



# SAW Components

## SAW Duplexer

LTE Band XVII

<b>Series/type:</b>	<b>B8624</b>
<b>Ordering code:</b>	<b>B39741B8624P810</b>
<b>Date:</b>	January 17, 2014
<b>Version:</b>	2.1

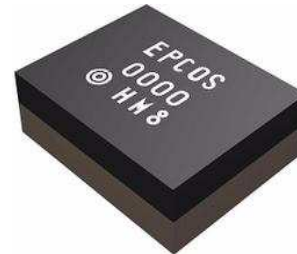
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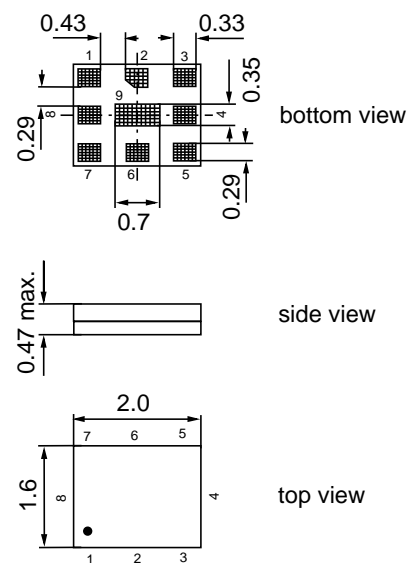
Data sheet

**Application**

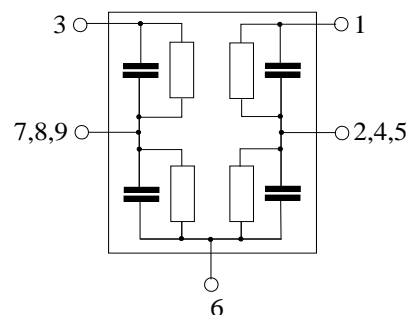
- Low-loss SAW duplexer for mobile telephone LTE Band XVII systems
- Low insertion attenuation
- Low amplitude ripple
- Usable passband 12 MHz
- 50 Ω single-ended in both in Antenna-Rx and Tx-Antenna paths


**Features**

- Package size 2.0 x 1.6 mm<sup>2</sup>
- Max. package height 0.47mm
- RoHS compatible
- Approx. weight 0.006 g
- Package for **Surface Mount Technology (SMT)**
- Ni, Au-plated terminals
- **Electrostatic Sensitive Device (ESD)**
- **Moisture Sensitive Level 3**


**Pin configuration**

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



**Data sheet**

**Characteristics**

Temperature range for specification:	T = -20 °C to +90 °C
Ant terminating impedance:	Z <sub>Ant</sub> = 50 Ω    13nH
Rx terminating impedance:	Z <sub>Rx</sub> = 50 Ω
Tx terminating impedance:	Z <sub>Tx</sub> = 50 Ω

Characteristics Tx - Antenna		min.	typ. @ 25°C	max.	
<b>Center frequency</b>	f <sub>C</sub>	—	710.0	—	MHz
<b>Maximum insertion attenuation</b>	α				
	704.0 ... 716.0 MHz	—	1.5	2.1	dB
<b>Amplitude ripple (p-p)</b>	Δα				
	704.0 ... 716.0 MHz	—	0.5	1.1	dB
<b>Error Vector Magnitude</b>					
	@f <sub>Carrier</sub> 706.4 ... 713.6 MHz EVM <sup>1)</sup>	—	1.2	3.0	%
	@f <sub>Carrier</sub> 706.4 ... 713.6 MHz EVM <sup>1)</sup>	—	1.2	2.0 <sup>2)</sup>	%
<b>Input VSWR (Tx port)</b>					
	704.0 ... 716.0 MHz	—	1.4	2.0	
<b>Output VSWR (Ant port)</b>					
	704.0 ... 716.0 MHz	—	1.3	2.0	

<sup>1)</sup> Error Vector Magnitude (EVM) based on definition given in 3GPP TS 25.141.

