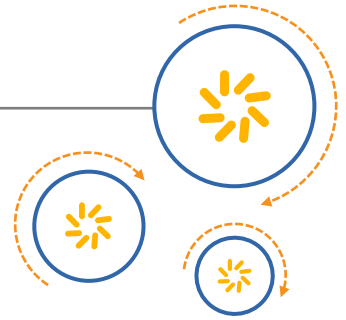


RF360 Europe GmbH

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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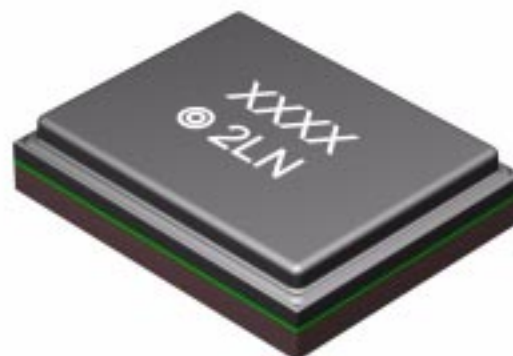
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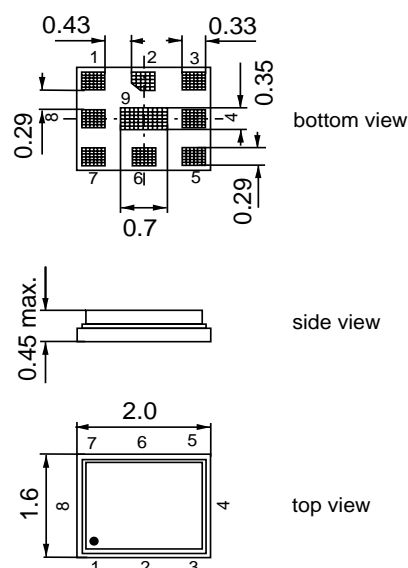
Application

- 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



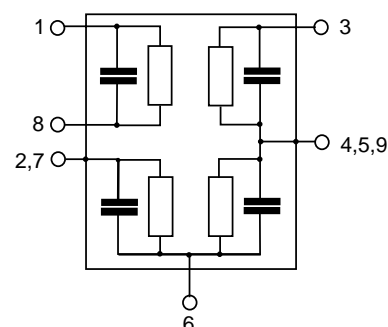
Features

- 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 °C to +85 °C
Antenna terminating impedance:	Z _{ANT} = 50 Ω 14.0 nH
RX terminating impedance:	Z _{RX} = 100 Ω 40.0 nH
TX terminating impedance:	Z _{TX} = 50 Ω

Characterisitcs TX - ANT				min.	typ. @ 25 °C	max.	
Center frequency	f _C			—	710.0	—	MHz
Maximum insertion attenuation	α _{max}						
704.0 ... 716.0 MHz				—	1.6	2.3	dB
Amplitude ripple (p-p)	Δα						
704.0 ... 716.0 MHz				—	0.5	1.2	dB
Error Vector Magnitude							
@f _{carrier} 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.

SAW Components
B4407
SAW Duplexer
710.00 / 740.00 MHz
Data sheet

Characteristics

Temperature range for specification:	T = -30 °C to +85 °C
Antenna terminating impedance:	Z _{ANT} = 50 Ω 14.0 nH
RX terminating impedance:	Z _{RX} = 100 Ω 40.0 nH
TX terminating impedance:	Z _{TX} = 50 Ω

Characteristics 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)	Δα			—	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

