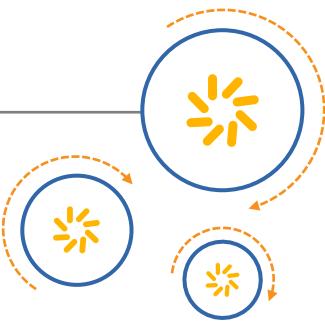




RF360 Europe GmbH

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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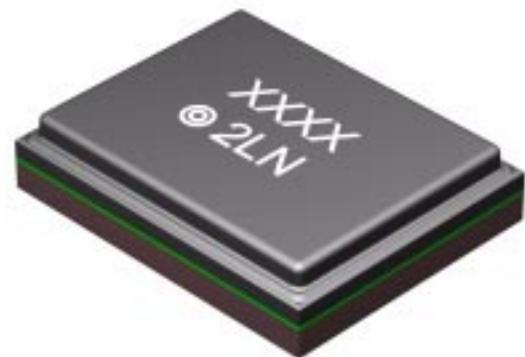
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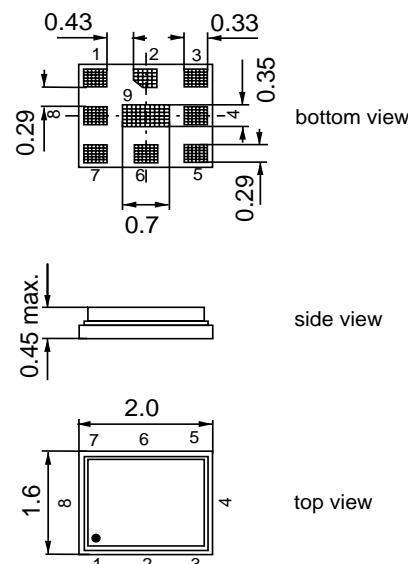
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**Application**

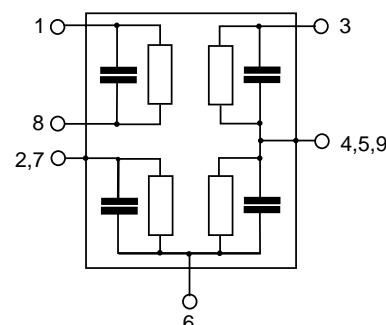
- Low-loss SAW duplexer for LTE band 17 (lower 700 MHz band, blocks B and C) systems
- Low insertion attenuation
- Low amplitude ripple
- Usable passband 12 MHz
- Single-ended to balanced transformation in Antenna-Rx path
- Impedance transformation 50 Ω to 100 Ω in Antenna-Rx path
- High isolation between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

**Features**

- Package size 2.0 * 1.6 mm²
- 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



SAW Components
B4407
SAW Duplexer
710.00 / 740.00 MHz
Data sheet

Characteristics

 Temperature range for specification: $T = -30^{\circ}\text{C}$ to $+85^{\circ}\text{C}$

 Antenna terminating impedance: $Z_{\text{ANT}} = 50\Omega \parallel 14.0\text{ nH}$

 RX terminating impedance: $Z_{\text{RX}} = 100\Omega \parallel 40.0\text{ nH}$

 TX terminating impedance: $Z_{\text{TX}} = 50\Omega$

Characterisitcs TX - ANT		min.	typ. @ 25 °C	max.	
Center frequency	f_{C}	—	710.0	—	MHz
Maximum insertion attenuation	α_{max}	—	1.6	2.3	dB
704.0 ... 716.0 MHz					
Amplitude ripple (p-p)	$\Delta\alpha$	—	0.5	1.2	dB
704.0 ... 716.0 MHz					
Error Vector Magnitude					
706.4 ... 713.6 MHz	EVM ¹⁾	—	1.4	3.4	%
Input VSWR (TX port)					
704.0 ... 716.0 MHz		—	1.6	2.0	
Output VSWR (ANT port)					
704.0 ... 716.0 MHz		—	1.6	2.0	
Attenuation	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.

