



RF360 Europe GmbH

A Qualcomm – TDK Joint Venture

## SAW Components

### SAW Duplexer

Automotive telematics

Series/type:	B4407
Ordering code:	B39741B4407P810
Date:	February 10, 2015
Version:	2.1

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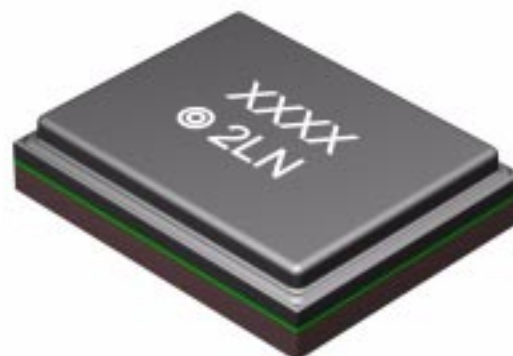
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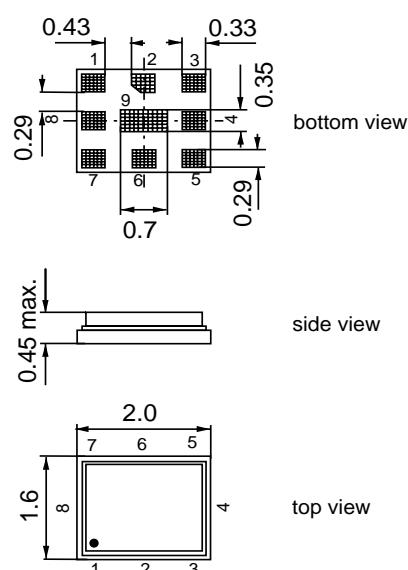
Data sheet


**Application**

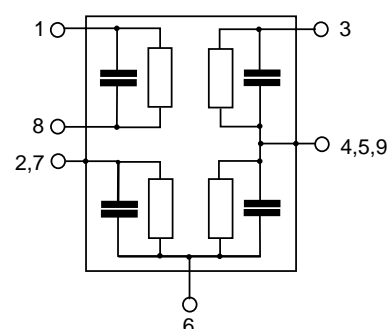
- Low-loss SAW duplexer for LTE band 17 (lower 700 MHz band, blocks B and C) systems
- Low insertion attenuation
- Low amplitude ripple
- Usable passband 12 MHz
- Single-ended to balanced transformation in Antenna-Rx path
- Impedance transformation 50 Ω to 100 Ω in Antenna-Rx path
- High isolation between Tx and Rx


**Features**

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


**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
Antenna terminating impedance:	Z <sub>ANT</sub> = 50 Ω    14.0 nH
RX terminating impedance:	Z <sub>RX</sub> = 100 Ω    40.0 nH
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>	—	710.0	—	MHz
<b>Maximum insertion attenuation</b>	α <sub>max</sub>				
704.0 ... 716.0 MHz		—	1.6	2.3	dB
<b>Amplitude ripple (p-p)</b>	Δα				
704.0 ... 716.0 MHz		—	0.5	1.2	dB
<b>Error Vector Magnitude</b>					
@f <sub>carrier</sub> 706.4 ... 713.6 MHz	EVM <sup>1)</sup>	—	1.4	3.4	%
<b>Input VSWR (TX port)</b>					
704.0 ... 716.0 MHz		—	1.6	2.0	
<b>Output VSWR (ANT port)</b>					
704.0 ... 716.0 MHz		—	1.6	2.0	
<b>Attenuation</b>	α				
50.0 ... 692.0 MHz		32	42	—	dB
692.0 ... 698.0 MHz		4	11	—	dB
722.0 ... 728.0 MHz		4	13	—	dB
729.0 ... 734.0 MHz		32	47	—	dB
734.0 ... 746.0 MHz		45	55	—	dB
746.0 ... 768.0 MHz		32	45	—	dB
768.0 ... 805.0 MHz		32	43	—	dB
869.0 ... 894.0 MHz		32	42	—	dB
1408.0 ... 1432.0 MHz		35	48	—	dB
1565.4 ... 1605.9 MHz		45	51	—	dB
1805.0 ... 1990.0 MHz		45	58	—	dB
2110.0 ... 2155.0 MHz		33	40	—	dB
2155.0 ... 2864.0 MHz		35	49	—	dB

1) Error Vector Magnitude (EVM) based on definition given in 3GPP TS 25.141.

