SAW Components

SAW Duplexer

LTE Band XVII

Series/type:	**B8624**
Ordering code:	**B39741B8624P810**
Date:	January 17, 2014
Version:	2.1

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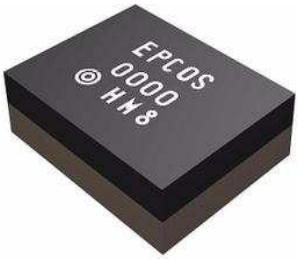
Data sheet SMD

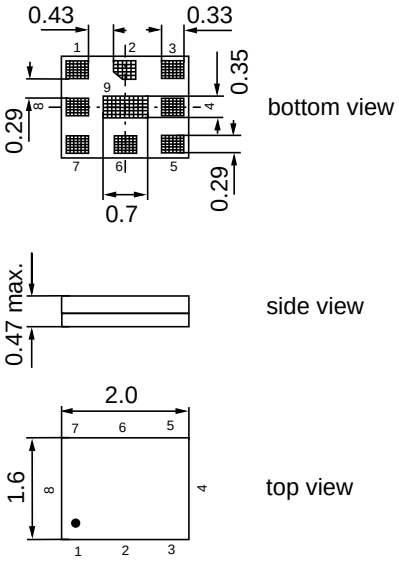
Application

- Low-loss SAW duplexer for mobile telephone LTE Band XVII systems
- Low insertion attenuation
- Low amplitude ripple
- Usable passband 12 MHz
- 50 Ω single-ended in both in Antenna-Rx and Tx-Antenna paths



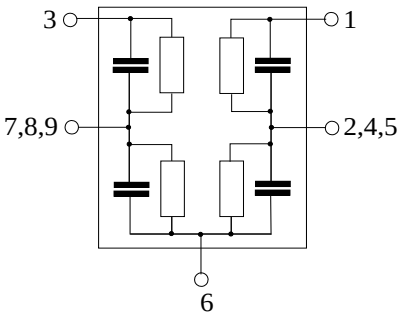
Features

- Package size 2.0 x 1.6 mm²
- Max. package height 0.47mm
- RoHS compatible
- Approx. weight 0.006 g
- Package for **S**urface **M**ount **T**echnology (**SMT**)
- Ni, Au-plated terminals
- **E**lectrostatic **S**ensitive **D**evice (**ESD**)
- **M**oisture **S**ensitive **L**evel 3



Pin configuration

3	Tx Input
1	Rx Output
6	Antenna
2,4,5,7,8,9	To be grounded



Data sheet SMD

Characteristics

Temperature range for specification: T = –20 ˚C to +90 ˚C
Ant terminating impedance: Z_{Ant} = 50 Ω || 13nH
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	—	710.0	—	MHz
Maximum insertion attenuation	α				
704.0 ... 716.0 MHz		—	1.5	2.1	dB
Amplitude ripple (p-p)	Δα				
704.0 ... 716.0 MHz		—	0.5	1.1	dB
Error Vector Magnitude					
@$f_{Carrier}$ 706.4 ... 713.6 MHz	EVM[1)]	—	1.2	3.0	%
@$f_{Carrier}$ 706.4 ... 713.6 MHz	EVM[1)]	—	1.2	2.0[2)]	%
Input VSWR (Tx port)					
704.0 ... 716.0 MHz		—	1.4	2.0	
Output VSWR (Ant port)					
704.0 ... 716.0 MHz		—	1.3	2.0	

1) Error Vector Magnitude (EVM) based on definition given in 3GPP TS 25.141.
2) At room temperature, 25˚C

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Temperature range for specification: T = –20 ˚C to +90 ˚C
Ant terminating impedance: Z_{Ant} = 50 Ω || 13nH
Rx terminating impedance: Z_{Rx} = 50 Ω
Tx terminating impedance: Z_{Tx} = 50 Ω

