SAW Components

SAW Duplexer

LTE Band 17

Series/type:	**B8612**
Ordering code:	**B39741B8612P810**
Date:	April 16, 2014
Version:	2.2

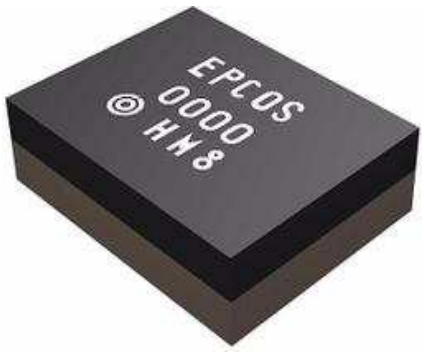
EPCOS AG is a TDK Group Company.

SAW Duplexer 710.0 / 740.0 MHz

Preliminary data SMD

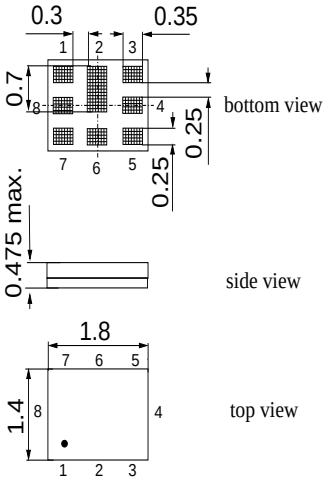
Application

- Low-loss SAW duplexer for mobile telephone LTE Band 17 systems
- High attenuation
- High Isolation
- 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
- Very small size and low height



Features

- Package size 1.8 * 1.4 mm^2
- Package height: maximum 0.475mm
- RoHS compatible
- Package for **S**urface **M**ount **T**echnology (**SMT**)
- Ni, Au-plated terminals
- **E**lectrostatic **S**ensitive **D**evice (**ESD**)
- **M**oisture **S**ensitivity **L**evel 3



Pin configuration

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

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Characteristics

Temperature range for specification: T = –20 ˚C to +85 ˚C
TX terminating impedance: Z_{Tx} = 50 Ω
ANT terminating impedance: Z_{Ant} = 50 Ω || 15 nH
RX teminating impedance: Z_{Rx} = 100 Ω (balanced)

		B8612			
Characteristics Tx-Antenna		**min.**	**typ. @ 25 ˚C**	**max.**	
Center frequency	f_c	-	710	-	MHz
Maximum insertion attenuation	α				
704.0 ... 716.0 MHz		-	1.4	2.2	dB
Amplitude ripple (p-p)	Δα				
704.0 ... 716.0 MHz		-	0.4	1.3	dB
Error Vector Magnitude					
@ $f_{Carrier}$ 706.4 ... 712.0 MHz	EVM[1)]	-	0.9	3.0	%
@ $f_{Carrier}$ 712.0 ... 713.6 MHz	EVM[1)]	-	1.2	3.5	%
Input VSWR (Tx port)					
704.0 ... 716.0 MHz		-	1.4	2.0	
Output VSWR (Ant Port)					
704.0 ... 716.0 MHz		-	1.4	2.0	
Harmonic Level CW tone at 710MHz [2)]					
Third Harmonic at 2130MHz		-	-80	-	dBm

1) Error Vector Magnitude (EVM) based on definition in 3GPP TS 25.141
2) Power level: +27dBm on Tx port

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Characteristics

Temperature range for specification: T = -20 ˚C to +85 ˚C
TX terminating impedance: Z_{Tx} = 50 Ω
ANT terminating impedance: Z_{Ant} = 50 Ω || 15 nH
RX teminating impedance: Z_{Rx} = 100 Ω (balanced)

		B8612			
Characteristics Tx-Antenna		**min.**	**typ. @ 25 ˚C**	**max.**	
Absolute attenuation	α				
10.0 ... 692.0	MHz	30	43	-	dB
692.0 ... 698.0	MHz	2.5	7	-	dB
722.0 ... 728.0	MHz	2.5	10	-	dB
728.0 ... 734.0	MHz	20	29	-	dB
734.0 ... 746.0	MHz	45	55	-	dB
746.0 ... 768.0	MHz	35	44	-	dB
768.0 ... 805.0	MHz	35	42	-	dB
869.0 ... 894.0	MHz	35	46	-	dB
1408.0 ... 1432.0	MHz	40	46	-	dB
1565.0 ... 1607.0	MHz	43	48	-	dB
1805.0 ... 1880.0	MHz	45	51	-	dB
1930.0 ... 1990.0	MHz	45	53	-	dB
2110.0 ... 2155.0	MHz	48	55	-	dB
2155.0 ... 2170.0	MHz	48	55	-	dB
2400.0 ... 2497.0	MHz	50	61	-	dB
2816.0 ... 2864.0	MHz	45	55	-	dB

