



SAW Components

SAW Duplexer

Automotive telematics

Series/type:	B4403
Ordering code:	B39212B4403P810
Date:	March 25, 2015
Version:	2.3

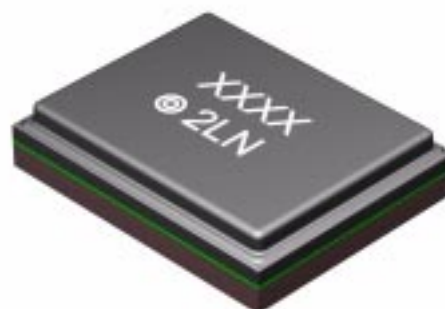
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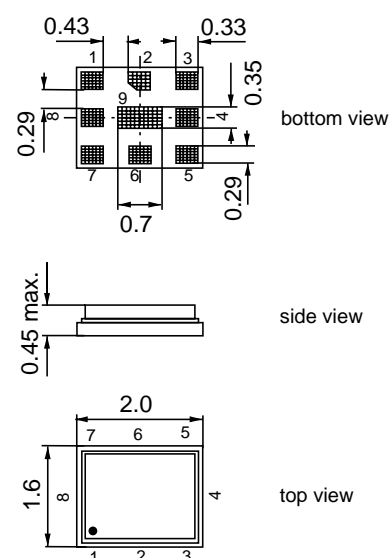
Data sheet


Application

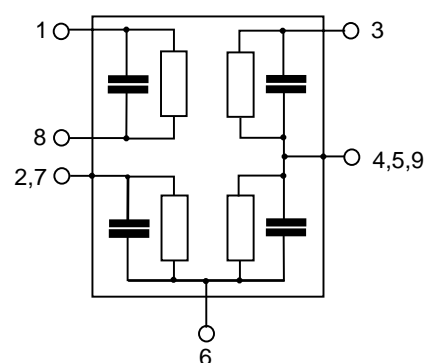
- Low-loss SAW duplexer for WCDMA Band 4 / CDMA 1x AWS systems
- Low insertion attenuation
- Low amplitude ripple
- Usable passband 45 MHz
- Single-ended to balanced transformation in Antenna-Rx path
- Impedance transformation 50Ω to 100Ω in Antenna-Rx path
- High isolation between Tx and Rx


Features

- Package size 2.0 * 1.6 mm²
- Package height max. 0.45 mm
- RoHS compatible
- Approx. weight 0.005 g
- Package for **Surface Mount Technology (SMT)**
- Ni terminals, Au-plated
- **Electrostatic Sensitive Device (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



Data sheet


Characteristics

Temperature range for specification:	T = -30 °C to +85 °C
Antenna terminating impedance:	Z _{ANT} = 50 Ω 2.4 nH
TX terminating impedance:	Z _{TX} = 50 Ω 10 nH
RX terminating impedance:	Z _{RX} = 100 Ω (balanced) 14 nH

Characterisitcs TX - Antenna		min.	typ. @ 25 °C	max.	
Center frequency	f _C		1732.5		MHz
Maximum insertion attenuation 1710.0 ... 1755.0 MHz	α	—	1.5	2.5	dB
Amplitude ripple (p-p) 1710.0 ... 1755.0 MHz	Δα	—	0.5	1.5	dB
Input VSWR (TX port) 1710.0 ... 1755.0 MHz		—	1.4	2.0	
Output VSWR (ANT port) 1710.0 ... 1755.0 MHz		—	1.4	2.0	
Attenuation	α				
100.0 ... 764.0 MHz		35	45	—	dB
851.0 ... 894.0 MHz		35	42	—	dB
1310.0 ... 1355.0 MHz		24	38	—	dB
1565.42 ... 1585.42 MHz		40	47	—	dB
1597.55 ... 1605.88 MHz		40	47	—	dB
1805.0 ... 1880.0 MHz		20	46	—	dB
1930.0 ... 1990.0 MHz		40	48	—	dB
2110.0 ... 2155.0 MHz		45	49	—	dB
2400.0 ... 2500.0 MHz		30	39	—	dB
2565.0 ... 2677.0 MHz		25	36	—	dB
3410.0 ... 3510.0 MHz		25	32	—	dB

Data sheet


Characteristics

Temperature range for specification:	T = -30 °C to +85 °C
Antenna terminating impedance:	Z _{ANT} = 50 Ω 2.4 nH
TX terminating impedance:	Z _{TX} = 50 Ω 10 nH
RX terminating impedance:	Z _{RX} = 100 Ω (balanced) 14 nH

