

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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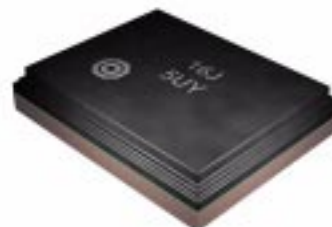
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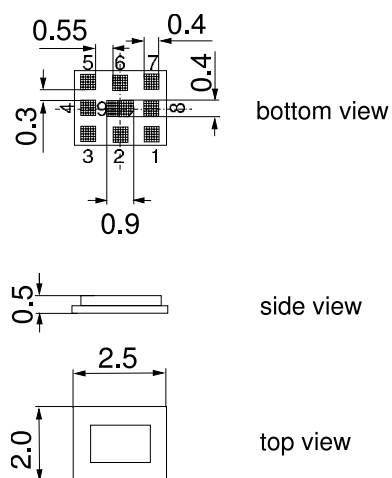
Data sheet


Application

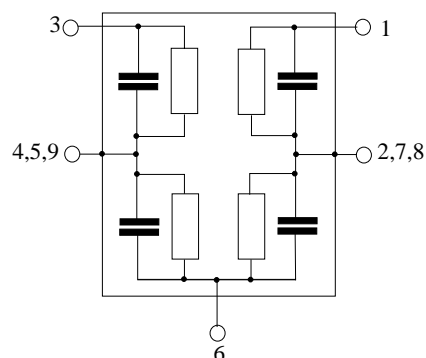
- Low-loss SAW duplexer for LTE smallcells systems (Band 20)
- Usable passband 30MHz
- High power durability in downlink
- TX = DOWNLINK = 791-821MHz
- RX = UPLINK = 832-862MHz


Features

- Package size 2.5 x 2.0 mm²
- 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 _{Tx} = 50 Ω
ANT terminating impedance:	Z _{Ant} = 50 Ω
RX terminating impedance:	Z _{Rx} = 50 Ω

Characteristics Tx-Antenna		min.	typ. @ 25 °C	max.	
Center frequency	f _c	—	806.0	—	MHz
Maximum insertion attenuation	α				
	791.0 ... 821.0 MHz	—	2.8	3.8	dB
Amplitude ripple (p-p)	Δα				
	791.0 ... 821.0 MHz	—	1.6	2.6	dB
Error Vector Magnitude					
@f _{Carrier}	793.4 ... 818.6 MHz	—	3.5	6.0	%
VSWR (Tx port)					
	791.0 ... 821.0 MHz	—	1.8	2.3	
VSWR (Ant port)					
	791.0 ... 821.0 MHz	—	1.9	2.1	
Absolute attenuation	α _{abs}				
	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 _{TX} = 50 Ω
ANT terminating impedance:	Z _{Ant} = 50 Ω
RX terminating impedance:	Z _{RX} = 50 Ω

Characteristics Antenna-Rx		min.	typ. @ 25 °C	max.	
Center frequency	f _c	—	847.0	—	MHz
Maximum insertion attenuation 832.0 ... 862.0 MHz	α	—	2.9	3.8	dB
Amplitude ripple (p-p) 832.0 ... 862.0 MHz	Δα	—	1.8	2.6	dB
Error Vector Magnitude @f _{Carrier} 834.4 ... 859.6 MHz	EVM ¹⁾	—	4.5	6.0	%
VSWR (Ant port) 832.0 ... 862.0 MHz		—	1.6	2.0	
VSWR (Rx port) 832.0 ... 862.0 MHz		—	1.7	2.2	
Absolute attenuation	α _{abs}				
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 °C to +85 °C
TX terminating impedance:	Z _{Tx} = 50 Ω
ANT terminating impedance:	Z _{Ant} = 50 Ω
RX terminating impedance:	Z _{Rx} = 50 Ω

