SAW Components

SAW Duplexer

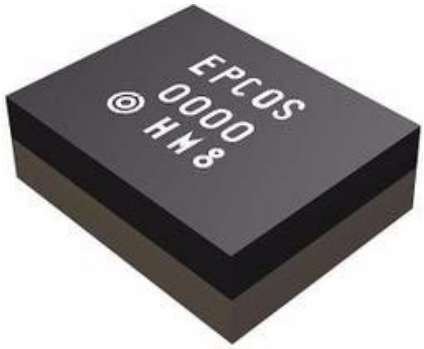
LTE Band 17

Series/type:	**B8570**
Ordering code:	**B39741B8570P810**
Date:	April 03, 2013
Version:	2.1

EPCOS AG is a TDK Group Company.

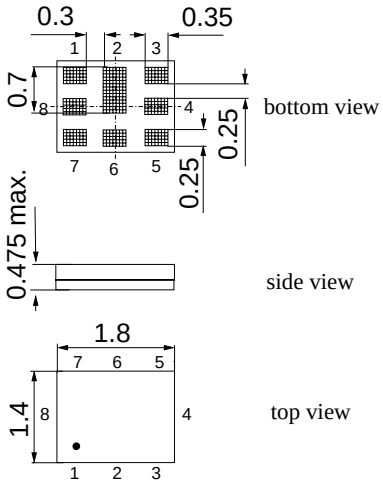
Application

- 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 mm²
- Package height: max. 0.475 mm
- 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

Data Sheet 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 || 11 nH
RX teminating impedance: Z_{Rx} = 100 Ω (balanced)

Characteristics Tx-Antenna		min.	typ. @ 25 ˚C	max.	
Center frequency	f_c		710		MHz
Maximum insertion attenuation	α				
704.0 ... 716.0 MHz			1.6	2.5	dB
Amplitude ripple (p-p)	$\Delta\alpha$				
704.0 ... 716.0 MHz			0.5	1.3	dB
Error Vector Magnitude					
@ $f_{Carrier}$ 706.4 ... 713.6 MHz	EVM[1)]		2.5	3.5	%
Input VSWR (Tx port)					
704.0 ... 716.0 MHz			1.4	2.0	
Output VSWR (Ant Port)					
704.0 ... 716.0 MHz			1.5	2.0	
Harmonic Level CW tone at 710MHz [2)]					
Third Harmonic at 2130MHz			-66		dBm

1) Error Vector Magnitude (EVM) based on definition in 3GPP TS 25.141
2) Power level: +28dBm on Tx port

Data Sheet 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 || 11 nH
RX teminating impedance: Z_{Rx} = 100 Ω (balanced)

Characteristics Tx-Antenna				min.	typ. @ 25 ˚C	max.	
Absolute attenuation			α				
10.0	...	692.0	MHz	30	46		dB
692.0	...	698.0	MHz	4	13		dB
722.0	...	728.0	MHz	4	13		dB
728.0	...	734.0	MHz	23	34		dB
734.0	...	746.0	MHz	45	57		dB
746.0	...	768.0	MHz	30	46		dB
768.0	...	805.0	MHz	25	42		dB
869.0	...	894.0	MHz	30	43		dB
1408.0	...	1432.0	MHz	30	52		dB
1565.0	...	1607.0	MHz	43	47		dB
1805.0	...	1880.0	MHz	30	42		dB
1930.0	...	1990.0	MHz	35	41		dB
2110.0	...	2155.0	MHz	22	40		dB
2155.0	...	2170.0	MHz	30	40		dB
2400.0	...	2497.0	MHz	32	38		dB
2816.0	...	2864.0	MHz	20	37		dB

Data Sheet 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 || 11nH
RX teminating impedance: Z_{Rx} = 100 Ω (balanced)