Characteristics Tx - Antenna			min.	typ. @ 25˚C	max.	
Attenuation		α				
10.0	...	690.0 MHz	30	36	—	dB
690.0	...	698.0 MHz	4	12	—	dB
722.0	...	728.0 MHz	2.5	7	—	dB
729.0	...	734.0 MHz	30	35	—	dB
734.0	...	746.0 MHz	50	60	—	dB
746.0	...	768.0 MHz	35	43	—	dB
768.0	...	805.0 MHz	25	39	—	dB
869.0	...	894.0 MHz	30	38	—	dB
1408.0	...	1432.0 MHz	35	42	—	dB
1559.0	...	1563.0 MHz	40	43	—	dB
1565.4	...	1573.4 MHz	40	43	—	dB
1573.4	...	1577.5 MHz	40	43	—	dB
1577.5	...	1585.4 MHz	40	44	—	dB
1597.6	...	1605.9 MHz	40	44	—	dB
1805.0	...	1880.0 MHz	40	45	—	dB
1930.0	...	1990.0 MHz	40	46	—	dB
2110.0	...	2155.0 MHz	42	47	—	dB
2155.0	...	2170.0 MHz	42	48	—	dB
2400.0	...	2484.0 MHz	42	49	—	dB
2816.0	...	2864.0 MHz	40	47	—	dB
4900.0	...	5950.0 MHz	16	22	—	dB

Data sheet SMD

Characteristics

Temperature range for specification: T = –20 ˚C to +90 ˚C
Ant terminating impedance: Z_{Ant} = 50 Ω || 13nH
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	—	740.0	—	MHz
Maximum insertion attenuation	α				
734.0 ... 746.0 MHz		—	1.8	2.2	dB
Amplitude ripple (p-p)	Δα				
734.0 ... 746.0 MHz		—	0.4	0.9	dB
Input VSWR (Ant port)					
734.0 ... 746.0 MHz		—	1.4	2.0	
Output VSWR (Rx port)					
734.0 ... 746.0 MHz		—	1.5	2.0	
Attenuation	α				
10.0 ... 674.0 MHz		40	55	—	dB
674.0 ... 686.0 MHz		40	59	—	dB
686.0 ... 704.0 MHz		40	59	—	dB
704.0 ... 716.0 MHz		55	64	—	dB
716.0 ... 727.0 MHz		15	25	—	dB
727.0 ... 728.0 MHz		8	20	—	dB
777.0 ... 793.0 MHz		33	40	—	dB
793.0 ... 805.0 MHz		45	52	—	dB
814.0 ... 1710.0 MHz		40	51	—	dB
1710.0 ... 1755.0 MHz		50	63	—	dB
1850.0 ... 1910.0 MHz		45	60	—	dB
2202.0 ... 2238.0 MHz		45	56	—	dB
2400.0 ... 2500.0 MHz		45	55	—	dB
4900.0 ... 5140.0 MHz		40	47	—	dB
5140.0 ... 5950.0 MHz		30	35	—	dB

Characteristics

Temperature range for specification: T = –20 ˚C to +90 ˚C
Ant terminating impedance: Z_{Ant} = 50 Ω || 13nH
Rx terminating impedance: Z_{Rx} = 50 Ω
Tx terminating impedance: Z_{Tx} = 50 Ω

Characteristics Antenna - Rx				min.	typ. @ 25˚C	max.	
IMD Product Level Limits[1)]							
at f_{Tx}=710.0 MHz, f_{Rx}=740.0 MHz							
Blocker 1			30.0 MHz	—	-128	-110	dBm
Blocker 2	674.0	...	686.0 MHz	—	-110	-100	dBm
Blocker 3	1438.0	...	1462.0 MHz	—	-110	-100	dBm
Blocker 4	2142.0	...	2178.0 MHz	—	-126	-110	dBm

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

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Temperature range for specification: T = –20 ˚C to +90 ˚C
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Rx terminating impedance: Z_{Rx} = 50 Ω
Tx terminating impedance: Z_{Tx} = 50 Ω