Characteristics Tx-Rx		min.	typ. @ 25 °C	max.	
Isolation	α				
	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 ¹⁾	V	machine model, 1 pulse
Input power at pin 1				source and load impedance 50 Ω
791.0 ...821.0 MHz	P _{in}	28 ²⁾	dBm	} P _{in} 28dBm average - 39dBm peak LTE 5 MHz downlink T = 55 °C, 100 000 hrs
elsewhere	P _{in}	10	dBm	
832.0 ...862.0 MHz	P _{in}	29 ³⁾	dBm	P _{in} 29dBm average, LTE 5 MHz Uplink, T = 55 °C, 5 000 hrs
Operating lifetime with Output power at antenna				source and load impedance 50 Ω
791.0 ...821.0 MHz		Tbc ⁴⁾	dBm	Continuous wave T = 55 °C, 100k hrs

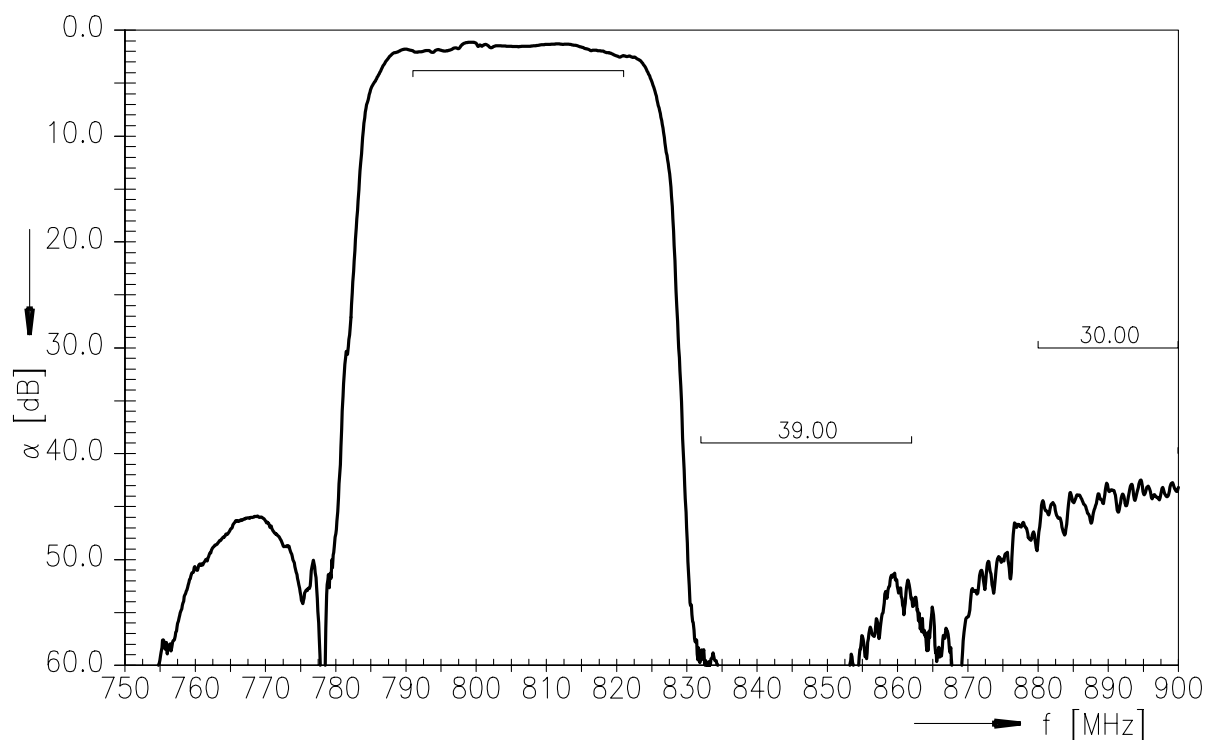
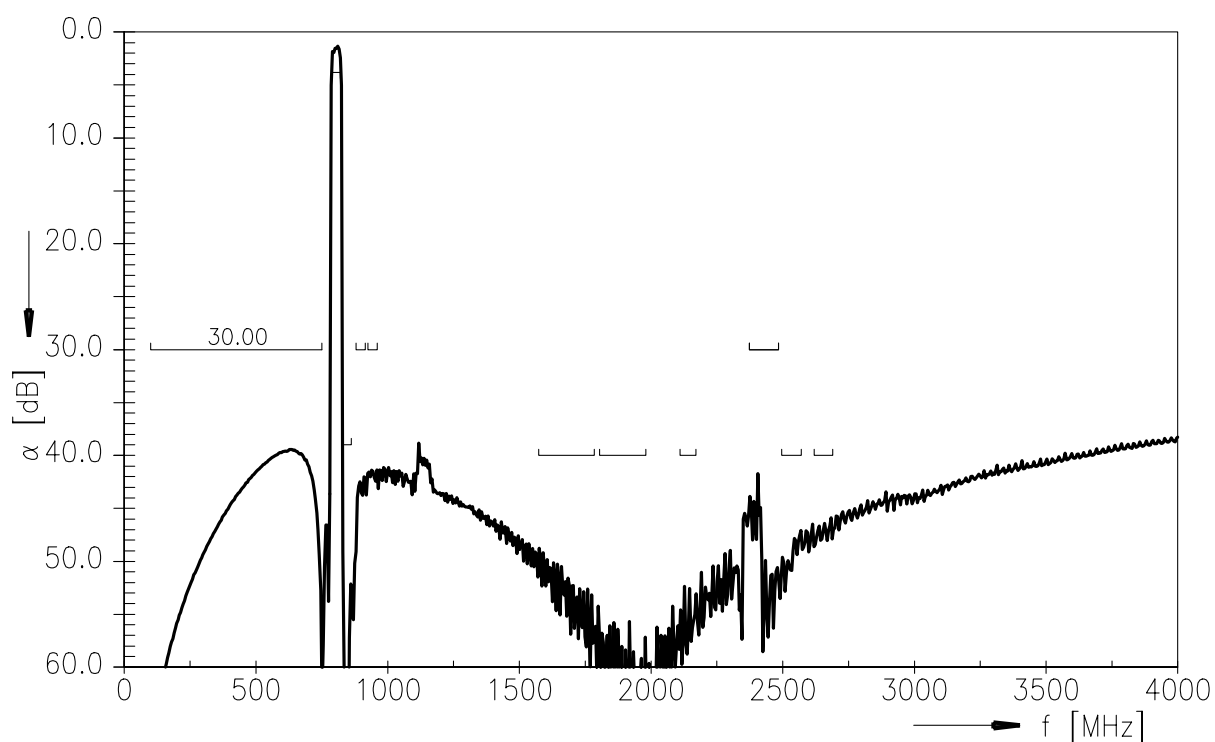
1) According to JESD22-A115B (machine model), 1 negative and 1 positive pulse.