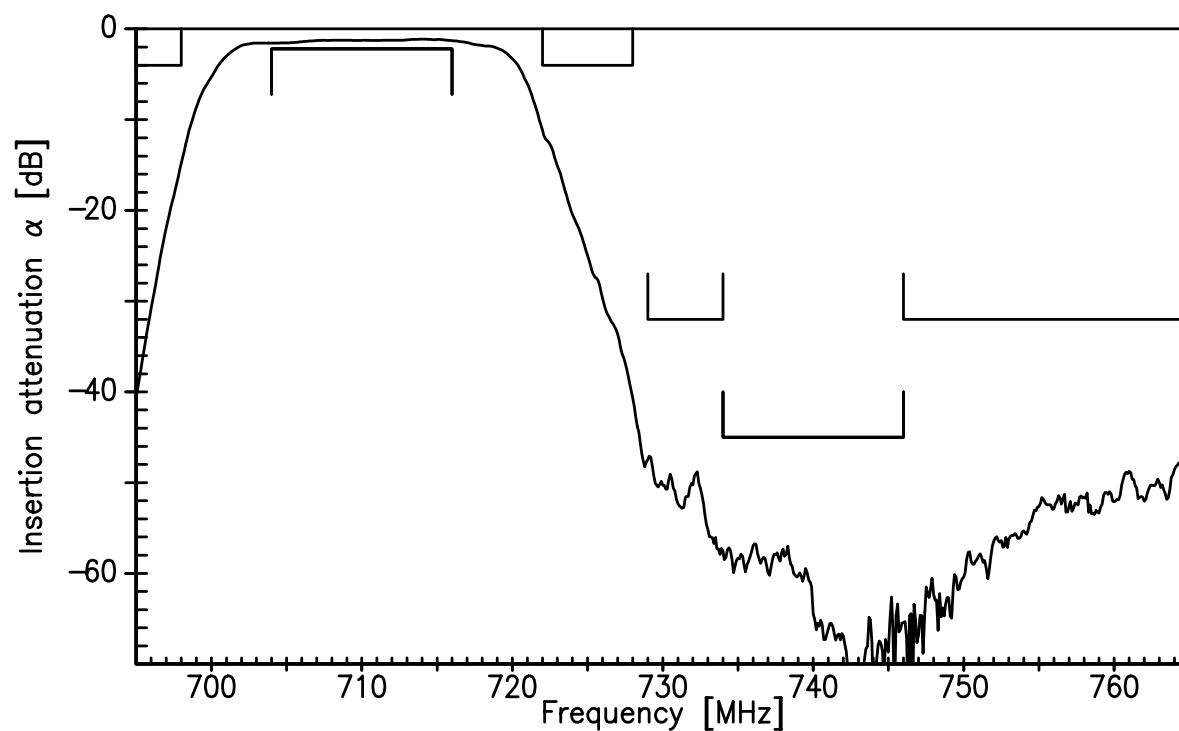
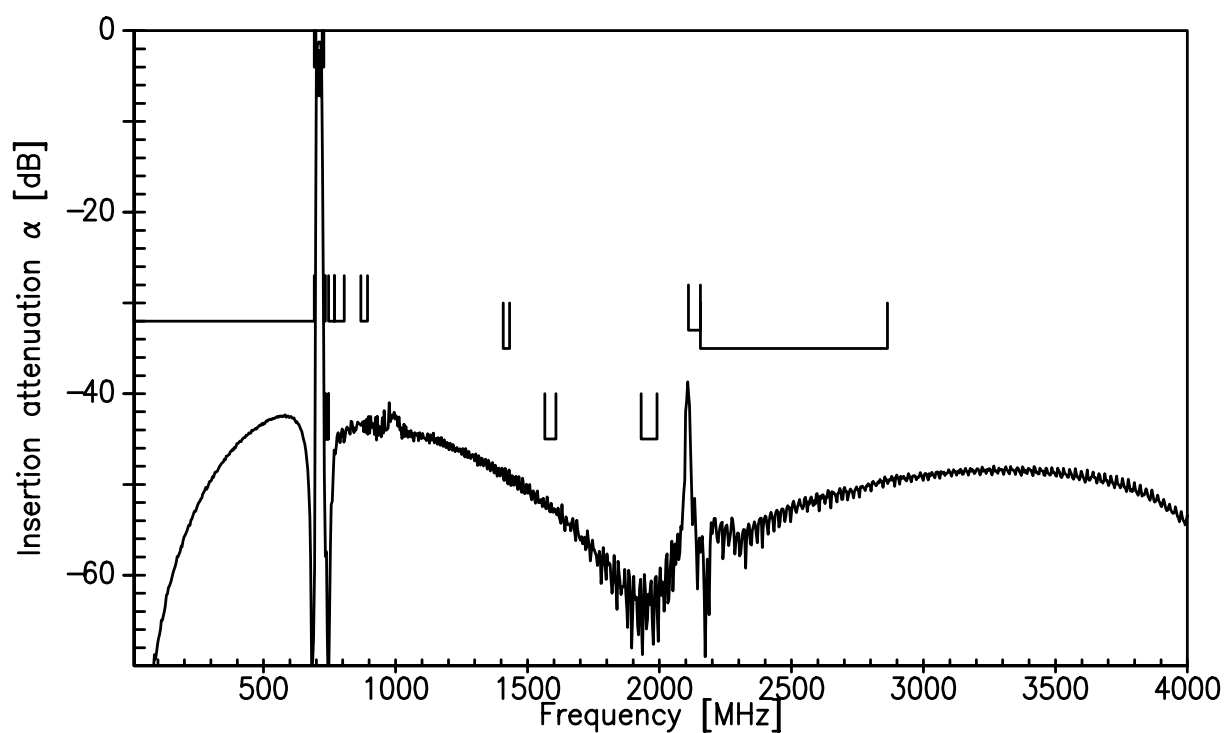
Characteristics

