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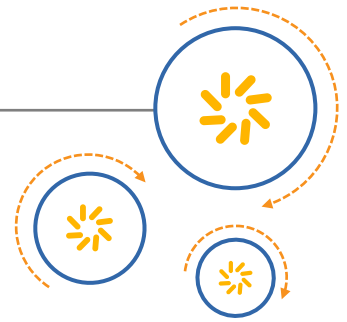
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RF360 Europe GmbH

A Qualcomm – TDK Joint Venture

SAW Components

SAW Duplexer

LTE Band 7

Series/type:	B8674
Ordering code:	B39272B8674P810
Date:	May 31, 2016
Version:	2.4

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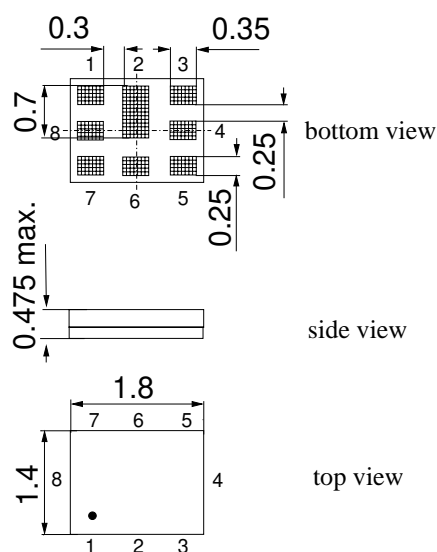
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Application

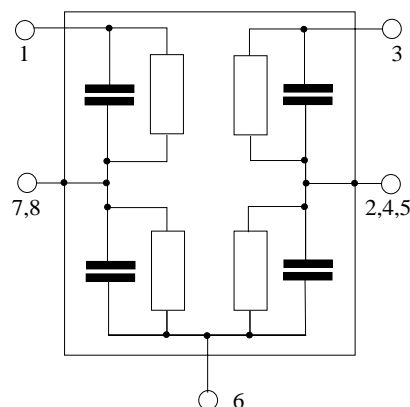
- Low-loss SAW duplexer for mobile telephone LTE Band 7 systems
- Low insertion attenuation
- Low amplitude ripple
- Usable passband 70 MHz
- 50 Ω single-ended in both in Antenna-Rx and Tx-Antenna paths


Features

- Package size 1.8 x 1.4 mm²
- Max. package height 0.475mm
- RoHS compatible
- Approx. weight 0.0042 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 To be grounded



Data sheet


Characteristics

Temperature range for specification:	T = -30 °C to +85 °C
Ant terminating impedance:	Z _{Ant} = 50 Ω 2.7 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	—	2535.0	—	MHz
Maximum insertion attenuation 2500.0 ... 2570.0 MHz	α _{max}	—	1.8	2.7	dB
Amplitude ripple (p-p) 2500.0 ... 2570.0 MHz	Δα	—	0.8	1.7	dB
Error Vector Magnitude @f _{Carrier} 2502.4 ... 2567.6 MHz	EVM ¹⁾	—	0.6	2.0	%
Input VSWR (Tx port) 2500.0 ... 2570.0 MHz		—	1.6	2.0	
Output VSWR (Ant port) 2500.0 ... 2570.0 MHz		—	1.6	2.0	

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

Data sheet


Characteristics

Temperature range for specification:	T = -30 °C to +85 °C
Ant terminating impedance:	Z _{Ant} = 50 Ω 2.7 nH
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 ...	1559.0	MHz	35	40	—	dB
	1559.0 ...	1563.0	MHz	35	40	—	dB
	1565.42 ...	1573.374	MHz	35	40	—	dB
	1573.374 ...	1577.466	MHz	35	40	—	dB
	1577.466 ...	1585.42	MHz	35	40	—	dB
	1597.552 ...	1605.886	MHz	35	40	—	dB
	1605.886 ...	1680.0	MHz	35	39	—	dB
	1805.0 ...	1880.0	MHz	35	39	—	dB
	1900.0 ...	1920.0	MHz	35	39	—	dB
	2010.0 ...	2025.0	MHz	35	39	—	dB
	2110.0 ...	2170.0	MHz	35	39	—	dB
	2402.0 ...	2440.0	MHz	45	52	—	dB
	2440.0 ...	2460.0	MHz	40	47	—	dB
ch 1	2403.0 ...	2421.0	MHz α _{WLAN} ¹⁾	54 ²⁾	56	—	dB
ch 2	2408.0 ...	2426.0	MHz α _{WLAN} ¹⁾	53 ²⁾	55	—	dB
ch 3	2413.0 ...	2431.0	MHz α _{WLAN} ¹⁾	52 ²⁾	54	—	dB
ch 4	2418.0 ...	2436.0	MHz α _{WLAN} ¹⁾	52 ²⁾	54	—	dB
ch 5	2423.0 ...	2441.0	MHz α _{WLAN} ¹⁾	52 ²⁾	54	—	dB
ch 6	2428.0 ...	2446.0	MHz α _{WLAN} ¹⁾	52 ²⁾	54	—	dB
ch 7	2433.0 ...	2451.0	MHz α _{WLAN} ¹⁾	52 ²⁾	55	—	dB
ch 8	2438.0 ...	2456.0	MHz α _{WLAN} ¹⁾	52 ²⁾	56	—	dB
ch 9	2443.0 ...	2461.0	MHz α _{WLAN} ¹⁾	49 ²⁾	53	—	dB
ch 10	2448.0 ...	2466.0	MHz α _{WLAN} ¹⁾	46 ²⁾	49	—	dB
ch 11	2453.0 ...	2471.0	MHz α _{WLAN} ¹⁾	44 ²⁾	47	—	dB
ch 12	2458.0 ...	2476.0	MHz α _{WLAN} ¹⁾	35 ²⁾	43	—	dB
ch 13	2463.0 ...	2481.0	MHz α _{WLAN} ¹⁾	21 ²⁾	30	—	dB
	2470.0 ...	2474.0	MHz	16	41	—	dB
	2474.0 ...	2500.0	MHz	0.5	1.7	—	dB
	2590.0 ...	2620.0	MHz	1.5	4	—	dB
	2620.0 ...	2690.0	MHz	45	52	—	dB
	4900.0 ...	5000.0	MHz	44	49	—	dB
	5000.0 ...	5140.0	MHz	44	48	—	dB
	5140.0 ...	5280.0	MHz	44	48	—	dB
	7500.0 ...	7710.0	MHz	15	30	—	dB

