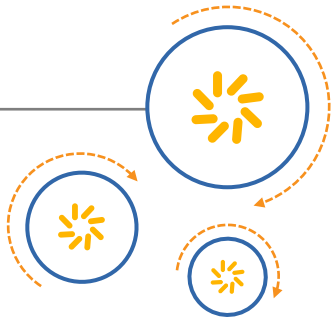
RF360 Europe GmbH

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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SAW Duplexer

Automotive telematics

Series/type:	**B4407**
Ordering code:	**B39741B4407P810**
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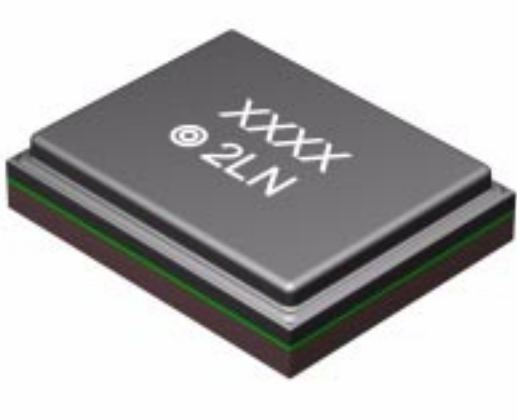
EPCOS AG is a TDK Group Company.

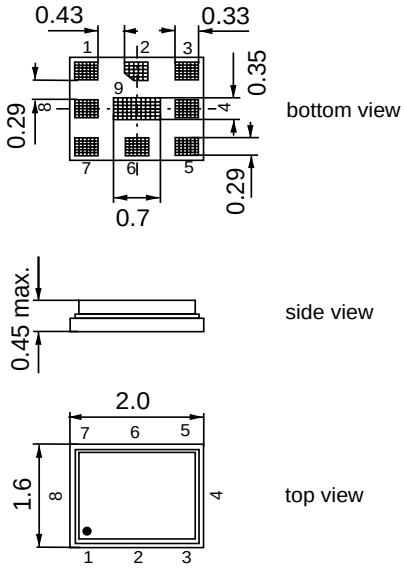
Application

- 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



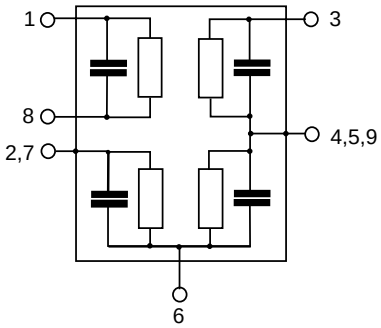
Features

- Package size 2.0 * 1.6 mm²
- Package height max. 0.45 mm
- RoHS compatible
- Approximate weight 0.005 g
- Package for **S**urface **M**ount **T**echnology (**SMT**)
- Ni terminals, Au-plated
- AEC-Q200 qualified component family (operable temperature range -40˚C to +85˚C)
- **E**lectrostatic **S**ensitive **D**evice (**ESD**)



Pin configuration

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



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)	$\Delta\alpha$				
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.

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 RX - ANT				min.	typ. @ 25 ˚C	max.	
Center frequency			f_C	—	740.0	—	MHz
Maximum insertion attenuation			α_{max}				
734.0	...	746.0	MHz	—	2.2	3.0	dB
Amplitude ripple (p-p)			$\Delta\alpha$				
734.0	...	746.0	MHz	—	0.8	1.6	dB
Input VSWR (ANT port)							
734.0	...	746.0	MHz	—	1.5	2.0	
Output VSWR (RX port)							
734.0	...	746.0	MHz	—	1.5	2.0	
Common Mode Rejection Ratio			CMRR				
734.0	...	746.0	MHz	23	27	—	dB
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

