RF360 Europe GmbH

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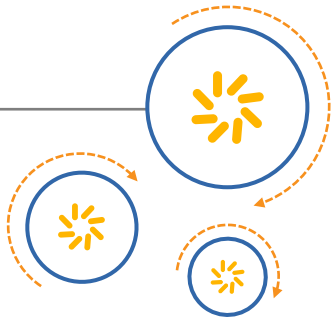

SAW Components

SAW Duplexer

Automotive telematics

Series/type:	B4404
Ordering code:	B39851B4404P810
Date:	June 12, 2014
Version:	2.1

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RF360 Europe GmbH, Anzinger Str. 13, München, Germany

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SAW Duplexer

Automotive telematics

Series/type:	**B4404**
Ordering code:	**B39851B4404P810**
Date:	June 12, 2014
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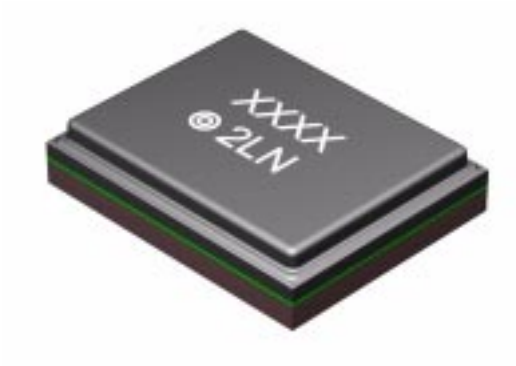
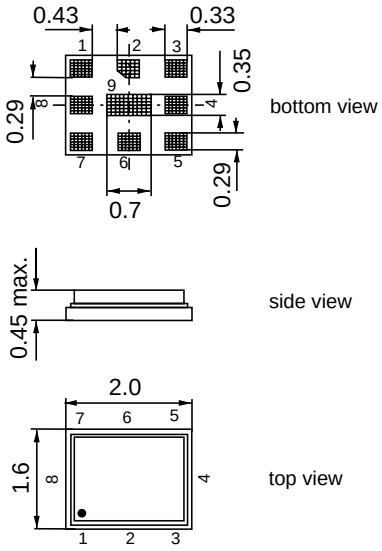
Application

- Low-loss SAW duplexer for LTE Band 20 systems
- Very high isolation
- Usable passband 30 MHz
- Single-ended to balanced transformation in Antenna-Rx path
- Impedance transformation 50 Ω to 100 Ω in Antenna-Rx path



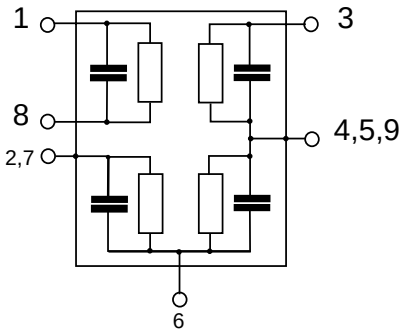
Features

- Package size 2.0 * 1.6 mm²
- Package height max. 0.45mm
- RoHS compatible
- Approximate weight 0.005 g
- Package for **S**urface **M**ount **T**echnology (**SMT**)
- Ni terminals, Au-plated
- **E**lectrostatic **S**ensitive **D**evice (**ESD**)
- AEC-Q200 qualified component family (operable temperature range –40˚C to +85˚C)



Pin configuration

■	3	Tx input
■	1, 8	Rx output (balanced)
■	6	Antenna
■	2, 4, 5, 7, 9	To be grounded



Characteristics

Temperature range for specification: T = -15 ˚C to +85 ˚C
TX terminating impedance: Z_{Tx} = 50 Ω
ANT terminating impedance: Z_{Ant} = 50 Ω || 9.0 nH
RX teminating impedance: Z_{Rx} = 100 Ω (balanced) || 43 nH

