SAW Components

SAW Duplexer
LTE Band 13

Series/type:	**B8620**
Ordering code:	**B39781B8620P810**

Date:	January 16, 2014
Version:	2.1

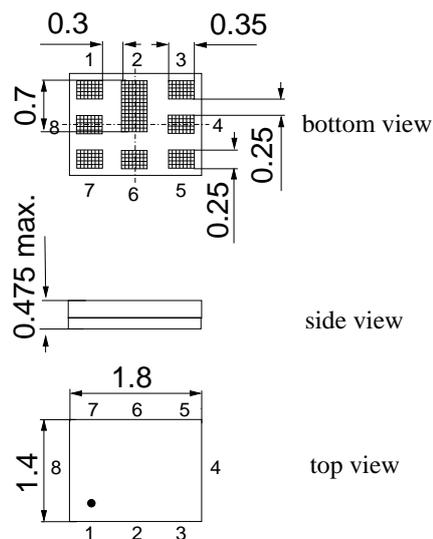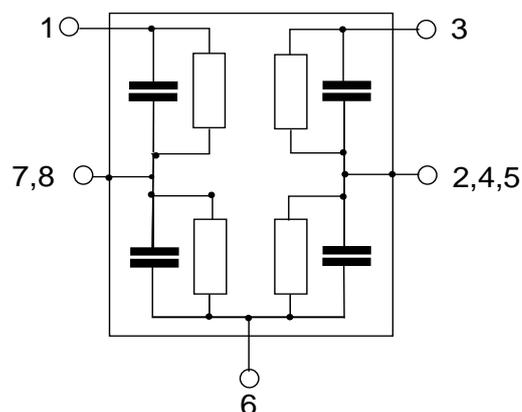## Application

- Low-loss SAW duplexer for mobile telephone LTE Band 13 system
- Low insertion attenuation
- Low amplitude ripple
- 50Ω single-ended both in Antenna-Rx and Tx-Antenna paths
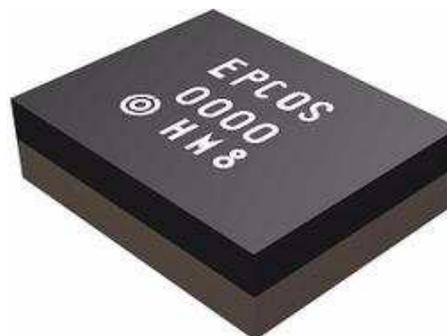
Features

- Package size 1.8 x 1.4 mm^2
- max. Package height 0.475 mm
- RoHS compatible
- Approx. weight 0.0042g
- 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   Rx Output
- 6   Antenna
- 2, 4, 5, 7,8   To be grounded

Please read *cautions and warnings and important notes* at the end of this document.

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Data sheet   SMD

Characteristics

Temperature range for specification: T = −30 °C to +90 °C
Antenna terminating impedance: Z_{Ant} = 50 Ω ‖ 15 nH
Rx terminating impedance: Z_{Rx} = 50 Ω
Tx terminating impedance: Z_{Tx} = 50 Ω

Characteristics Tx-Antenna			min.	typ. @ 25 °C	max.	
Center frequency	f_c		—	782.0	—	MHz
Maximum insertion attenuation	α					
777.0 ... 787.0	MHz		—	1.7	2.3	dB
Amplitude ripple (p-p)	$\Delta\alpha$					
777.0 ... 787.0	MHz		—	0.5	1.1	dB
Amplitude ripple over any 5 MHz channel	$\Delta\alpha_{ch}$					
777.0 ... 787.0	MHz		—	0.6	1.0	dB
Error Vector Magnitude						
@$f_{Carrier}$ 779.4 ... 784.6	MHz	EVM[1]	—	1.8	4.0	%
@$f_{Carrier}$ 779.4 ... 784.6	MHz	EVM[2]	—	1.8	3.0	%
Tx port VSWR						
777.0 ... 787.0	MHz		—	1.3	2.0	
Ant port VSWR						
777.0 ... 787.0	MHz		—	1.3	2.0	
Attenuation	α					
10.0 ... 716.0	MHz		30	42	—	dB
716.0 ... 728.0	MHz		40	45	—	dB
728.0 ... 746.0	MHz		40	48	—	dB
746.0 ... 756.0	MHz		50	59	—	dB
758.0 ... 767.5	MHz		33	43	—	dB
767.5 ... 768.0	MHz		26	43	—	dB
768.0 ... 769.0	MHz		14	46	—	dB
769.0 ... 770.0	MHz		6	39	—	dB
770.0 ... 771.0	MHz		3	27	—	dB
771.0 ... 772.0	MHz		2	15	—	dB
799.0 ... 805.0	MHz		8	11	—	dB
869.0 ... 894.0	MHz		30	43	—	dB
1554.0 ... 1565.0	MHz		45	51	—	dB
1565.0 ... 1585.0	MHz		45	51	—	dB
1597.0 ... 1607.0	MHz		45	52	—	dB
1805.0 ... 1880.0	MHz		45	55	—	dB
1930.0 ... 1990.0	MHz		45	57	—	dB