1) Average attenuation in WLAN channels 1 to 13 by integration over 18MHz for each channel.

Please refer to annotation on page (7).

2) Valid for room temperature at 25 °C.

Data sheet


Characteristics

Temperature range for specification:	T = -30 °C to +85 °C
Ant terminating impedance:	Z _{Ant} = 50 Ω 2.7 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	—	2655.0	—	MHz
Maximum insertion attenuation 2620.0 ... 2690.0 MHz	α _{max}	—	1.9	2.9	dB
Amplitude ripple (p-p) 2620.0 ... 2690.0 MHz	Δα	—	0.6	1.6	dB
Error Vector Magnitude @f _{Carrier} 2622.4 ... 2687.6 MHz	EVM ¹⁾	—	0.8	2.0	%
Input VSWR (Ant port) 2620.0 ... 2690.0 MHz		—	1.6	2.0	
Output VSWR (Rx port) 2620.0 ... 2690.0 MHz		—	1.6	2.0	
Attenuation	α				
10.0 ... 718.0 MHz		50	56	—	dB
45.0 MHz		50	90	—	dB
718.0 ... 748.0 MHz		50	56	—	dB
814.0 ... 849.0 MHz		47	54	—	dB
832.0 ... 862.0 MHz		47	54	—	dB
880.0 ... 915.0 MHz		47	53	—	dB
1710.0 ... 1785.0 MHz		38	43	—	dB
1920.0 ... 1980.0 MHz		37	42	—	dB
2400.0 ... 2500.0 MHz		40	45	—	dB
2500.0 ... 2570.0 MHz		45	55	—	dB
2570.0 ... 2600.0 MHz		3	7	—	dB
2775.0 ... 2790.0 MHz		40	55	—	dB
2790.0 ... 2810.0 MHz		40	55	—	dB

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

Data sheet


Characteristics

Temperature range for specification:	T = -30 °C to +85 °C
Ant terminating impedance:	Z _{Ant} = 50 Ω 2.7 nH
Rx terminating impedance:	Z _{Rx} = 50 Ω
Tx terminating impedance:	Z _{Tx} = 50 Ω

Characteristics Antenna - Rx				min.	typ. @ 25°C	max.	
Attenuation α							
2810.0	...	3660.0	MHz	39	44	—	dB
3600.0	...	4900.0	MHz	39	44	—	dB
4900.0	...	5300.0	MHz	35	43	—	dB
5300.0	...	5950.0	MHz	32	39	—	dB
7620.0	...	7830.0	MHz	15	22	—	dB
IMD Product Level Limits¹⁾							
at f_{Tx}=2535.0 MHz, f_{Rx}=2655.0 MHz							
Blocker 1		120.0	MHz	—	-136	-110	dBm
Blocker 2		2415.0	MHz	—	-105	-100	dBm
Blocker 3		5190.0	MHz	—	-110	-100	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)

Data sheet


Characteristics

Temperature range for specification:	T = -30 °C to +85 °C
Ant terminating impedance:	Z _{Ant} = 50 Ω 2.7 nH
Rx terminating impedance:	Z _{Rx} = 50 Ω
Tx terminating impedance:	Z _{Tx} = 50 Ω

Characteristics Tx - Rx				min.	typ. @ 25 °C	max.	
Isolation α							
1574.0	...	1577.0	MHz	30	65	—	dB
2500.0	...	2570.0	MHz	53	56	—	dB
2620.0	...	2690.0	MHz	50	54	—	dB
5000.0	...	5140.0	MHz	30	51	—	dB
7500.0	...	7710.0	MHz	25	44	—	dB