Characteristics Tx-Antenna		min.	typ. @ 25 ˚C	max.	
Center frequency	f_c		847.0		MHz
Maximum insertion attenuation	α				
832.0 ... 862.0 MHz		—	2.2	3.6	dB
832.0 ... 862.0 MHz		—	2.2	2.7[1)]	dB
Amplitude ripple (p-p)	Δα				
832.0 ... 862.0 MHz		—	1.1	2.6	dB
Input VSWR (Tx port)					
832.0 ... 862.0 MHz		—	1.7	2.1	
Output VSWR (Ant Port)					
832.0 ... 862.0 MHz		—	1.7	2.0	
Absolute attenuation	α				
100.0 ... 771.0 MHz		34	41	—	dB
771.0 ... 791.0 MHz		35	46	—	dB
791.0 ... 821.0 MHz		40	54	—	dB
873.0 ... 903.0 MHz		13	32	—	dB
925.0 ... 960.0 MHz		30	43	—	dB
1565.0 ... 1606.0 MHz		40	50	—	dB
1664.0 ... 2170.0 MHz		40	52	—	dB
2400.0 ... 2620.0 MHz		35	39	—	dB
2620.0 ... 2690.0 MHz		35	47	—	dB
3328.0 ... 3448.0 MHz		20	43	—	dB

1) in +25,+55 ˚C temperature range

Characteristics

Temperature range for specification: T = -15 ˚C to +85 ˚C
TX terminating impedance: Z_{Tx} = 50 Ω
ANT terminating impedance: Z_{Ant} = 50 Ω || 9.0 nH
RX teminating impedance: Z_{Rx} = 100 Ω (balanced) || 43 nH

Characteristics Antenna-Rx		min.	typ. @ 25 ˚C	max.	
Center frequency	f_c		806.0		MHz
Maximum insertion attenuation	α				
791.0 ... 821.0 MHz		—	2.6	3.9	dB
791.0 ... 821.0 MHz		—	2.6	3.3[1)]	dB
Amplitude ripple (p-p)	Δα				
791.0 ... 821.0 MHz		—	1.3	2.8	dB
Input VSWR (Ant port)					
791.0 ... 821.0 MHz		—	1.8	2.2	
Output VSWR (Rx Port)					
791.0 ... 821.0 MHz		—	2.2	2.5	
Common mode rejection ratio					
791.0 ... 821.0 MHz		23	28		dB
Absolute attenuation	α				
100.0 ... 760.0 MHz		45	52	—	dB
760.0 ... 782.0 MHz		25	50	—	dB
832.0 ... 862.0 MHz		50[2)]	53	—	dB
832.0 ... 833.5 MHz		35	62	—	dB
833.5 ... 862.0 MHz		50	53	—	dB
873.0 ... 903.0 MHz		40	55	—	dB
1623.0 ... 1683.0 MHz		40	61	—	dB
2400.0 ... 2545.0 MHz		40	55	—	dB
2545.0 ... 4000.0 MHz		35	53	—	dB

1) In +25,+55 ˚C temperature range
2) In +25,+85 ˚C temperature range

Characteristics

Temperature range for specification: T = -15 ˚C to +85 ˚C
TX terminating impedance: Z_{Tx} = 50 Ω
ANT terminating impedance: Z_{Ant} = 50 Ω || 9.0 nH
RX teminating impedance: Z_{Rx} = 100 Ω (balanced) || 43 nH