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SAW Duplexer
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Characteristics

 Temperature range for specification: $T = -30^{\circ}\text{C}$ to $+85^{\circ}\text{C}$

 Antenna terminating impedance: $Z_{\text{ANT}} = 50\Omega \parallel 14.0\text{ nH}$

 RX terminating impedance: $Z_{\text{RX}} = 100\Omega \parallel 40.0\text{ nH}$

 TX terminating impedance: $Z_{\text{TX}} = 50\Omega$

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

SAW Components
B4407
SAW Duplexer
710.00 / 740.00 MHz
Data sheet

Characteristics

Temperature range for specification:

 $T = -30 \text{ }^{\circ}\text{C} \text{ to } +85 \text{ }^{\circ}\text{C}$

Antenna terminating impedance:

 $Z_{\text{ANT}} = 50 \Omega \parallel 14.0 \text{ nH}$

RX terminating impedance:

 $Z_{\text{RX}} = 100 \Omega \parallel 40.0 \text{ nH}$

TX terminating impedance:

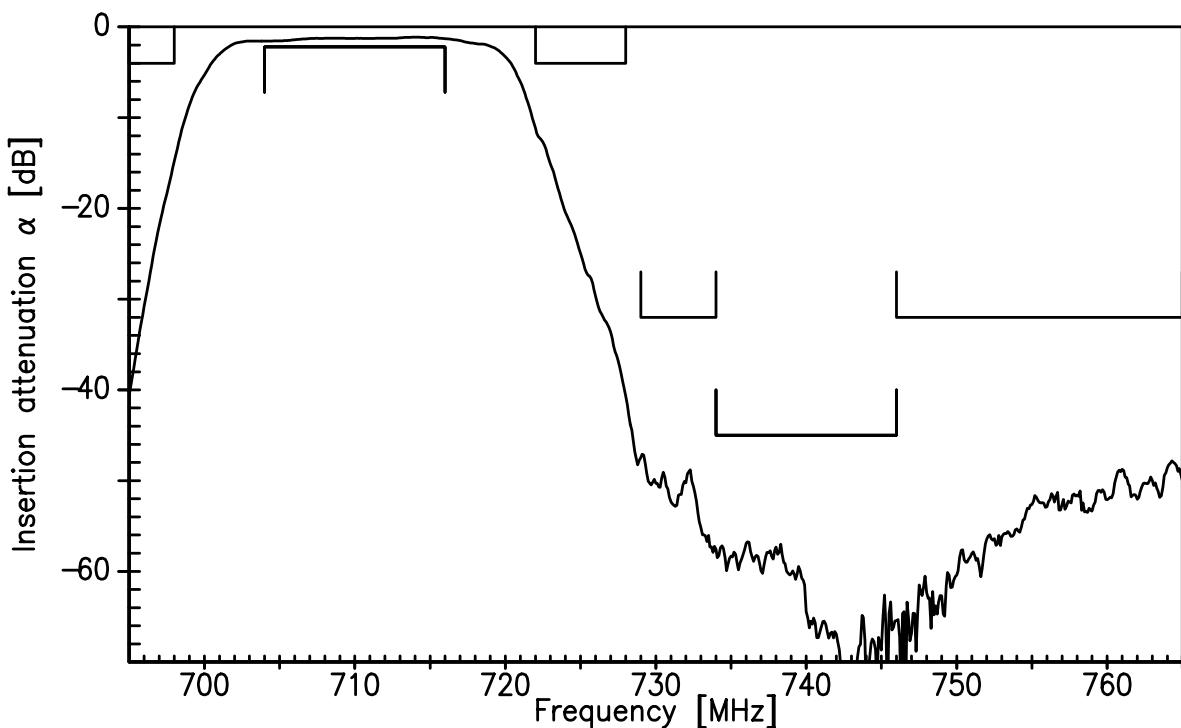
 $Z_{\text{TX}} = 50 \Omega$

Characteristics TX - RX		min.	typ. @ 25 °C	max.	
Differential mode isolation	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
Common mode isolation	α				
704.0 ... 716.0	MHz	41	44	—	dB

