

RF360 Europe GmbH

A Qualcomm – TDK Joint Venture

## SAW Components

### SAW Duplexer for smallcells and femto-cells

Band 20 (LTE)

Series/type:	B8030
Ordering code:	B39851B8030P810
Date:	November 18, 2015
Version:	2.1

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## SAW Duplexer for smallcells and femto-cells

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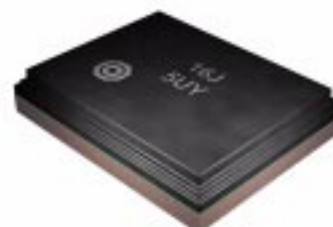
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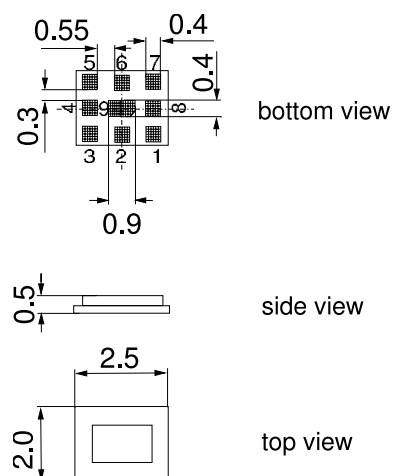
Data sheet


**Application**

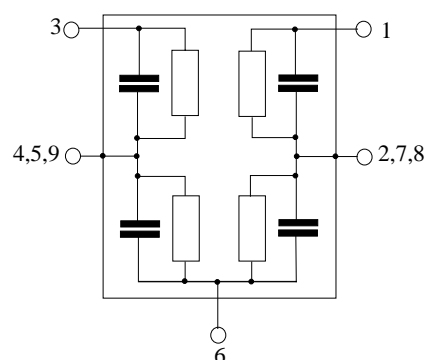
- Low-loss SAW duplexer for LTE smallcells systems (Band 20)
- Usable passband 30MHz
- High power durability in downlink
- TX = DOWNLINK = 791-821MHz
- RX = UPLINK = 832-862MHz


**Features**

- Package size 2.5 x 2.0 mm<sup>2</sup>
- Max. package height 0.5mm
- RoHS compatible
- Package for **Surface Mount Technology (SMT)**
- Ni, gold-plated terminals
- **Electrostatic Sensitive Device (ESD)**
- **Moisture Sensitivity Level 2a**


**Pin configuration**

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



Data sheet


**Characteristics**

Temperature range for specification:	T = -10 °C to +85 °C
TX terminating impedance:	Z <sub>Tx</sub> = 50 Ω
ANT terminating impedance:	Z <sub>Ant</sub> = 50 Ω
RX terminating impedance:	Z <sub>Rx</sub> = 50 Ω

Characteristics Tx-Antenna		min.	typ. @ 25 °C	max.	
<b>Center frequency</b>	f <sub>c</sub>	—	806.0	—	MHz
<b>Maximum insertion attenuation</b>	α				
	791.0 ... 821.0 MHz	—	2.8	3.8	dB
<b>Amplitude ripple (p-p)</b>	Δα				
	791.0 ... 821.0 MHz	—	1.6	2.6	dB
<b>Error Vector Magnitude</b>					
@f <sub>Carrier</sub>	793.4 ... 818.6 MHz	—	3.5	6.0	%
<b>VSWR (Tx port)</b>					
	791.0 ... 821.0 MHz	—	1.8	2.3	
<b>VSWR (Ant port)</b>					
	791.0 ... 821.0 MHz	—	1.9	2.1	
<b>Absolute attenuation</b>	α <sub>abs</sub>				
	100.0 ... 750.0 MHz	30	39	—	dB
	832.0 ... 862.0 MHz	39	50	—	dB
	880.0 ... 915.0 MHz	30	42	—	dB
	925.0 ... 960.0 MHz	30	41	—	dB
	1574.0 ... 1785.0 MHz	40	49	—	dB
	1805.0 ... 1980.0 MHz	40	55	—	dB
	2110.0 ... 2170.0 MHz	40	52	—	dB
	2373.0 ... 2484.0 MHz	30	39	—	dB
	2496.0 ... 2570.0 MHz	40	46	—	dB
	2620.0 ... 2690.0 MHz	40	45	—	dB