<sup>2)</sup> At room temperature, 25°C

Data sheet


**Characteristics**

Temperature range for specification:	T = -20 °C to +90 °C
Ant terminating impedance:	Z <sub>Ant</sub> = 50 Ω    13nH
Rx terminating impedance:	Z <sub>Rx</sub> = 50 Ω
Tx terminating impedance:	Z <sub>Tx</sub> = 50 Ω

Characteristics Tx - Antenna	min.	typ. @ 25°C	max.	
<b>Attenuation</b> <span style="float: right;">α</span>				
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


**Characteristics**

Temperature range for specification:	T = -20 °C to +90 °C
Ant terminating impedance:	Z <sub>Ant</sub> = 50 Ω    13nH
Rx terminating impedance:	Z <sub>Rx</sub> = 50 Ω
Tx terminating impedance:	Z <sub>Tx</sub> = 50 Ω

Characteristics Antenna - Rx		min.	typ. @ 25°C	max.	
<b>Center frequency</b>	f <sub>C</sub>	—	740.0	—	MHz
<b>Maximum insertion attenuation</b>	α				
	734.0 ... 746.0 MHz	—	1.8	2.2	dB
<b>Amplitude ripple (p-p)</b>	Δα				
	734.0 ... 746.0 MHz	—	0.4	0.9	dB
<b>Input VSWR (Ant port)</b>					
	734.0 ... 746.0 MHz	—	1.4	2.0	
<b>Output VSWR (Rx port)</b>					
	734.0 ... 746.0 MHz	—	1.5	2.0	
<b>Attenuation</b>	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

**Data sheet**

**Characteristics**

Temperature range for specification:	T = -20 °C to +90 °C
Ant terminating impedance:	Z <sub>Ant</sub> = 50 Ω    13nH
Rx terminating impedance:	Z <sub>Rx</sub> = 50 Ω
Tx terminating impedance:	Z <sub>Tx</sub> = 50 Ω

Characteristics Antenna - Rx	min.	typ. @ 25°C	max.	
<b>IMD Product Level Limits<sup>1)</sup></b>				
<b>at f<sub>Tx</sub>=710.0 MHz, f<sub>Rx</sub>=740.0 MHz</b>				
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

<sup>1)</sup> IMD product level limits for power levels P<sub>Tx</sub>=21.5dBm (antenna port output power) and P<sub>Blocker</sub>=-15dBm (antenna port input power)

Data sheet


**Characteristics**

Temperature range for specification:  $T = -20\text{ °C to }+90\text{ °C}$   
 Ant terminating impedance:  $Z_{\text{Ant}} = 50\ \Omega \parallel 13\text{nH}$   
 Rx terminating impedance:  $Z_{\text{Rx}} = 50\ \Omega$   
 Tx terminating impedance:  $Z_{\text{Tx}} = 50\ \Omega$

Characteristics Tx - Rx				min.	typ. @ 25°C	max.	
<b>Isolation</b>			$\alpha$				
	704.0	...	709.0MHz	59	62	—	dB
	709.0	...	716.0MHz	60	65	—	dB
	734.0	...	735.0MHz	55	59	—	dB
	735.0	...	738.0MHz	55	59	—	dB
	738.0	...	742.0MHz	58	63	—	dB
	742.0	...	746.0MHz	55	62	—	dB
	1408.0	...	1432.0MHz	30	63	—	dB
	2112.0	...	2148.0MHz	30	56	—	dB
	2816.0	...	2864.0MHz	30	52	—	dB


**Maximum ratings**

Storage temperature range	$T_{\text{stg}}$	-40/+85 <sup>1)</sup>	°C	Machine Model } LTE uplink 5MHz 50°C, 5000 h
DC voltage	$V_{\text{DC}}$	5 <sup>2)</sup>	V	
ESD voltage	$V_{\text{ESD}}$	100 <sup>3)</sup>	V	
Input power at 706.5 ... 713.5 MHz	$P_{\text{IN}}$	29	dBm	
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.