Characteristics Tx-Antenna	min.	typ. @ 25 ˚C	max.	
2111.0 ... 2170.0 MHz	45	58	—	dB
2331.0 ... 2361.0 MHz	40	58	—	dB
2400.0 ... 2484.0 MHz	40	57	—	dB
3108.0 ... 3148.0 MHz	30	43	—	dB
4900.0 ... 5850.0 MHz	9	11	—	dB

[1] Error Vector Magnitude (EVM) based on definition given in 3GPP TS 25.141.
[2] T = +25˚C

Please read *cautions and warnings and important notes* at the end of this document.

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SAW Components	B8620
SAW Duplexer	**782.0 / 751.0 MHz**

Data sheet　　　　　　　　　ꜱᴍᴅ

Characteristics

Temperature range for specification:	T =	−30 ˚C to +90 ˚C
Antenna terminating impedance:	Z_{Ant} =	50 Ω ‖ 15 nH
Rx terminating impedance:	Z_{Rx} =	50 Ω
Tx terminating impedance:	Z_{Tx} =	50 Ω

Characteristics Antenna-Rx		min.	typ. @ 25 ˚C	max.	
Center frequency	f_c	—	751.0	—	MHz
Maximum insertion attenuation	α				
746.0 ... 756.0 MHz		—	1.5	2.0	dB
Amplitude ripple (p-p)	$\Delta\alpha$				
746.0 ... 756.0 MHz		—	0.3	0.8	dB
Ant port VSWR					
746.0 ... 756.0 MHz		—	1.4	2.0	
Rx port VSWR					
746.0 ... 756.0 MHz		—	1.4	2.0	
Attenuation	α				
10.0 ... 686.0 MHz		40	53	—	dB
31.0 MHz		50	96	—	dB
686.0 ... 728.0 MHz		27	42	—	dB
771.0 ... 772.0 MHz		27	42	—	dB
777.0 ... 787.0 MHz		50	60	—	dB
787.0 ... 1710.0 MHz		40	45	—	dB
1710.0 ... 1755.0 MHz		40	51	—	dB
1850.0 ... 1910.0 MHz		40	49	—	dB
2238.0 ... 2268.0 MHz		37	44	—	dB
2400.0 ... 2500.0 MHz		40	47	—	dB
4900.0 ... 5950.0 MHz		33	37	—	dB
IMD product level limits[1]					
at f_{Tx}=782.0 MHz, f_{Rx}= 751.0 MHz					
Blocker 1　　　31.0 MHz		—	-136	-106	dBm
Blocker 2　　　813.0 MHz		—	-117	-102	dBm
Blocker 3　　1533.0 MHz		—	-120	-106	dBm
Blocker 4　　2315.0 MHz		—	-129	-109	dBm

[1] IMD product level limits for power levels P_{TX}=21.5 dBm (antenna port output power) and $P_{Blocker}$=-15dBm (antenna port input power)

Characteristics

Temperature range for specification:	T	=	$-30\,°C$ to $+90\,°C$
Antenna terminating impedance:	Z_{Ant} =		$50\,\Omega$ || 15 nH
Rx terminating impedance:	Z_{Rx} =		$50\,\Omega$
Tx terminating impedance:	Z_{Tx} =		$50\,\Omega$

Characteristics Tx-Rx			**min.**	**typ. @ 25 °C**	**max.**	
Isolation		α				
746.5	... 749.0	MHz	55	57	—	dB
749.0	... 752.0	MHz	55	58	—	dB
752.0	... 755.5	MHz	57	59	—	dB
777.0	... 787.0	MHz	60	63	—	dB
1552.0	... 1574.0	MHz	30	59	—	dB
2328.0	... 2361.0	MHz	30	54	—	dB
3104.0	... 3148.0	MHz	30	52	—	dB

Maximum ratings

Storage temperature range	T_{stg}	$-40/+85$	°C	
DC voltage	V_{DC}	5[1]	V	
ESD voltage	V_{ESD}	100[2]	V	Machine Model
Input power	P_{IN}			source and load impedance $50\,\Omega$
777.0 ... 787.0 MHz		28.5	dBm	} continuous wave
elsewhere		10	dBm	$T = 50\,°C$, 5000 h

[1] 168h Damp Heat Steady State acc. to IEC 60068-2-67 Cy
[2] acc. to JESD22-A115B (MM - Machine Model), 10 negative and 10 positive pulses.