Data sheet


**Characteristics**

Temperature range for specification:	T = -30 °C to +85 °C
Antenna terminating impedance:	Z <sub>ANT</sub> = 50 Ω    14.0 nH
RX terminating impedance:	Z <sub>RX</sub> = 100 Ω    40.0 nH
TX terminating impedance:	Z <sub>TX</sub> = 50 Ω

Characteristics RX - ANT		min.	typ. @ 25 °C	max.	
<b>Center frequency</b>	f <sub>C</sub>	—	740.0	—	MHz
<b>Maximum insertion attenuation</b>	α <sub>max</sub>	—	2.2	3.0	dB
734.0 ... 746.0 MHz					
<b>Amplitude ripple (p-p)</b>	Δα	—	0.8	1.6	dB
734.0 ... 746.0 MHz					
<b>Input VSWR (ANT port)</b>		—	1.5	2.0	
734.0 ... 746.0 MHz					
<b>Output VSWR (RX port)</b>		—	1.5	2.0	
734.0 ... 746.0 MHz					
<b>Common Mode Rejection Ratio</b>	CMRR	23	27	—	dB
734.0 ... 746.0 MHz					
<b>Attenuation</b>	α				
50.0 ... 704.0 MHz		45	56	—	dB
704.0 ... 716.0 MHz		50	55	—	
716.0 ... 722.0 MHz		40	48	—	dB
722.0 ... 724.0 MHz		30	38	—	
724.0 ... 727.0 MHz		15	27	—	dB
727.0 ... 728.0 MHz		12	19	—	
776.0 ... 793.0 MHz		35	47	—	dB
793.0 ... 3000.0 MHz		35	51	—	

Data sheet


**Characteristics**

Temperature range for specification:	T = -30 °C to +85 °C
Antenna terminating impedance:	Z <sub>ANT</sub> = 50 Ω    14.0 nH
RX terminating impedance:	Z <sub>RX</sub> = 100 Ω    40.0 nH
TX terminating impedance:	Z <sub>TX</sub> = 50 Ω

Characteristics TX - RX	min.	typ. @ 25 °C	max.	
<b>Differential mode isolation</b> α				
704.0 ... 716.0 MHz	52	55	—	dB
734.0 ... 746.0 MHz	52	58	—	dB
1408.0 ... 1432.0 MHz	50	69	—	dB
2112.0 ... 2148.0 MHz	50	64	—	dB
2816.0 ... 2864.0 MHz	50	61	—	dB
<b>Common mode isolation</b> α				
704.0 ... 716.0 MHz	41	44	—	dB