Data sheet SMD

Characteristics

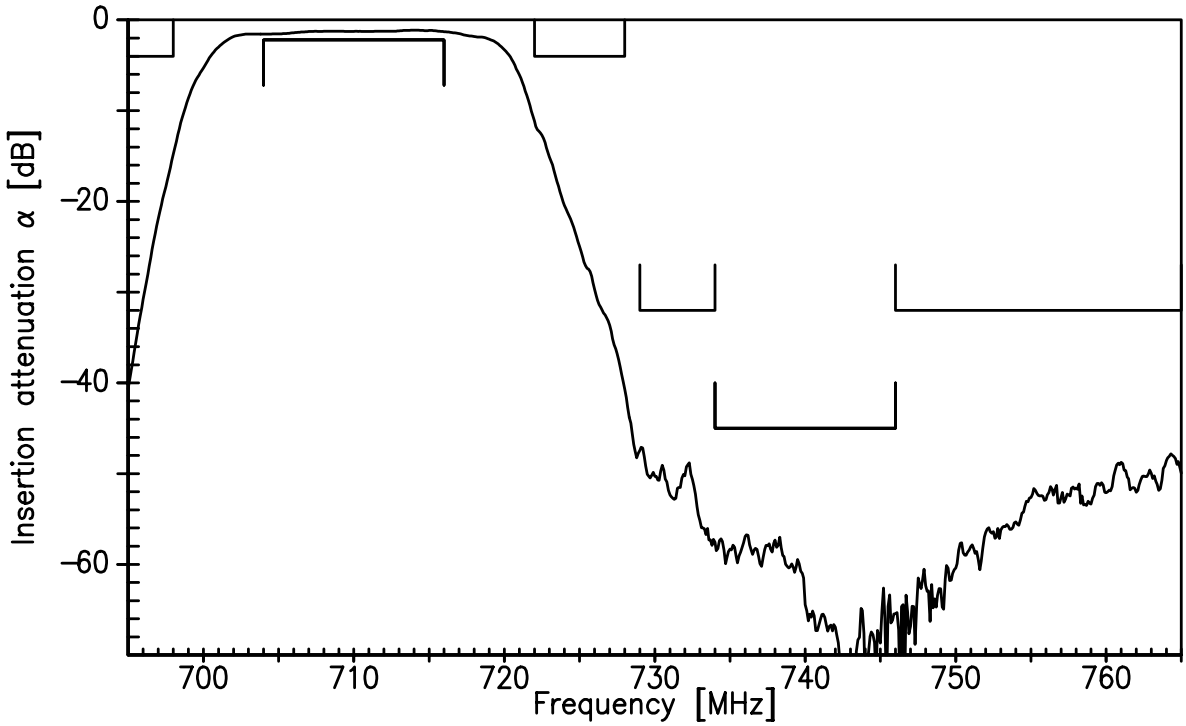
Temperature range for specification: T = -30 ˚C to +85 ˚C
Antenna terminating impedance: Z_{ANT} = 50 Ω || 14.0 nH
RX terminating impedance: Z_{RX} = 100 Ω || 40.0 nH
TX terminating impedance: Z_{TX} = 50 Ω