Characteristics Antenna-Rx		min.	typ. @ 25 ˚C	max.	
Center frequency	f_c		740		MHz
Maximum insertion attenuation	α				
734.0 ... 746.0 MHz			2.0	2.4	dB
Amplitude ripple (p-p)	Δα				
734.0 ... 746.0 MHz			0.5	1.2	dB
Input VSWR (Ant port)					
734.0 ... 746.0 MHz			1.6	2.0	
Output VSWR (Rx Port)					
734.0 ... 746.0 MHz			1.5	2.0	
Common mode rejection ratio					
734.0 ... 746.0 MHz		23	29		dB
Absolute attenuation	α				
10.0 ... 674.0 MHz		35	60		dB
674.0 ... 686.0 MHz		53	61		dB
686.0 ... 704.0 MHz		35	65		dB
704.0 ... 716.0 MHz		50	70		dB
716.0 ... 722.0 MHz		40	66		dB
722.0 ... 724.0 MHz		30	41		dB
724.0 ... 727.0 MHz		15	32		dB
727.0 ... 728.0 MHz		10	25		dB
777.0 ... 793.0 MHz		35	40		dB
793.0 ... 805.0 MHz		35	50		dB
805.0 ... 3300.0 MHz		40	54		dB
3300.0 ... 4500.0 MHz		38	56		dB
4500.0 ... 6000.0 MHz		35	48		dB

Data Sheet 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 || 11nH
RX teminating impedance: Z_{Rx} = 100 Ω (balanced)

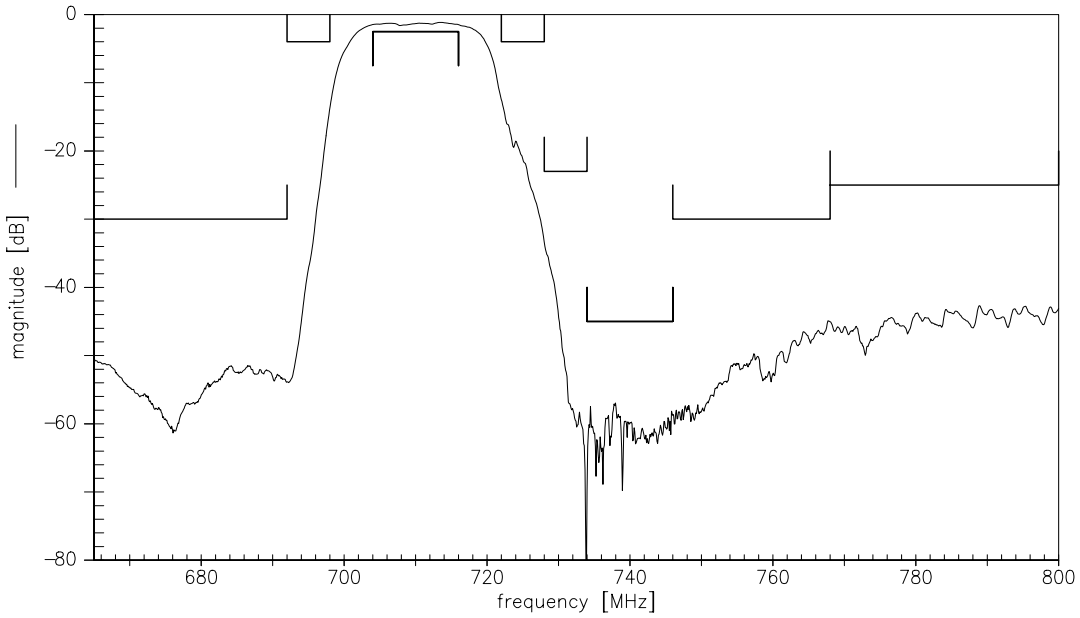
Characteristics Tx-Rx		min.	typ. @ 25 ˚C	max.	
Differential mode isolation	α				
704.0 ... 716.0 MHz		58	68		dB
734.0 ... 742.0 MHz		51	56		dB
742.0 ... 746.0 MHz		55	60		dB
1408.0 ... 1432.0 MHz		30	74		dB
2112.0 ... 2148.0 MHz		30	64		dB
2816.0 ... 2864.0 MHz		30	62		dB
Common mode isolation	α				
704.0 ... 716.0 MHz		50	57		dB