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

Data sheet


**Characteristics**

Temperature range for specification:	T = -10 °C to +85 °C
TX terminating impedance:	Z <sub>Tx</sub> = 50 Ω
ANT terminating impedance:	Z <sub>Ant</sub> = 50 Ω
RX terminating impedance:	Z <sub>Rx</sub> = 50 Ω

Characteristics Antenna-Rx		min.	typ. @ 25 °C	max.	
<b>Center frequency</b>	f <sub>c</sub>	—	847.0	—	MHz
<b>Maximum insertion attenuation</b> 832.0 ... 862.0 MHz	α	—	2.9	3.8	dB
<b>Amplitude ripple (p-p)</b> 832.0 ... 862.0 MHz	Δα	—	1.8	2.6	dB
<b>Error Vector Magnitude</b> @f <sub>Carrier</sub> 834.4 ... 859.6 MHz	EVM <sup>1)</sup>	—	4.5	6.0	%
<b>VSWR (Ant port)</b> 832.0 ... 862.0 MHz		—	1.6	2.0	
<b>VSWR (Rx port)</b> 832.0 ... 862.0 MHz		—	1.7	2.2	
<b>Absolute attenuation</b>	α <sub>abs</sub>				
100.0 ... 791.0 MHz		35	37	—	dB
791.0 ... 821.0 MHz		44	46	—	dB
880.0 ... 915.0 MHz		20	42	—	dB
1000.0 ... 2200.0 MHz		30	37	—	dB
2200.0 ... 2700.0 MHz		30	39	—	dB
2700.0 ... 4000.0 MHz		30	46	—	dB

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

Data sheet


**Characteristics**

Temperature range for specification:	$T = -10\text{ °C to }+85\text{ °C}$
TX terminating impedance:	$Z_{Tx} = 50\ \Omega$
ANT terminating impedance:	$Z_{Ant} = 50\ \Omega$
RX terminating impedance:	$Z_{Rx} = 50\ \Omega$

Characteristics Tx-Rx		min.	typ. @ 25 °C	max.	
<b>Isolation</b>	$\alpha$				
	791.0 ... 821.0 MHz	44	46	—	dB
	832.0 ... 862.0 MHz	42	53	—	dB

**Maximum Ratings**

Storage temperature range	$T_{stg}$	-40/+85	°C	
DC voltage	$V_{DC}$	0	V	
ESD voltage	$V_{ESD}$	100 <sup>1)</sup>	V	machine model, 1 pulse
Input power at pin 1				source and load impedance 50 $\Omega$
791.0 ...821.0 MHz	$P_{in}$	28 <sup>2)</sup>	dBm	} $P_{in}$ 28dBm average - 39dBm peak LTE 5 MHz downlink $T = 55\text{ °C}$ , 100 000 hrs
elsewhere	$P_{in}$	10	dBm	
832.0 ...862.0 MHz	$P_{in}$	29 <sup>3)</sup>	dBm	$P_{in}$ 29dBm average, LTE 5 MHz Uplink, $T = 55\text{ °C}$ , 5 000 hrs
Operating lifetime with Output power at antenna				source and load impedance 50 $\Omega$
791.0 ...821.0 MHz		$T_{bc}$ <sup>4)</sup>	dBm	Continuous wave $T = 55\text{ °C}$ , 100k hrs