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

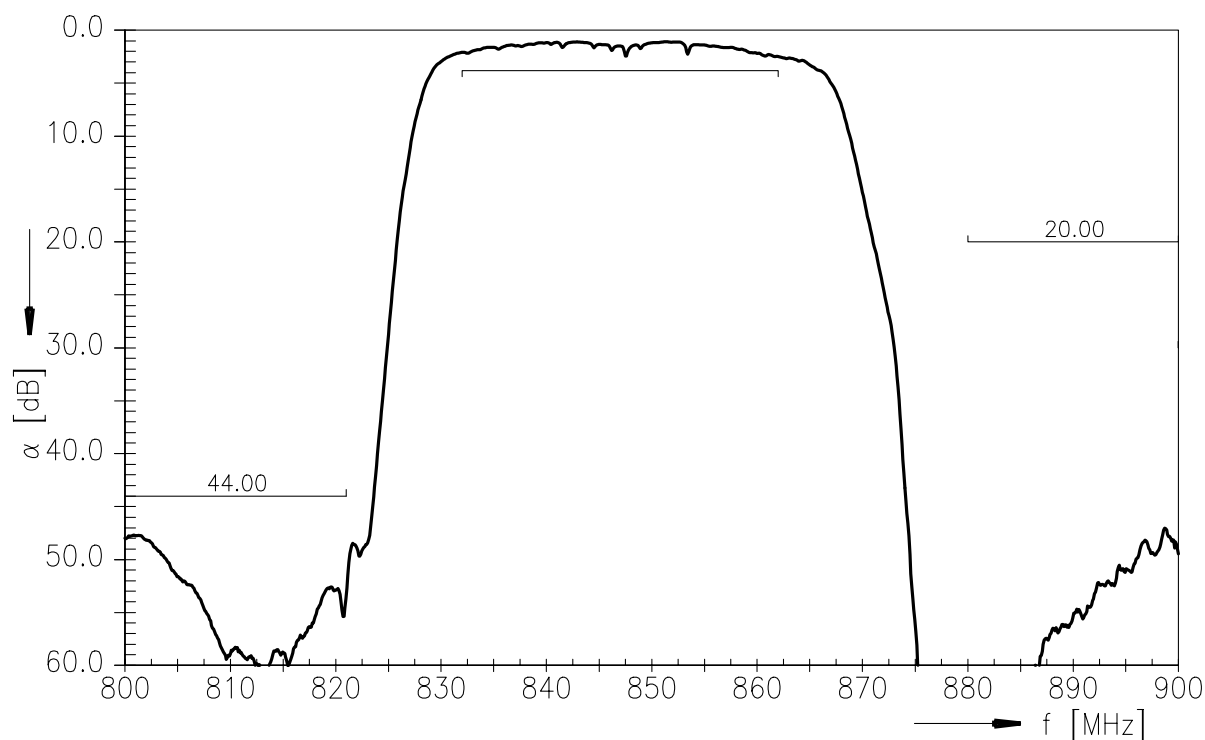
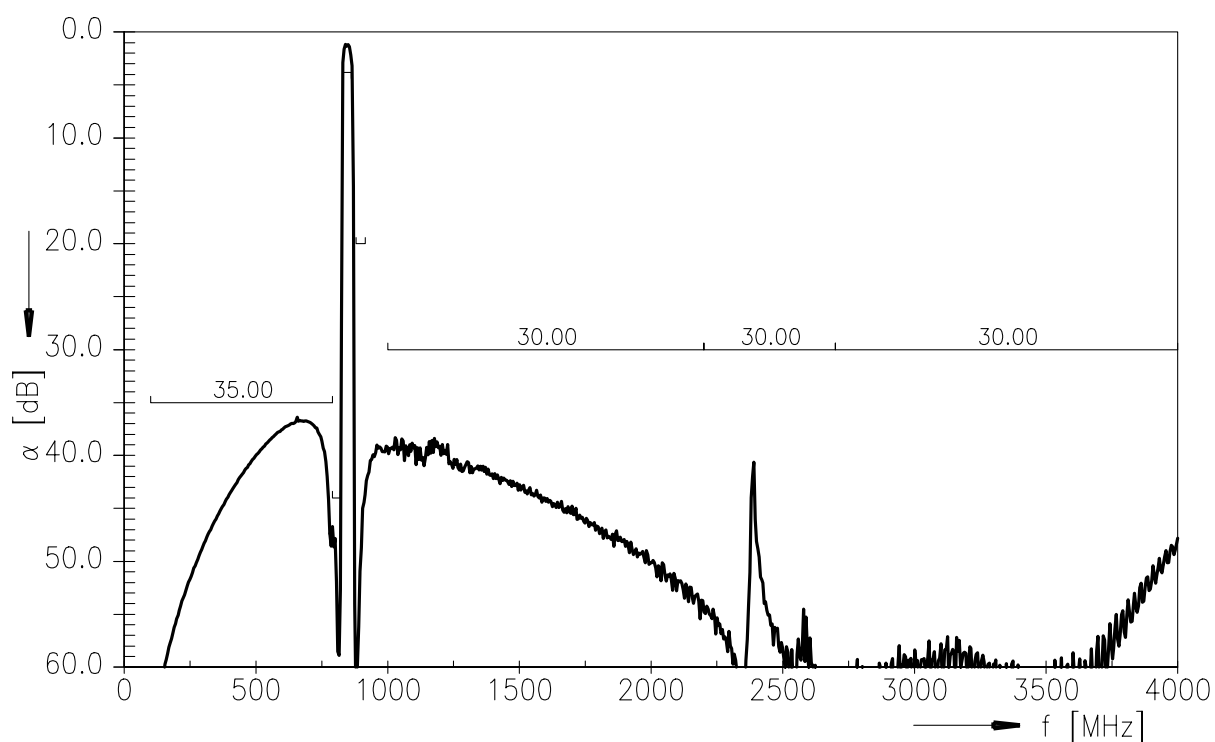
3) Time to failure (TTF) according to accelerated power durability simulations acc. to wear out models.