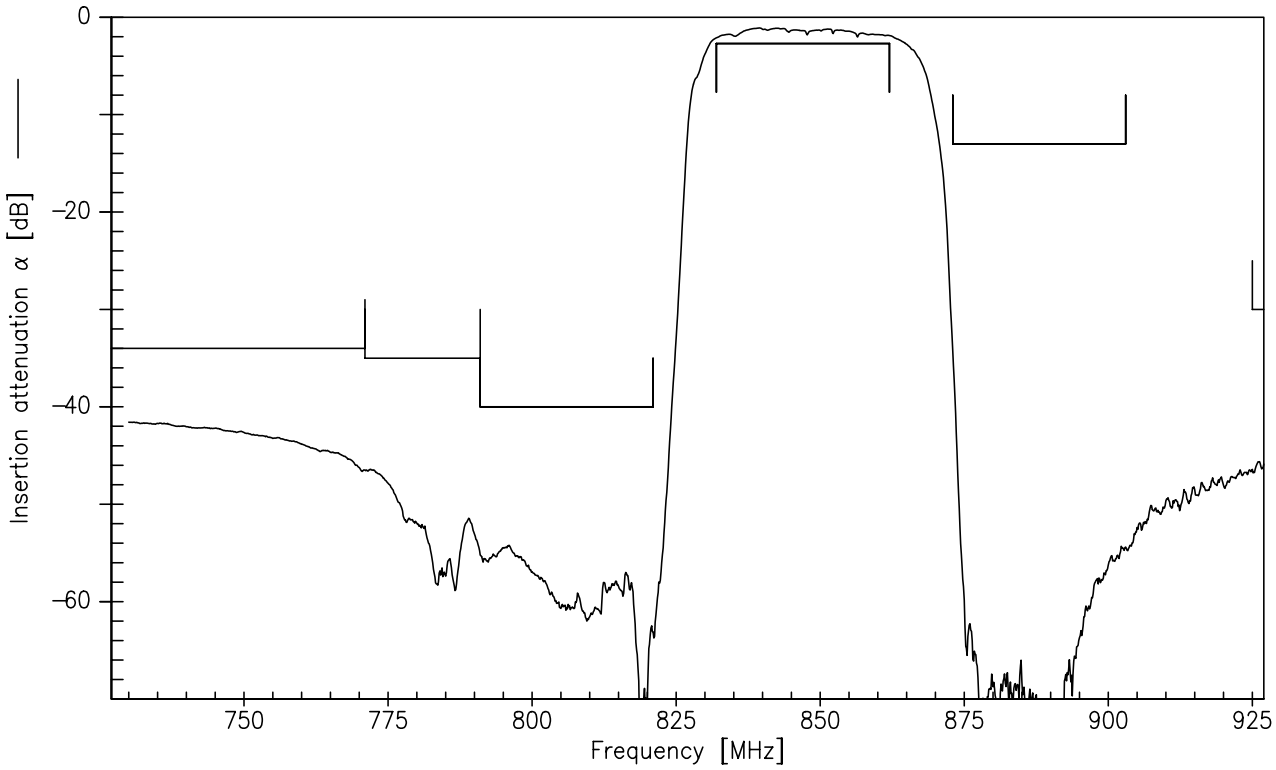
Characteristics Tx-Rx		min.	typ. @ 25 ˚C	max.	
Differential mode isolation	α				
791.0 ... 820.5 MHz		51	56	—	dB
820.5 ... 821.0 MHz		45	60	—	dB
832.0 ... 834.0 MHz		43	63	—	dB
832.0 ... 834.0 MHz		52[1)]	63	—	dB
834.0 ... 862.0 MHz		52	56	—	dB
1574.0 ... 1577.0 MHz		40	69	—	dB
1664.0 ... 1724.0 MHz		20	68	—	dB
2496.0 ... 2586.0 MHz		20	63	—	dB
Common mode isolation	α				
832.0 ... 862.0 MHz		60	64	—	dB