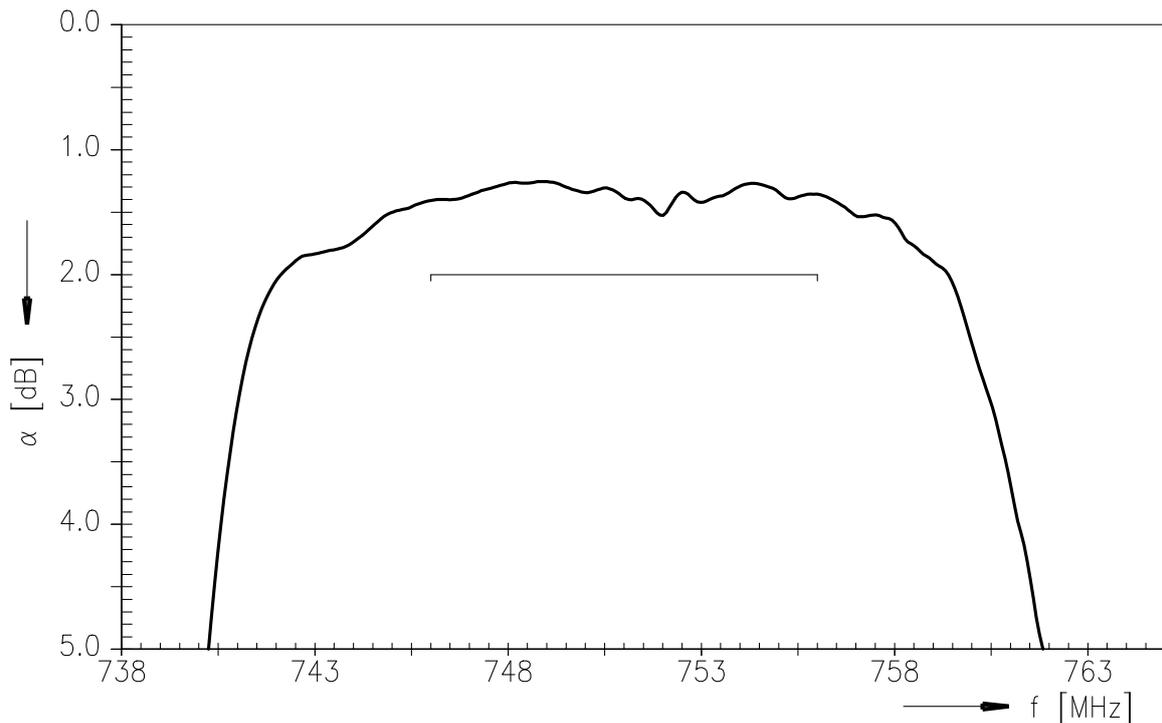Please read *cautions and warnings and important notes* at the end of this document.