Characterisitcs Antenna - Rx		min.	typ. @ 25 °C	max.	
Center frequency	f _C		2132.5		MHz
Maximum insertion attenuation	α				
2110.0 ... 2155.0 MHz		—	1.9	2.5	dB
Amplitude ripple (p-p)	Δα				
2110.0 ... 2155.0 MHz		—	0.4	1.2	dB
Input VSWR (RX port)					
2110.0 ... 2155.0 MHz		—	1.4	2.0	
Output VSWR (ANT port)					
2110.0 ... 2155.0 MHz		—	1.6	2.0	
CMRR (S₃₂-S₄₂ / S₃₂+S₄₂)					
2110.0 ... 2155.0 MHz		20	23	—	dB
Attenuation	α				
100.0 ... 400.0 MHz		57	75	—	dB
400.0 ... 1355.0 MHz		45	64	—	dB
1355.0 ... 1710.0 MHz		35	46	—	dB
1710.0 ... 1755.0 MHz		45	58	—	dB
1755.0 ... 1955.0 MHz		35	50	—	dB
1955.0 ... 2025.0 MHz		15	37	—	dB
2240.0 ... 2300.0 MHz		15	38	—	dB
2300.0 ... 2400.0 MHz		30	45	—	dB
2400.0 ... 2690.0 MHz		40	48	—	dB
2690.0 ... 3300.0 MHz		35	45	—	dB
3300.0 ... 3800.0 MHz		45	49	—	dB
3820.0 ... 3910.0 MHz		40	48	—	dB
3910.0 ... 4220.0 MHz		35	47	—	dB
4220.0 ... 4310.0 MHz		40	46	—	dB