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Characteristics

Temperature range for specification: T = –20˚C to +85 ˚C
TX terminating impedance: Z_{Tx} = 50 Ω
ANT terminating impedance: Z_{Ant} = 50 Ω || 15nH
RX teminating impedance: Z_{Rx} = 100 Ω (balanced)

		B8612			
Characteristics Antenna-Rx		**min.**	**typ. @ 25 ˚C**	**max.**	
Center frequency	f_c	-	740	-	MHz
Maximum insertion attenuation	α				
734.0 ... 746.0 MHz		-	1.6	2.3	dB
Amplitude ripple (p-p)	Δα				
734.0 ... 746.0 MHz		-	0.3	1.0	dB
Input VSWR (Ant port)					
734.0 ... 746.0 MHz		-	1.3	2.0	
Output VSWR (Rx Port)					
734.0 ... 746.0 MHz		-	1.3	2.0	
Common mode rejection ratio					
734.0 ... 746.0 MHz		30	34	-	dB
Absolute attenuation	α				
10.0 ... 674.0 MHz		35	64	-	dB
674.0 ... 686.0 MHz		50	62	-	dB
686.0 ... 704.0 MHz		35	62	-	dB
704.0 ... 716.0 MHz		50	62	-	dB
716.0 ... 722.0 MHz		40	48	-	dB
722.0 ... 725.0 MHz		20	27	-	dB
725.0 ... 727.0 MHz		13	21	-	dB
727.0 ... 728.0 MHz		7	16	-	dB
777.0 ... 793.0 MHz		35	39	-	dB
793.0 ... 805.0 MHz		40	53	-	dB
805.0 ... 3300.0 MHz		40	50	-	dB
3300.0 ... 4500.0 MHz		38	47	-	dB
4500.0 ... 6000.0 MHz		35	44	-	dB

Preliminary data

SMD

Characteristics

Temperature range for specification: T = -20 ˚C to +85 ˚C
TX terminating impedance: Z_{Tx} = 50 Ω
ANT terminating impedance: Z_{Ant} = 50 Ω || 15nH
RX teminating impedance: Z_{Rx} = 100 Ω (balanced)

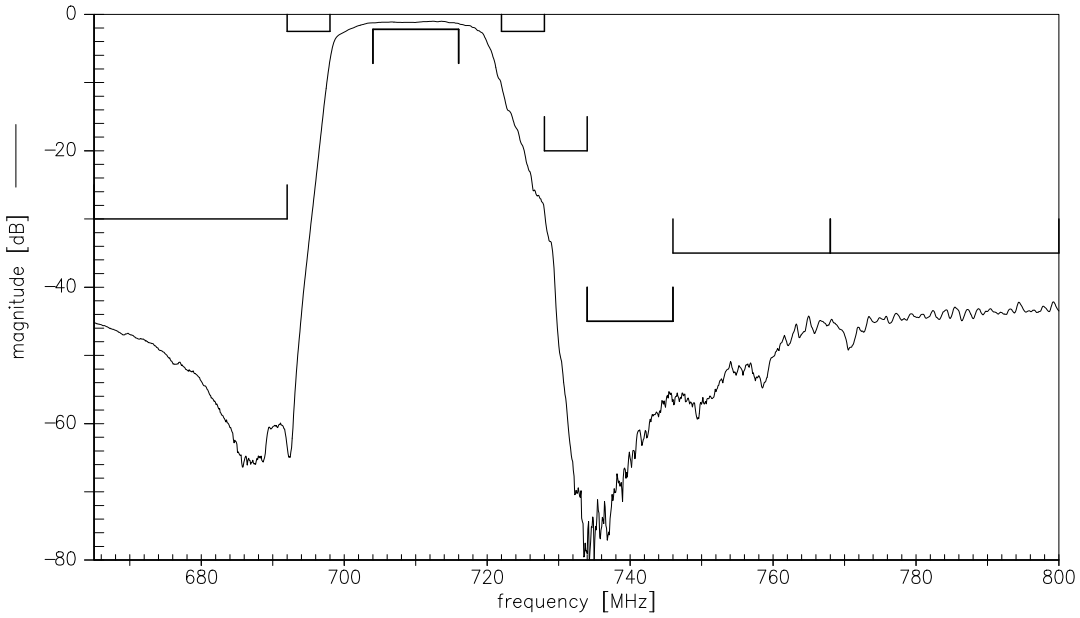
	B8612			
Characteristics Tx-Rx	**min.**	**typ. @ 25 ˚C**	**max.**	
Differential mode isolation α				
704.0 ... 716.0 MHz	58	64	-	dB
734.0 ... 738.0 MHz	58	70	-	dB
738.0 ... 742.0 MHz	55	61	-	dB
742.0 ... 746.0 MHz	52	56	-	dB
1408.0 ... 1432.0 MHz	30	69	-	dB
2112.0 ... 2148.0 MHz	30	62	-	dB
2816.0 ... 2864.0 MHz	30	59	-	dB
Common mode isolation α				
704.0 ... 716.0 MHz	52	57	-	dB