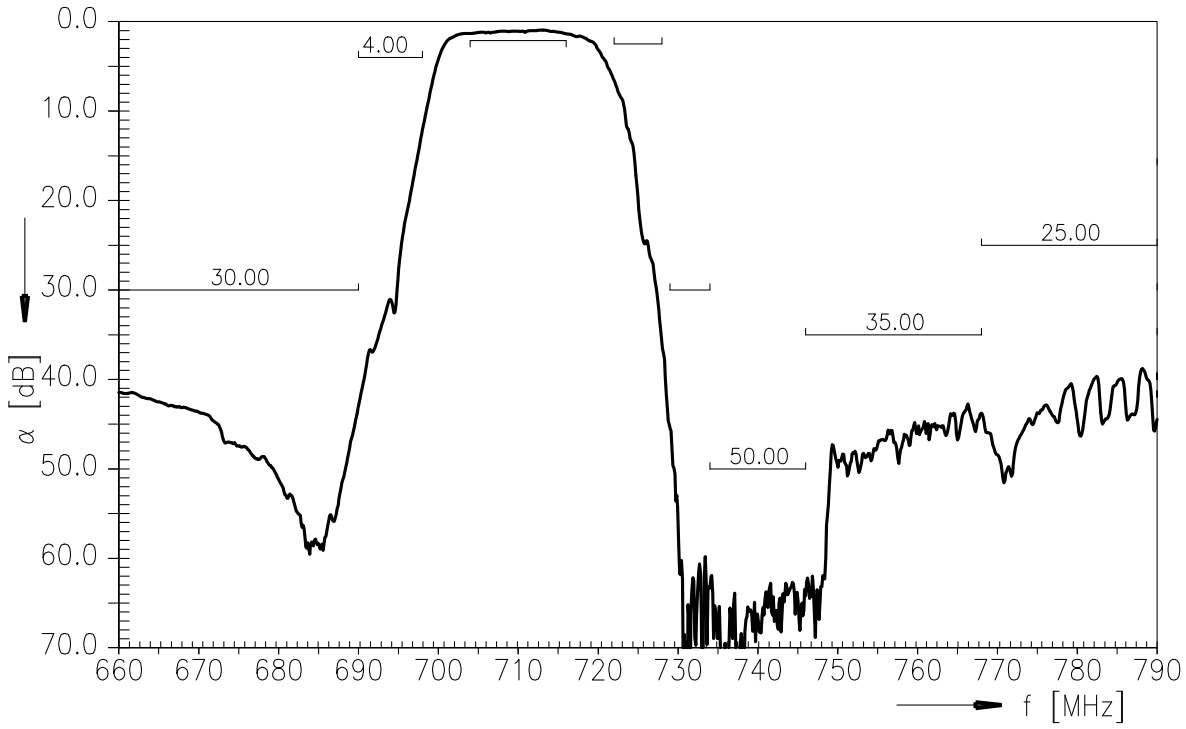
Characteristics Tx - Rx			min.	typ. @ 25˚C	max.	
Isolation		α				
704.0	...	709.0 MHz	59	62	—	dB
709.0	...	716.0 MHz	60	65	—	dB
734.0	...	735.0 MHz	55	59	—	dB
735.0	...	738.0 MHz	55	59	—	dB
738.0	...	742.0 MHz	58	63	—	dB
742.0	...	746.0 MHz	55	62	—	dB
1408.0	...	1432.0 MHz	30	63	—	dB
2112.0	...	2148.0 MHz	30	56	—	dB
2816.0	...	2864.0 MHz	30	52	—	dB