Annotation for characteristics section

1) Attenuation of WLAN signal ("Powertransferfunction", α_{WLAN}) is determined by

$$\int_{-\infty}^{\infty} |S_{ds21}(f) H_{RECT}(f - f_{Carrier})|^2 df$$

f_{Carrier} according to IEEE802.11 n (e.g. for WLAN, f_{Carrier} ranges from 2412 MHz (lowest channel) to 2472 MHz (highest channel)). H_{RECT}(f) is the transfer function of a rectangular shaped filter (BW=18MHz) with the following normalization:

$$\int_{-\infty}^{\infty} |H_{RECT}(f)|^2 df = 1$$


Maximum ratings

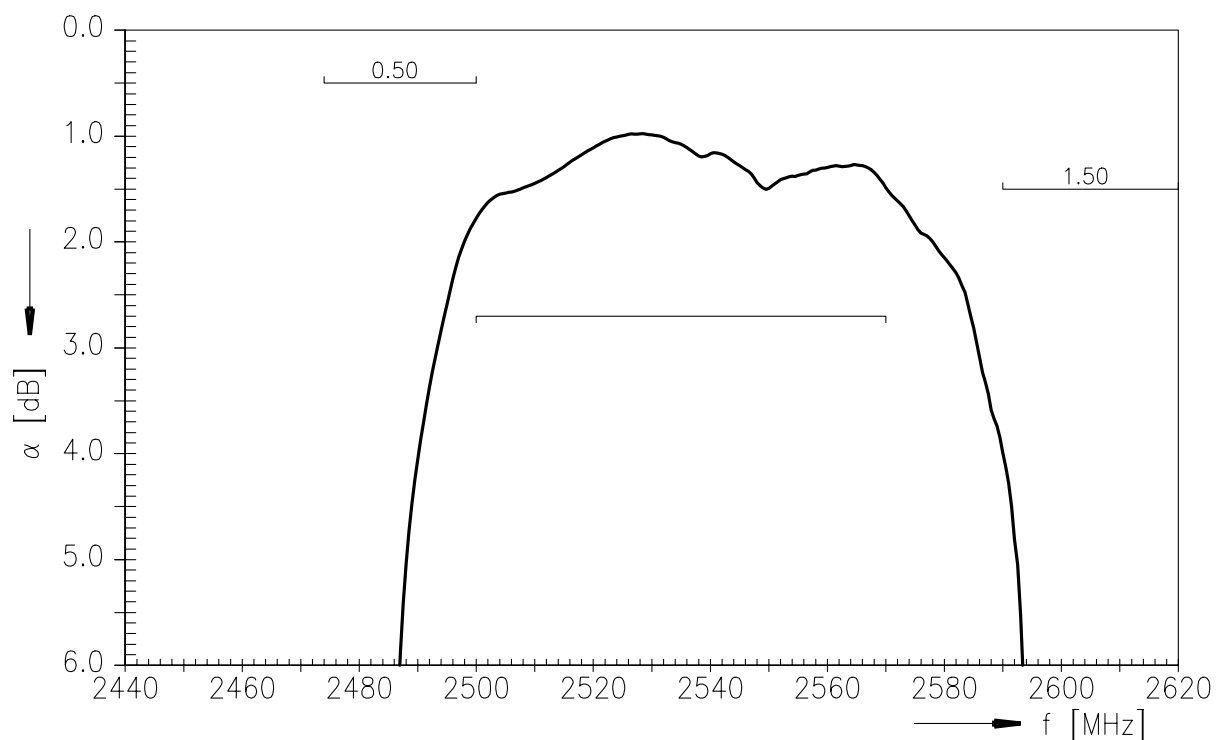
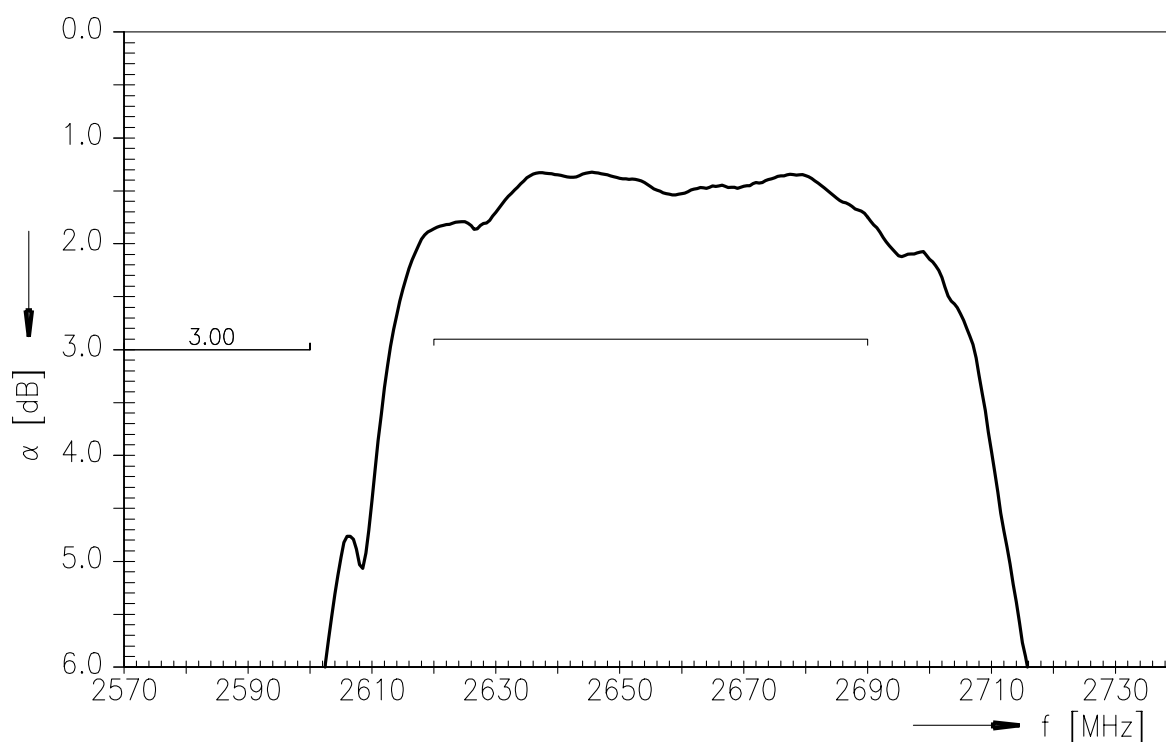
Storage temperature range	T_{stg}	-40/+85	°C	
DC voltage	V_{DC}	5 ¹⁾	V	
ESD voltage	V_{ESD}	50 ²⁾	V	Machine Model
		>100 ³⁾	V	Human Body Model
		>100 ⁴⁾	V	Charged Device Model
Input power at 2500.0 ... 2570.0 MHz elsewhere	P_{IN}	29	dBm	} Continuous wave 50 °C, 5000 h
		10	dBm	