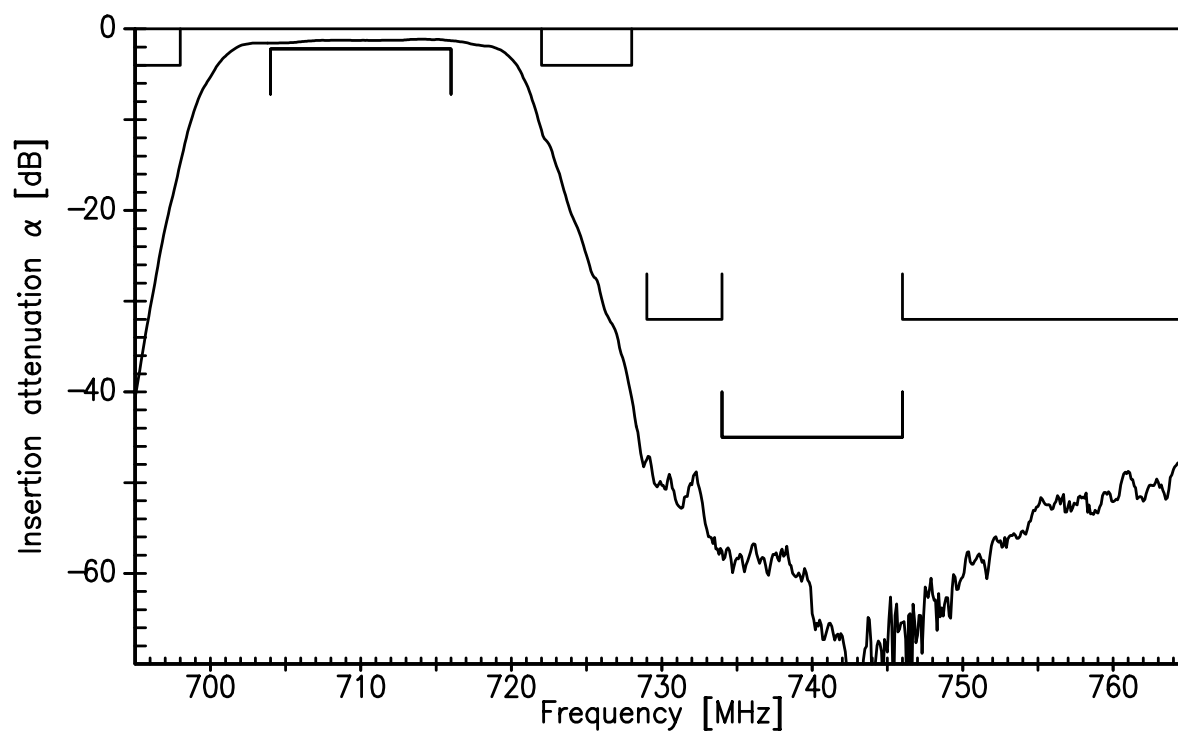
**Maximum ratings**

Operable temperature range	T	-40/+85	°C	source and load impedance 50 Ω } continuous wave } T = 55°C, 5000 hrs
Storage temperature range	T <sub>stg</sub>	-40/+85	°C	
DC voltage	V <sub>DC</sub>	0	V	
Input power at	P <sub>IN</sub>			
704.0 ... 716.0 MHz elsewhere		tbd. 10	dBm dBm	