Maximum Ratings

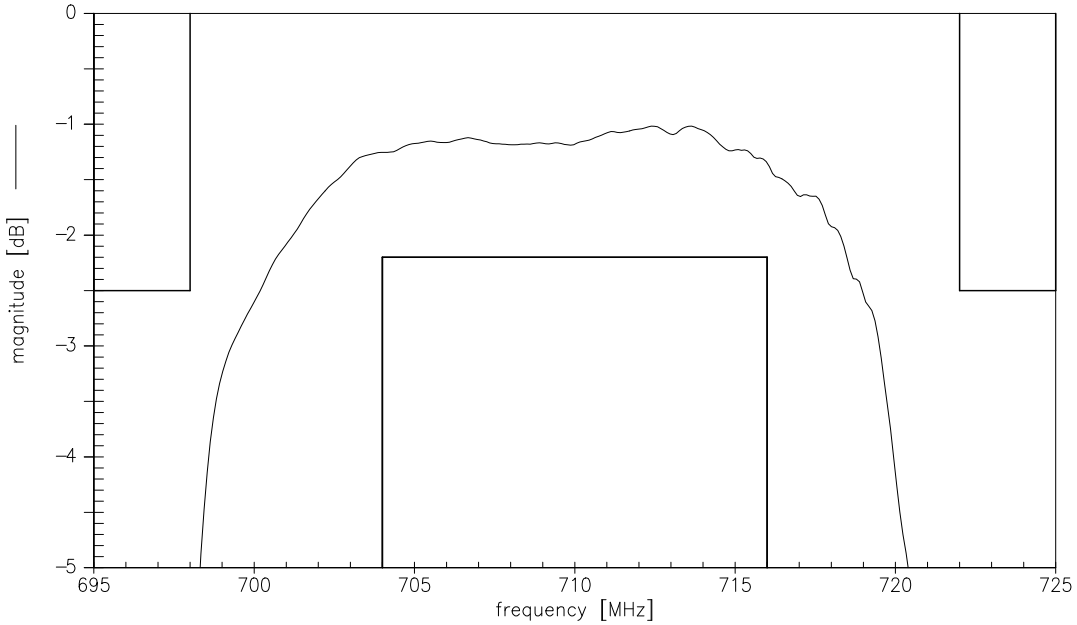
Storage temperature range	T_{stg}	–40/+85	˚C	
DC voltage	V_{DC}	5	V	
ESD voltage	V_{ESD}	100[1)]	V	machine model, 1 pulse
Input power at Tx Port				
704.0 ...716.0 MHz	P_{in}	29	dBm	} continuous wave
elsewhere	P_{in}	10	dBm	} 55 ˚C, 5000h

1) According to JESD22-A115A (machine model), 1 negative and 1 positive pulses.