1) 168h Damp Heat Steady State acc. to IEC 60068-2-67 Cy.

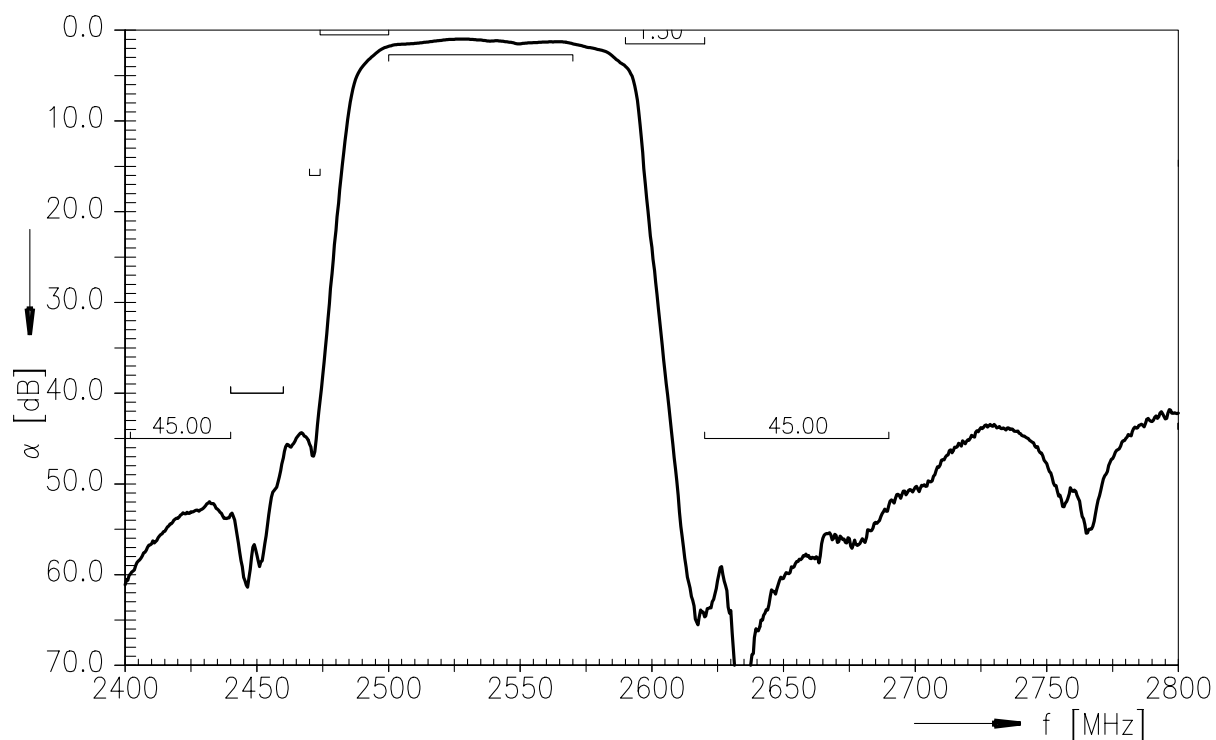
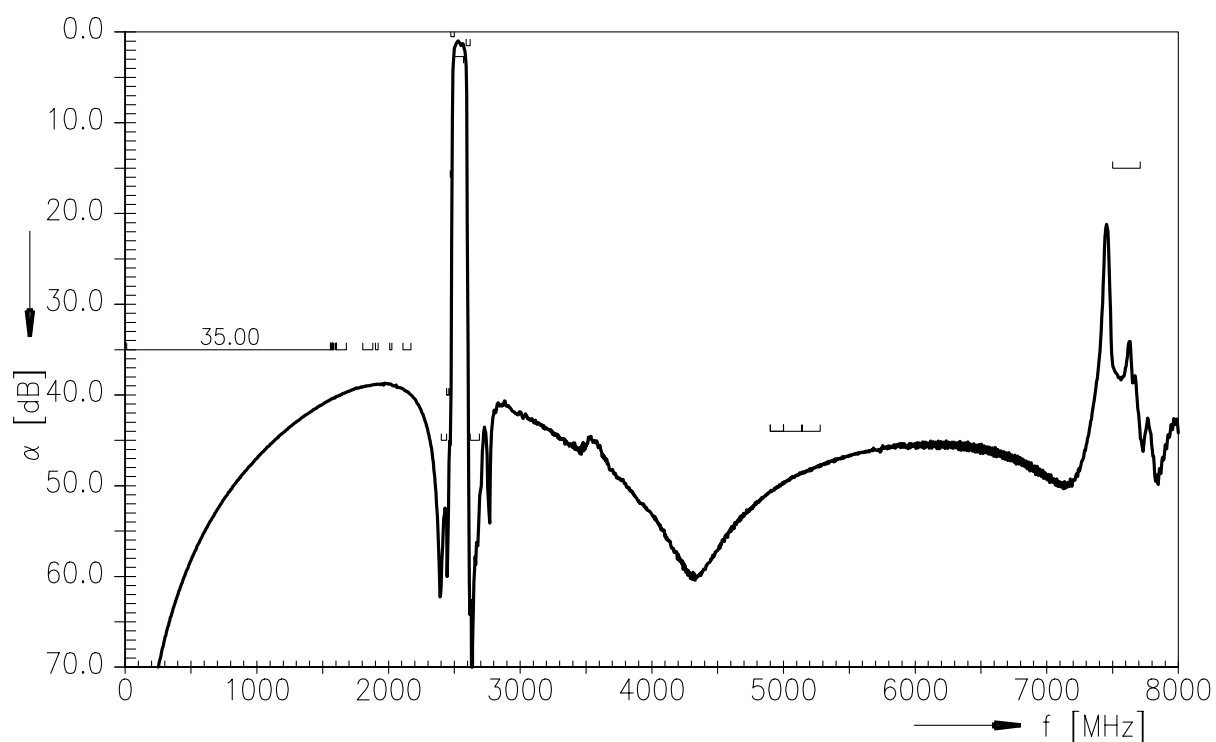
2) acc. to JESD22-A115B (MM - Machine Model), 10 negative and 10 positive pulses.