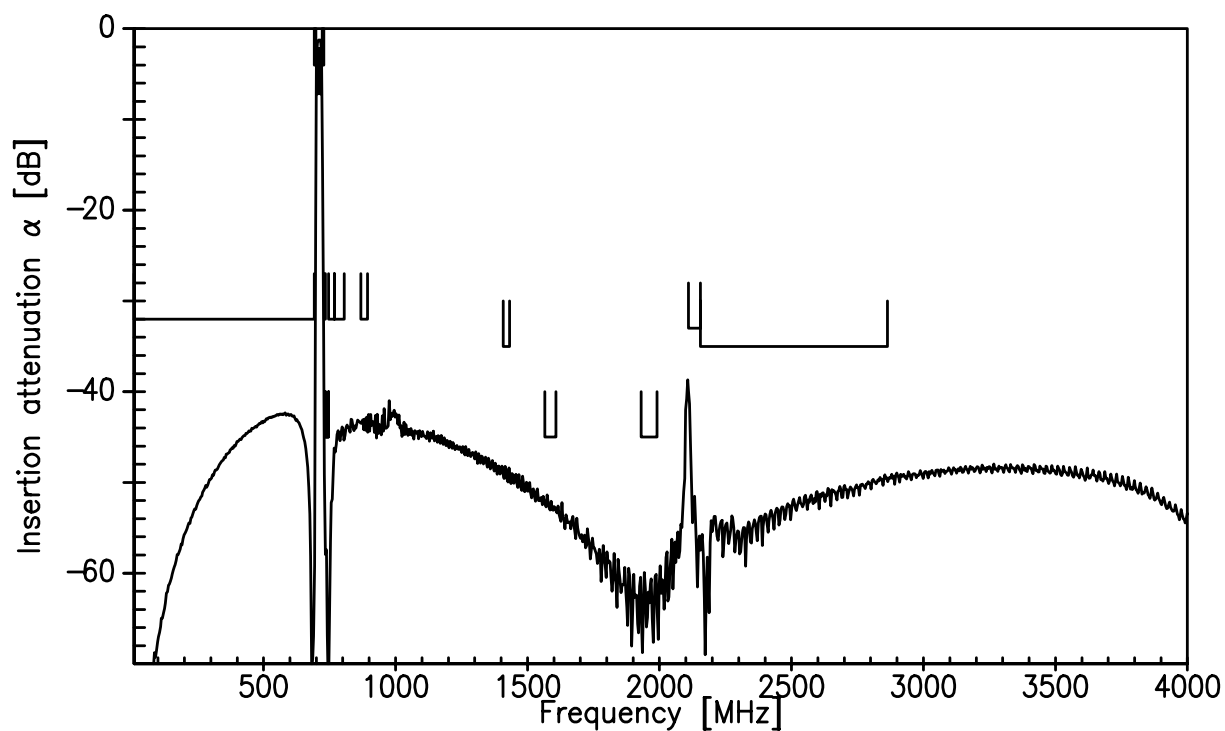
Data sheet



**Frequency Response TX-ANT**



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

