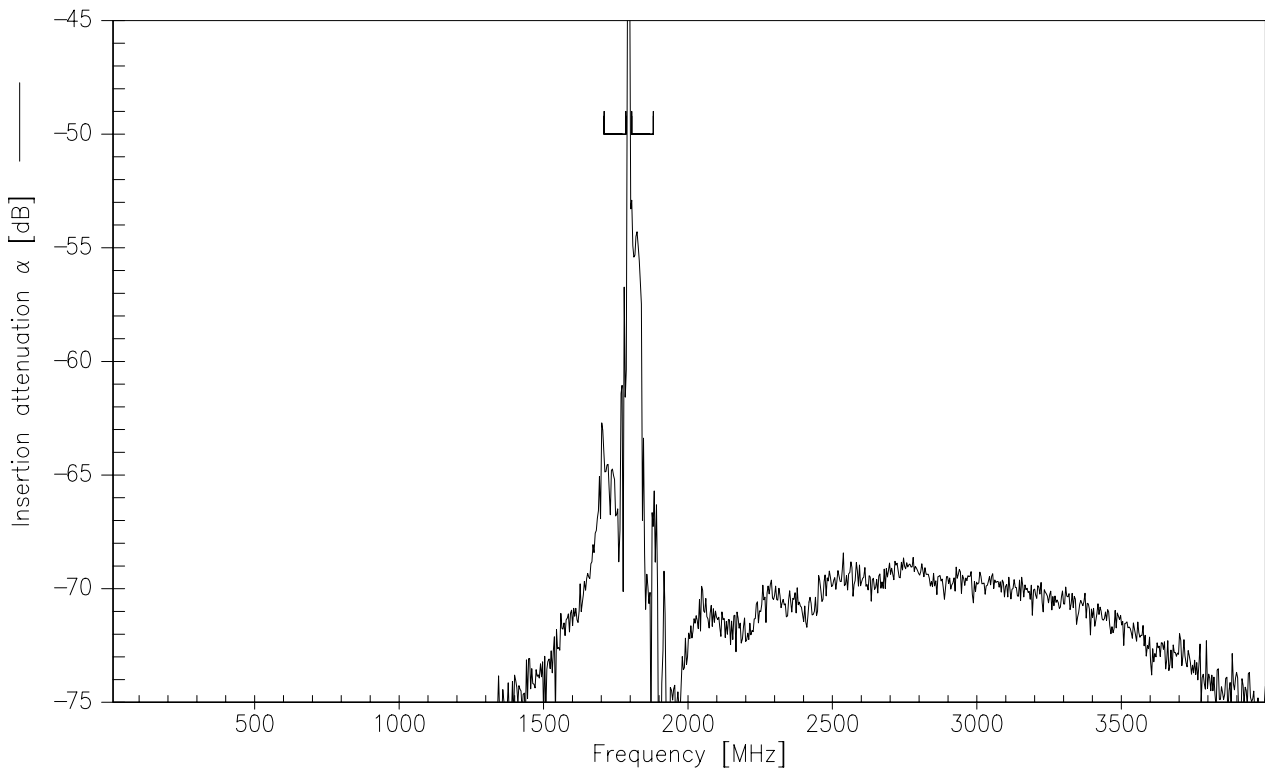
Data sheet



Frequency Response Tx-Rx (differential mode)