Maximum Ratings

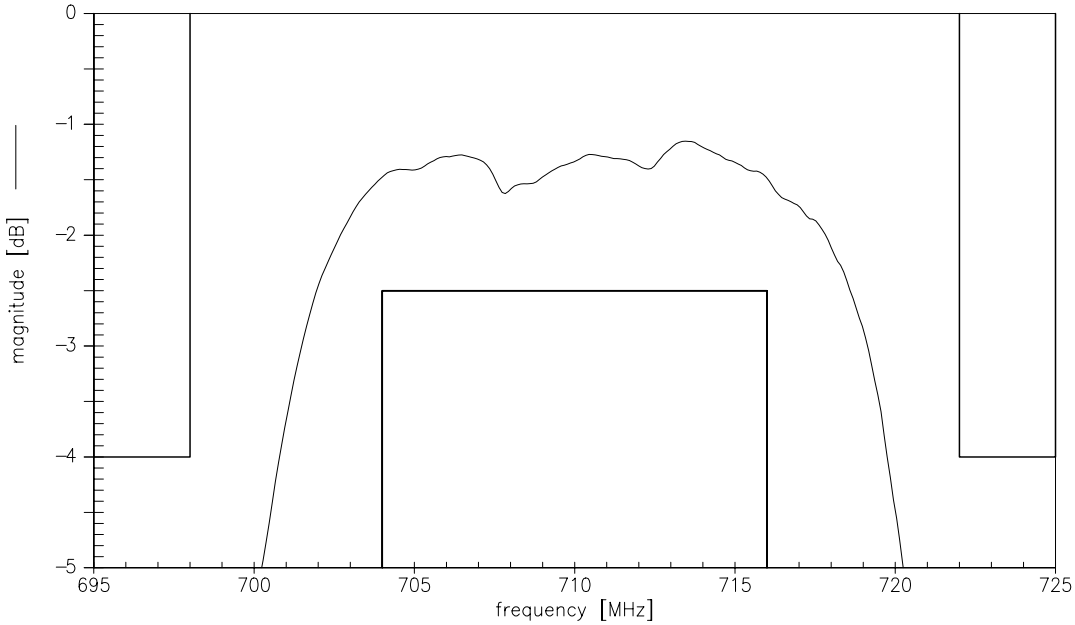
Storage temperature range	T_{stg}	–40/+85	˚C	
DC voltage	V_{DC}	5	V	
ESD voltage	V_{ESD}	100[1)]	V	machine model, 1 pulse
Input power at Tx Port				
704.0 ...716.0 MHz	P_{in}	29	dBm	} continuous wave
elsewhere	P_{in}	10	dBm	} 50 ˚C, 5000h