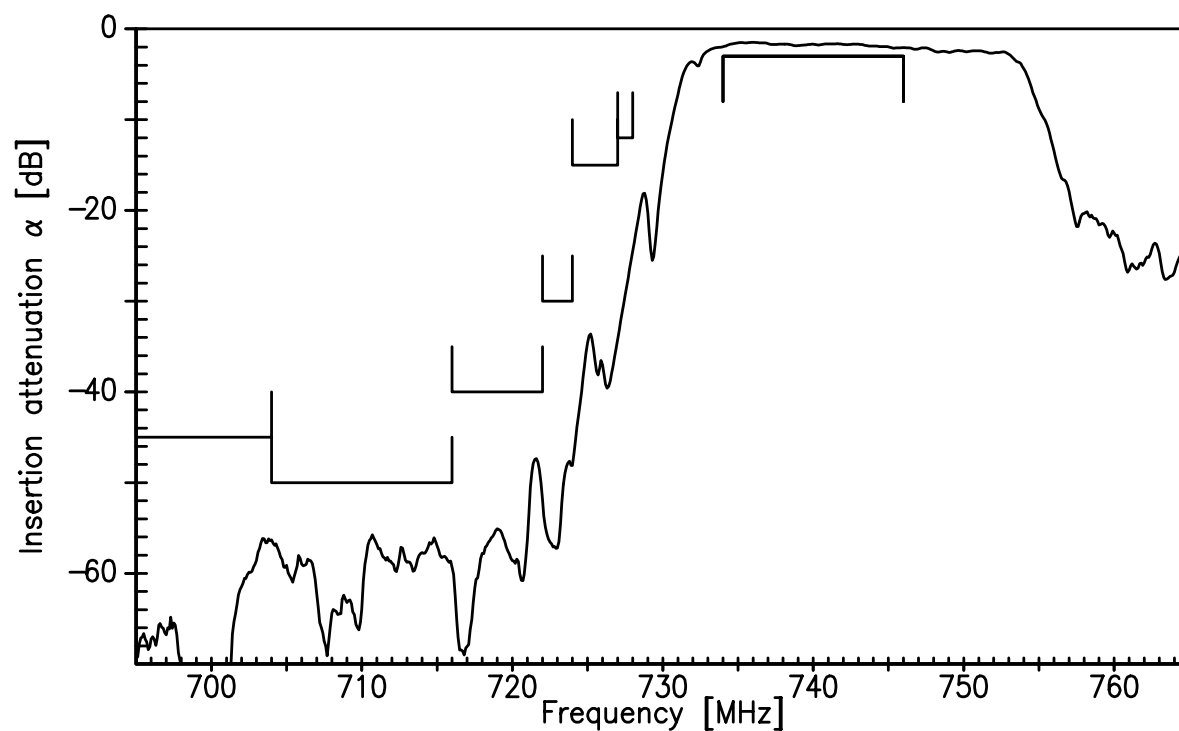
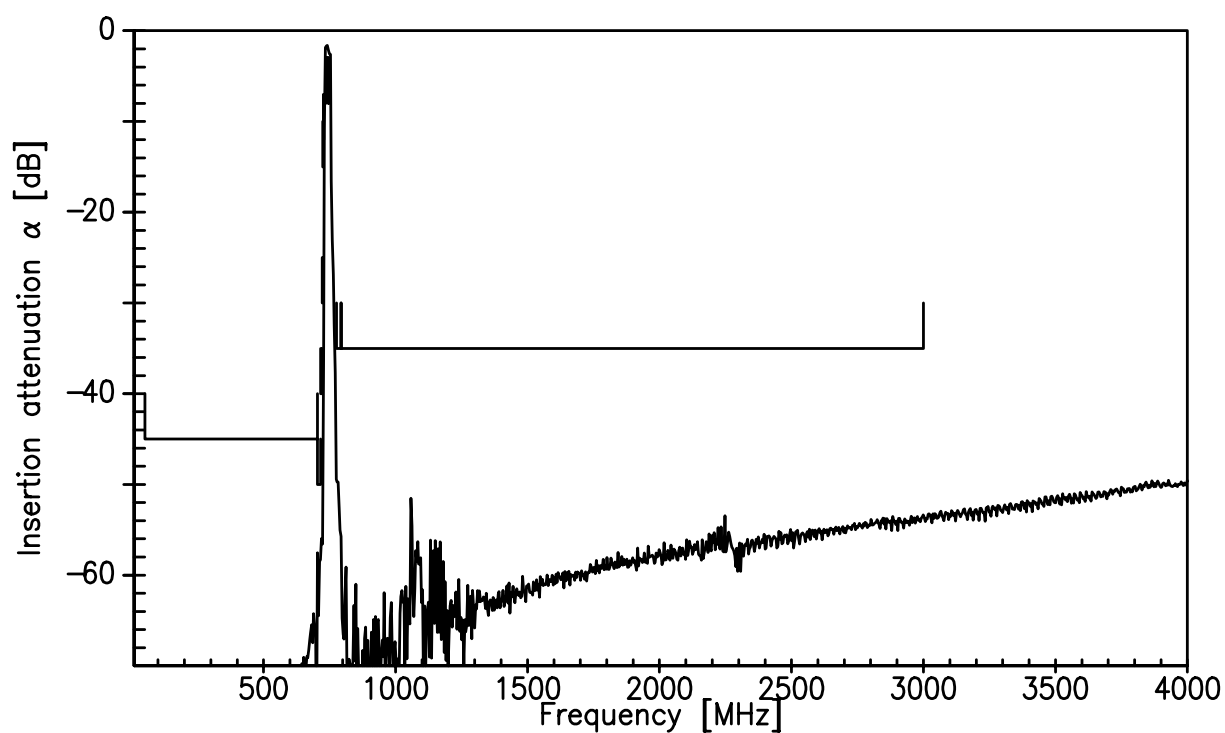
Temperature range for specification:	T = -30 °C to +85 °C
Antenna terminating impedance:	Z _{ANT} = 50 Ω 14.0 nH
RX terminating impedance:	Z _{RX} = 100 Ω 40.0 nH
TX terminating impedance:	Z _{TX} = 50 Ω