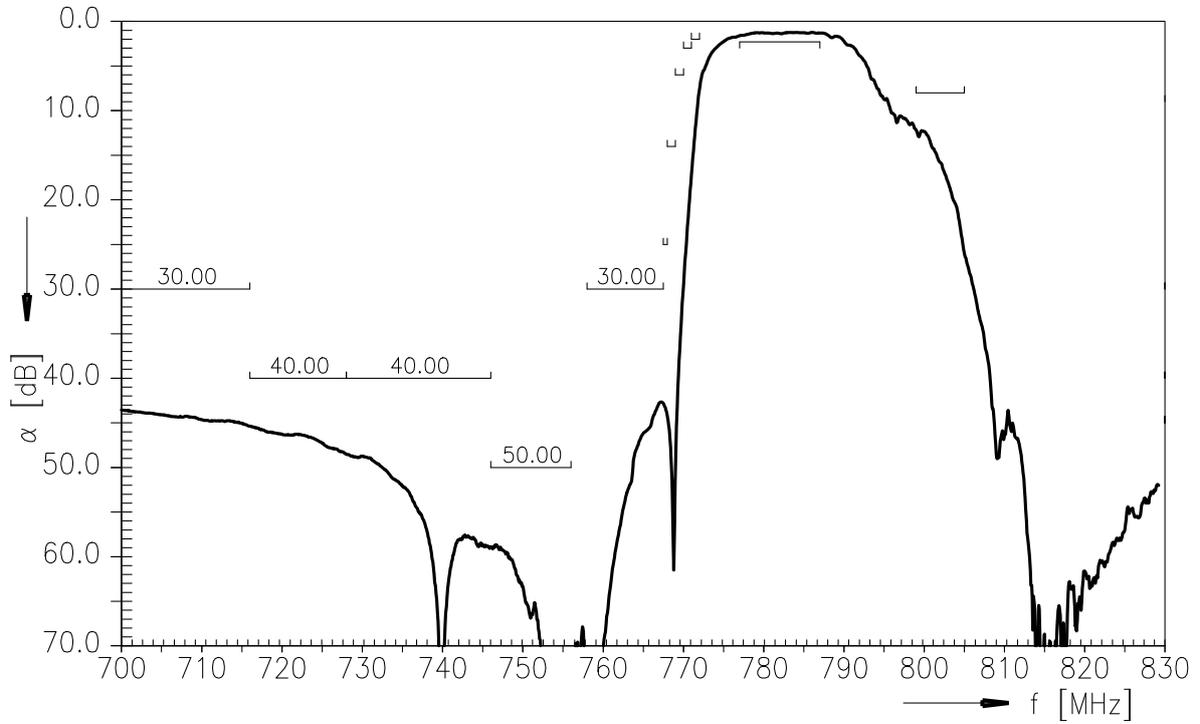**6**　January 16, 2014