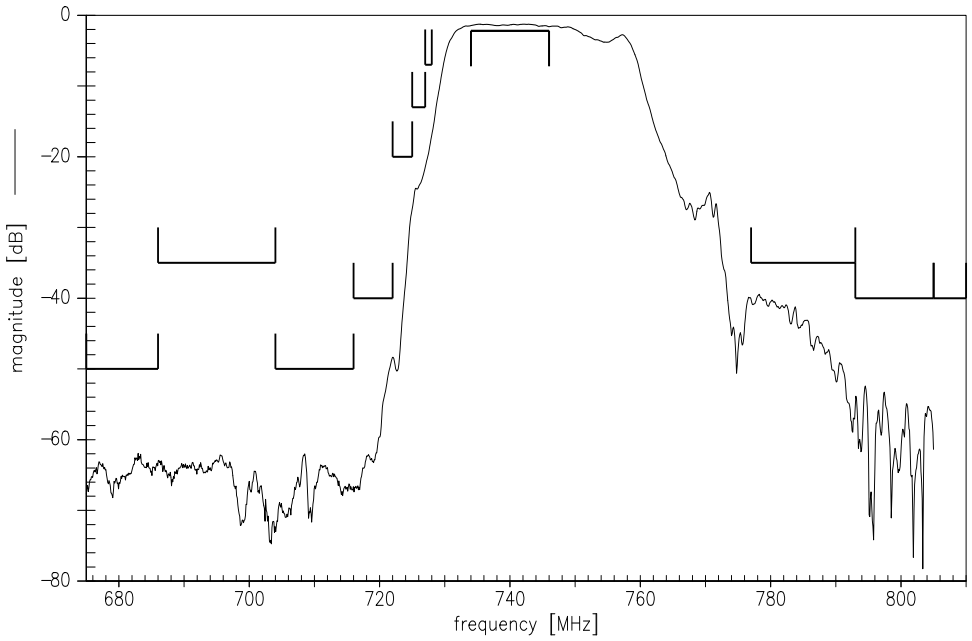
Frequency Response TX-ANT Narrow Band



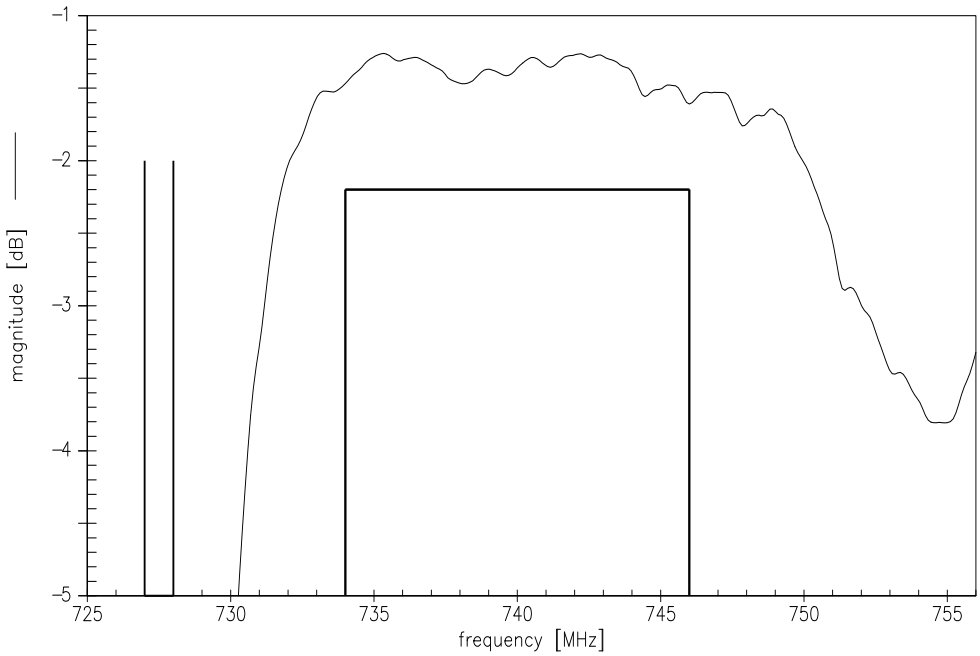
Frequency Response TX-ANT Bandwidth



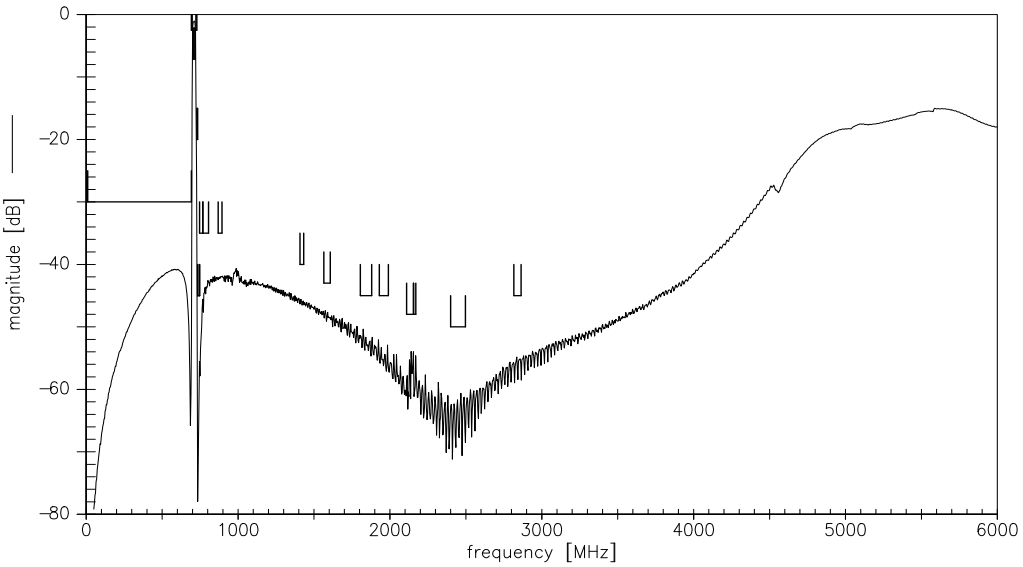