3) acc. to JESD22-A114F (HBM - Human Body Model) , 1 negative & 1 positive pulses.

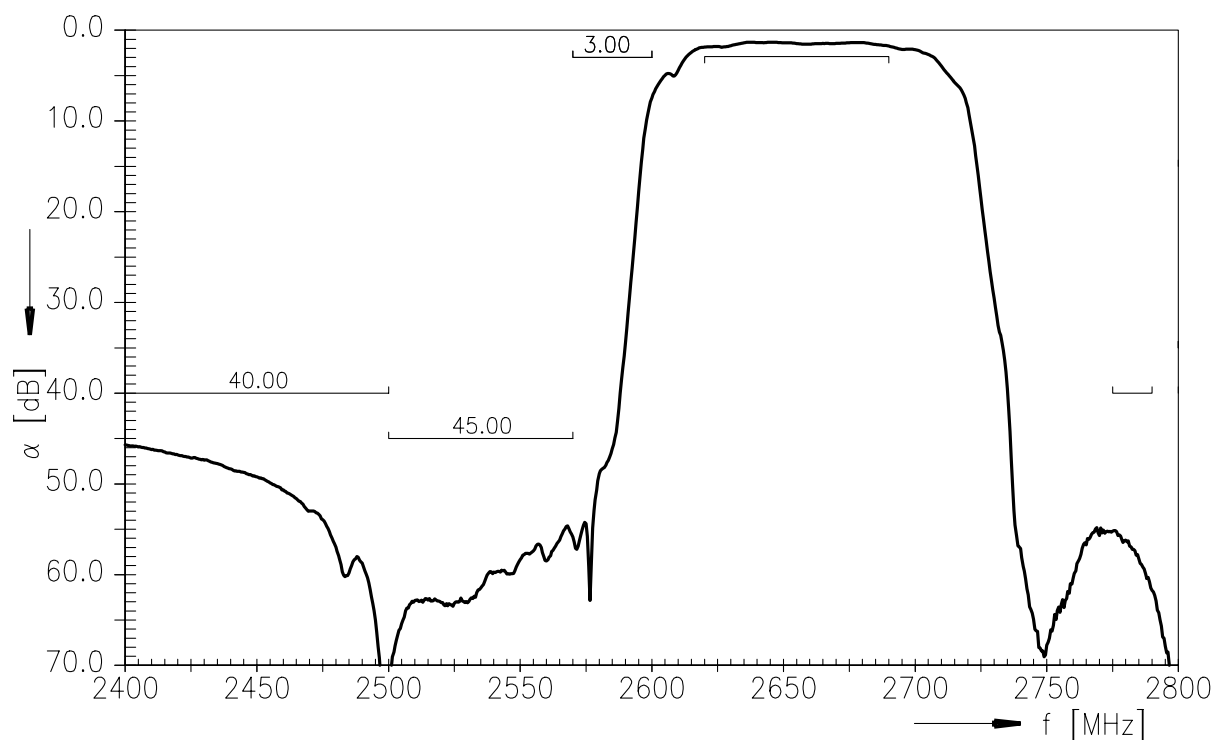
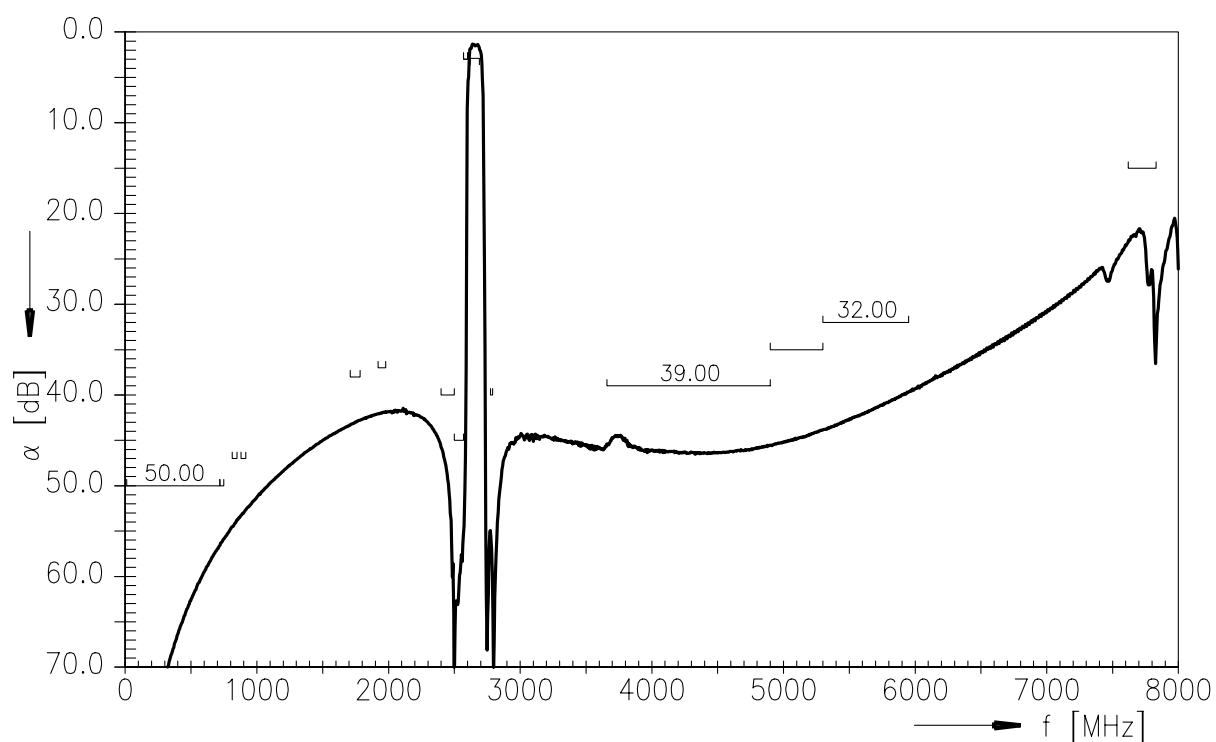
4) acc. to JESD22-C101C (CDM - Field Induced Charged Device Model) , 3 negative & 3 positive pulses.