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

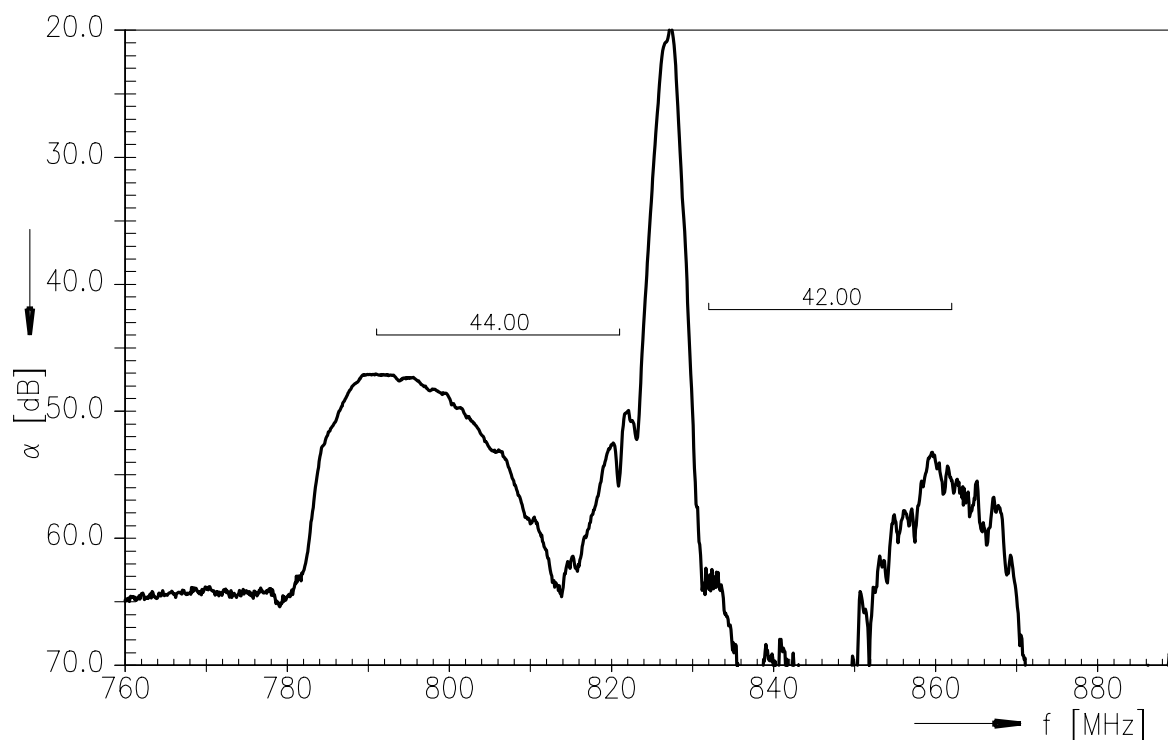
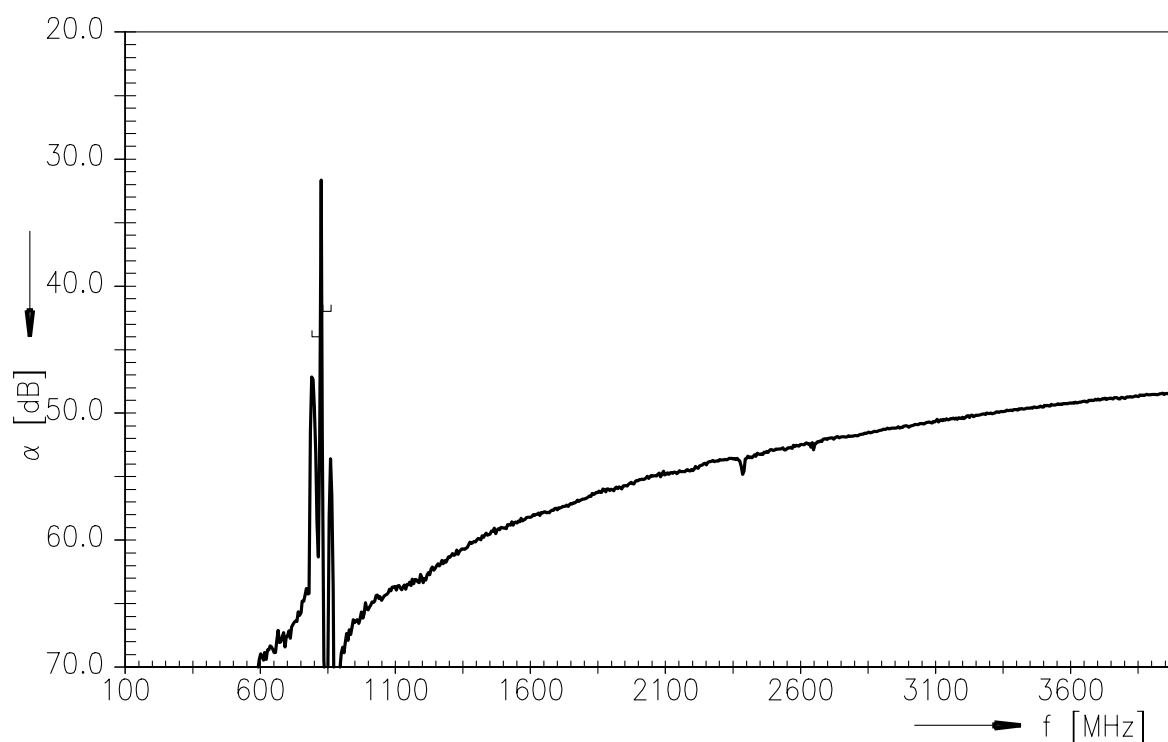
Data sheet