Frequency Response ANT-RX Narrow Band



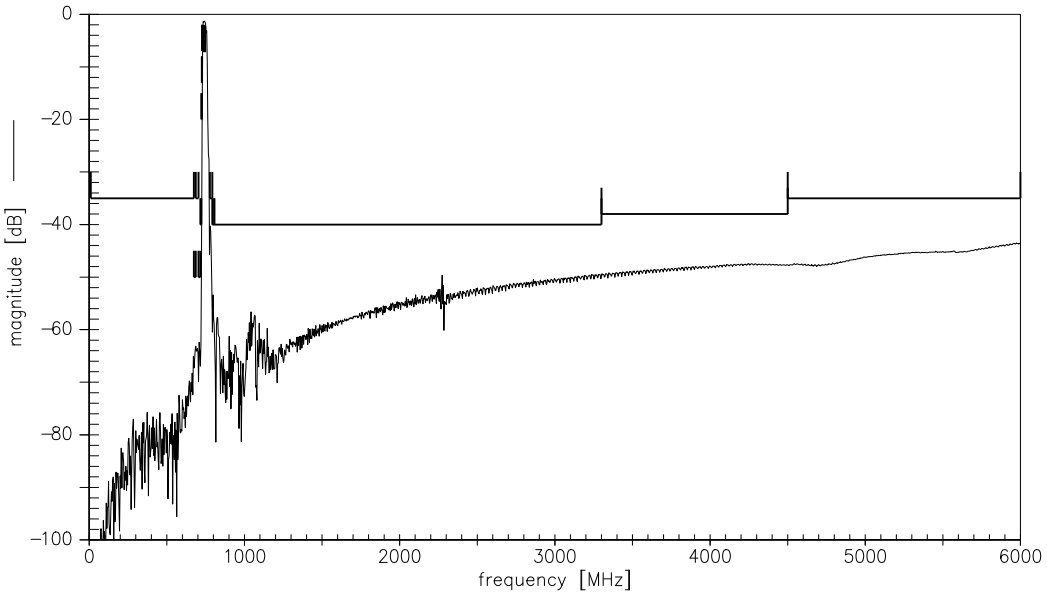
Frequency Response ANT-RX Bandwidth



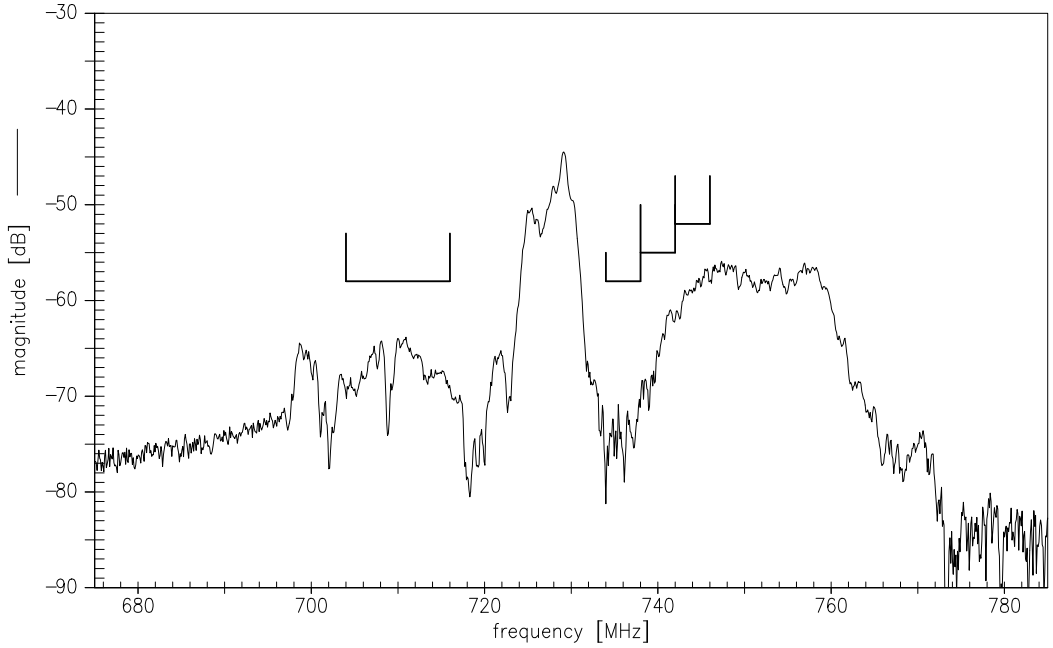
Frequency Response ANT-TX Wide Band