Maximum ratings

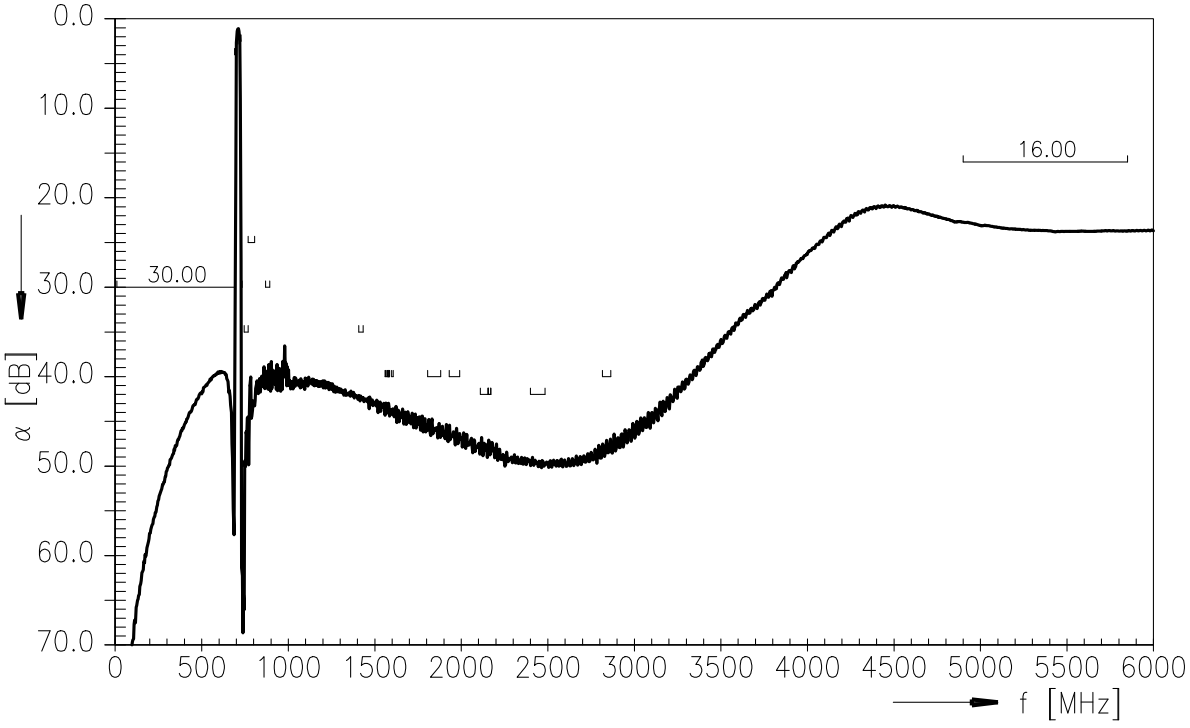
Storage temperature range	T_{stg}	–40/+85[1)]	°C	
DC voltage	V_{DC}	5[2)]	V	
ESD voltage	V_{ESD}	100[3)]	V	Machine Model
Input power at	P_{IN}			
706.5 ... 713.5 MHz		29	dBm	} LTE uplink 5MHz 50°C, 5000 h
elsewhere		10	dBm	

1) extended upperlimit: 96h@125°C acc. to IEC 60068-2-2 Bb
2) 168h Damp Heat Steady State acc. to IEC 60068-2-67 Cy.
3) acc. to JESD22-A115B (MM - Machine Model), 10 negative and 10 positive pulses.