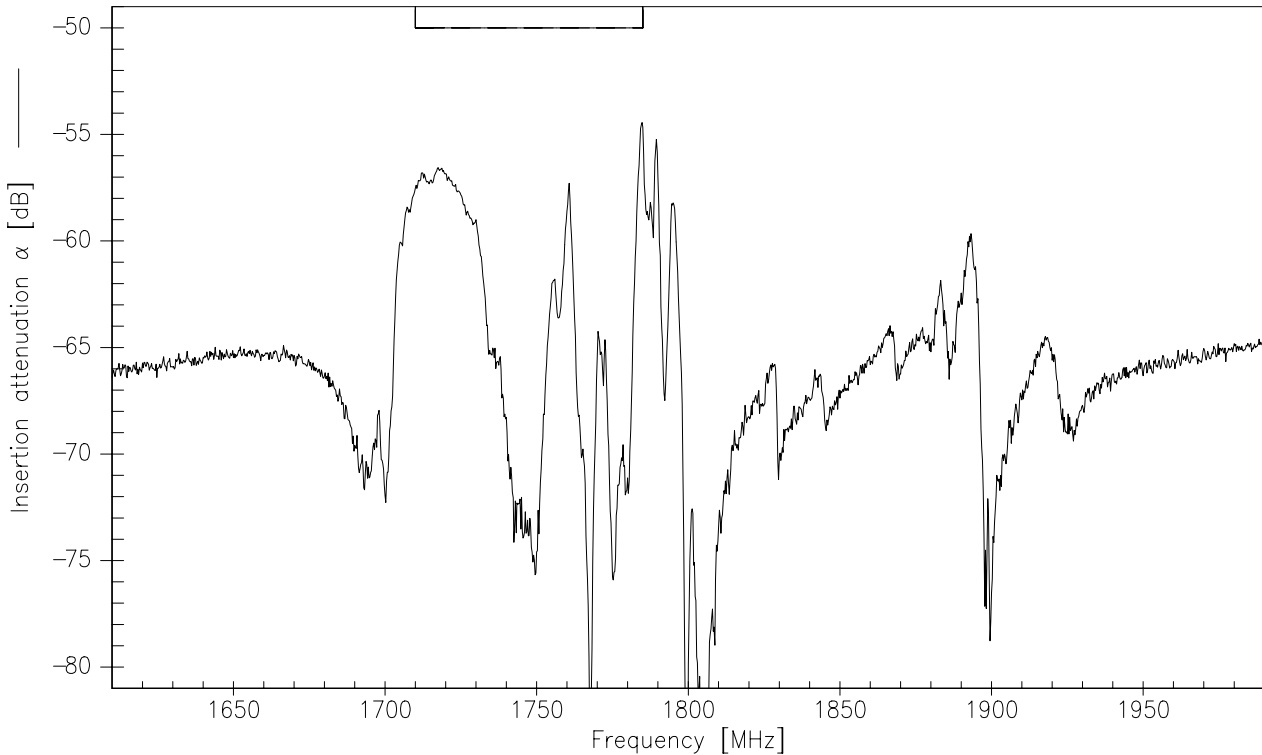


Frequency Response Tx-Rx (differential mode, wideband)