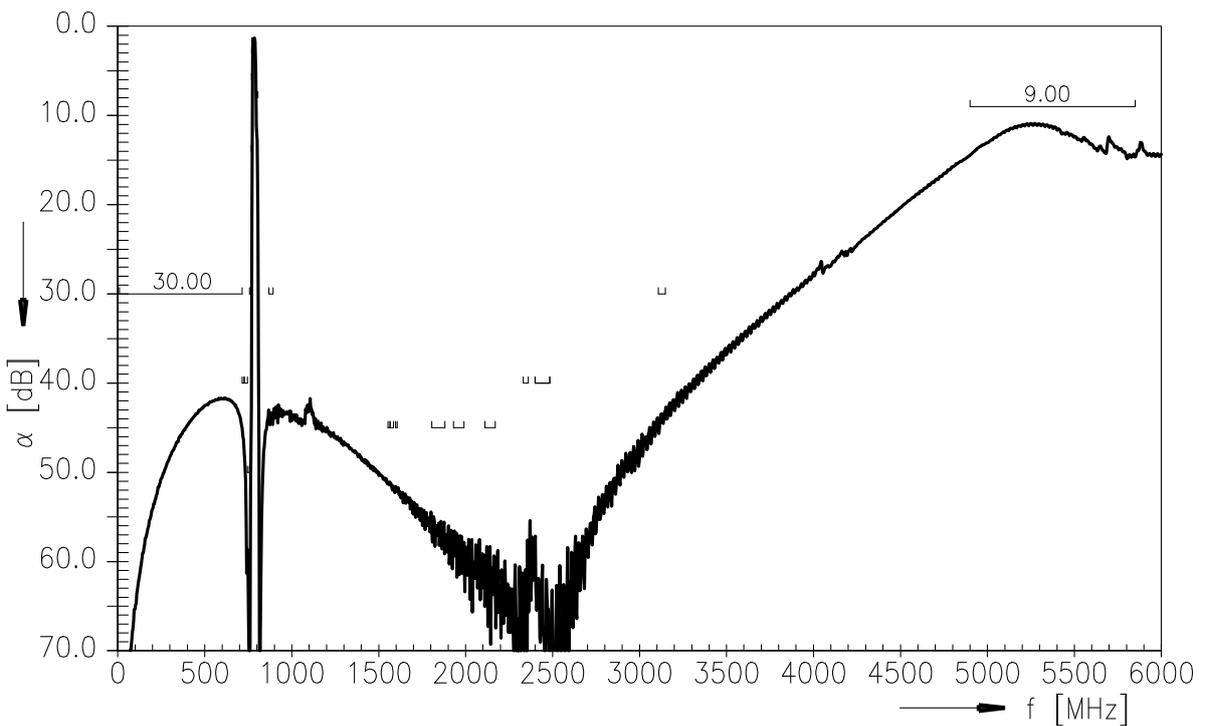
Frequency Response Tx-Ant
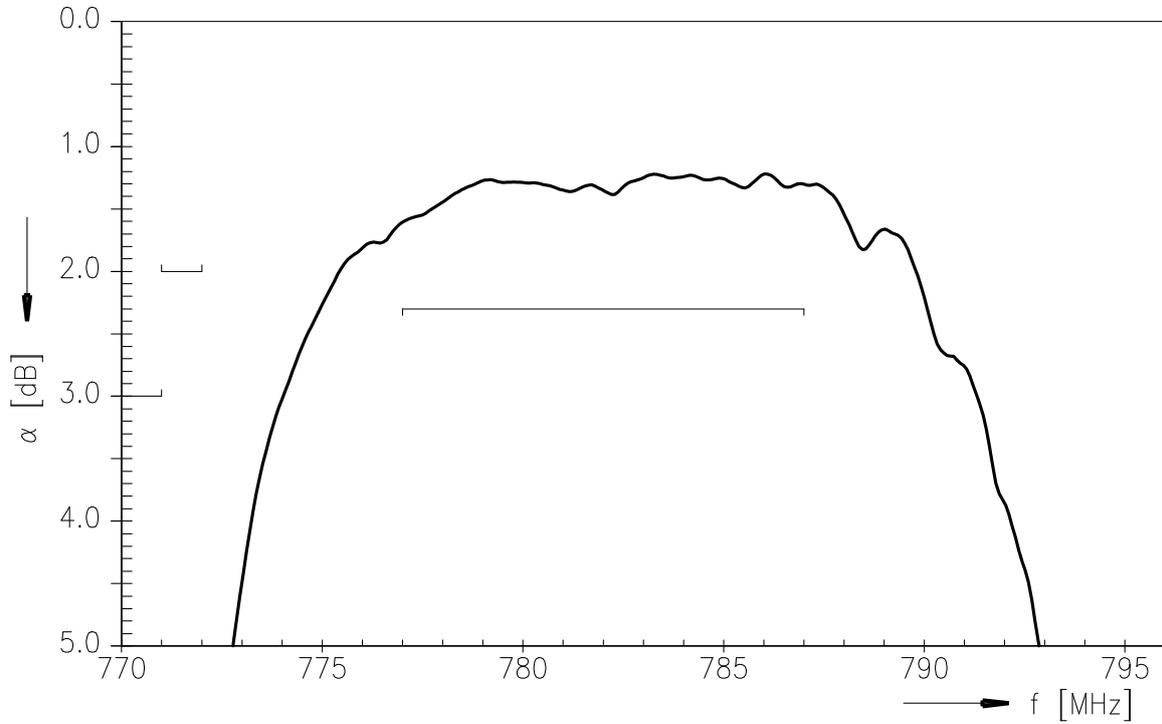