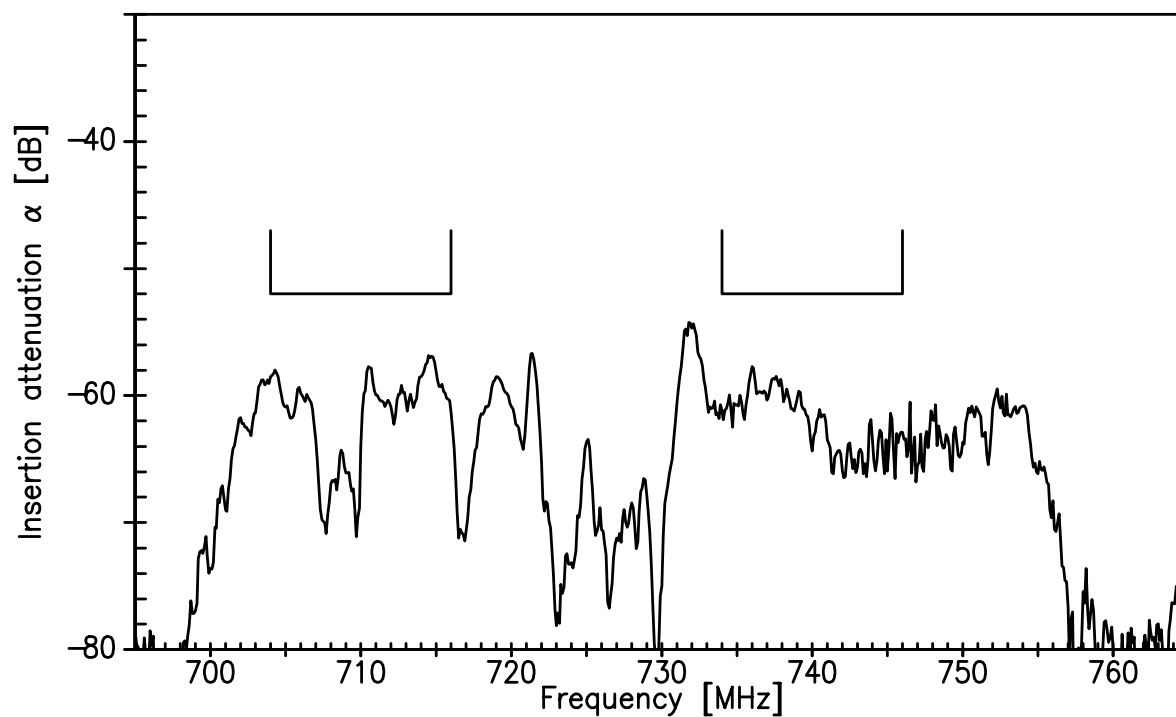
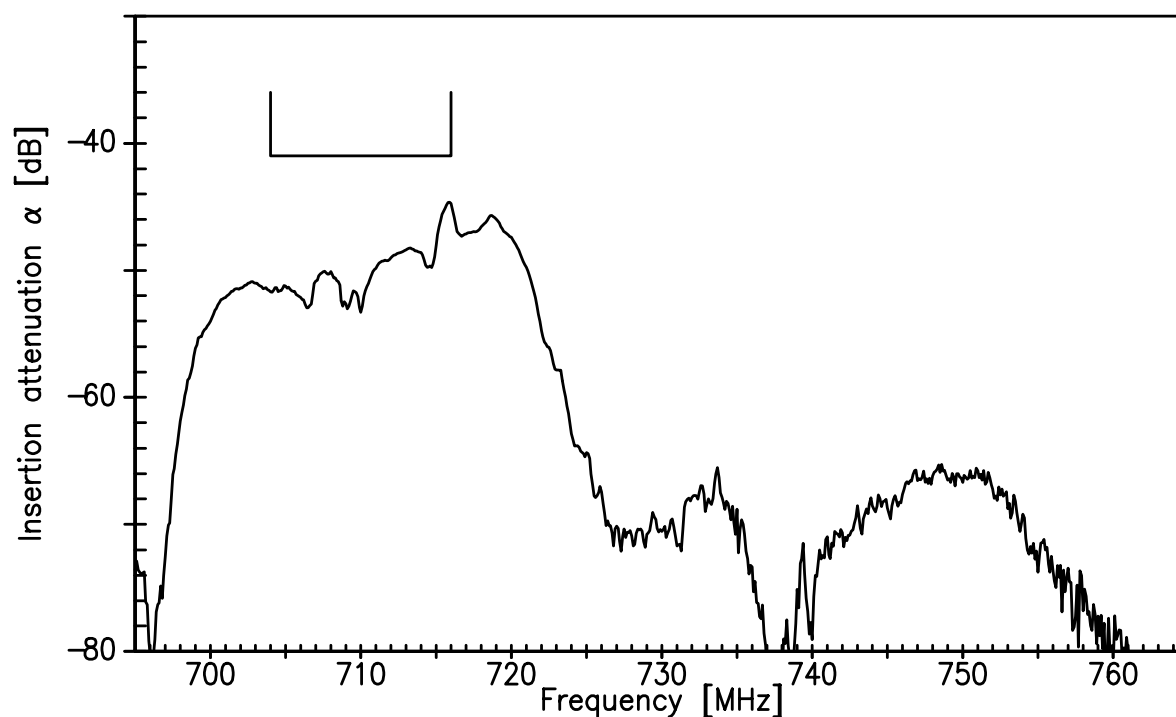
Characterisitcs TX - RX	min.	typ. @ 25 °C	max.	
Differential mode isolation α				
704.0 ... 716.0 MHz	52	55	—	dB
734.0 ... 746.0 MHz	52	58	—	dB
1408.0 ... 1432.0 MHz	50	69	—	dB
2112.0 ... 2148.0 MHz	50	64	—	dB
2816.0 ... 2864.0 MHz	50	61	—	dB
Common mode isolation α				
704.0 ... 716.0 MHz	41	44	—	dB