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

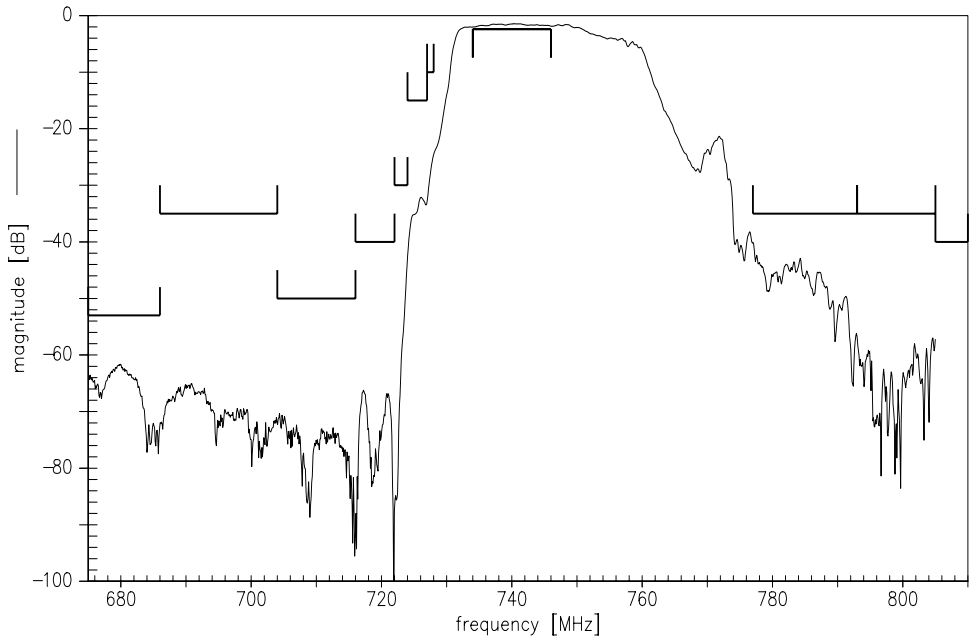
Frequency Response TX-ANT Narrow Band



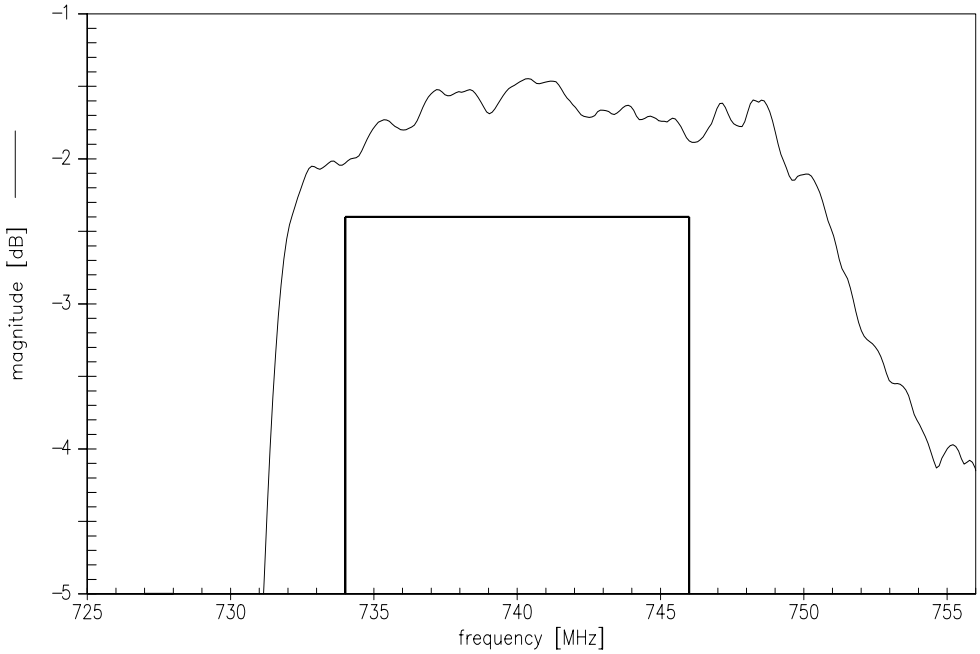
Frequency Response TX-ANT Bandwidth