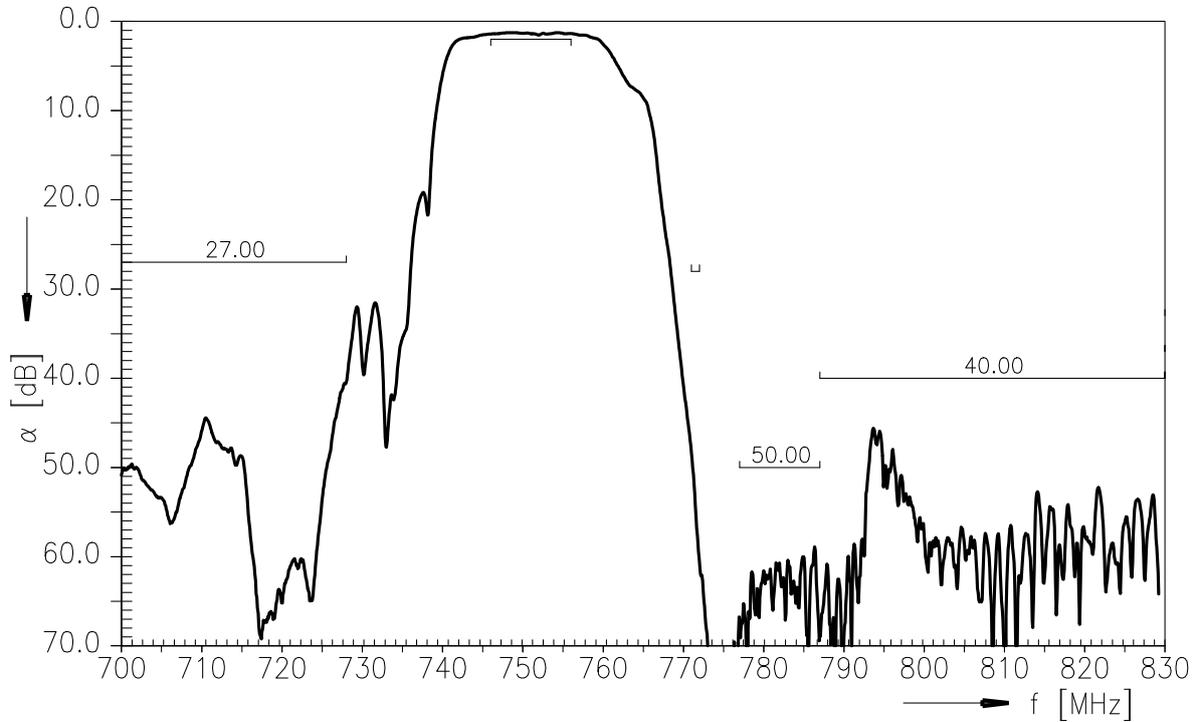### Frequency Response Ant-Rx