1) In +25,+85 ˚C temperature range

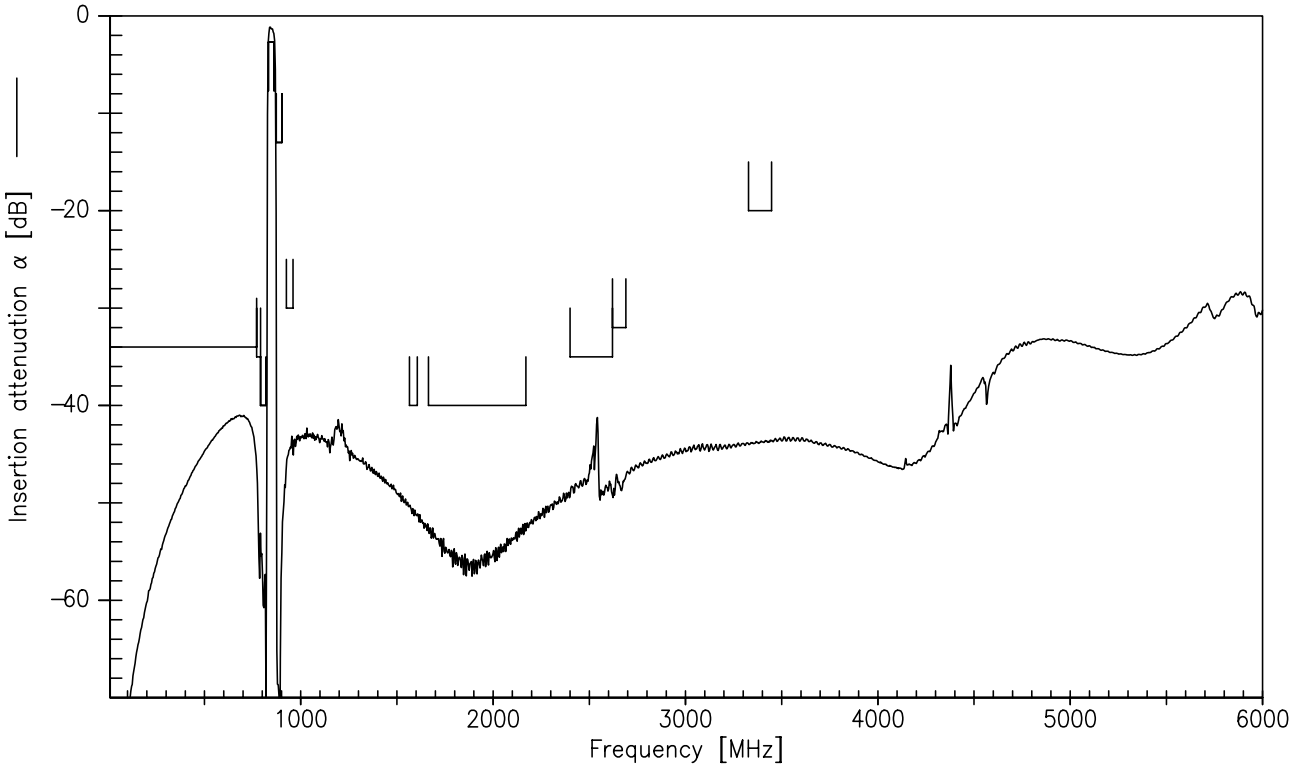
Maximum Ratings

Operable temperature range	T	–40/+85	˚C	
Storage temperature range	T_{stg}	–40/+85	˚C	
DC voltage	V_{DC}	0	V	
Input power at Tx Port				
832.0 ...862.0 MHz	P_{in}	28	dBm	} continuous wave
elsewhere	P_{in}	10	dBm	} 50 ˚C, 5000h