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

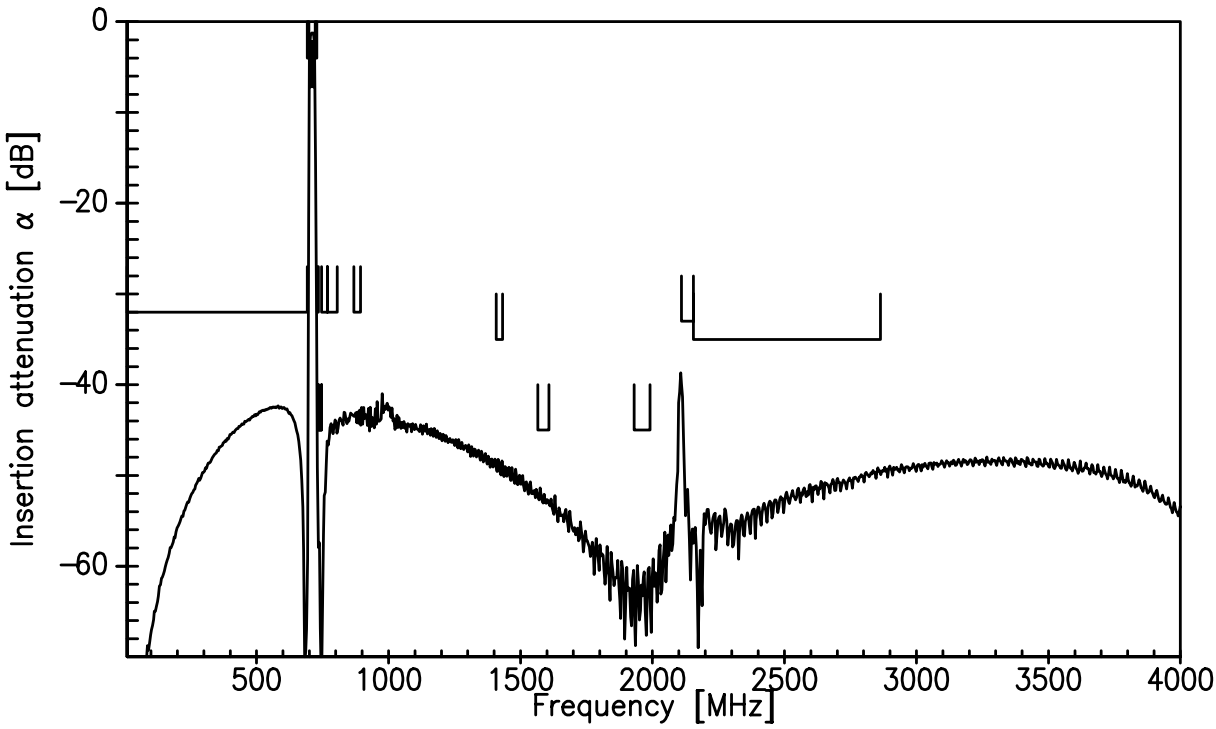
Maximum ratings

Operable temperature range	T	–40/+85	˚C	
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
elsewhere		10	dBm	*T* = 55˚C, 5000 hrs