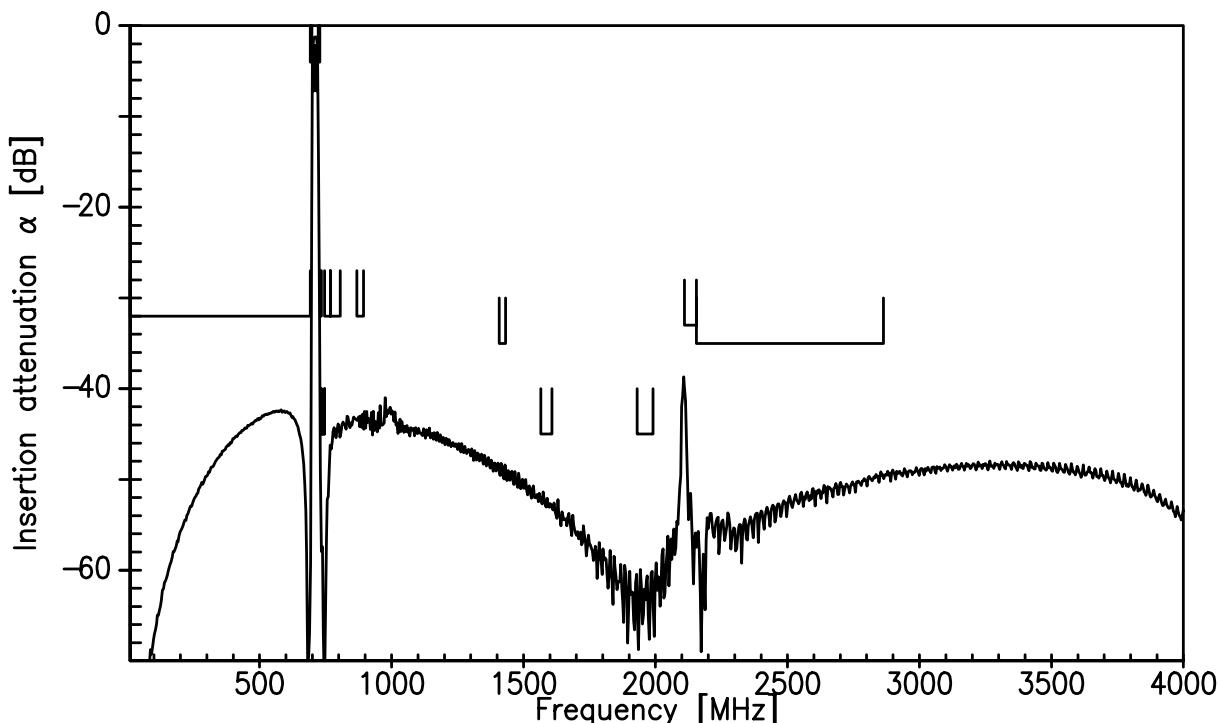
Maximum ratings

Operable temperature range	T	-40/+85	°C		
Storage temperature range	T_{stg}	-40/+85	°C		
DC voltage	V_{DC}	0	V		
Input power at	P_{IN}			source and load impedance 50 Ω	
704.0 ... 716.0 MHz		tbd.	dBm	continuous wave $T = 55 \text{ }^{\circ}\text{C}, 5000 \text{ hrs}$	
elsewhere		10	dBm		