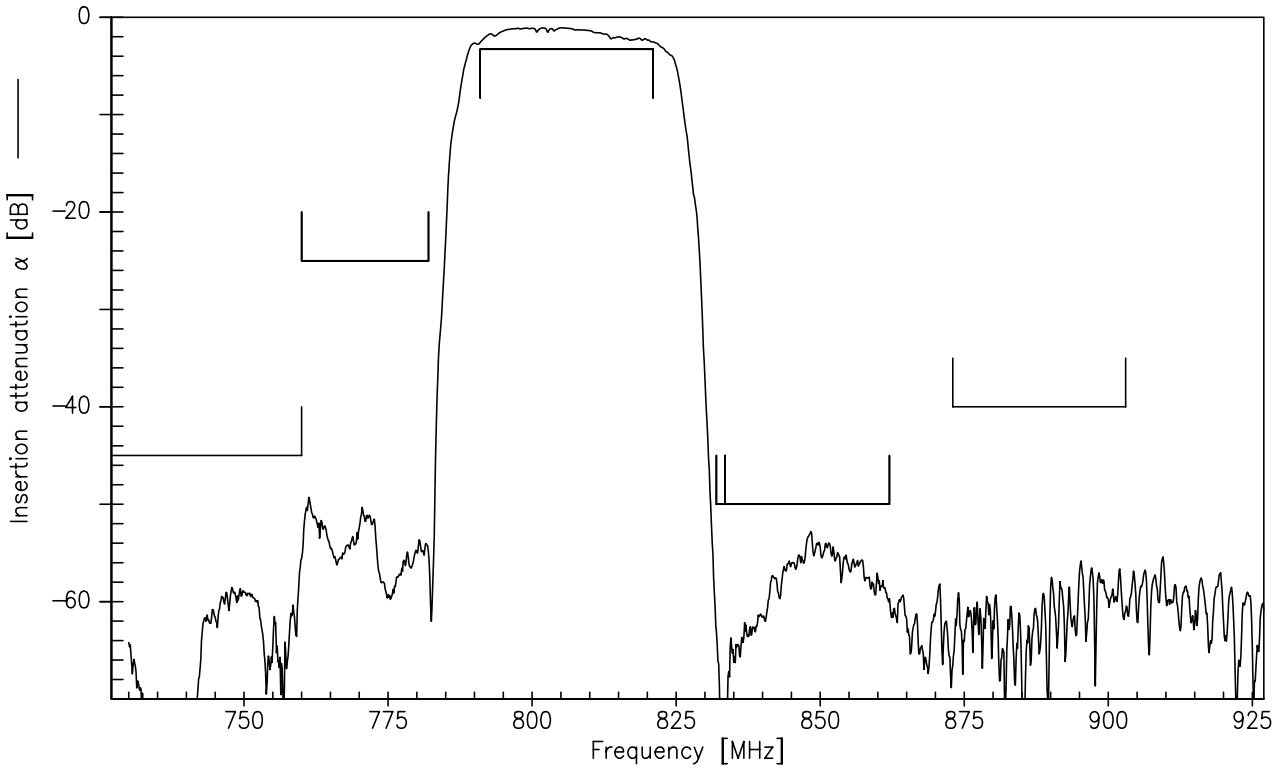
Frequency Response TX-ANT