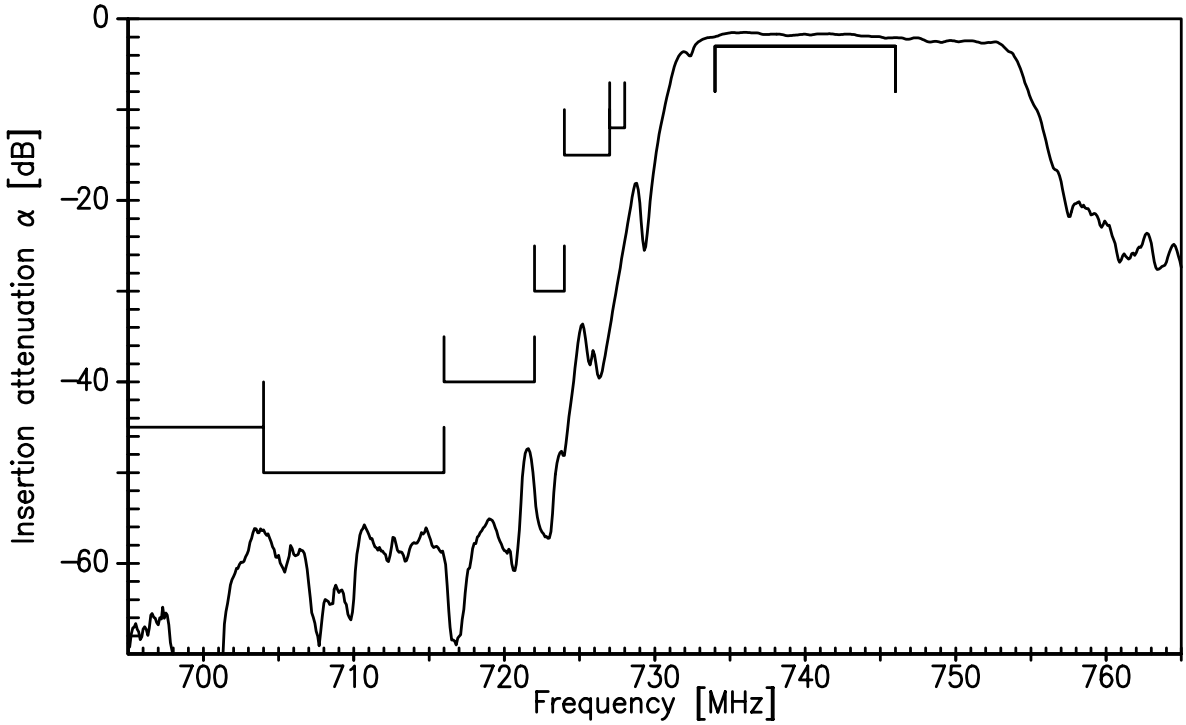
Frequency Response TX-ANT



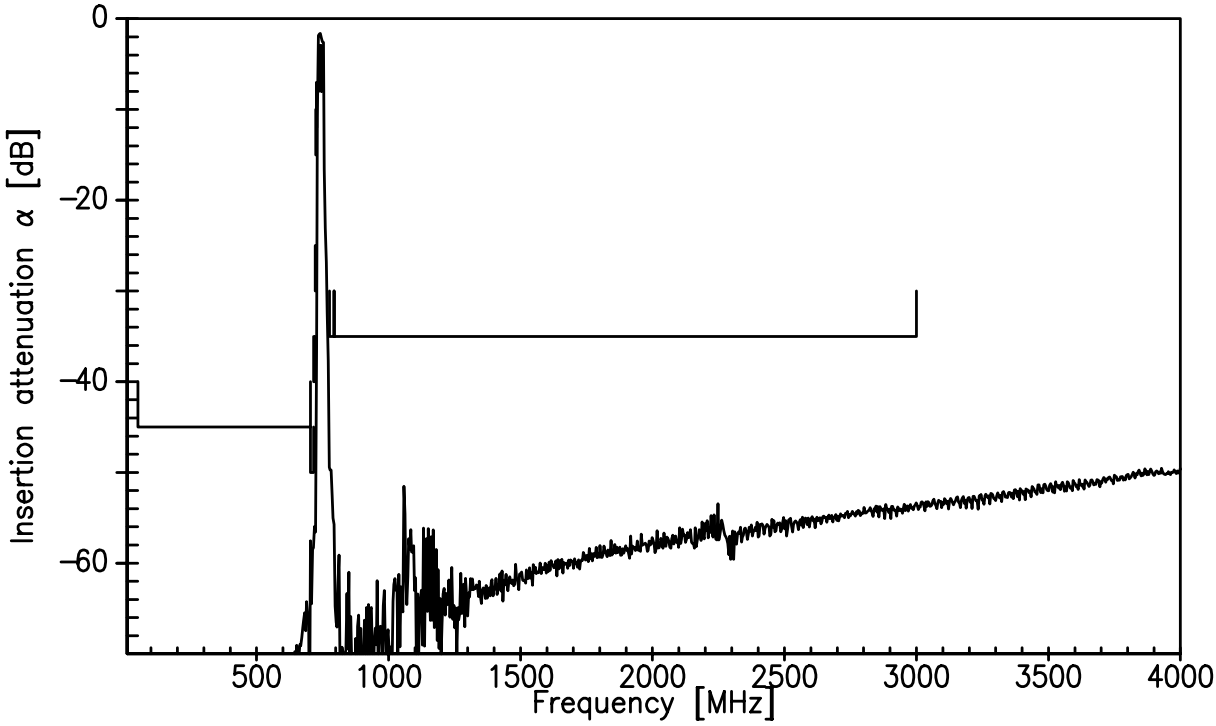
Frequency Response TX-ANT (wideband)