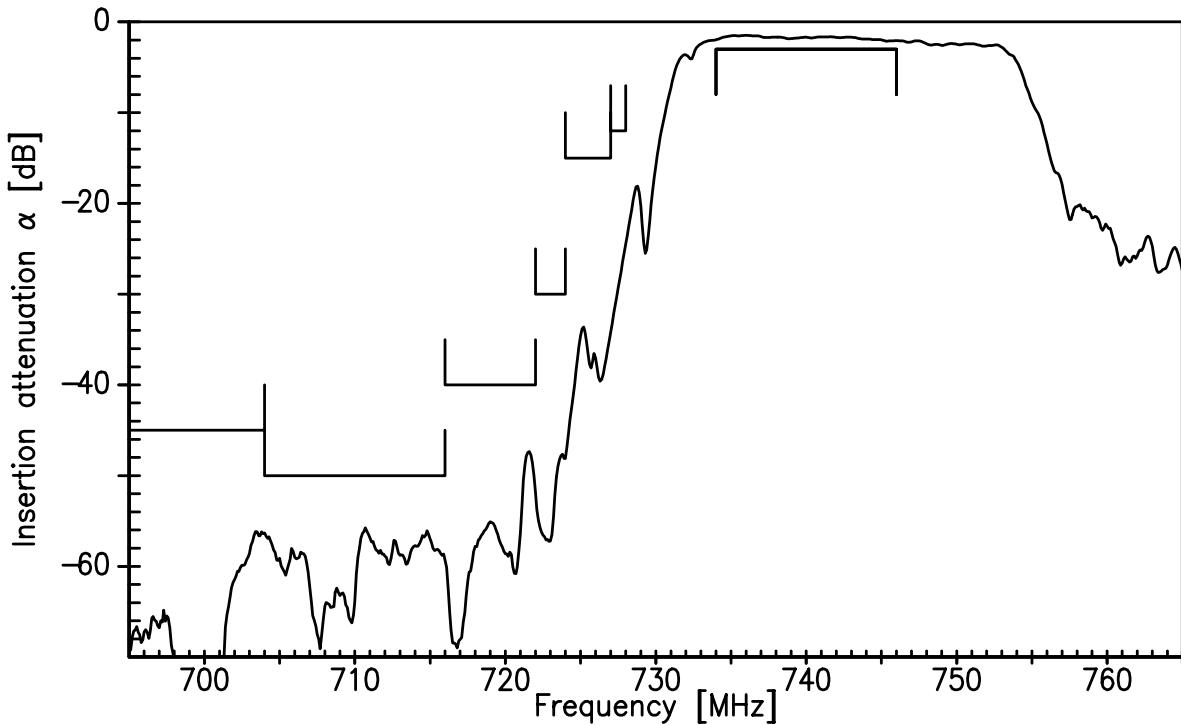
Frequency Response TX-ANT



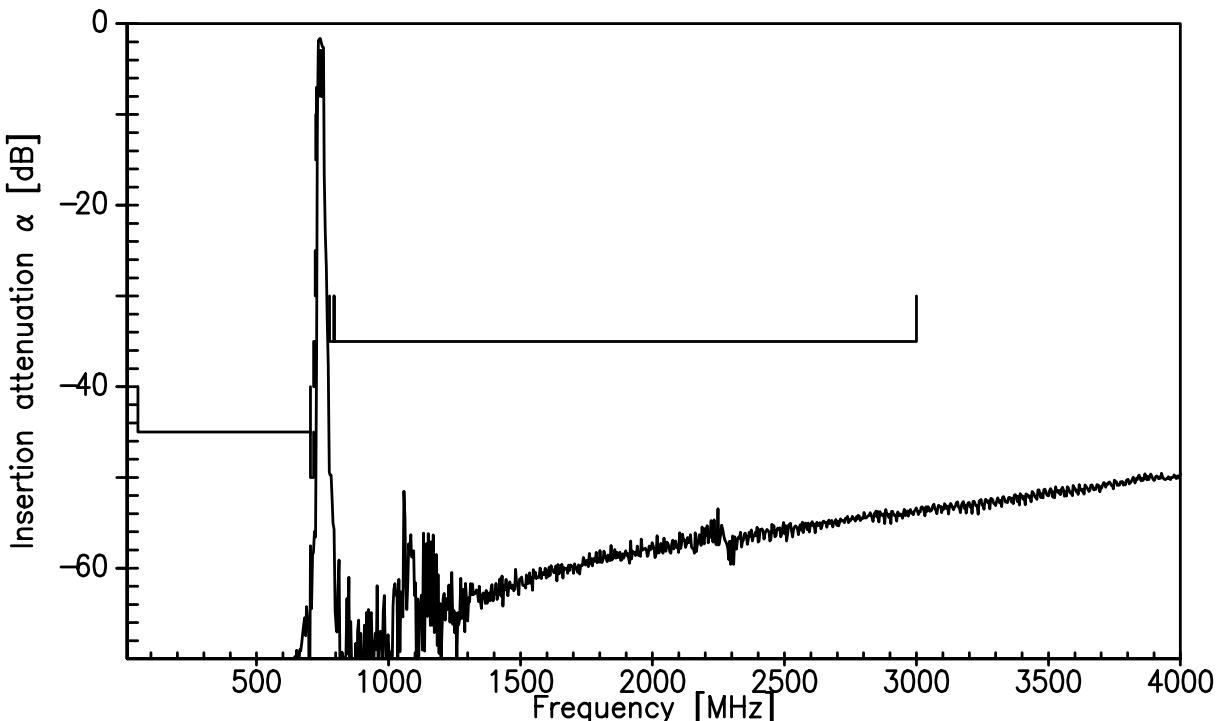
Frequency Response TX-ANT (wideband)