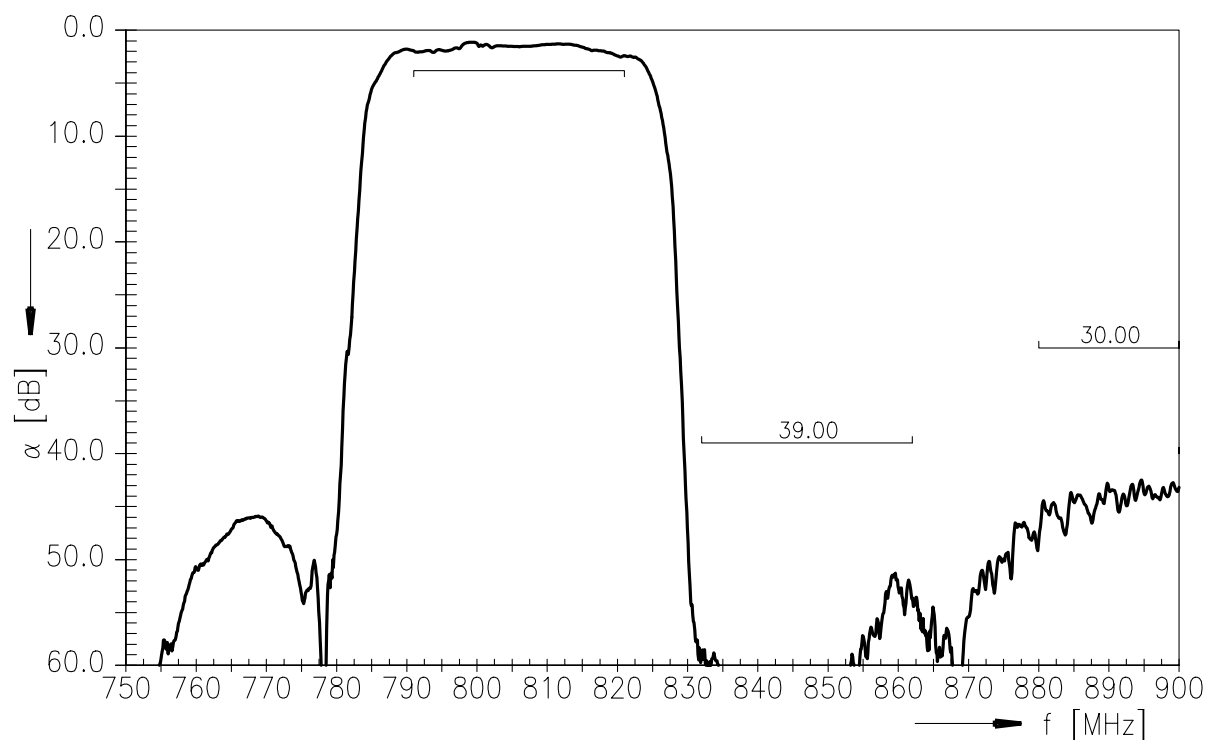
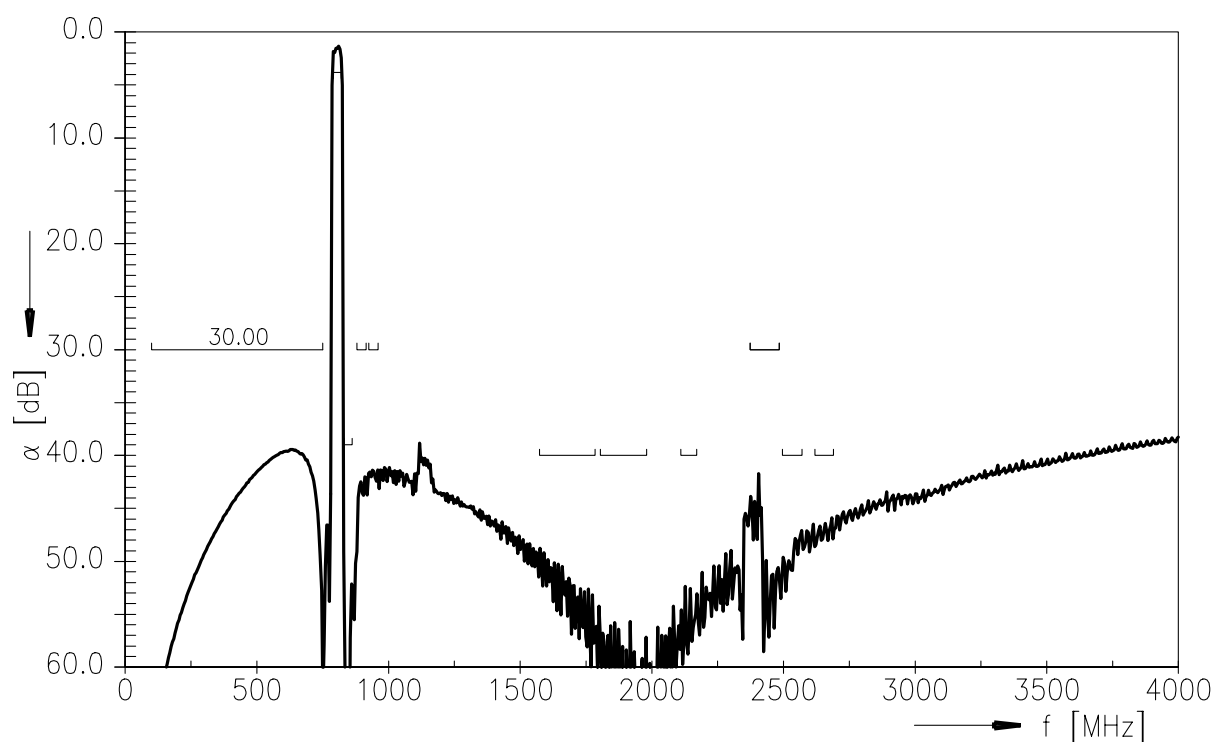
1) According to JESD22-A115B (machine model), 1 negative and 1 positive pulse.