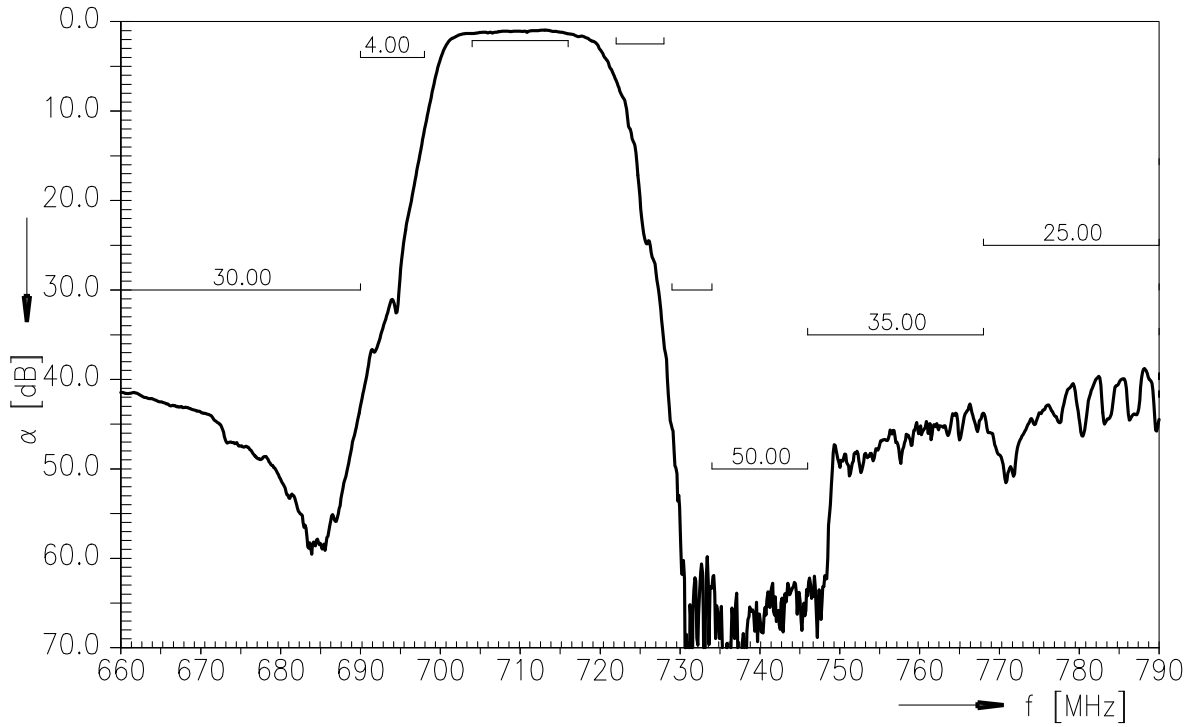
3) acc. to JESD22-A115B (MM - Machine Model), 10 negative and 10 positive pulses.