Frequency response TX-ANT

Frequency response TX-ANT (wideband)


Data sheet


Frequency response ANT-RX

Frequency response ANT-RX (wideband)


Data sheet


Frequency response TX-RX

Frequency response TX-RX (wideband)


Data sheet

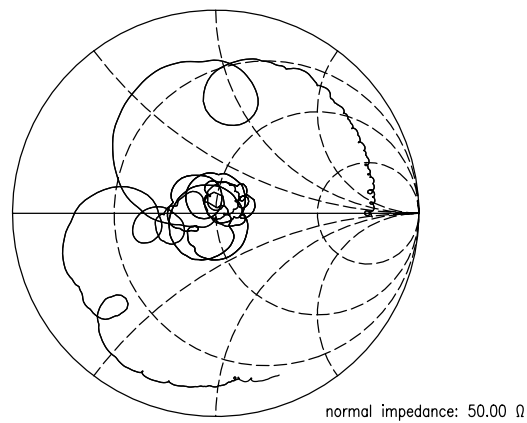
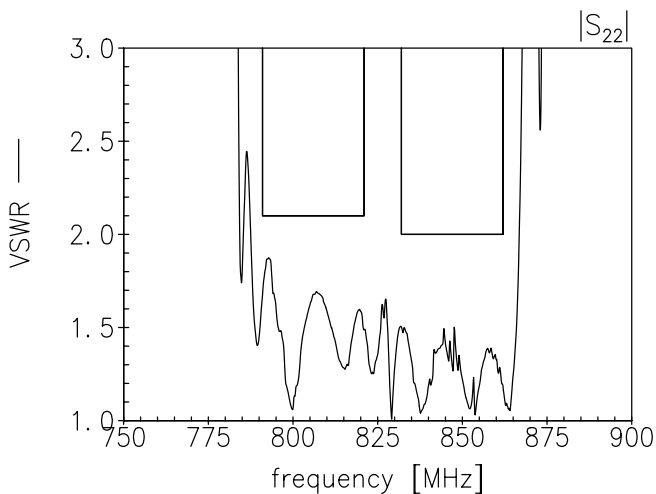
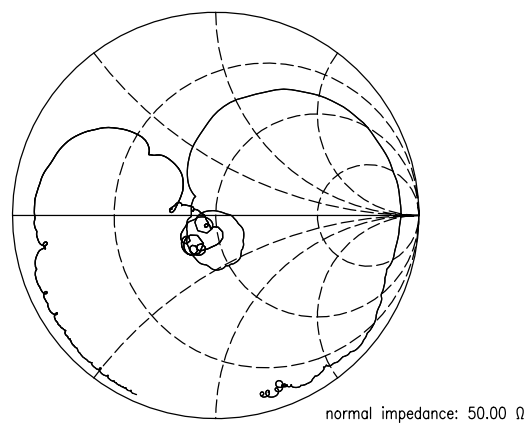
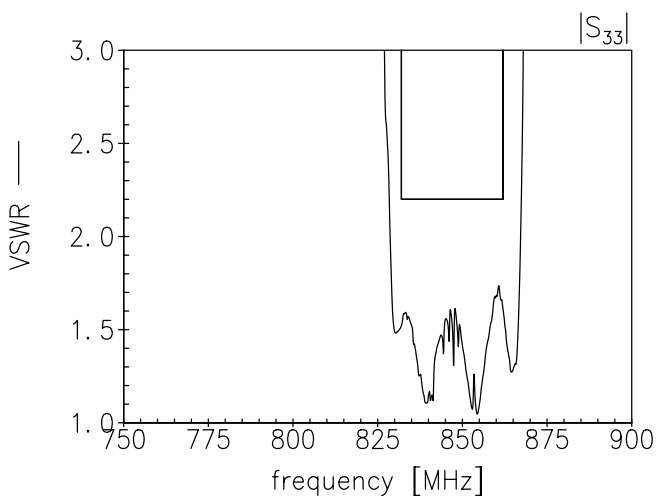
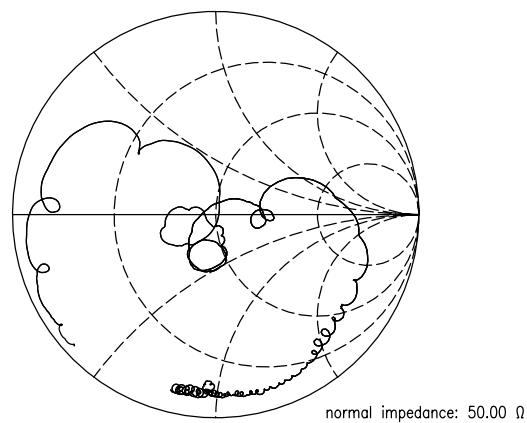