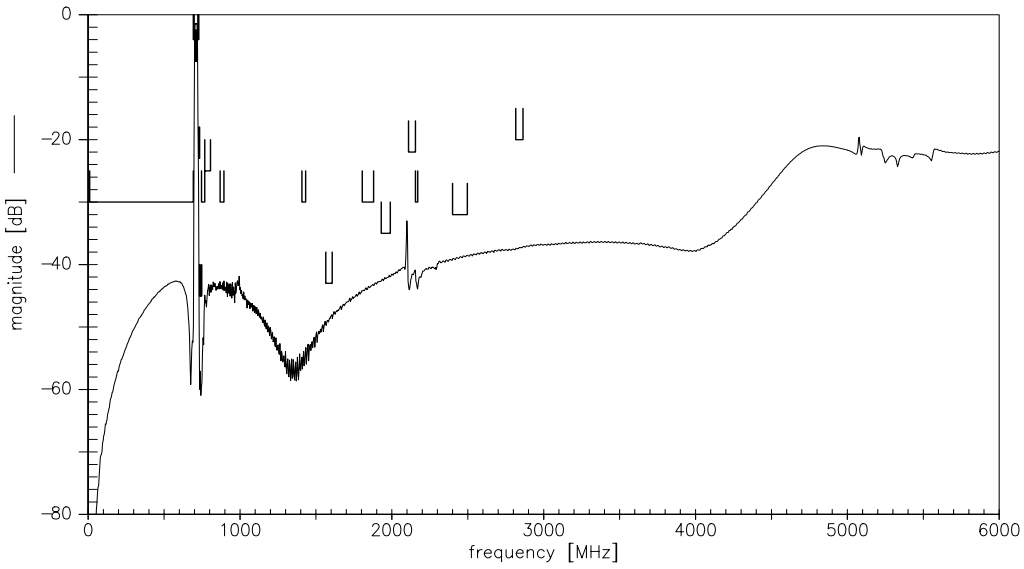
Frequency Response ANT-RX Narrow Band



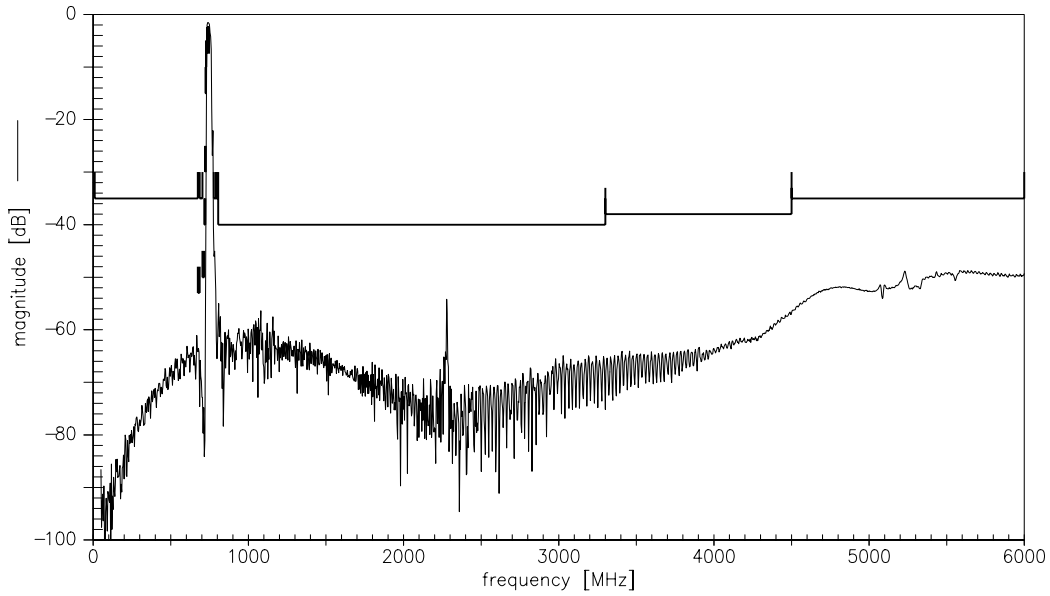
Frequency Response ANT-RX Bandwidth



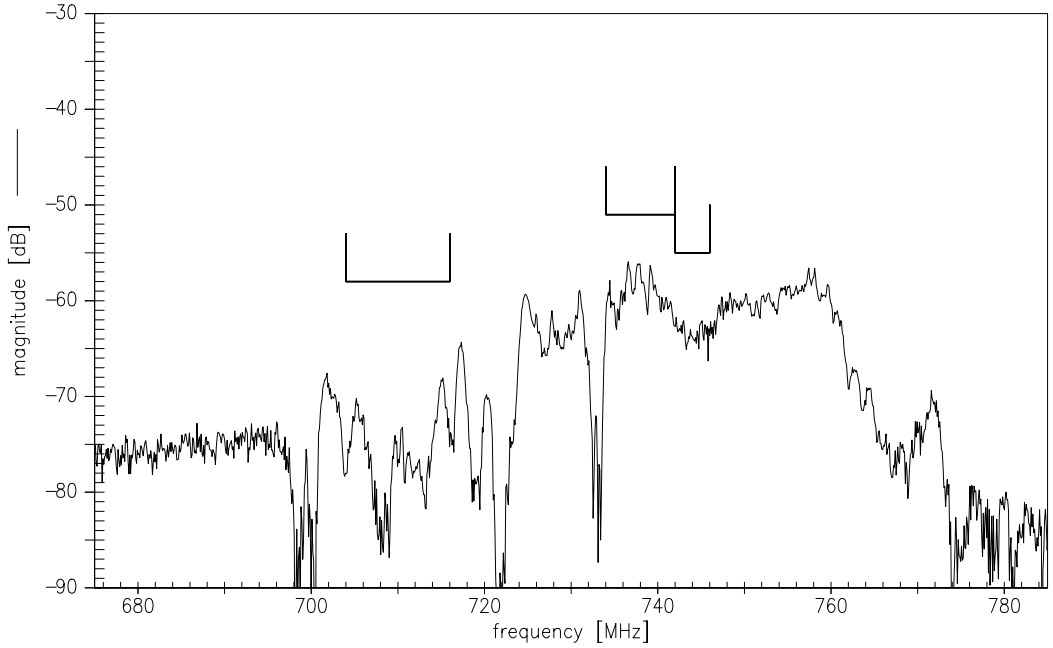