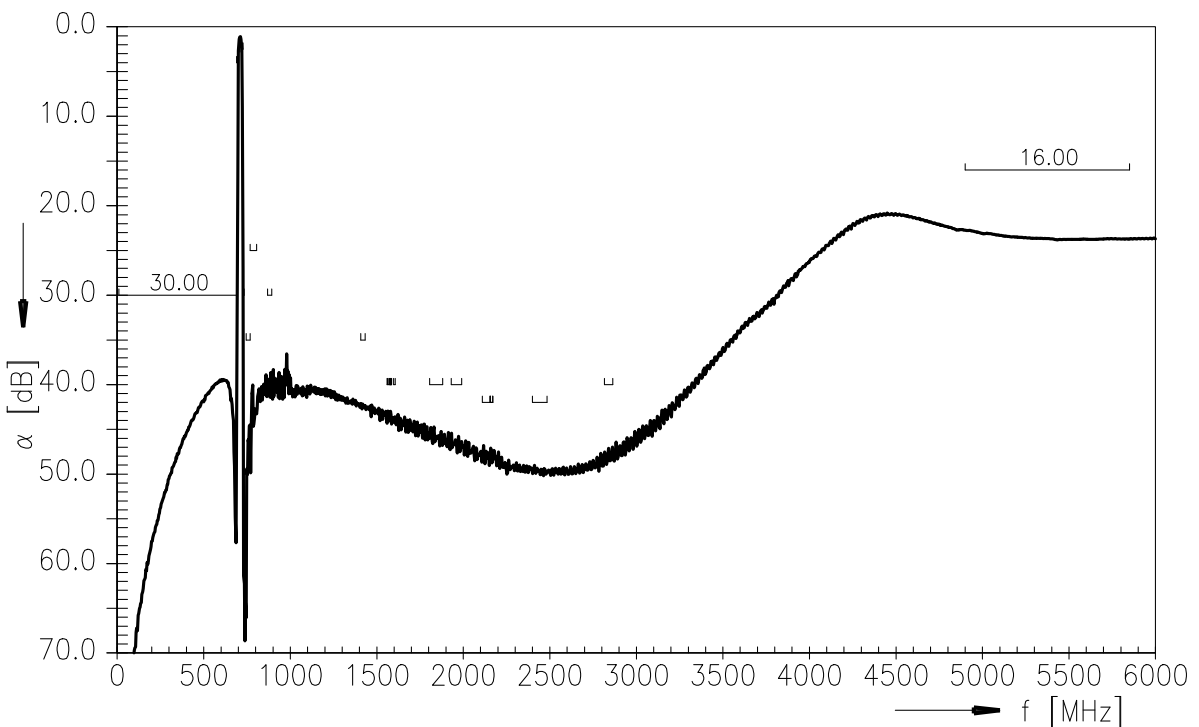
Data sheet



Frequency response Tx-Antenna



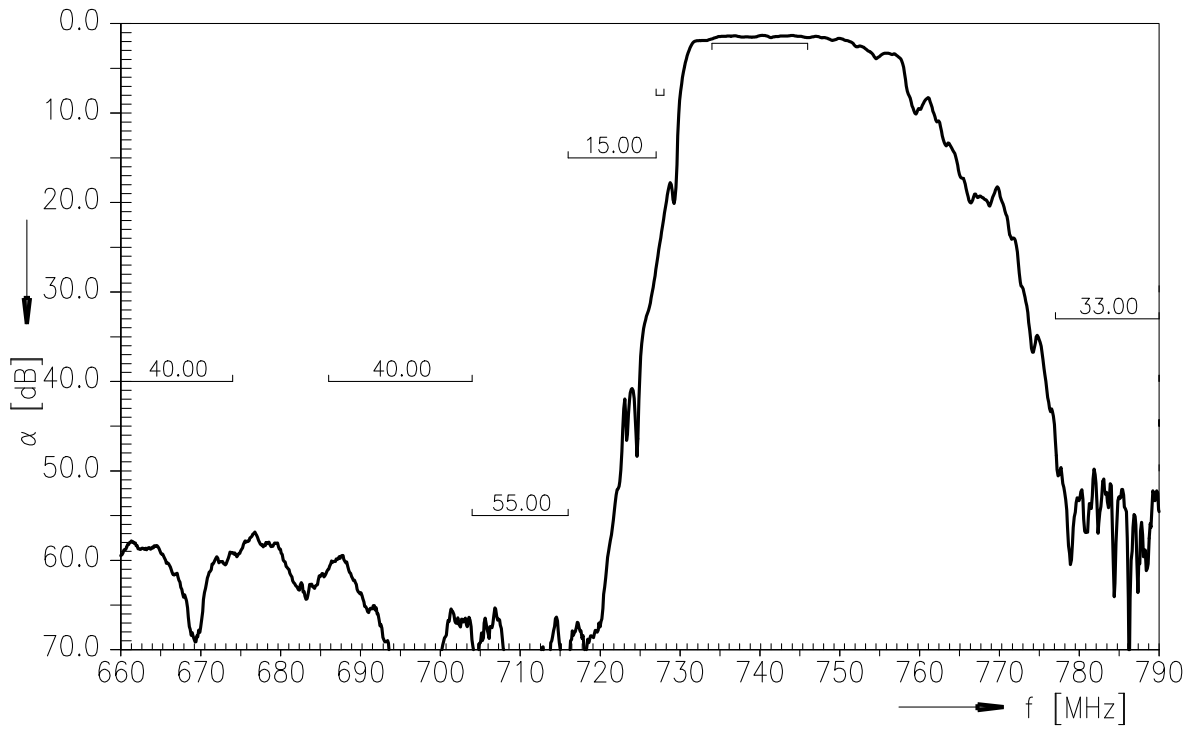
Frequency response Tx-Antenna (wideband)