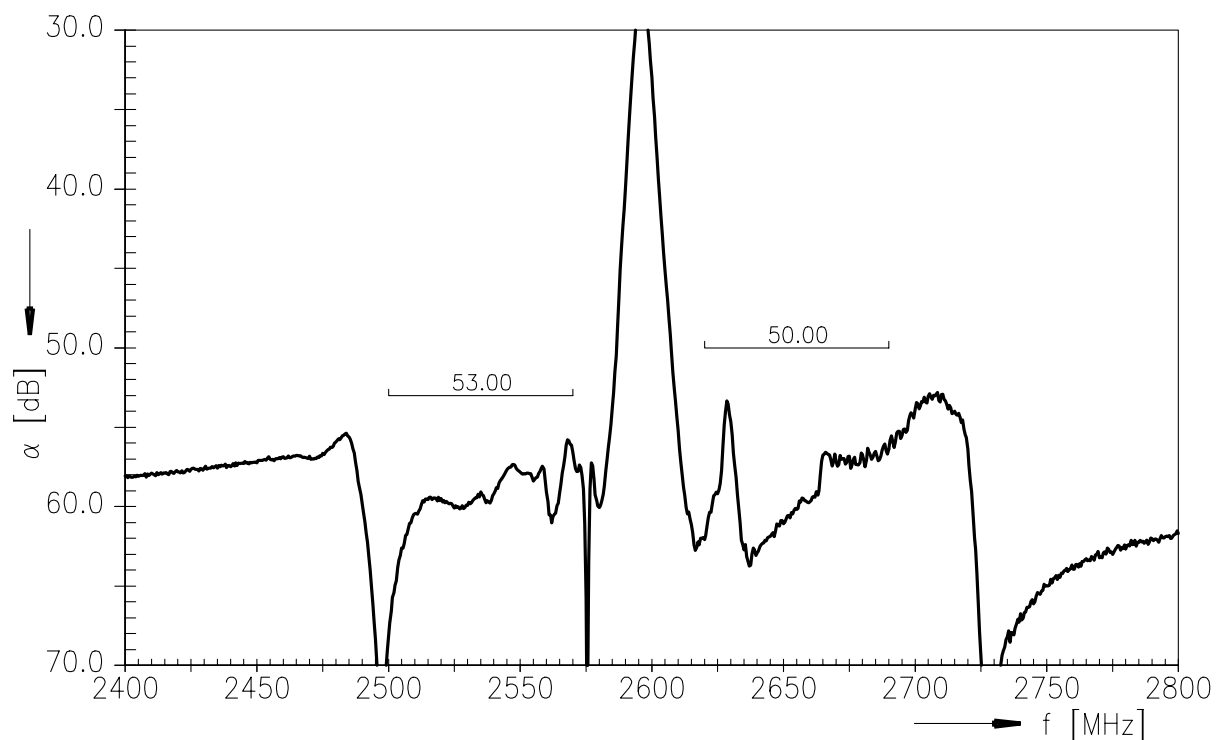
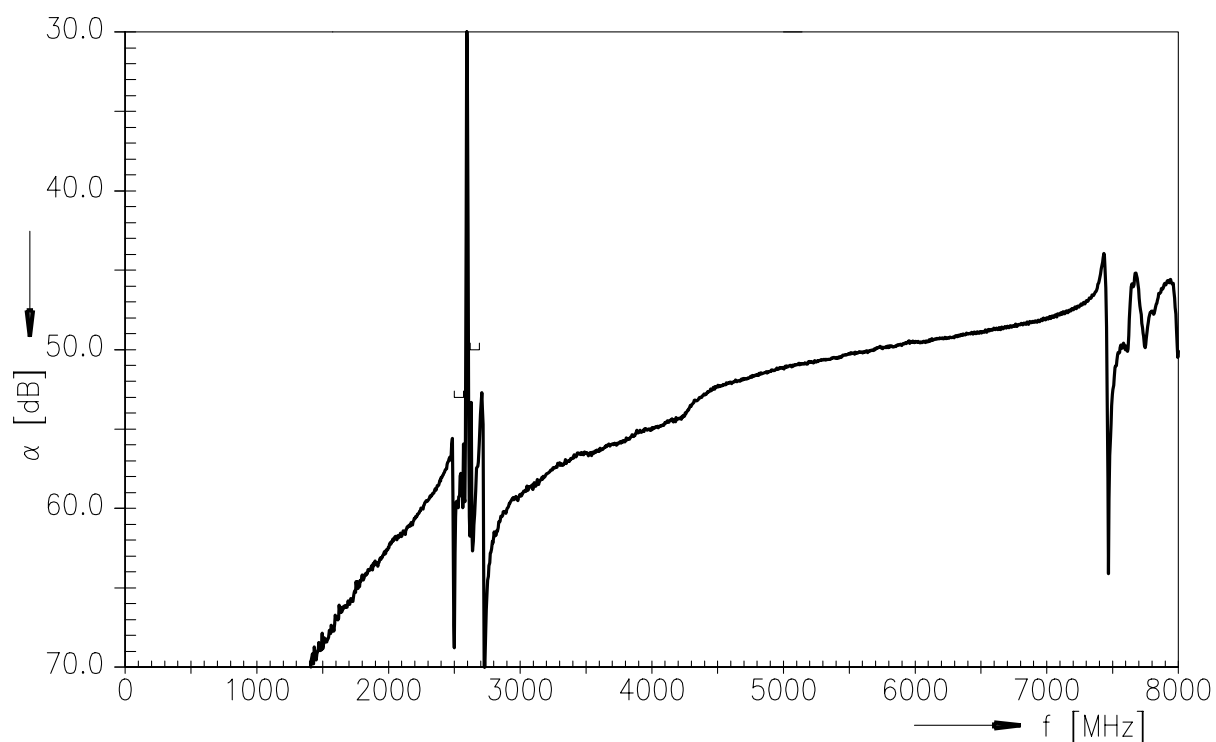

Frequency response Tx-Antenna (passband)

Frequency response Antenna-Rx (passband)


Data sheet


Frequency response Tx-Antenna (narrowband)

Frequency response Tx-Antenna (wideband)