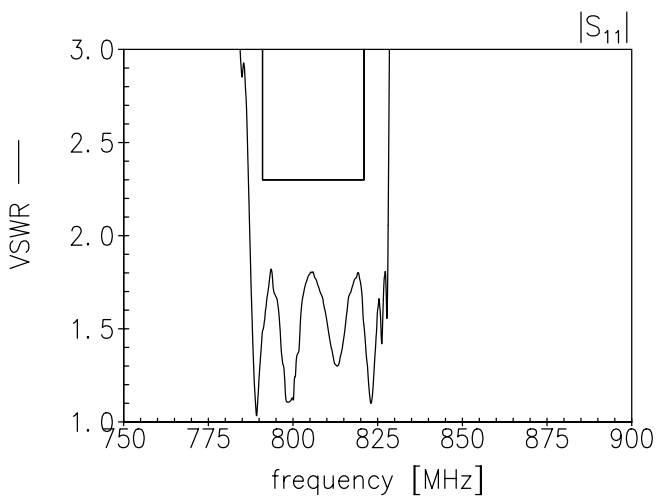


Return Loss

S₁₁ TX- port

S₂₂ ANT-port

S₃₃ RX-port




References

Type	B8030
Ordering code	B39851B8030P810
Marking and package	C61157-A3-A27
Packaging	F61074-V8232-Z000
Date codes	L_1126
S-parameters	B8030_NB.s3p , B8030_WB.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 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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