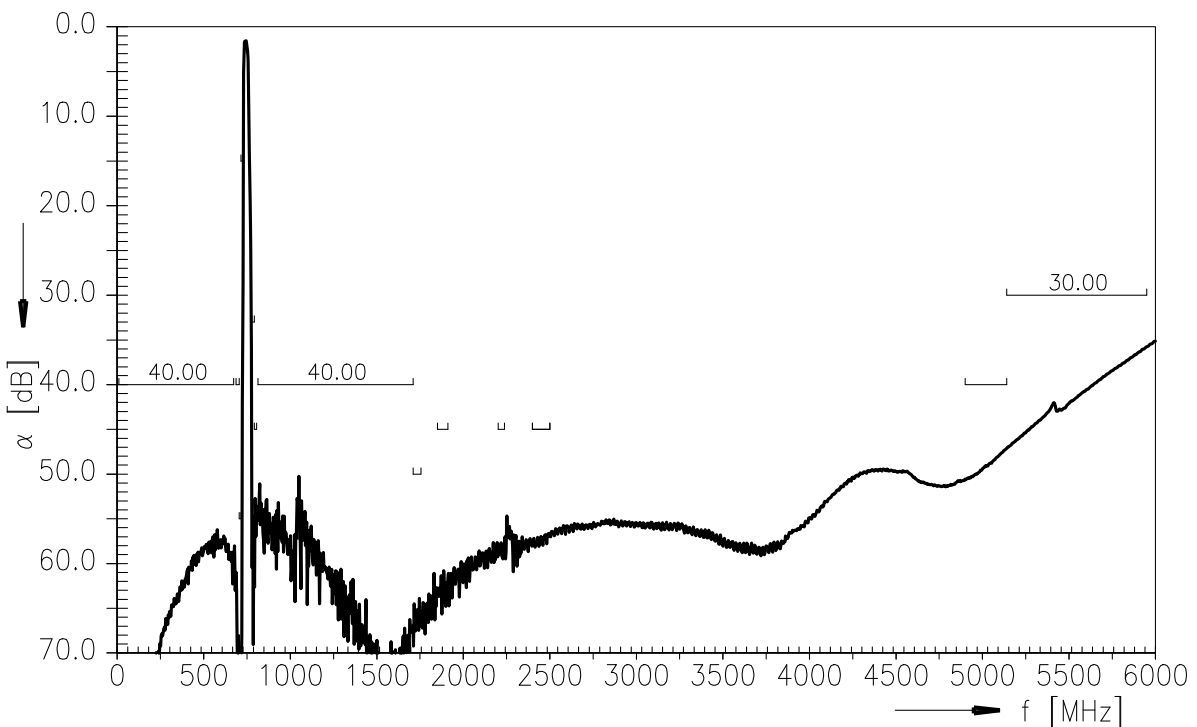
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**Frequency response Antenna-Rx**