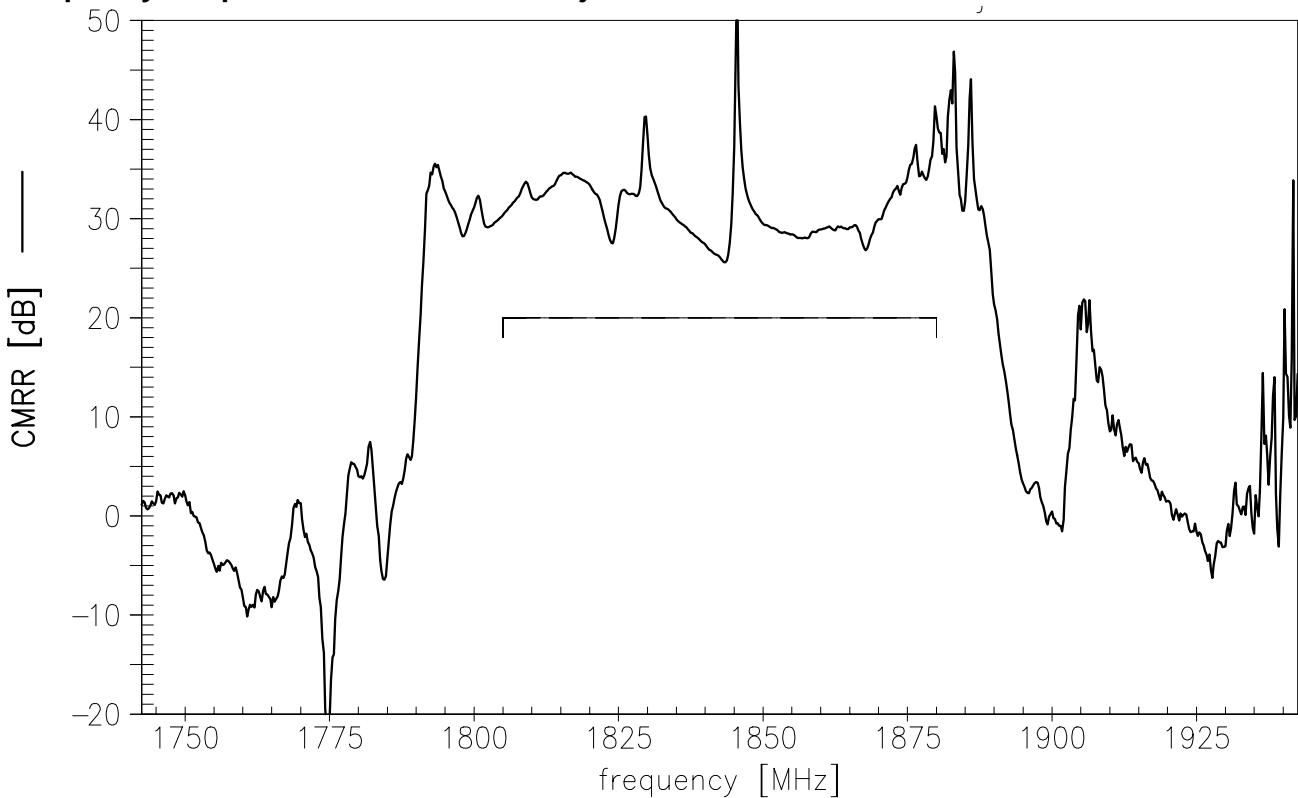




Frequency Response Tx-Rx (common mode)