Frequency Response ANT-TX Wide Band



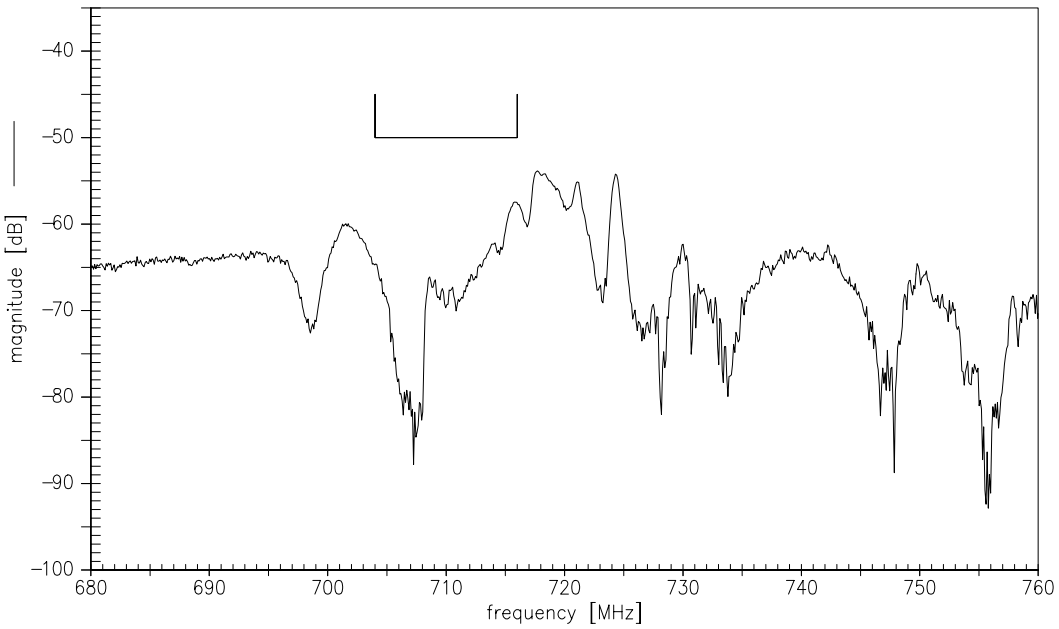
Frequency Response ANT-RX Wide Band



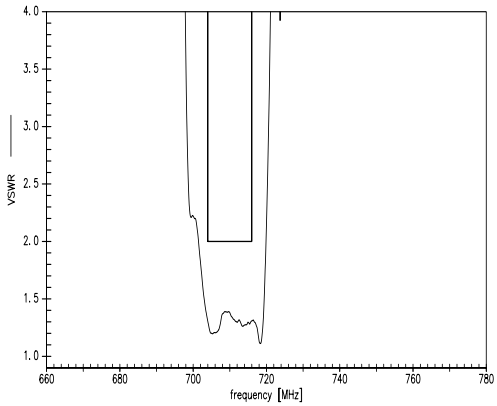
Frequency Response TX-RX : Differential mode isolation