Data sheet

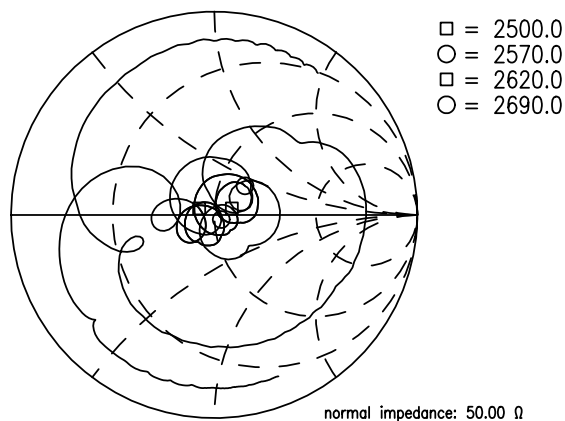
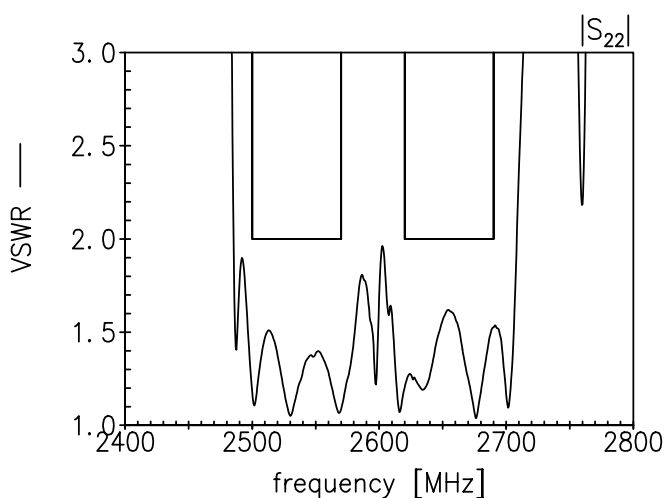
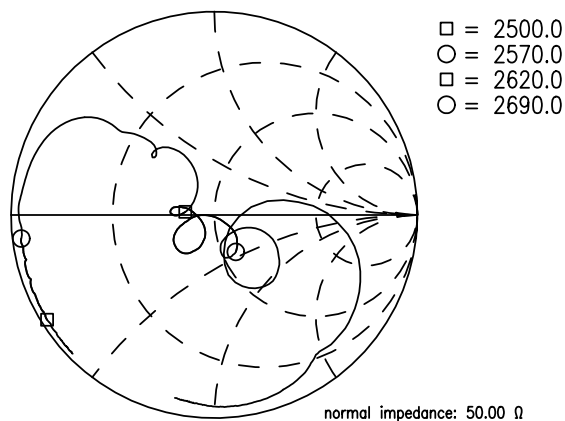
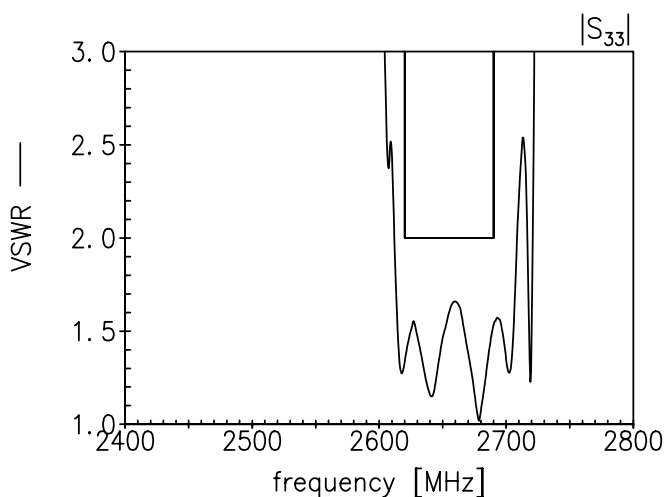
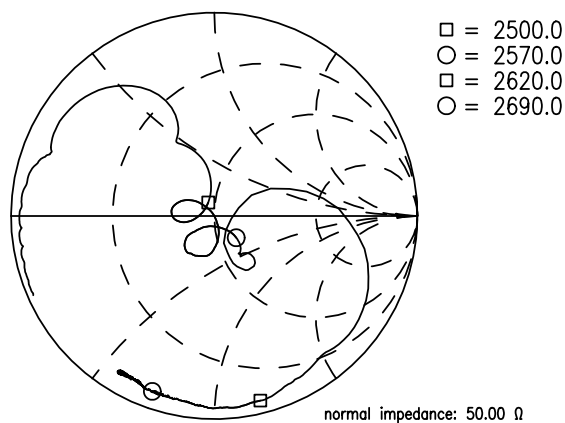
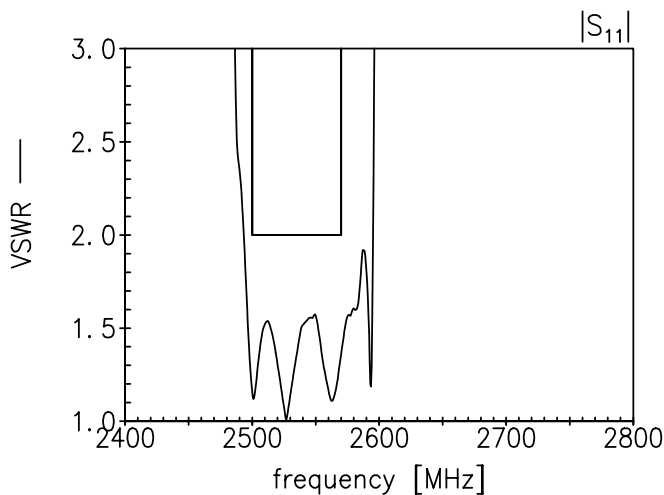

Frequency response Antenna-Rx (narrowband)

Frequency response Antenna-Rx (wideband)



Frequency response Tx-Rx (narrowband)

Frequency response Tx-Rx (wideband)


Data sheet



VSWR **S₁₁ Tx-port** **S₂₂ Antenna-port** **S₃₃ Rx-port**




References

Type	B8674
Ordering code	B39272B8674P810
Marking and package	C61157-A8-A202
Packaging	F61074-V8259-Z000
Date codes	L_1126
S-parameters	B8674_NB_UN.s3p, B8674_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 8 th , 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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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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Published by EPCOS AG
Systems, Acoustics, Waves Business Group
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