Maximum ratings

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

Frequency Response TX-ANT

Frequency Response TX-ANT (wideband)


Frequency Response RX-ANT

Frequency Response RX-ANT (wideband)


Frequency Response TX-RX : Differential mode isolation

Frequency Response TX-RX : Common mode isolation


SAW Components

B4407

SAW Duplexer

710.00 / 740.00 MHz

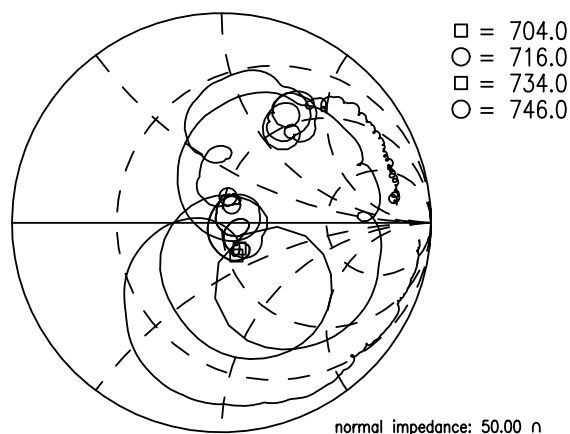
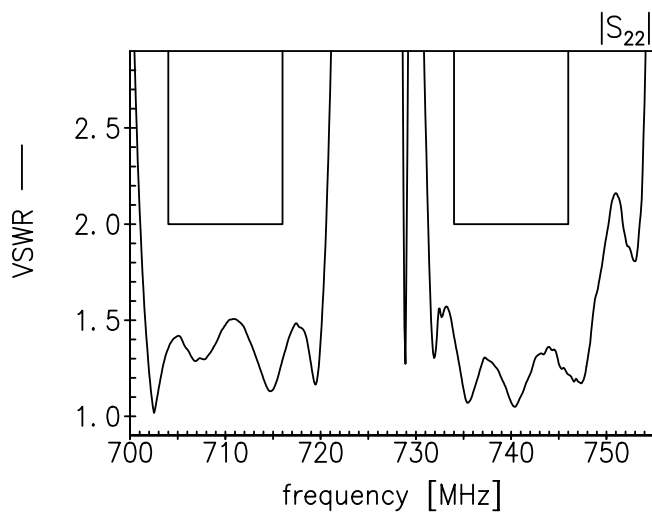
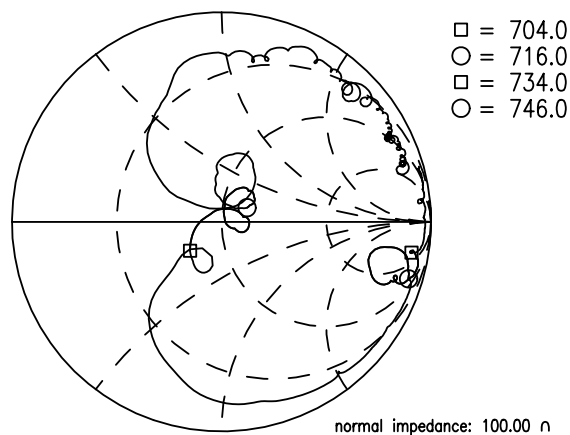