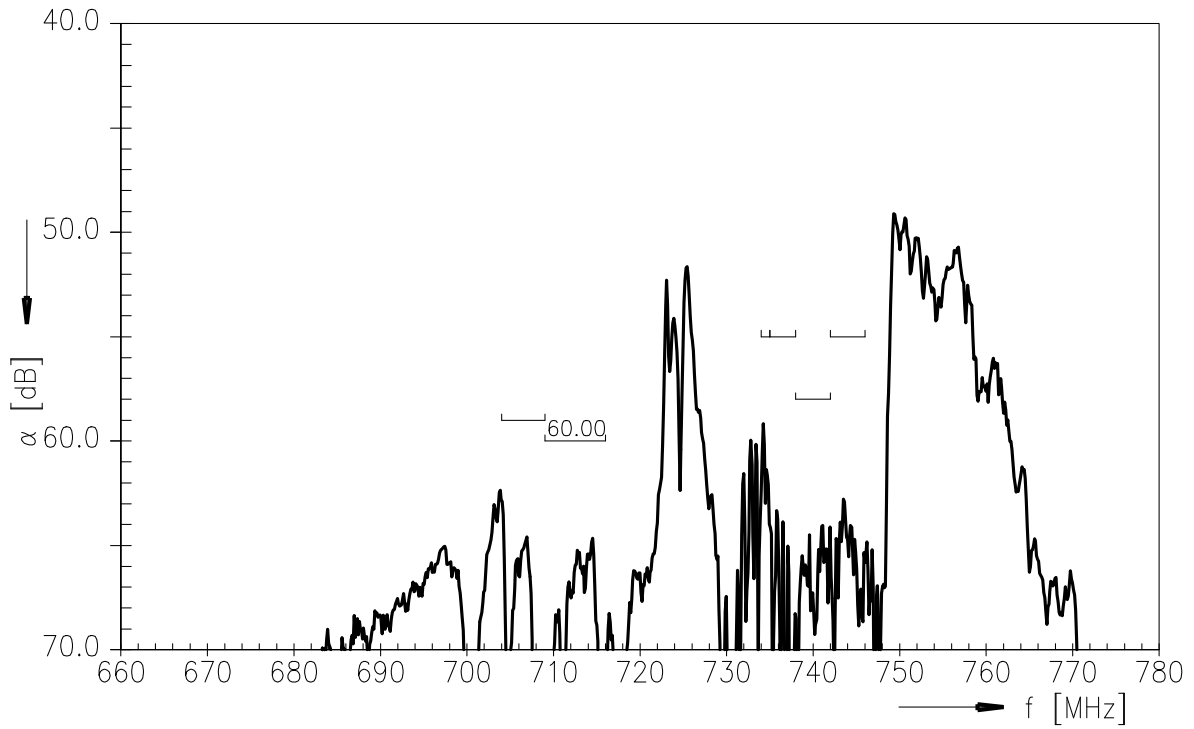
**Frequency response Antenna-Rx (wideband)**