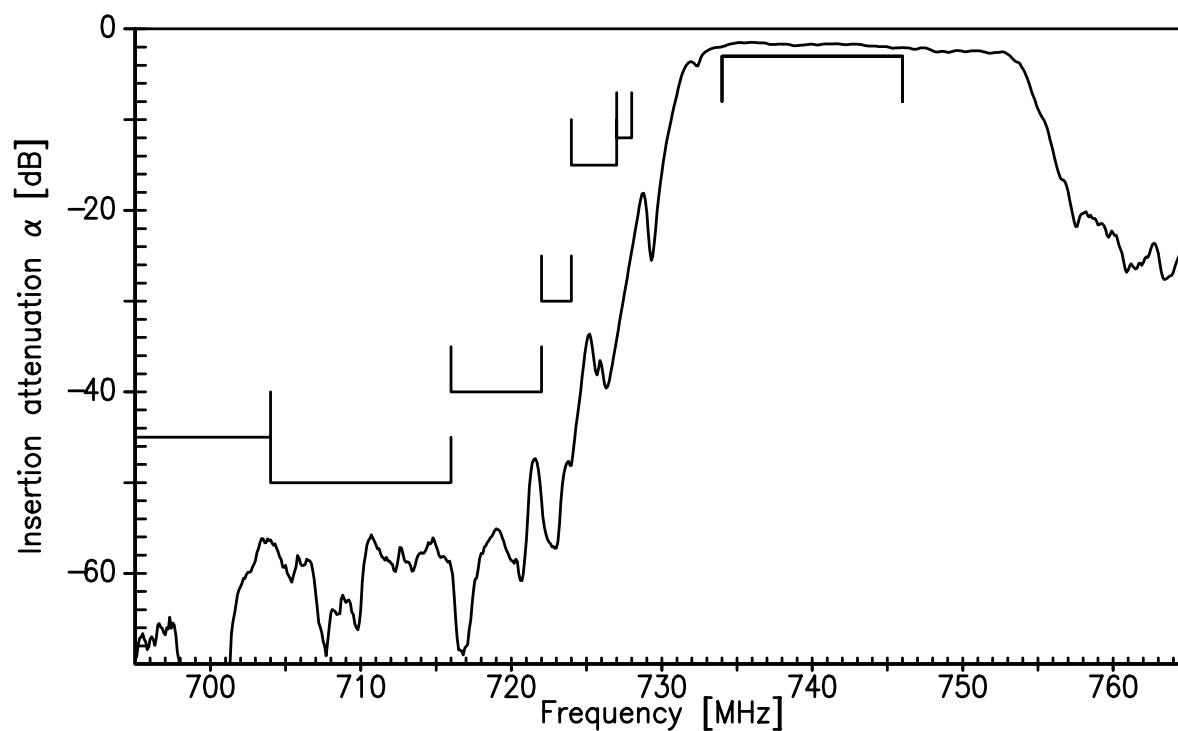




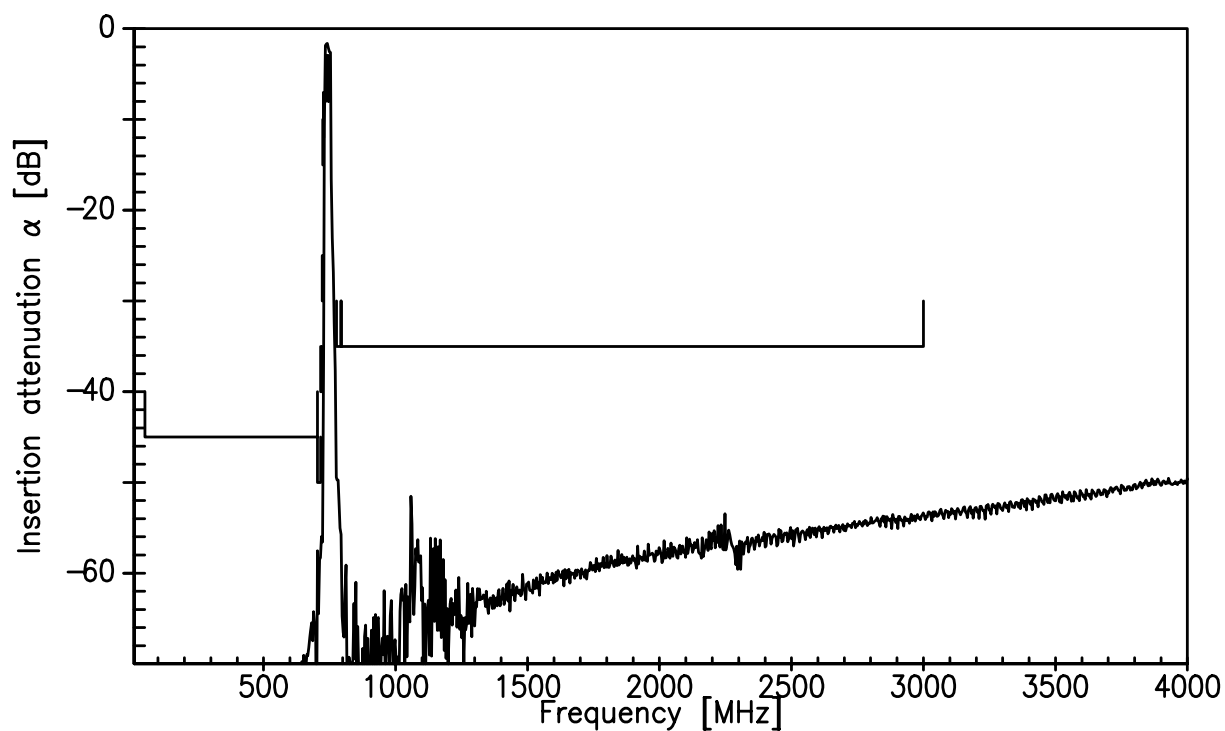
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