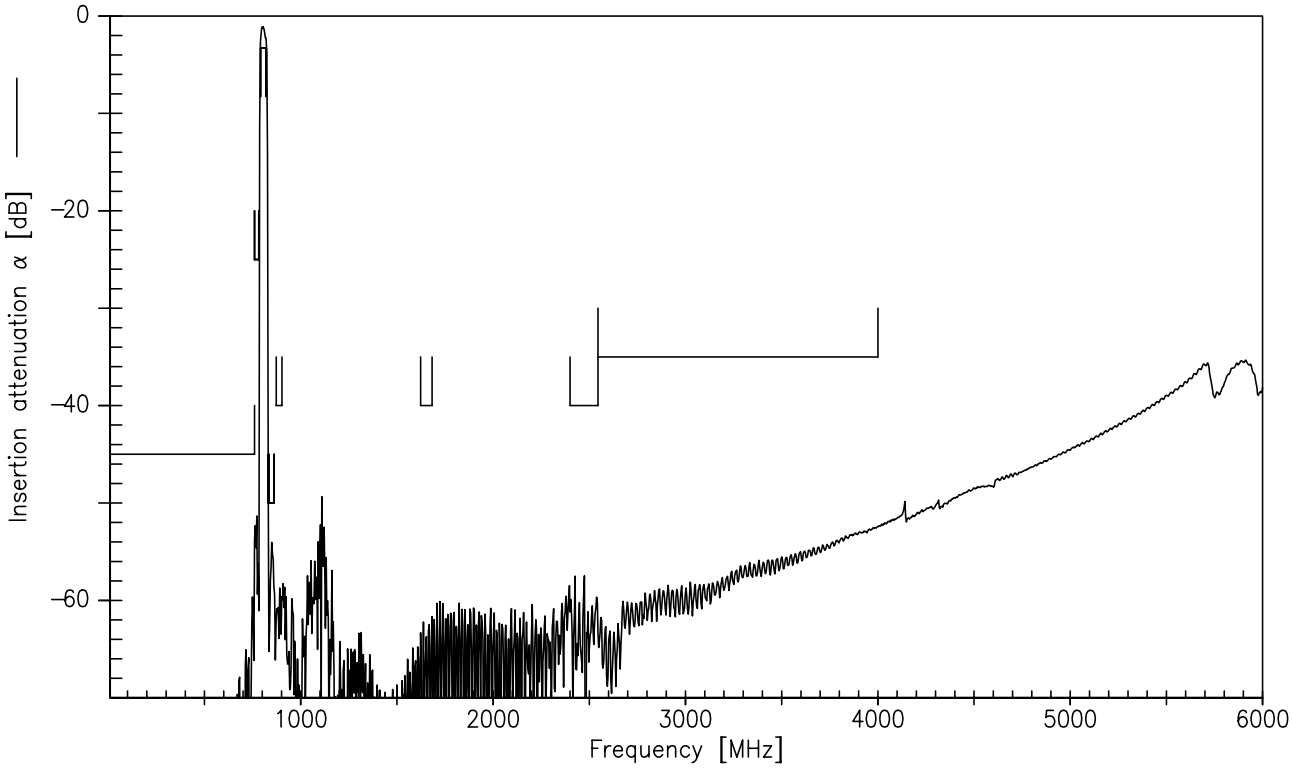
Frequency Response TX-ANT (wideband)