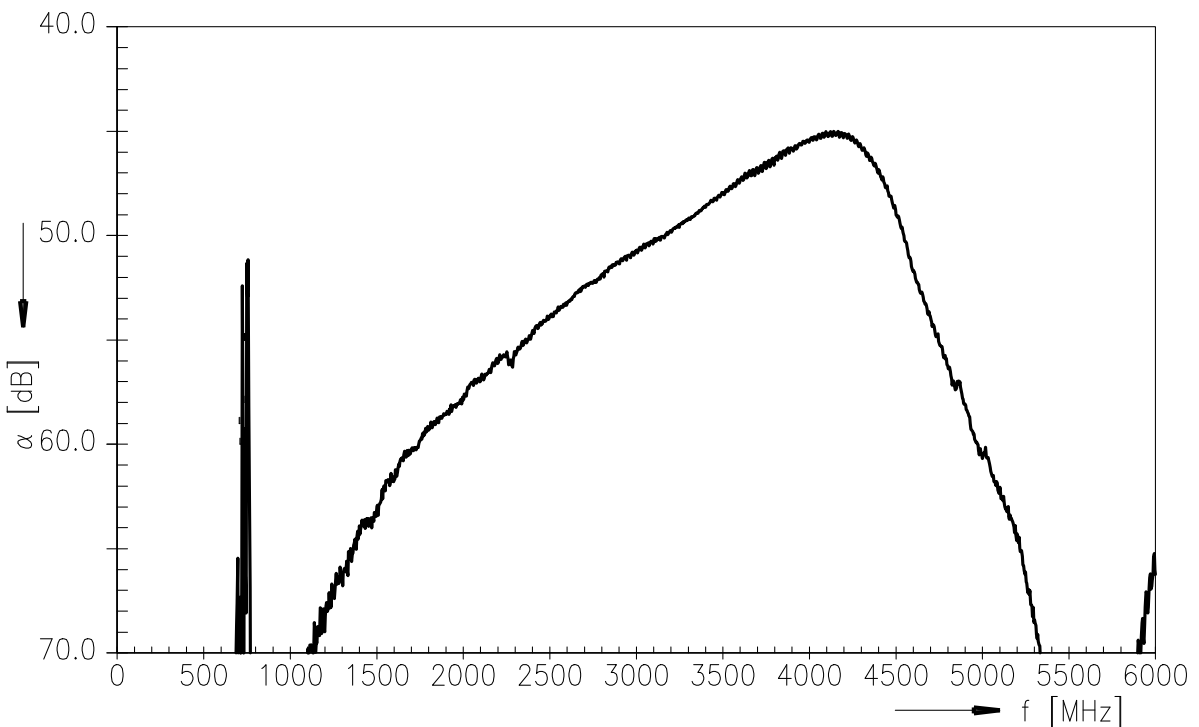
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**Frequency response Tx-Rx**