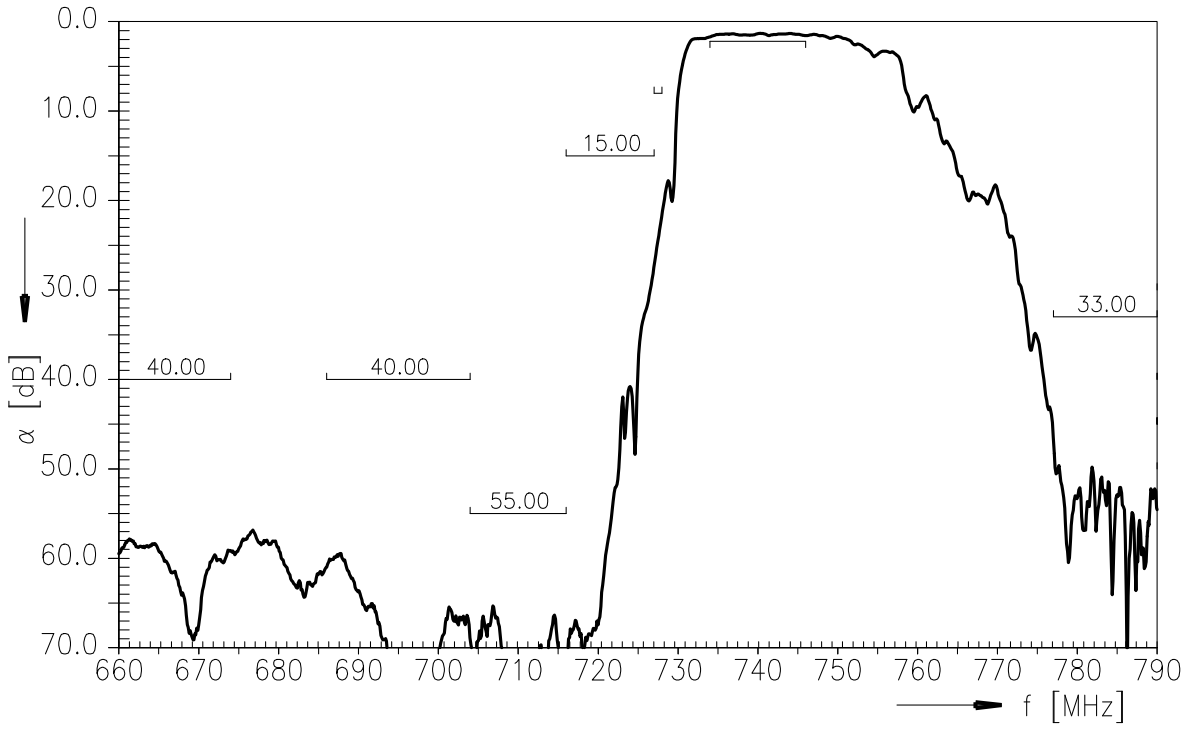
Frequency response Tx-Antenna



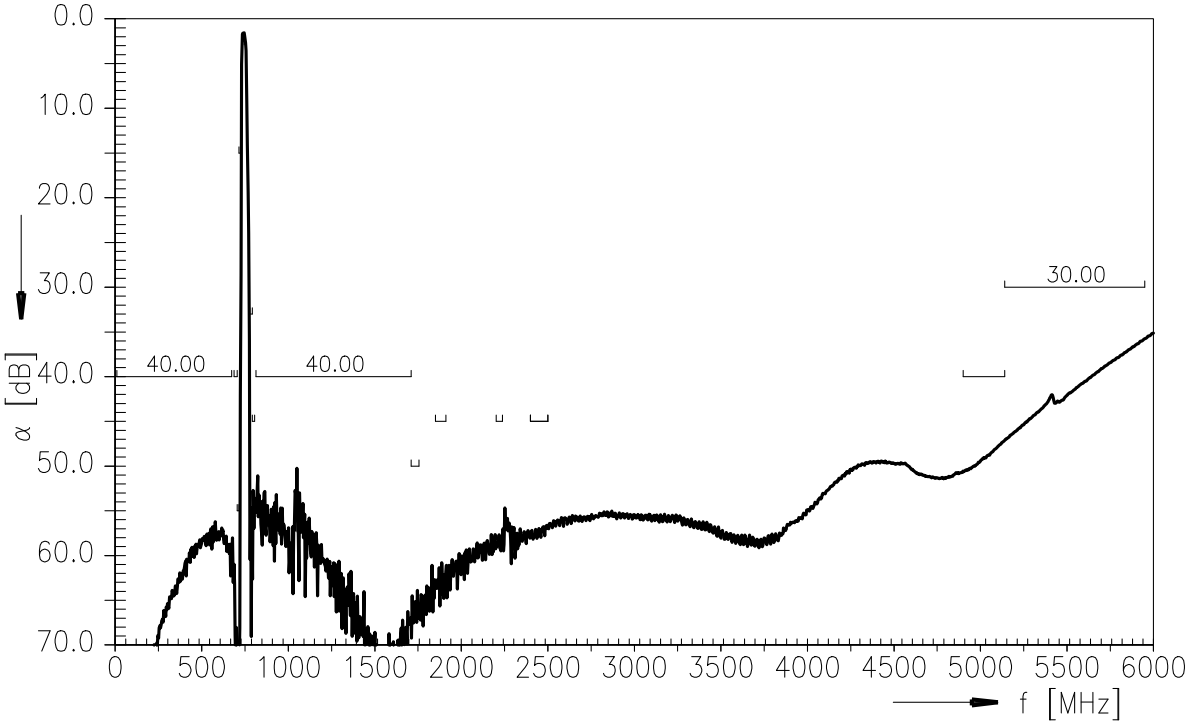
Frequency response Tx-Antenna (wideband)