Frequency Response RX-ANT



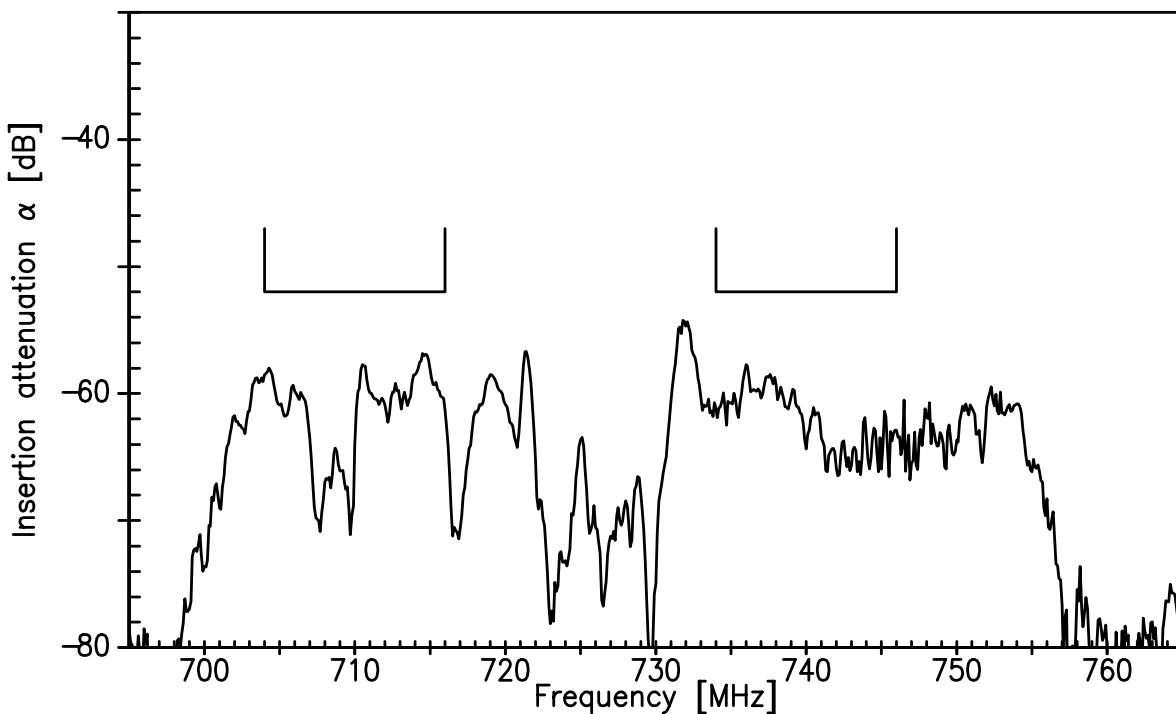
Frequency Response RX-ANT (wideband)