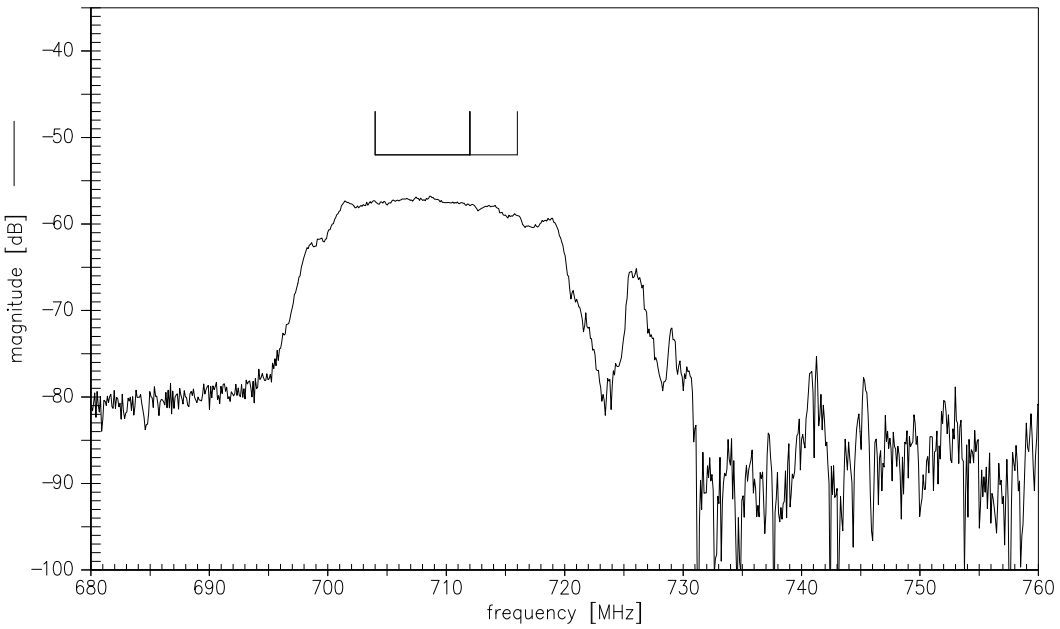
Frequency Response ANT-RX Wide Band



Frequency Response TX-RX : Differential mode isolation



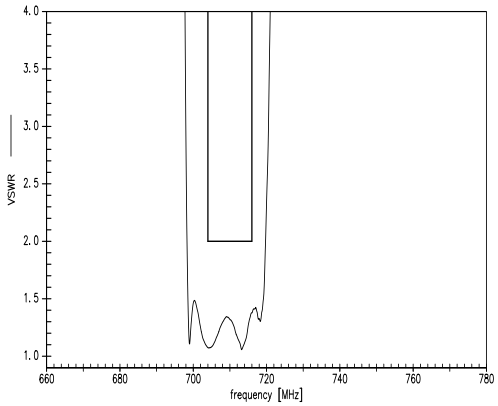
Frequency Response TX-RX : Common mode isolation