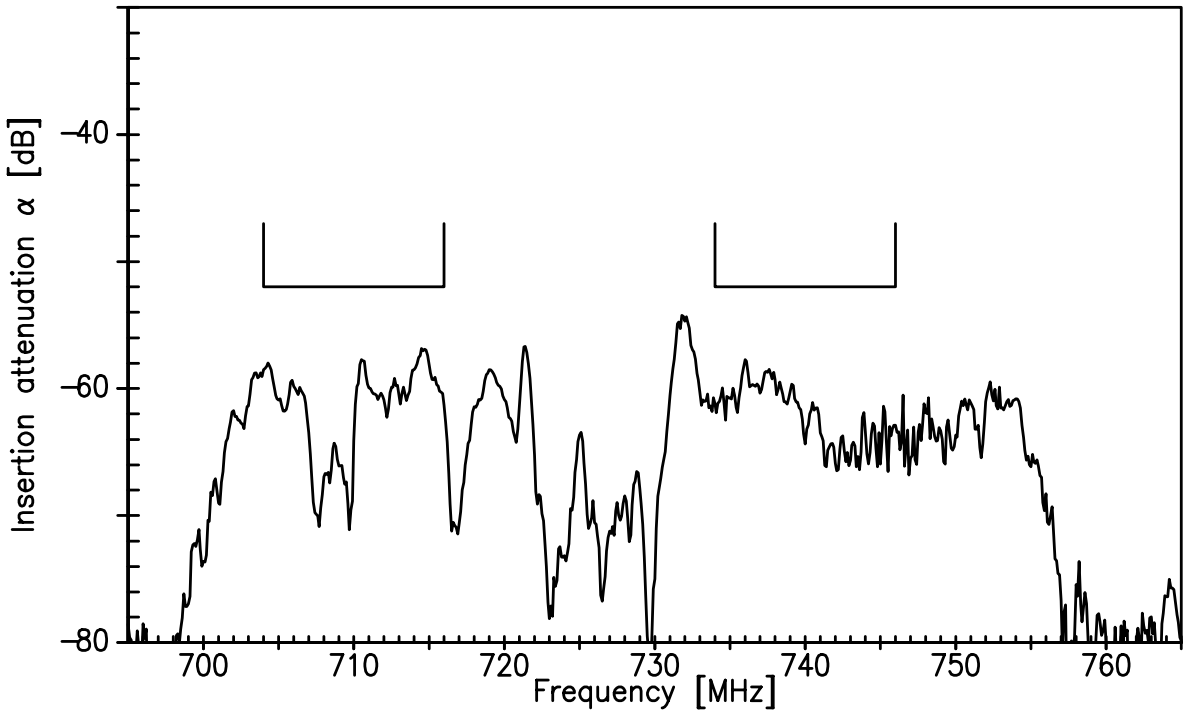
Frequency Response RX-ANT



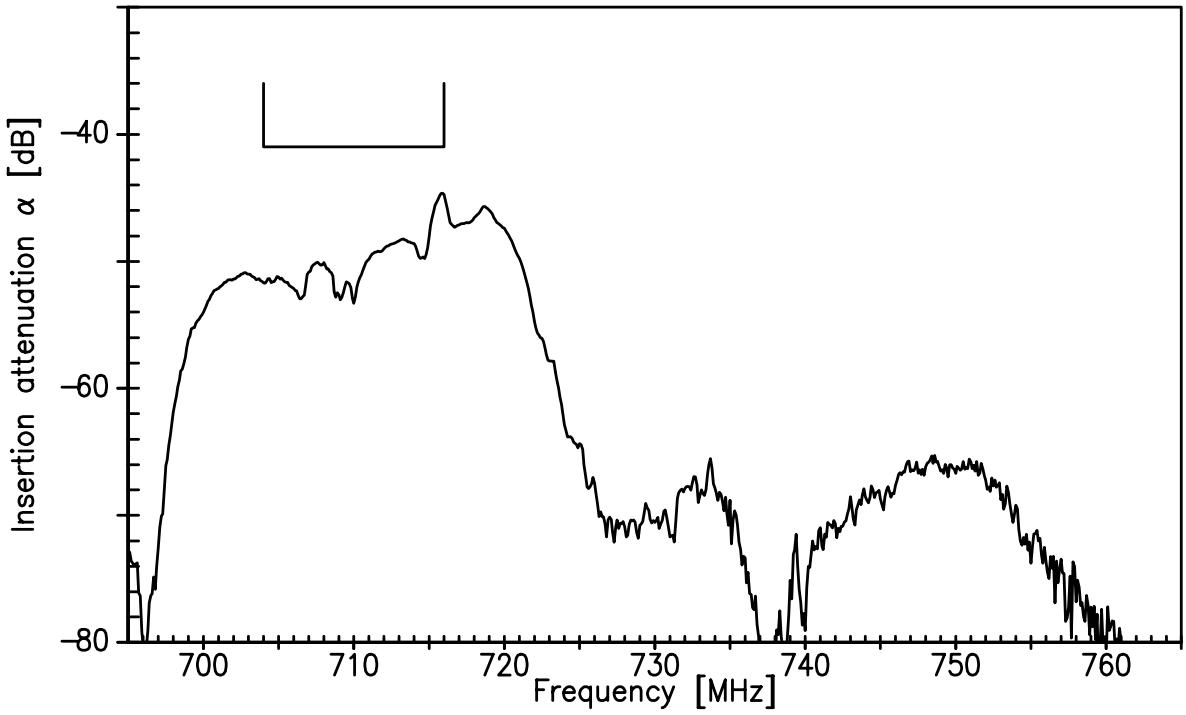
Frequency Response RX-ANT (wideband)