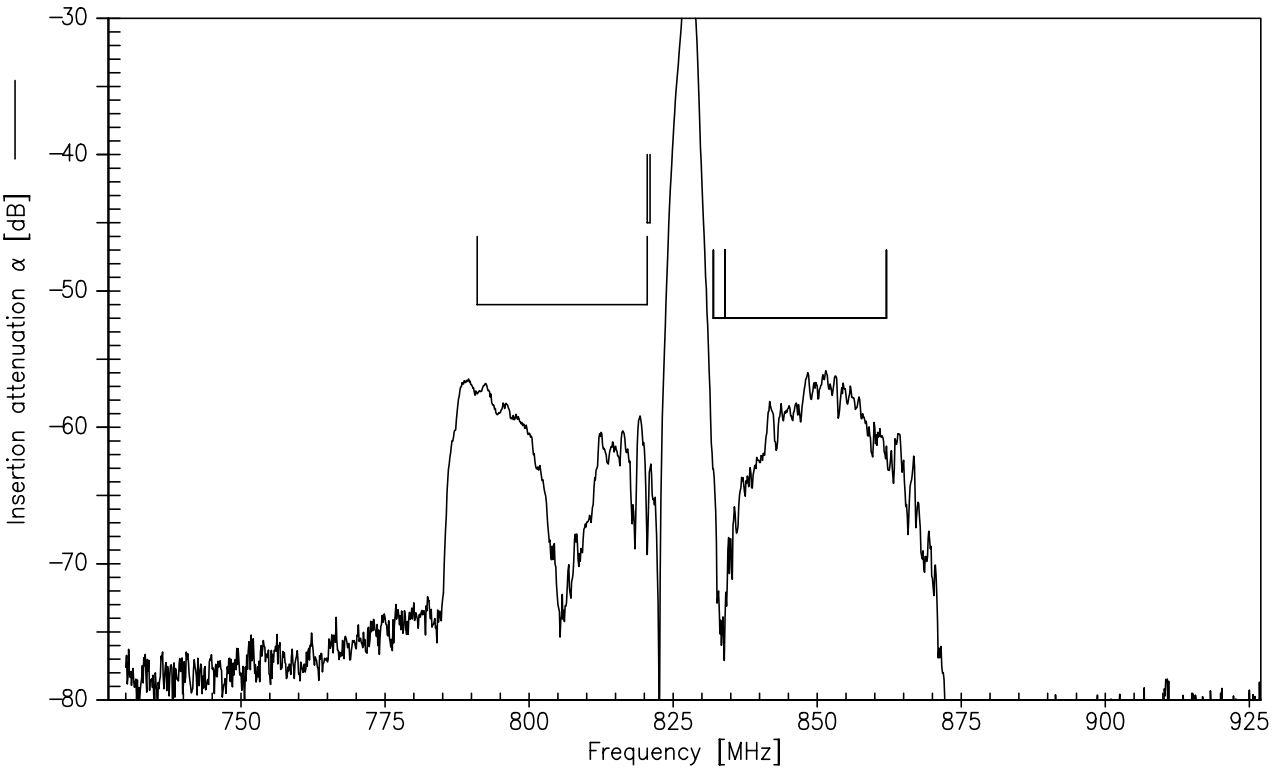
Frequency Response RX-ANT



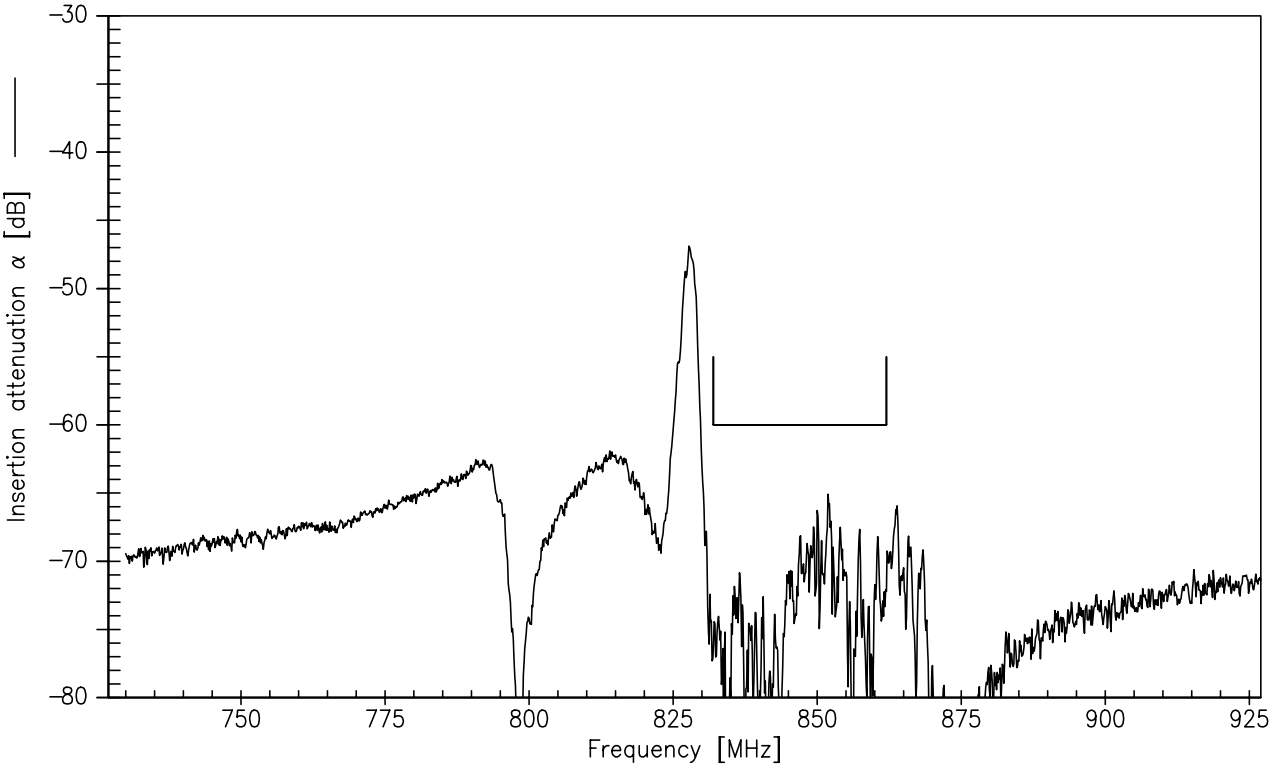
Frequency Response RX-ANT (wideband)