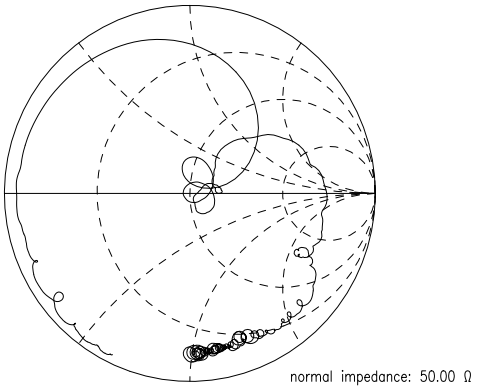


Preliminary data

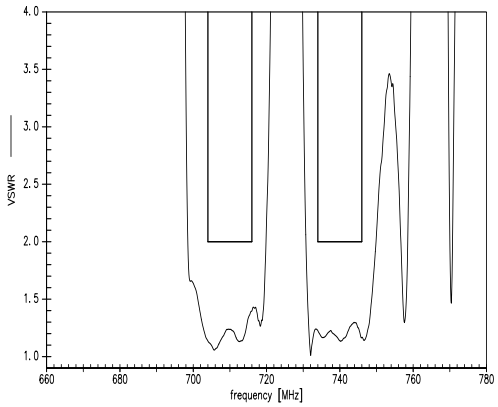
SMD

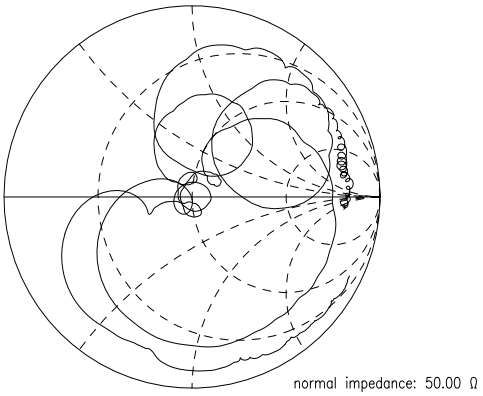
S11 VSWR (TX)



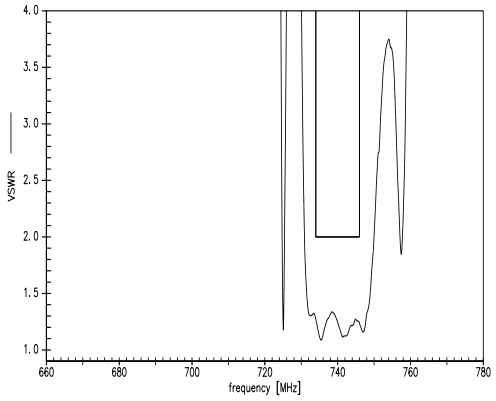


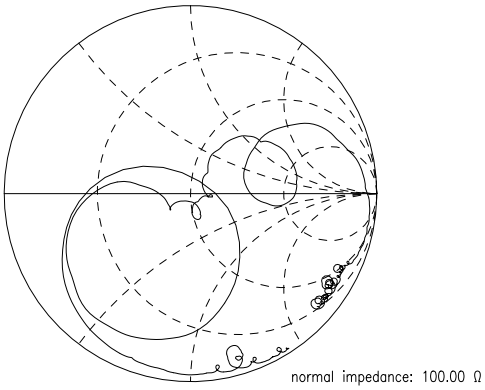
S22 VSWR (ANT)





S33 VSWR (RX)





Preliminary data SMD

References

Type	B8612
Ordering code	B39741B8612P810
Marking and package	C61157-A8-A57
Packaging	F61074-V8259-Z000
Date codes	L_1126
S-parameters	B8612_NB.s4p B8612_WB.s4p
Soldering profile	S_6001
RoHS compatible	Defined as compatible with the following documents: "DIRECTIVE 2002/95/EC OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 27 January 2003 on the restriction of the use of certain hazardous substances in electrical and electronic equipment. 2005/618/EC from April 18th, 2005, amending Directive 2002/95/EC of the European Parliament and of the Council for the purposes of establishing the maximum concentration values for certain hazardous substances in electrical and electronic equipment."
Matching coils	See http://www.tdk.co.jp/tefe02/coil.htm#aname1 http://www.tdk.co.jp/etvcl/index.htm for a large variety of matching coils.

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