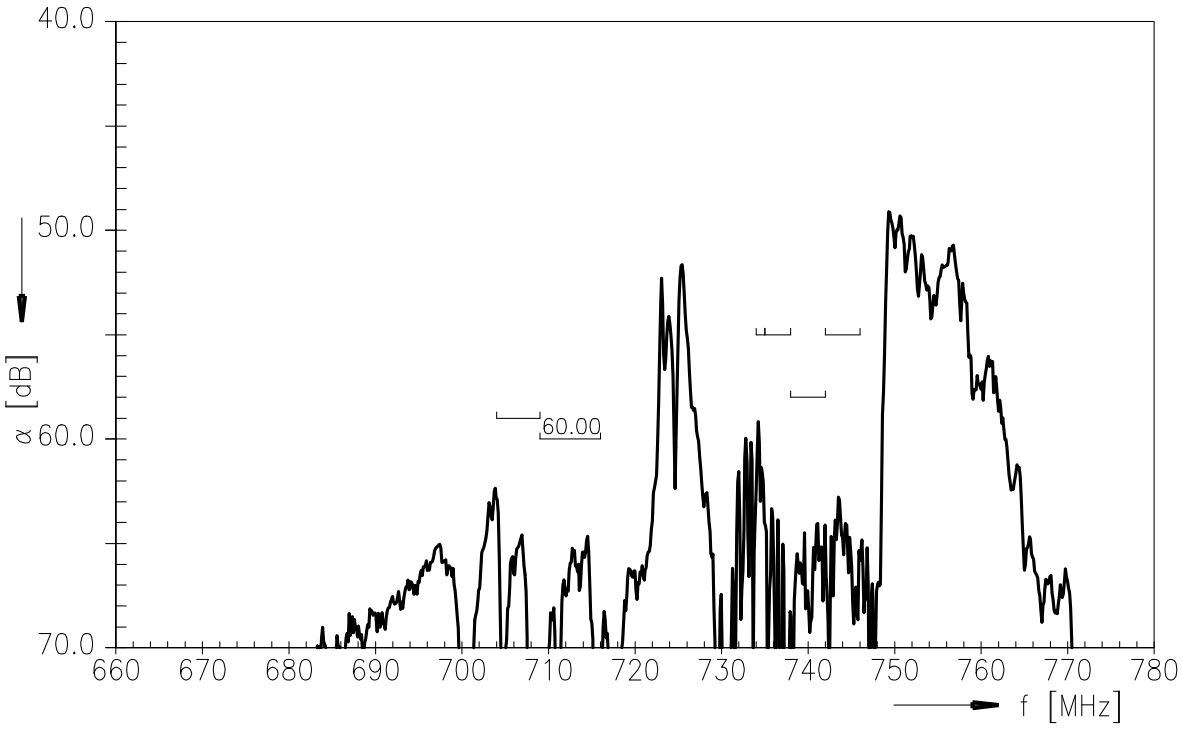
Frequency response Antenna-Rx



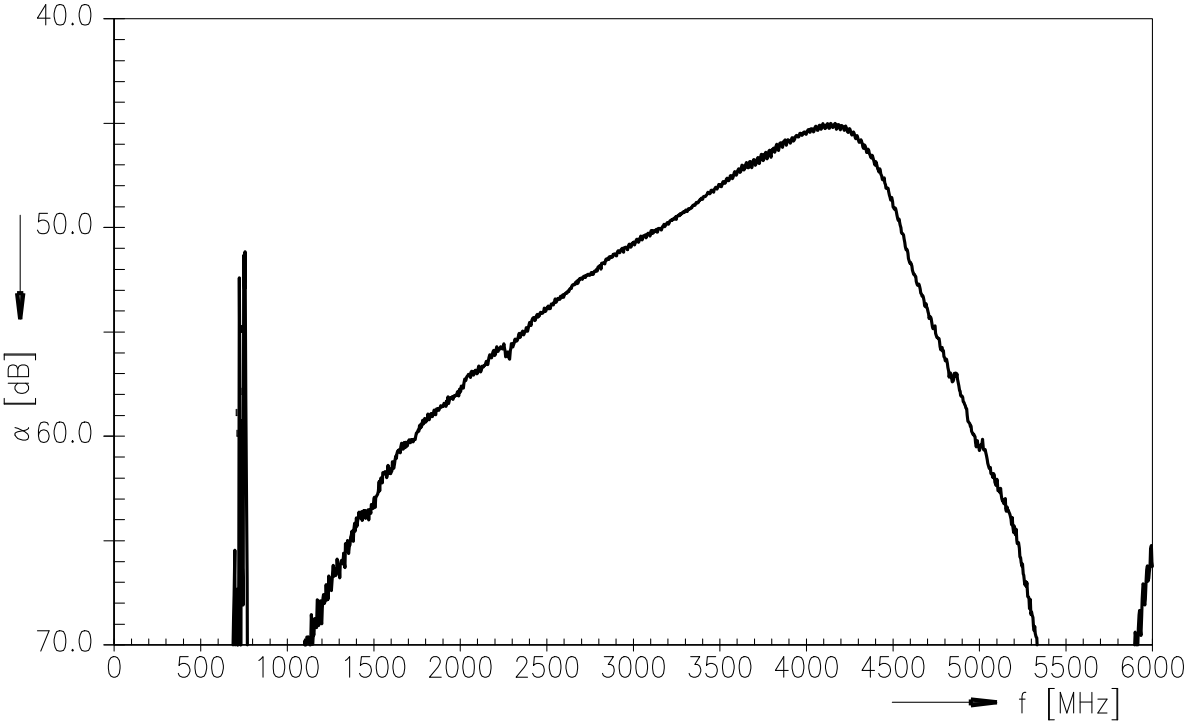
Frequency response Antenna-Rx (wideband)