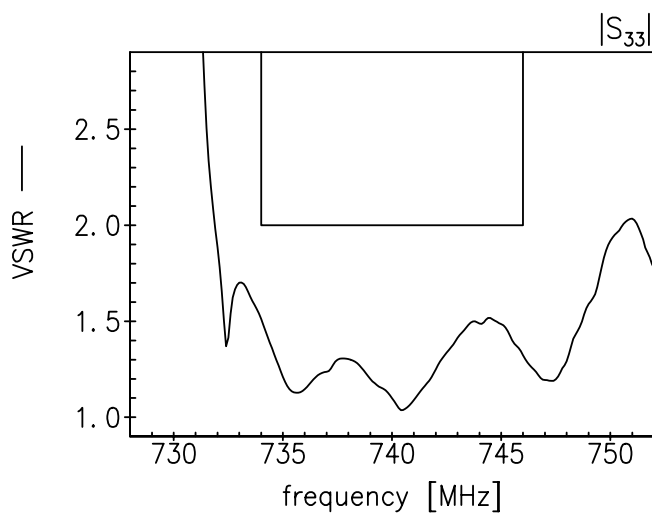
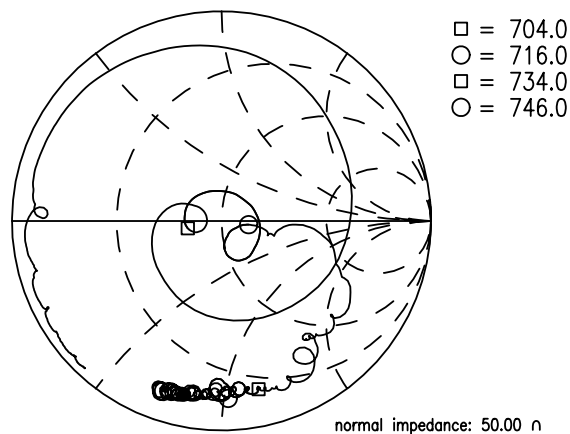
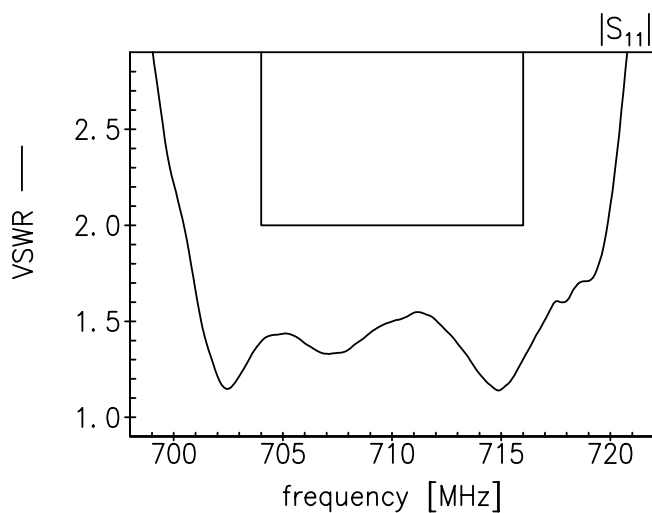
Data sheet



VSWR S_{11} TX- port

S_{33} RX-port

S_{22} 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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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

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Published by EPCOS AG

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