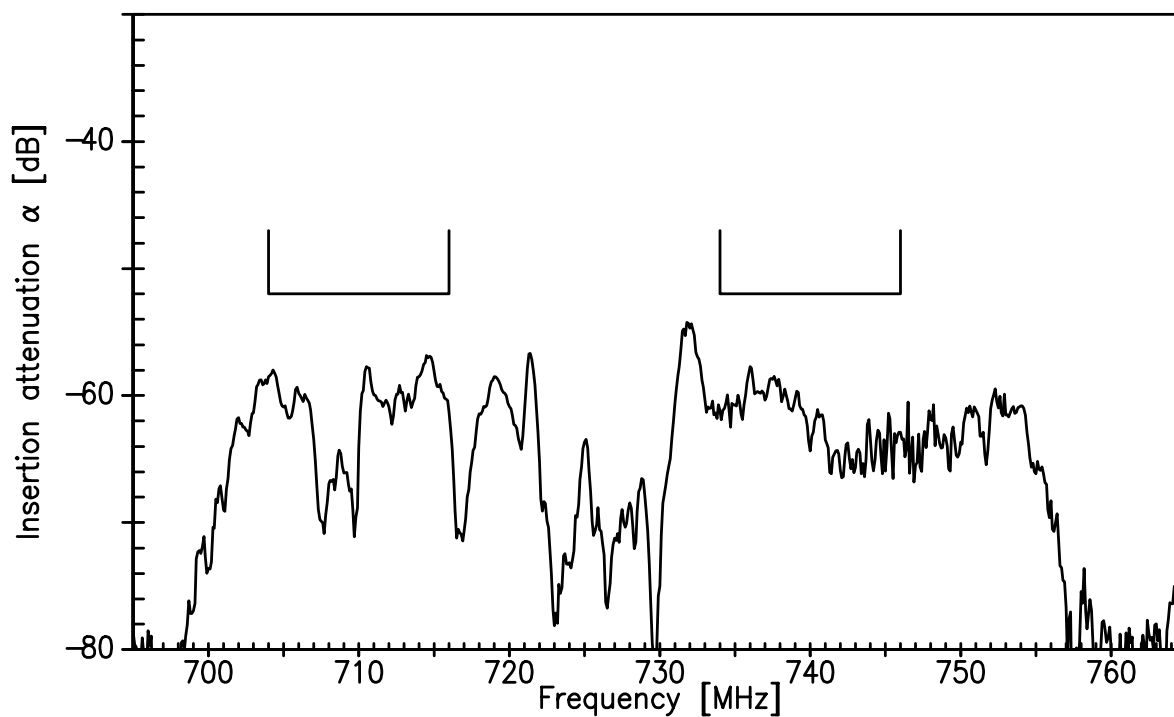
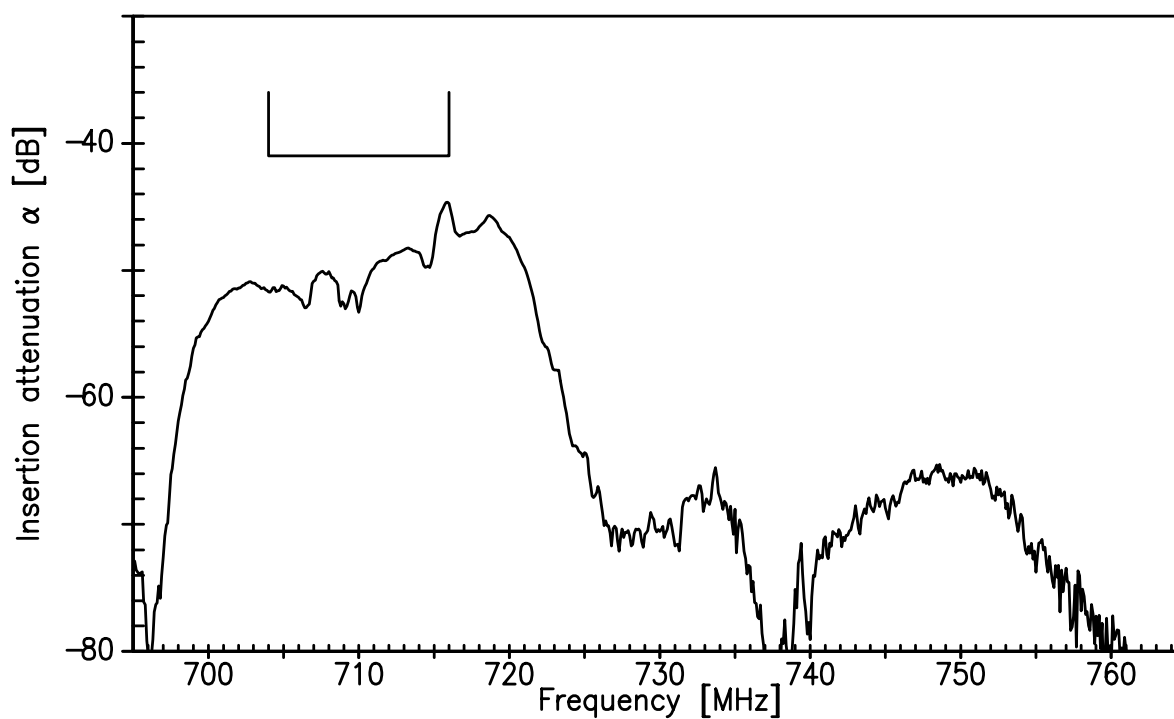
**Frequency Response RX-ANT**