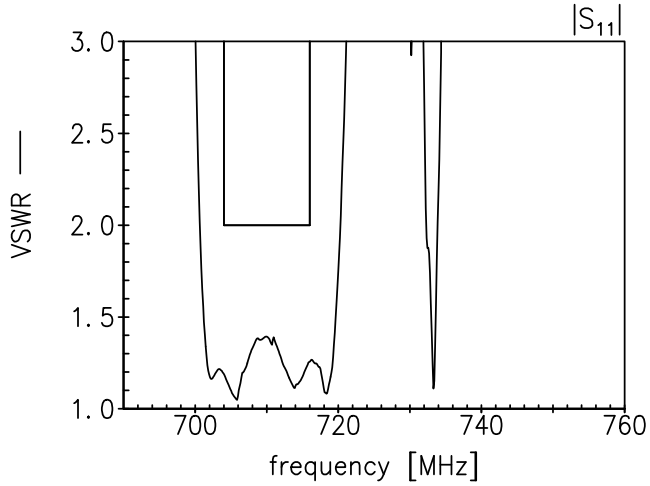
Frequency response Tx-Rx

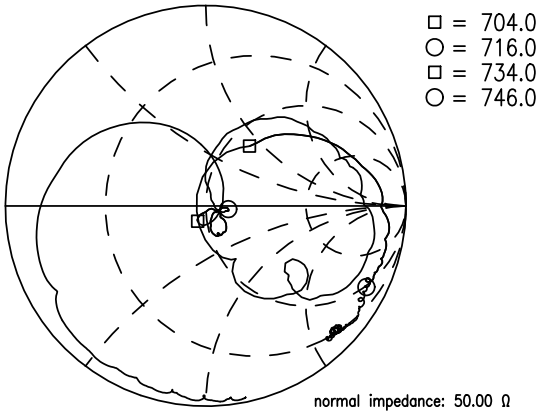


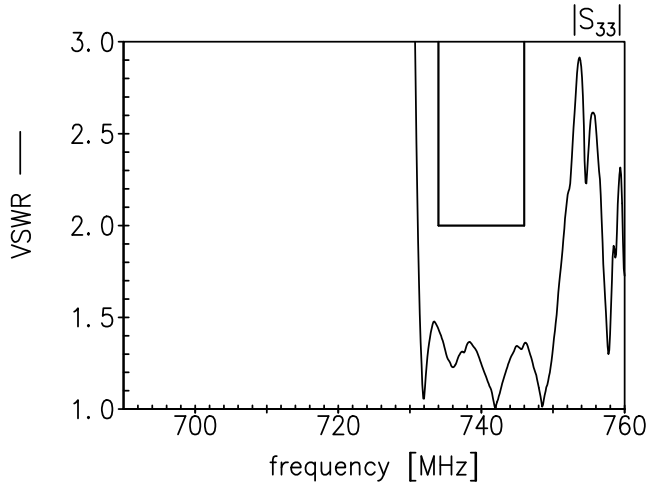
Frequency response Tx-Rx (wideband)

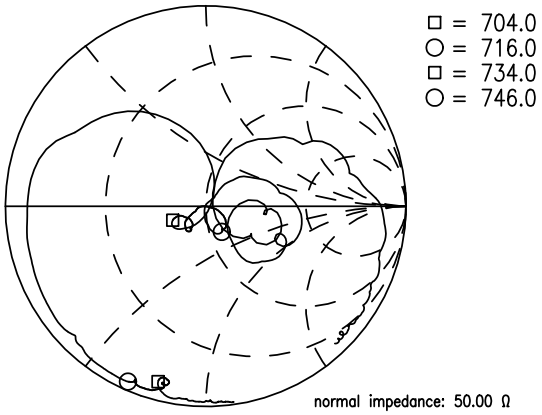


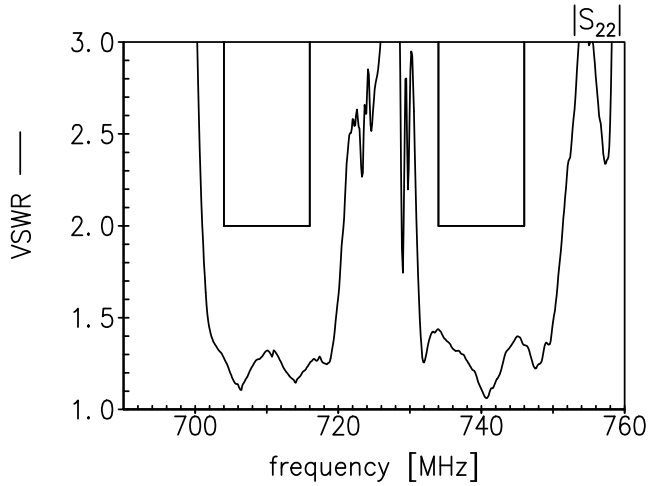
Return loss **S_{11} Tx-port** **S_{22} Antenna-port** **S_{33} Rx-portReferences**

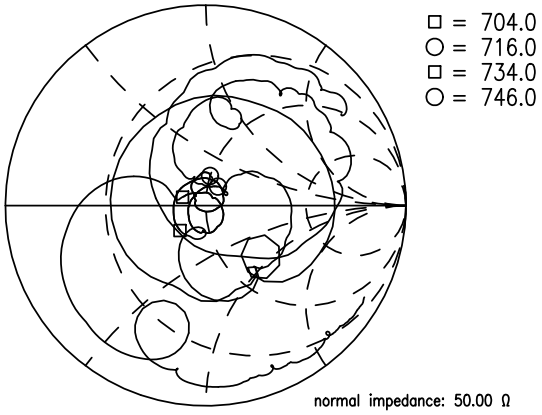












References

Type	B8624
Ordering code	B39741B8624P810
Marking and package	C61157-A8-A38
Packaging	F61074-V8247-Z000
Date codes	L_1126
S-parameters	B8624_NB_UN.s3p, B8624_WB_UN.s3p See file header for pin/port assignment.
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.
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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