Frequency Response TX-RX : Differential mode isolation

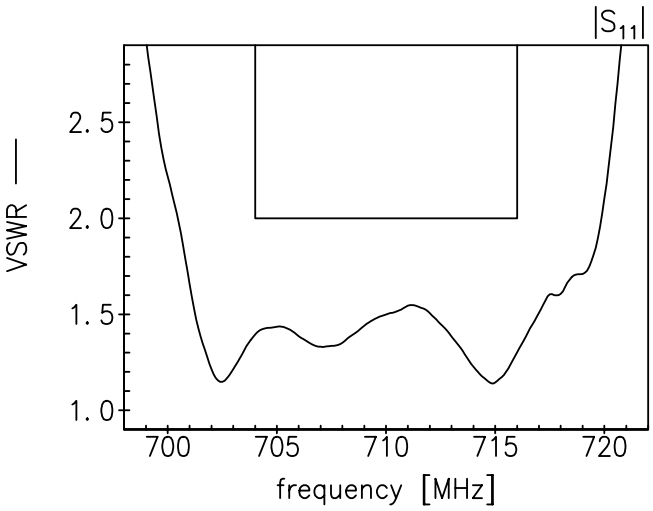


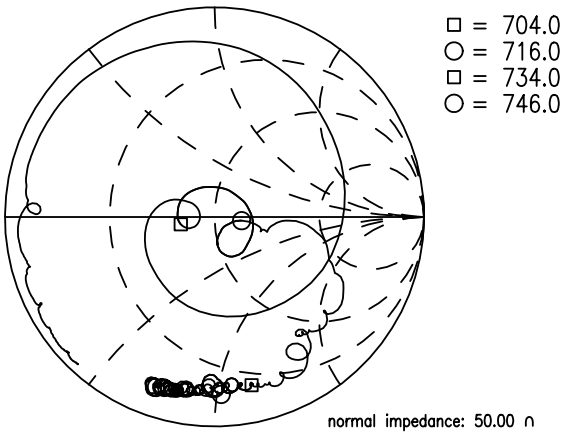
Frequency Response TX-RX : Common mode isolation