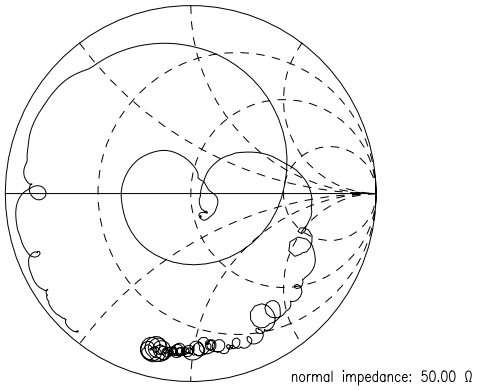


Frequency Response TX-RX : Common mode isolation

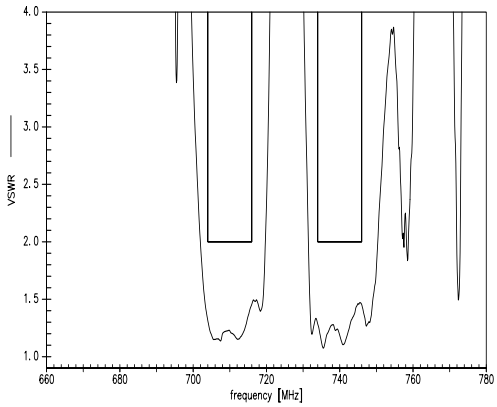


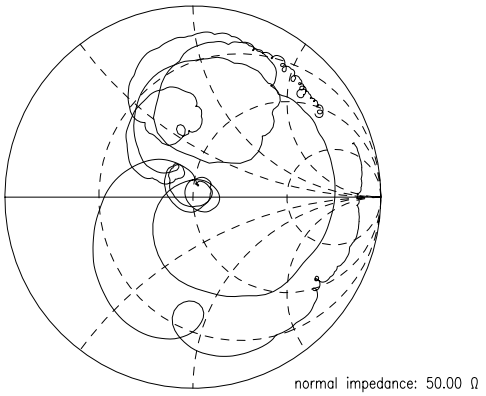
S11 VSWR (TX)



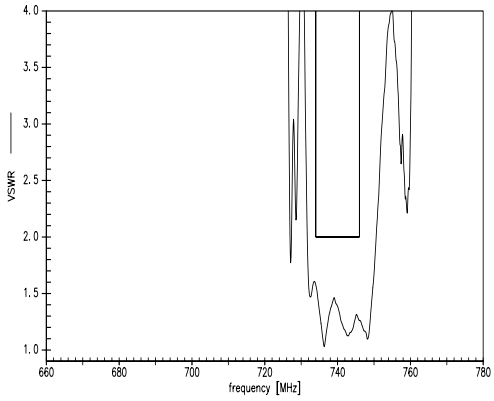


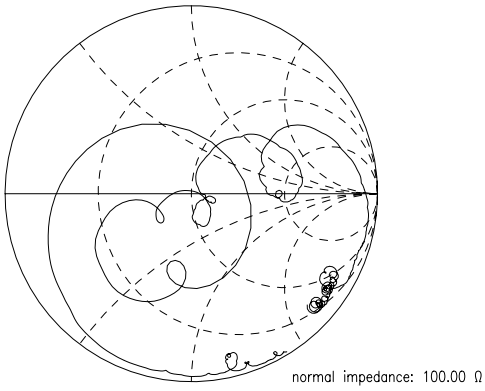
S22 VSWR (ANT)





S33 VSWR (RX)





References

Type	B8570
Ordering code	B39741B8570P810
Marking and package	C61157-A8-A57
Packaging	F61074-V8259-Z000
Date codes	L_1126
S-parameters	B8570_NB.s4p, B8570_WB.s4p see file header for port/pin assignment table
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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