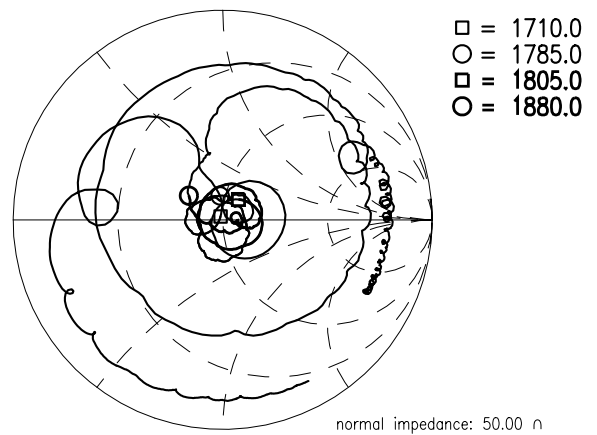
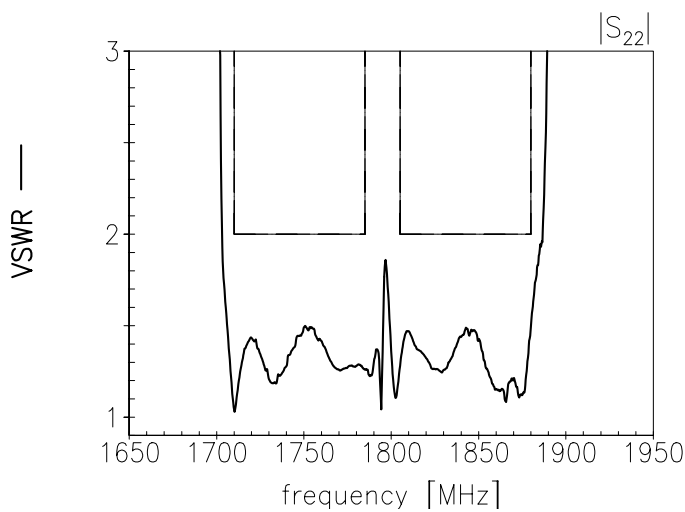
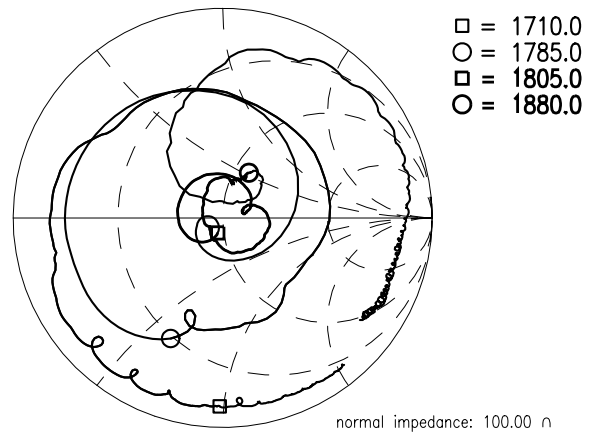
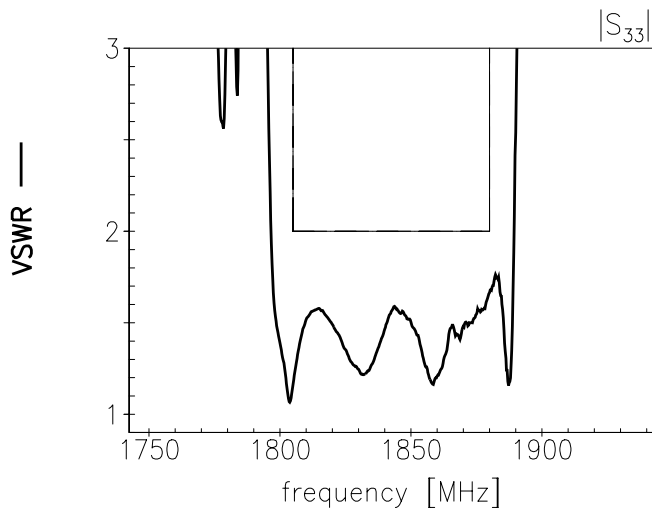
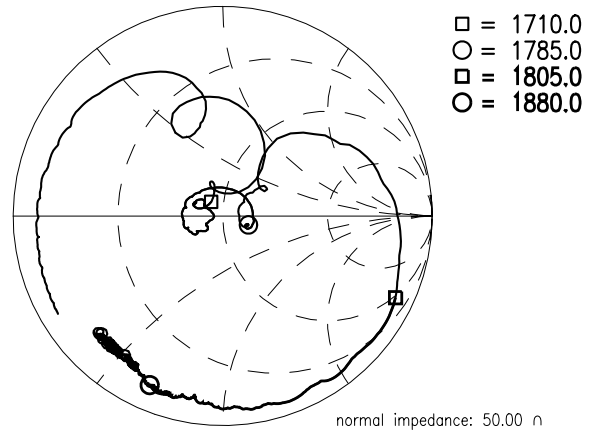
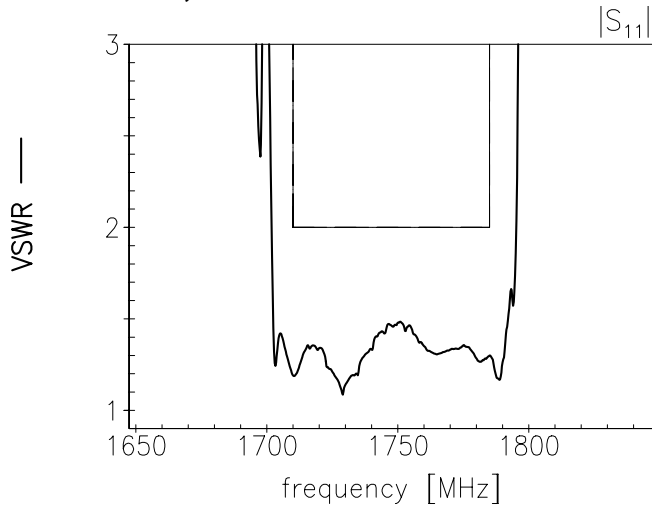
Frequency Response Common Mode Rejection Ratio



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
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