2) Time to failure (TTF) according to accelerated power durability tests, and wear out models.

3) Time to failure (TTF) according to accelerated power durability simulations acc. to wear out models.

4) values to be confirm from High Temperature Operating Life (HTOL) test.

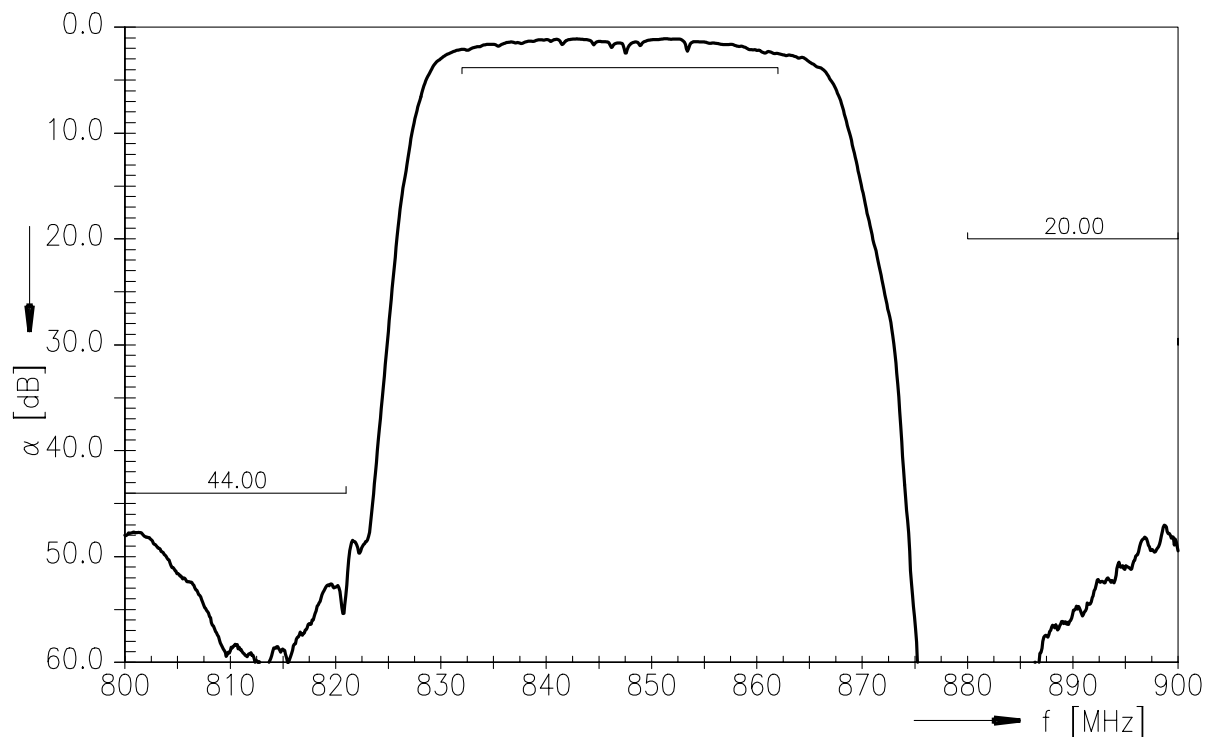
Data sheet


**Frequency response TX-ANT**

**Frequency