Frequency Response Tx-Ant

Frequency Response Tx-Ant (wideband)

Frequency Response Rx-Ant

Frequency Response Rx-Ant (wideband)

Please read *cautions and warnings and important notes* at the end of this document.

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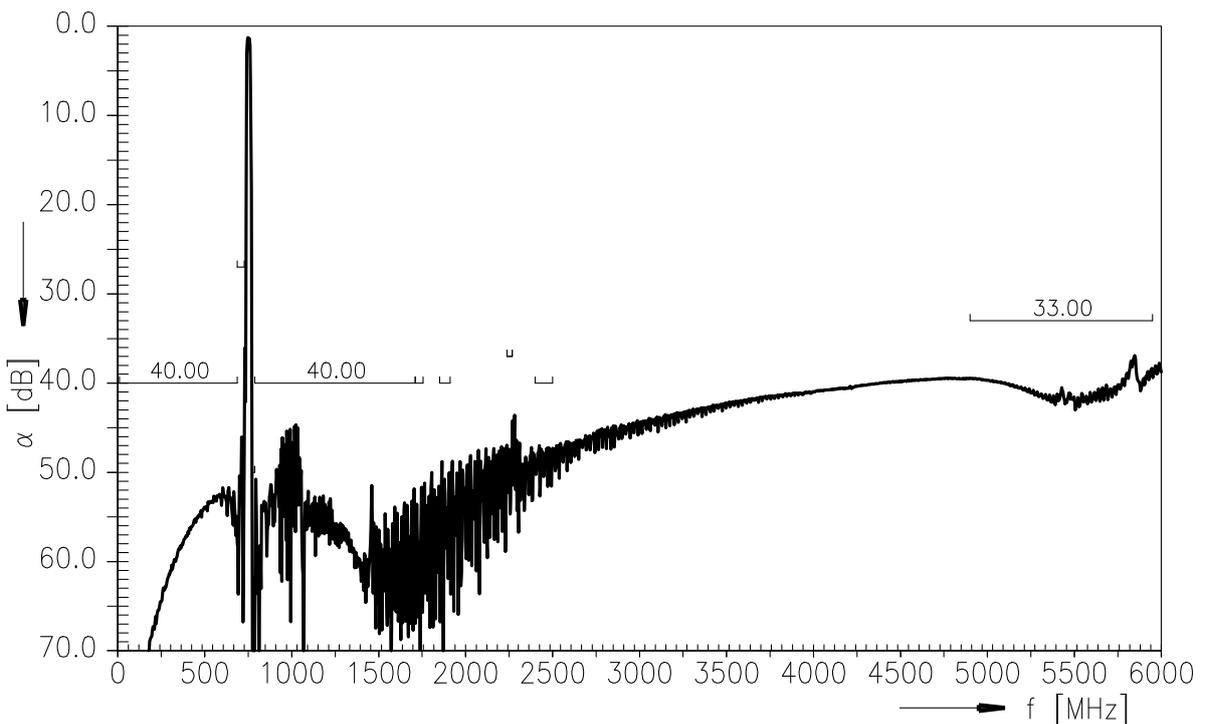
Frequency Response Tx-Rx
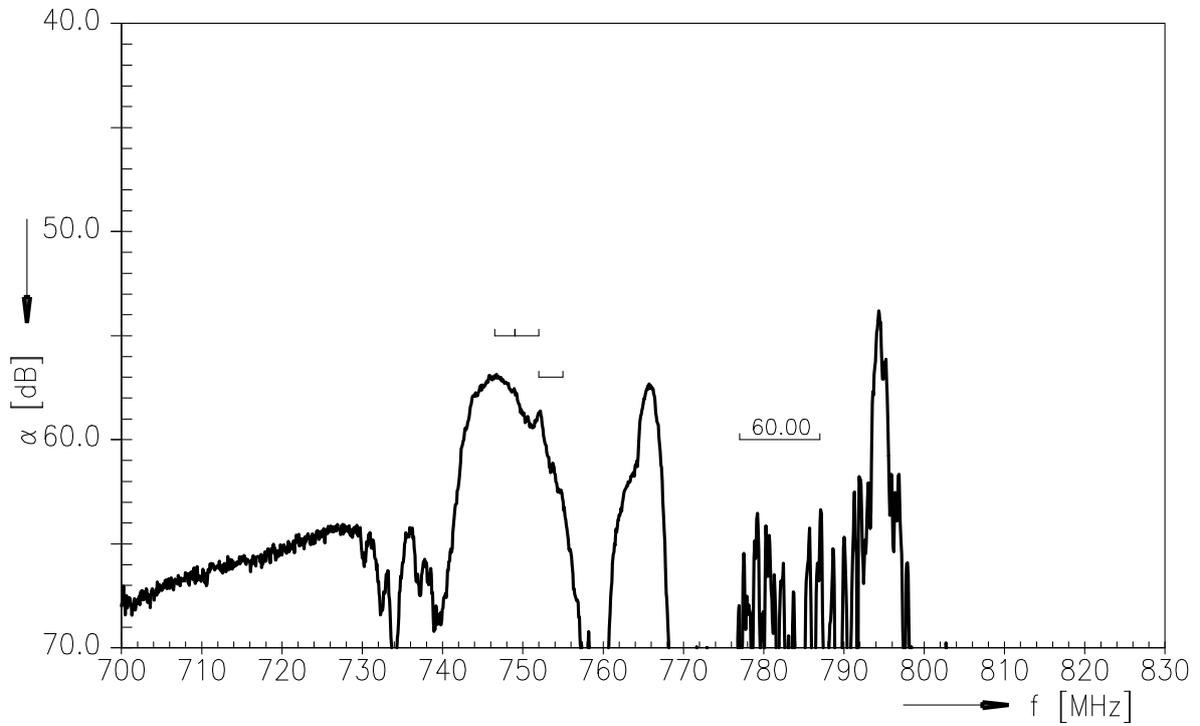
Frequency Response Tx-Rx (wideband)