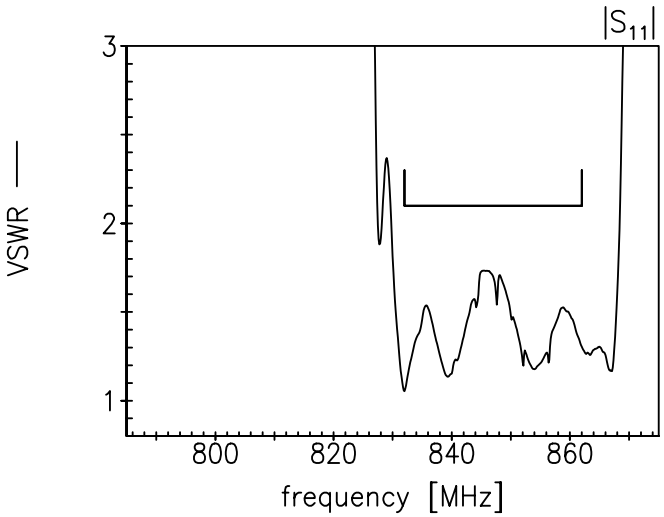
Frequency Response TX-RX

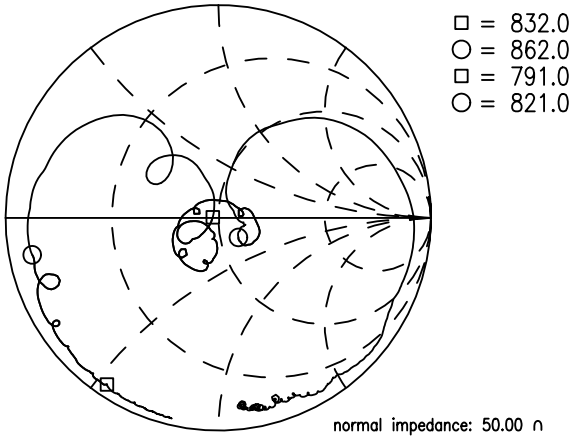


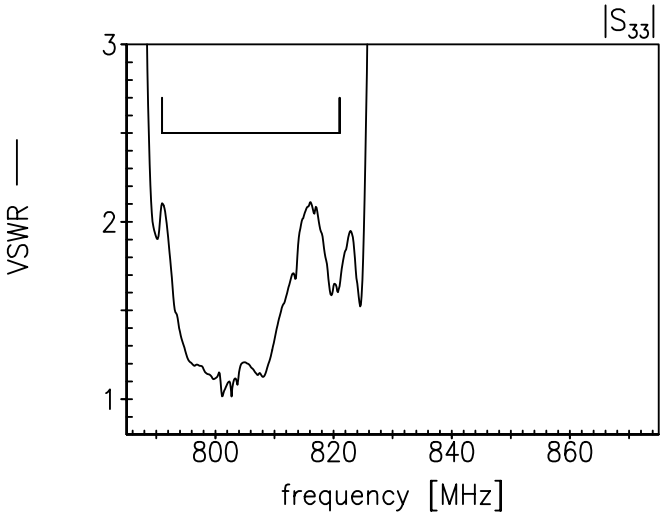
Frequency Response TX-RX (Common Mode)

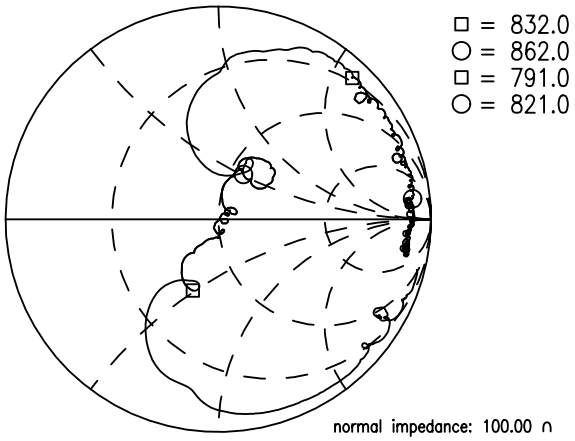


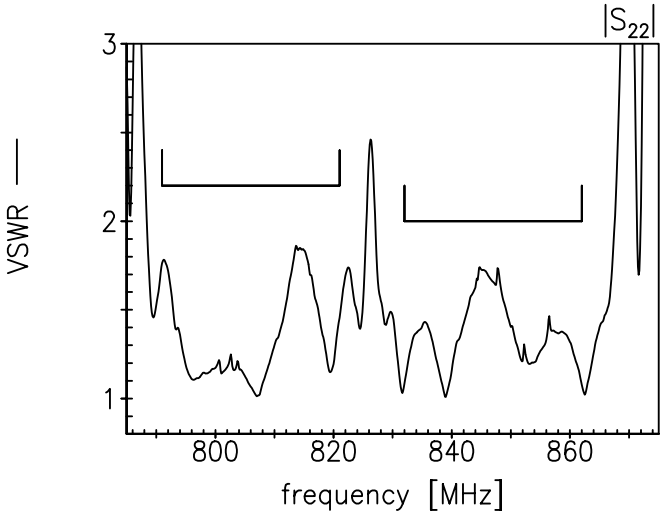
Return Loss **S_{11} TX- port** **S_{33} RX-port** **S_{22} ANT-port**

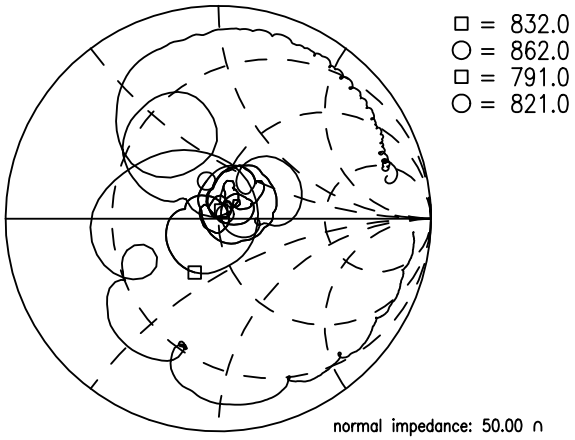












References

Type	B4404
Ordering code	B39851B4404P810
Marking and package	C61157-A8-A37
Packaging	F61074-V8247-Z000
Date codes	L_1126
S-parameters	B4404_NB_UN.s4p, B4404_WB_UN.s4p 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 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.
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