**Frequency response Tx-Rx (wideband)**



Data sheet

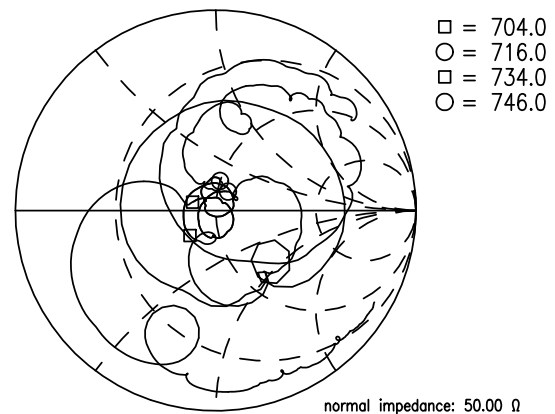
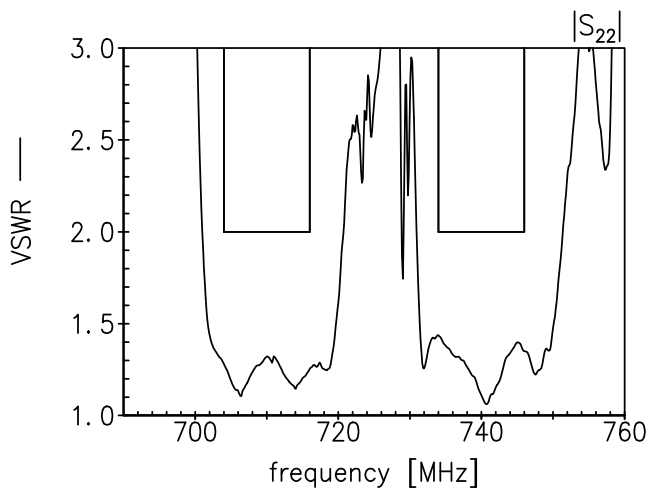
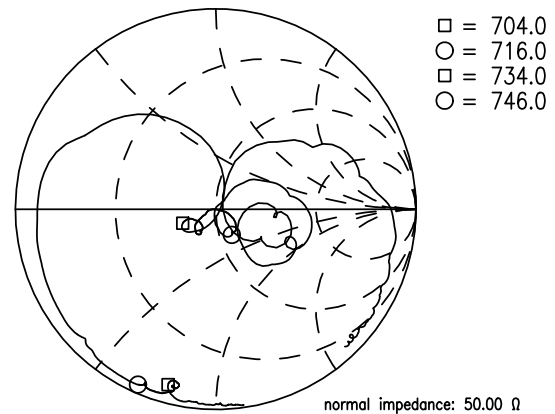
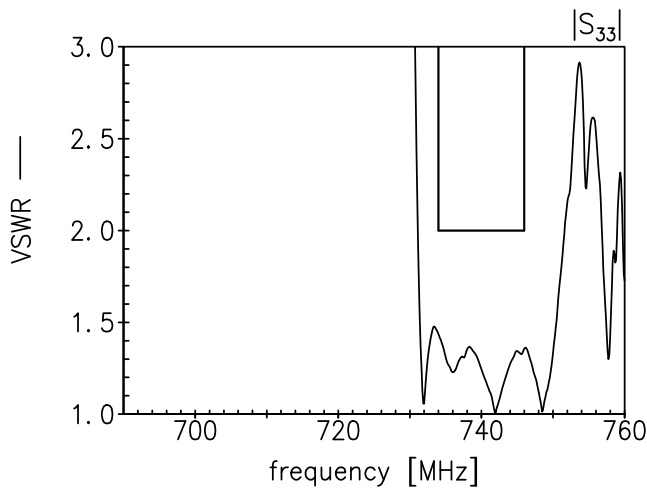
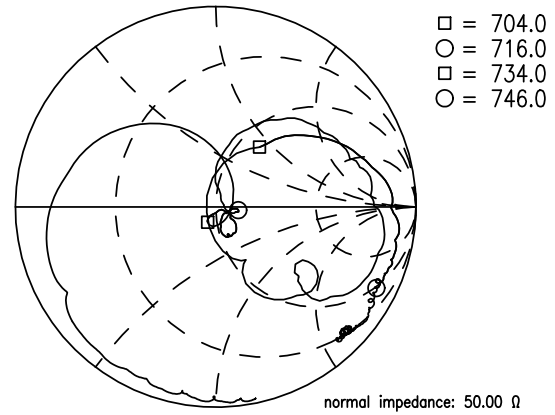
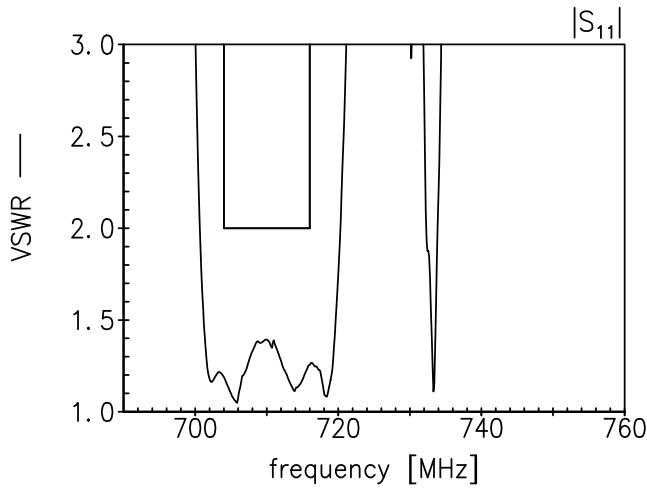


Return loss

$S_{11}$  Tx-port

$S_{22}$  Antenna-port

$S_{33}$  Rx-portReferences



**References**

<b>Type</b>	B8624
<b>Ordering code</b>	B39741B8624P810
<b>Marking and package</b>	C61157-A8-A38
<b>Packaging</b>	F61074-V8247-Z000
<b>Date codes</b>	L_1126
<b>S-parameters</b>	B8624_NB_UN.s3p, B8624_WB_UN.s3p See file header for pin/port assignment.
<b>Soldering profile</b>	S_6001
<b>RoHS compatible</b>	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 8 <sup>th</sup> , 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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