response TX-ANT (wideband)**


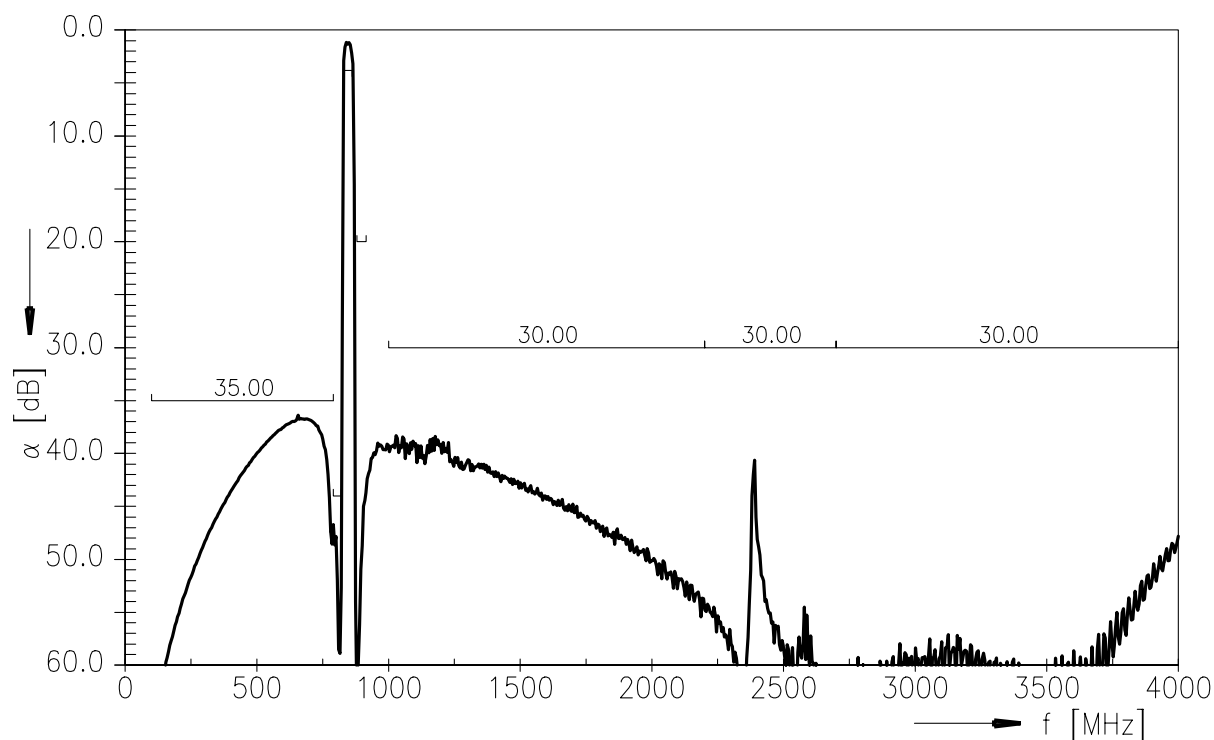




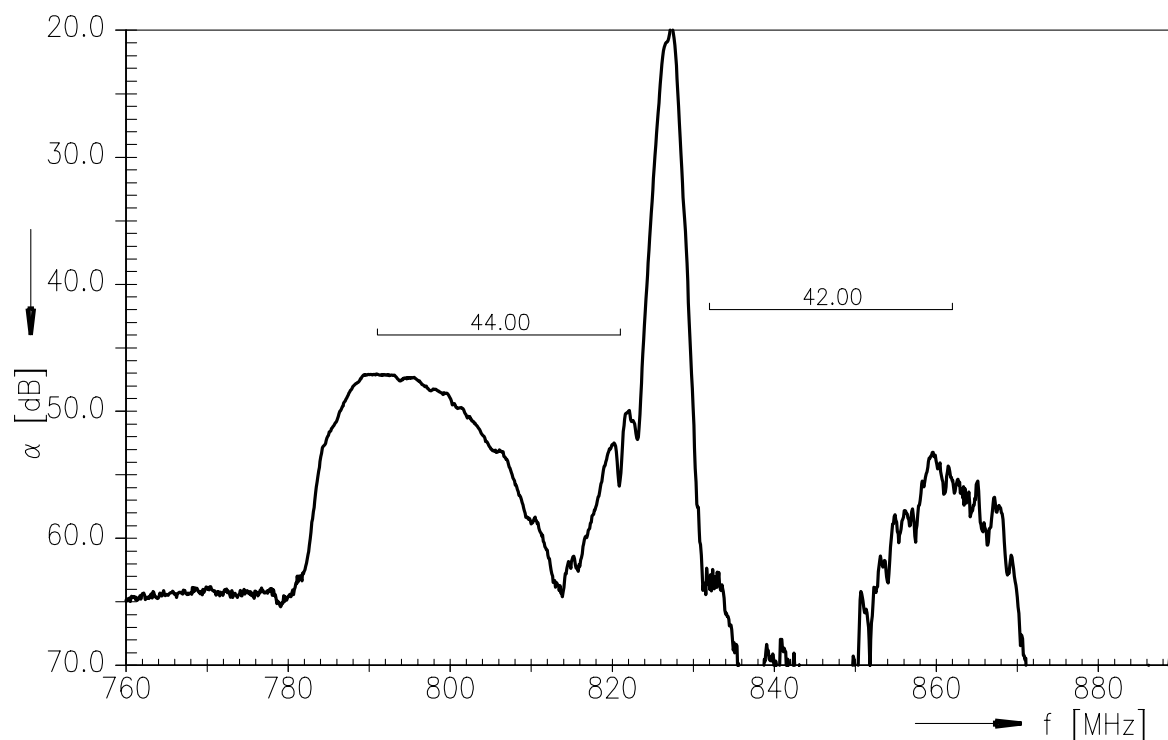
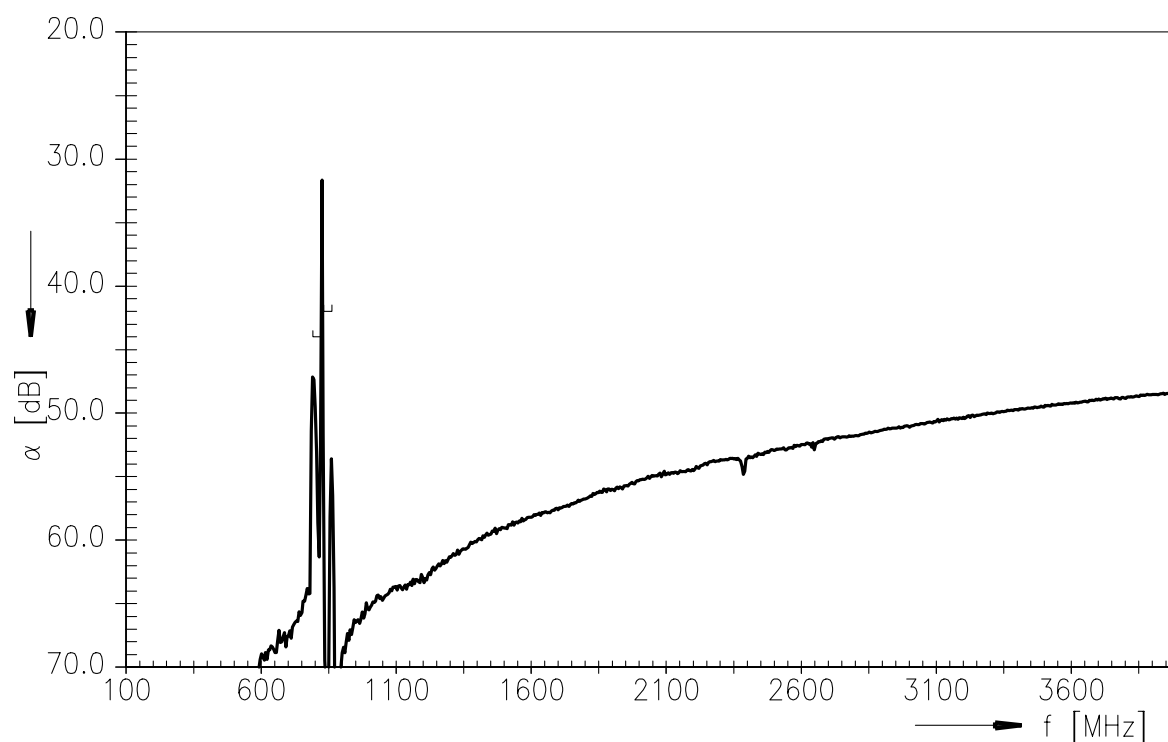
Frequency response ANT-RX