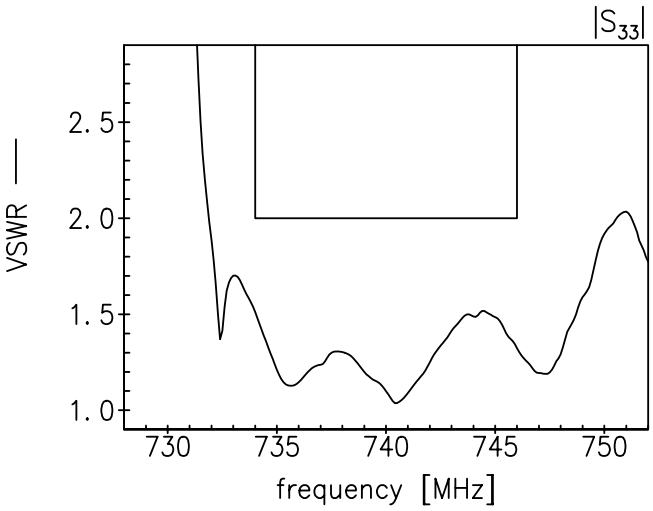


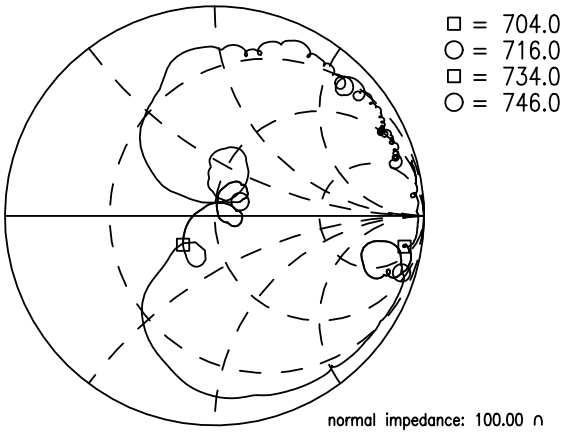
Data sheet SMD

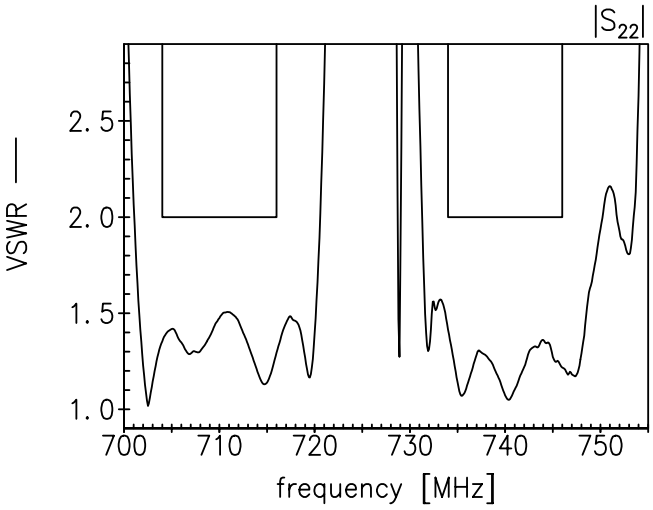
VSWR S_{11} TX- port S_{33} RX-port S_{22} ANT-port

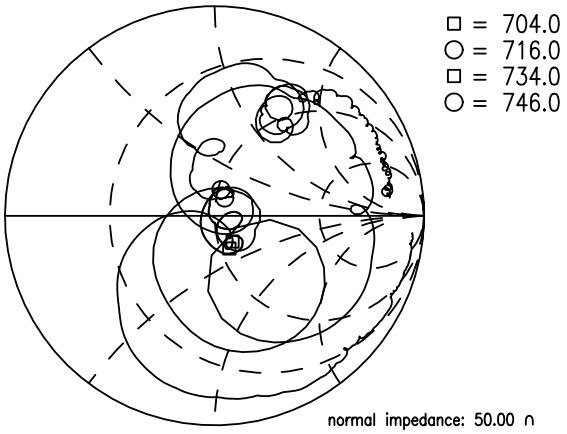












References

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 8th, 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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