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



Data sheet


**Frequency Response TX-RX : Differential mode isolation**

**Frequency Response TX-RX : Common mode isolation**


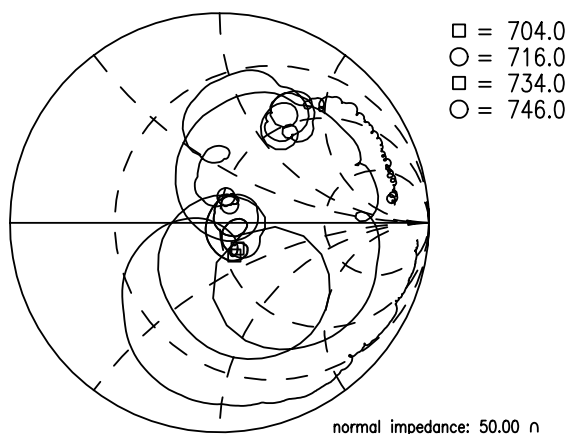
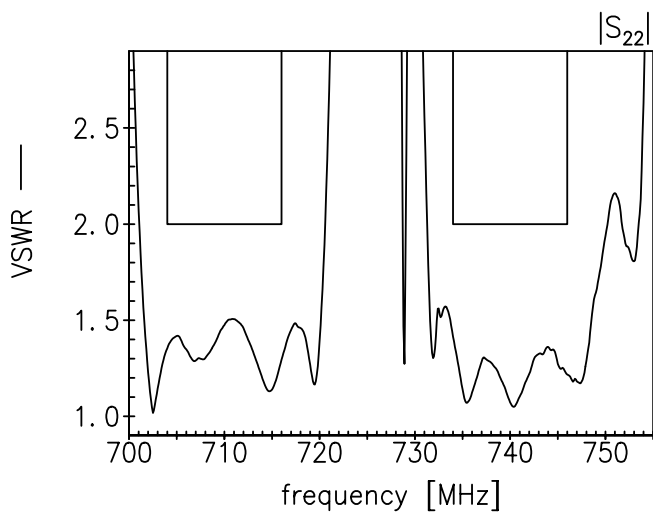
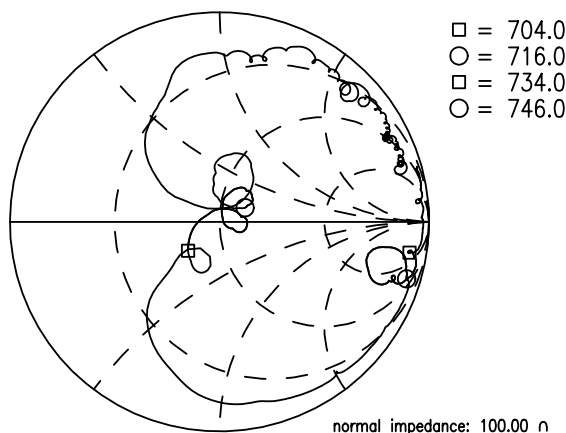
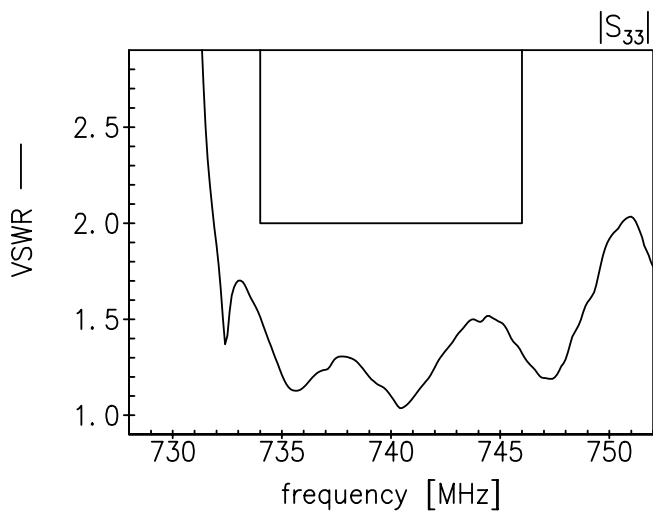
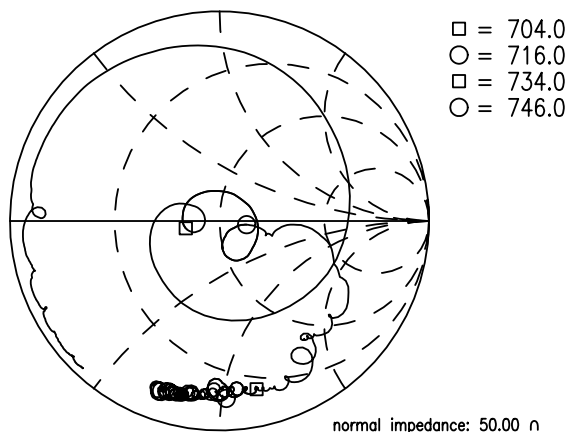
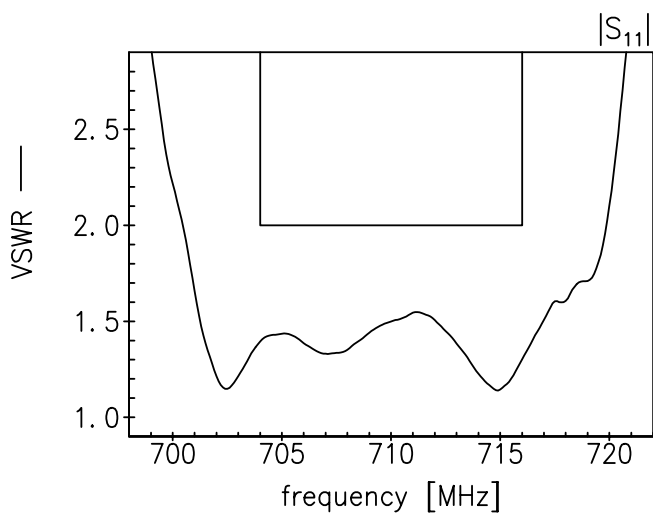
Data sheet



**VSWR  $S_{11}$  TX-port**

**$S_{33}$  RX-port**

**$S_{22}$  ANT-port**



Data sheet



References

<b>Type</b>	B4407
<b>Ordering code</b>	B39741B4407P810
<b>Marking and package</b>	C61157-A8-A64
<b>Packaging</b>	F61074-V8247-Z000
<b>Date codes</b>	L_1126
<b>S-parameters</b>	B4407_NB_UM.s4p, B4407_WB_UM.s4p See file header for port/pin 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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