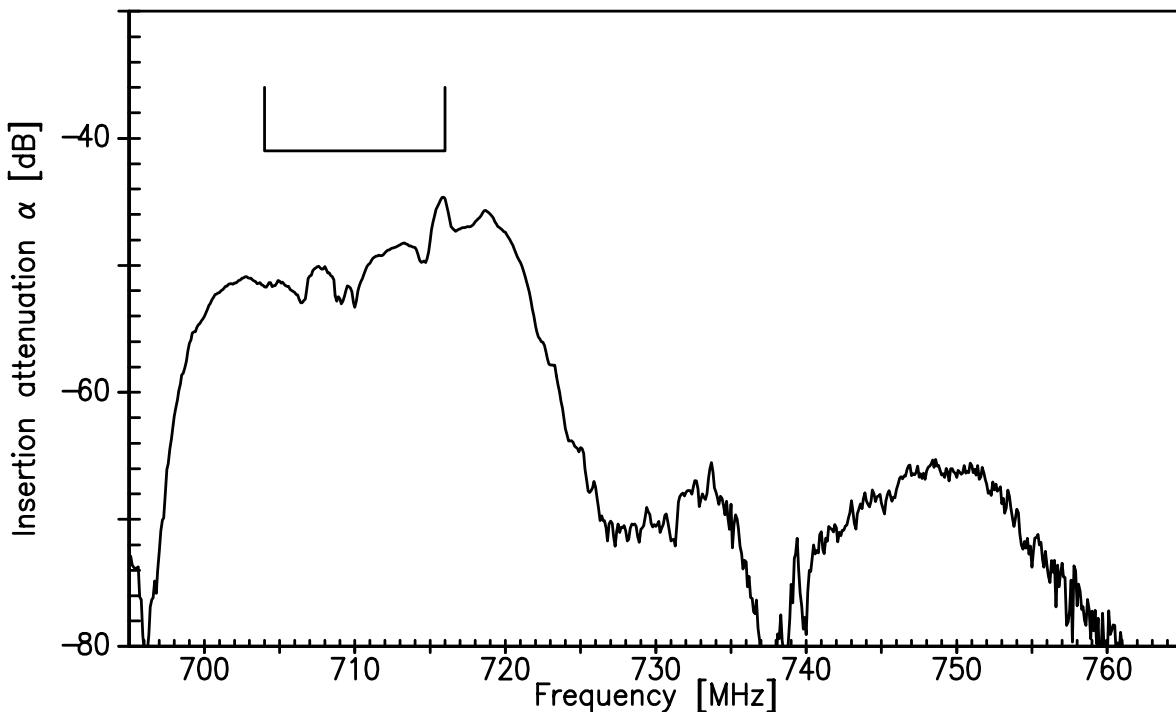
Data sheet

SMD

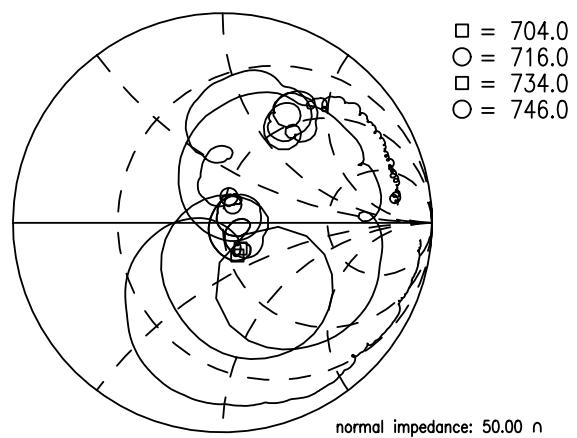
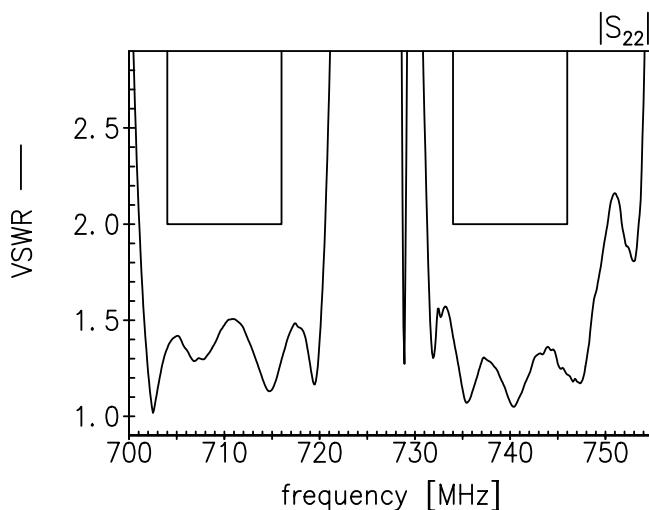
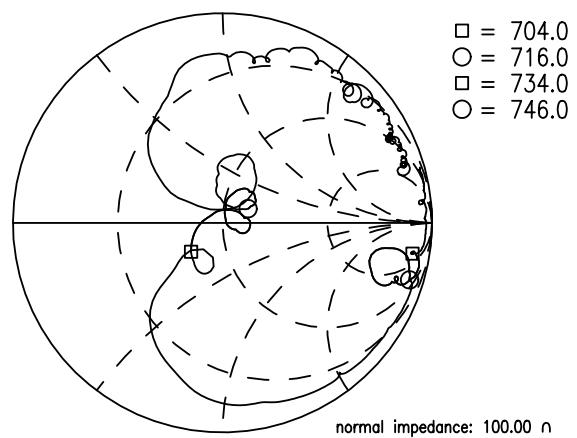
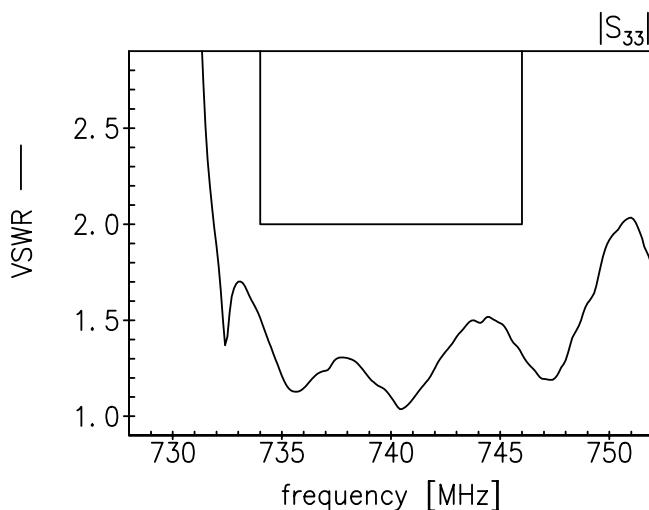
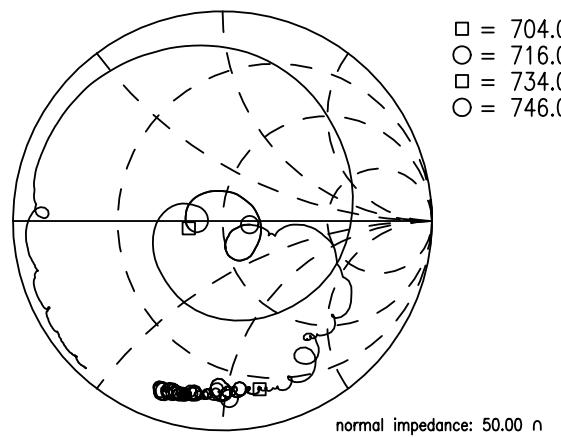
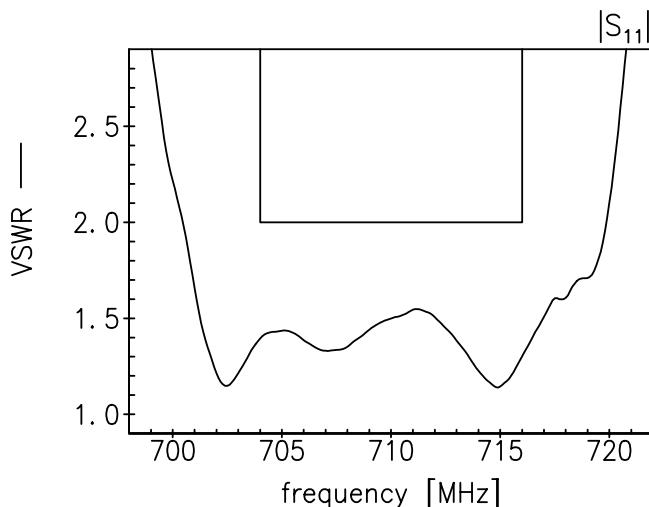
Frequency Response TX-RX : Differential mode isolation



Frequency Response TX-RX : Common mode isolation



SAW Components
B4407
SAW Duplexer
710.00 / 740.00 MHz
Data sheet
VSWR S₁₁ TX- port
S₃₃ RX-port

S₂₂ ANT-port


SAW Components	B4407
SAW Duplexer	710.00 / 740.00 MHz
Data sheet	
References	

Type	B4407
Ordering code	B39741B4407P810
Marking and package	C61157-A8-A64
Packaging	F61074-V8247-Z000
Date codes	L_1126
S-parameters	B4407_NB_UM.s4p, B4407_WB_UM.s4p 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 8 th , 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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