Please read *cautions and warnings and important notes* at the end of this document.
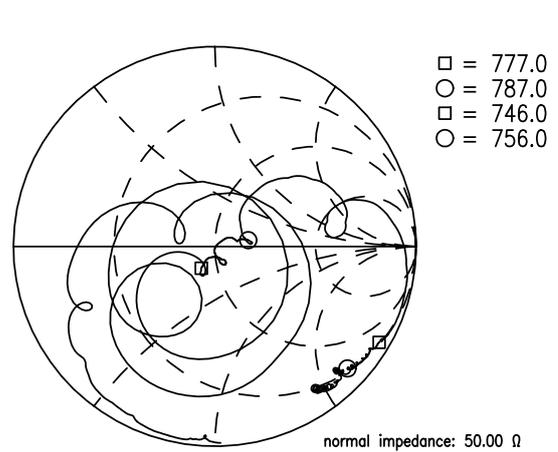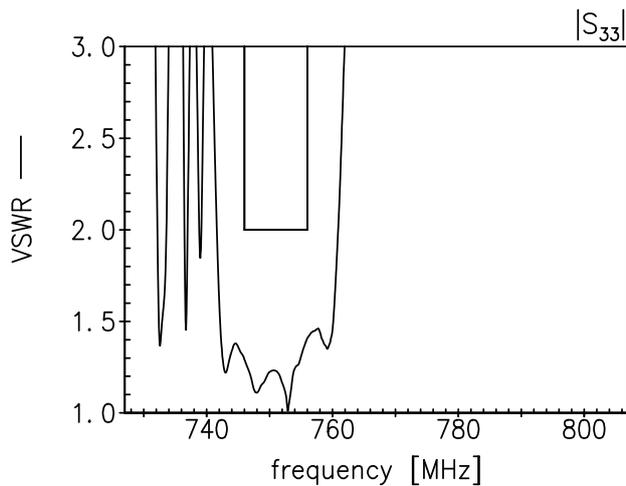
10　January 16, 2014
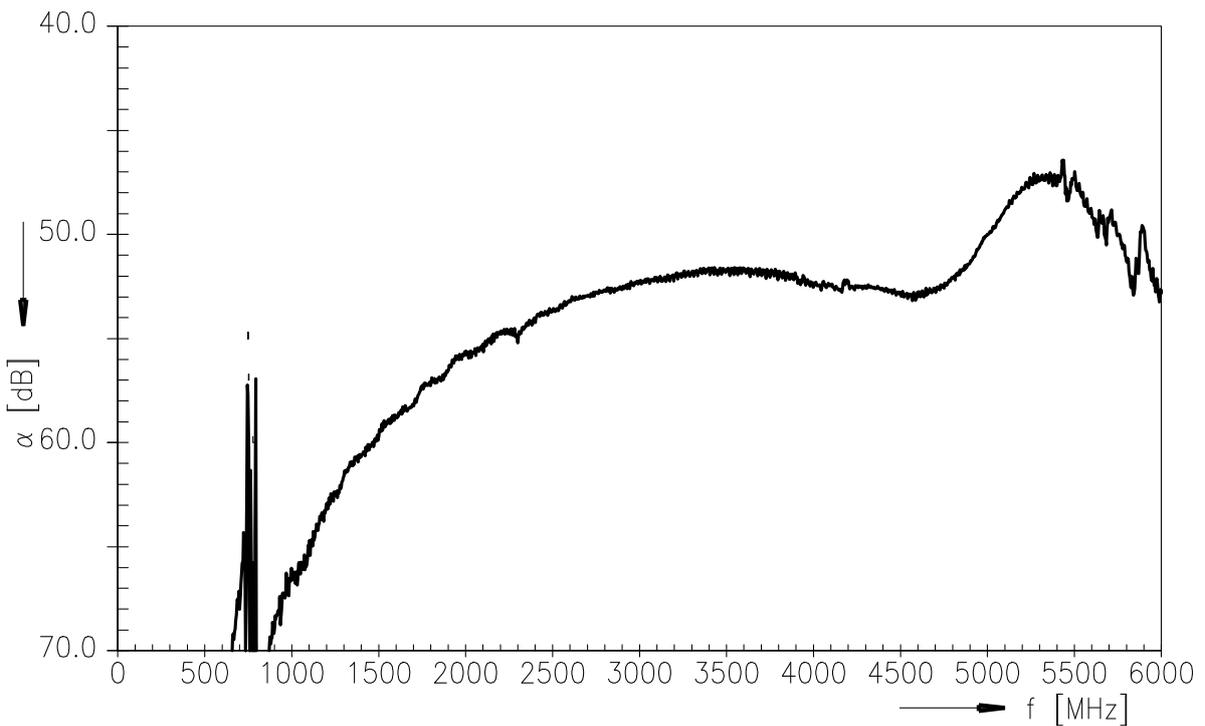
Return Loss S_{11} Tx- port S_{22} Ant-port S_{33} Rx-port

$|S_{11}|$

□ = 777.0
○ = 787.0
□ = 746.0
○ = 756.0

normal impedance: 50.00 Ω

$|S_{33}|$

□ = 777.0
○ = 787.0
□ = 746.0
○ = 756.0

normal impedance: 50.00 Ω

$|S_{22}|$

□ = 777.0
○ = 787.0
□ = 746.0
○ = 756.0

normal impedance: 50.00 Ω

Please read *cautions and warnings and important notes* at the end of this document.

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References

Type	B8620
Ordering code	B39781B8620P810
Marking and package	C61157-A8-A98
Packaging	F61074-V8259-Z000
Date codes	L_1126
S-parameters	B8620_NB_UN.s3p, B8620_WB_UN.s3p 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.
Moldability	Before using in overmolding environment, please contact your EPCOS sales office.
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