Frequency response ANT-RX (wideband)



Data sheet


**Frequency response TX-RX**

**Frequency response TX-RX (wideband)**


Data sheet

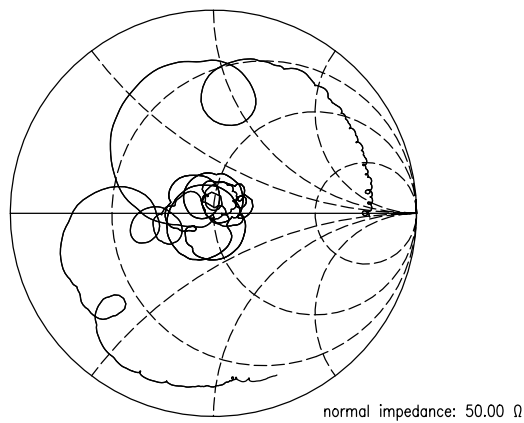
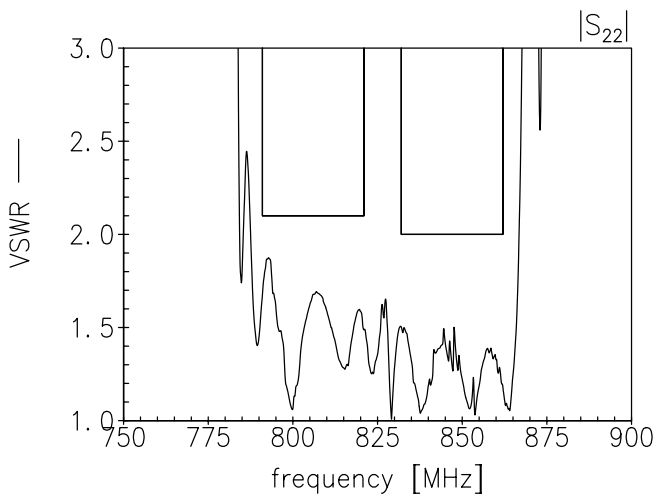
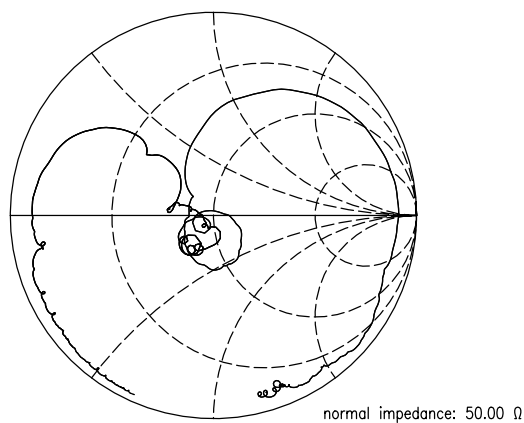
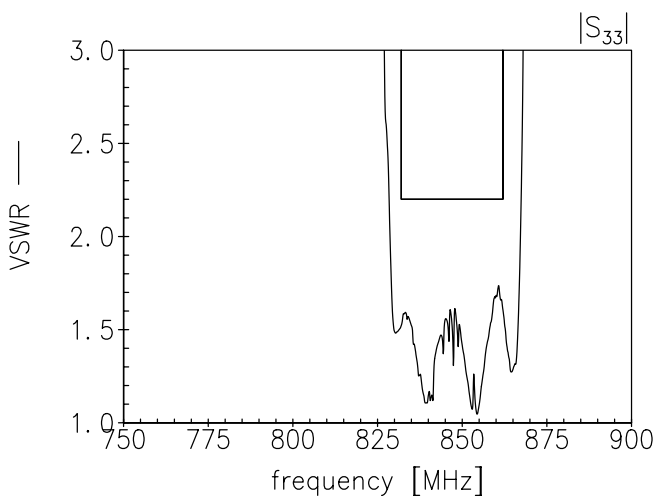
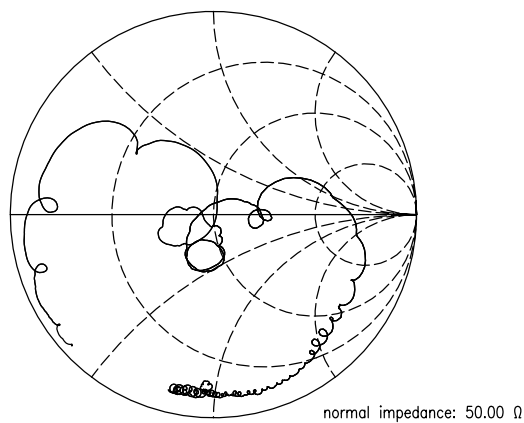
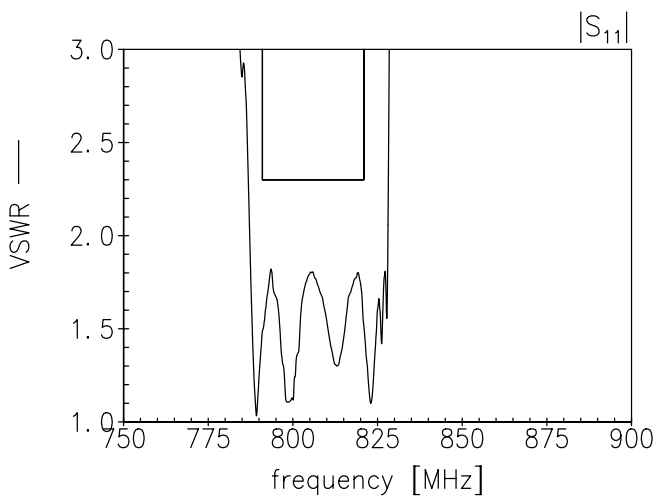


Return Loss

$S_{11}$  TX- port

$S_{22}$  ANT-port

$S_{33}$  RX-port




**References**

<b>Type</b>	B8030
<b>Ordering code</b>	B39851B8030P810
<b>Marking and package</b>	C61157-A3-A27
<b>Packaging</b>	F61074-V8232-Z000
<b>Date codes</b>	L_1126
<b>S-parameters</b>	B8030_NB.s3p , B8030_WB.s3p See file header for port/pin assignment table.
<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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