Data sheet


Characteristics

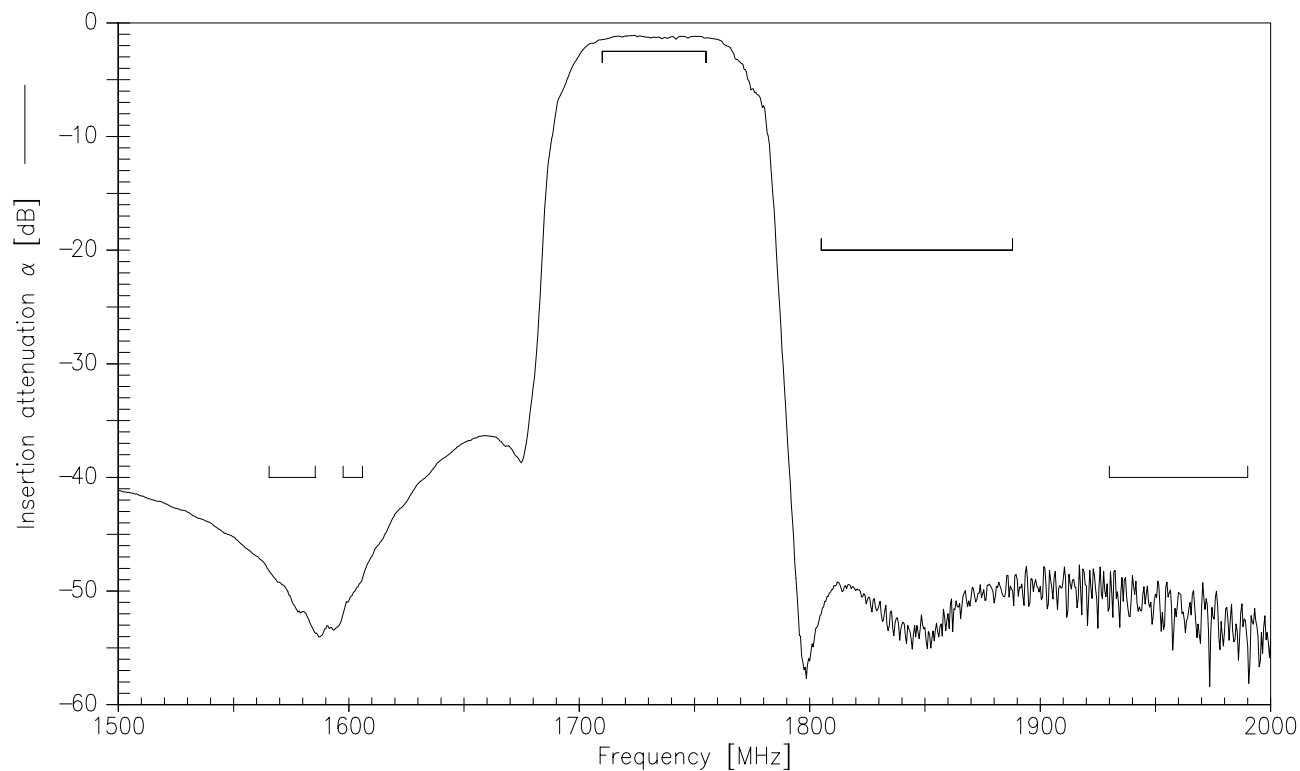
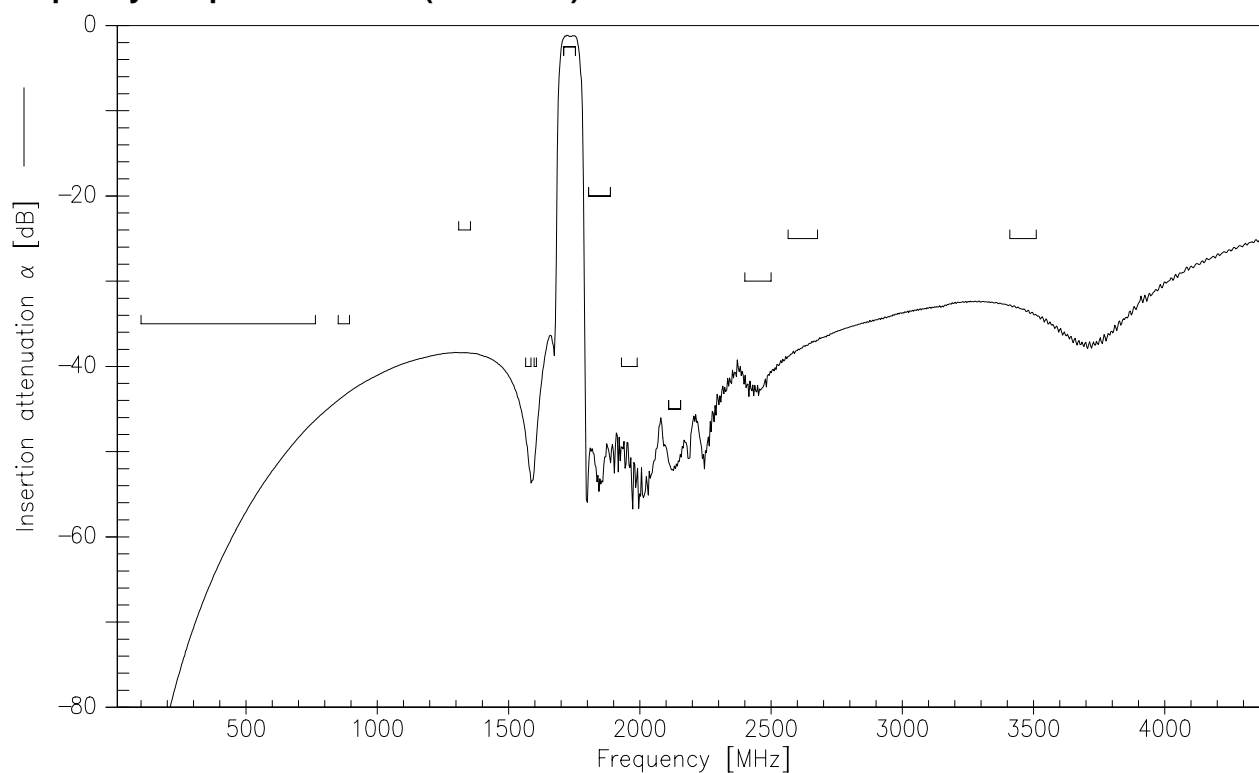
Temperature range for specification:	T = -30 °C to +85 °C
Antenna terminating impedance:	Z _{ANT} = 50 Ω 2.4 nH
TX terminating impedance:	Z _{TX} = 50 Ω 10 nH
RX terminating impedance:	Z _{RX} = 100 Ω (balanced) 14 nH

Characterisitcs Tx - Rx				min.	typ. @ 25 °C	max.	
Differential Mode Isolation							
			α				
	1574.0 ... 1577.0		MHz	40	69	—	dB
	1710.0 ... 1755.0		MHz	53	57	—	dB
	2110.0 ... 2155.0		MHz	48	56	—	dB
	3410.0 ... 3520.0		MHz	20	66	—	dB
Common Mode Isolation							
			α				
	1710.0 ... 1755.0		MHz	44	47	—	dB

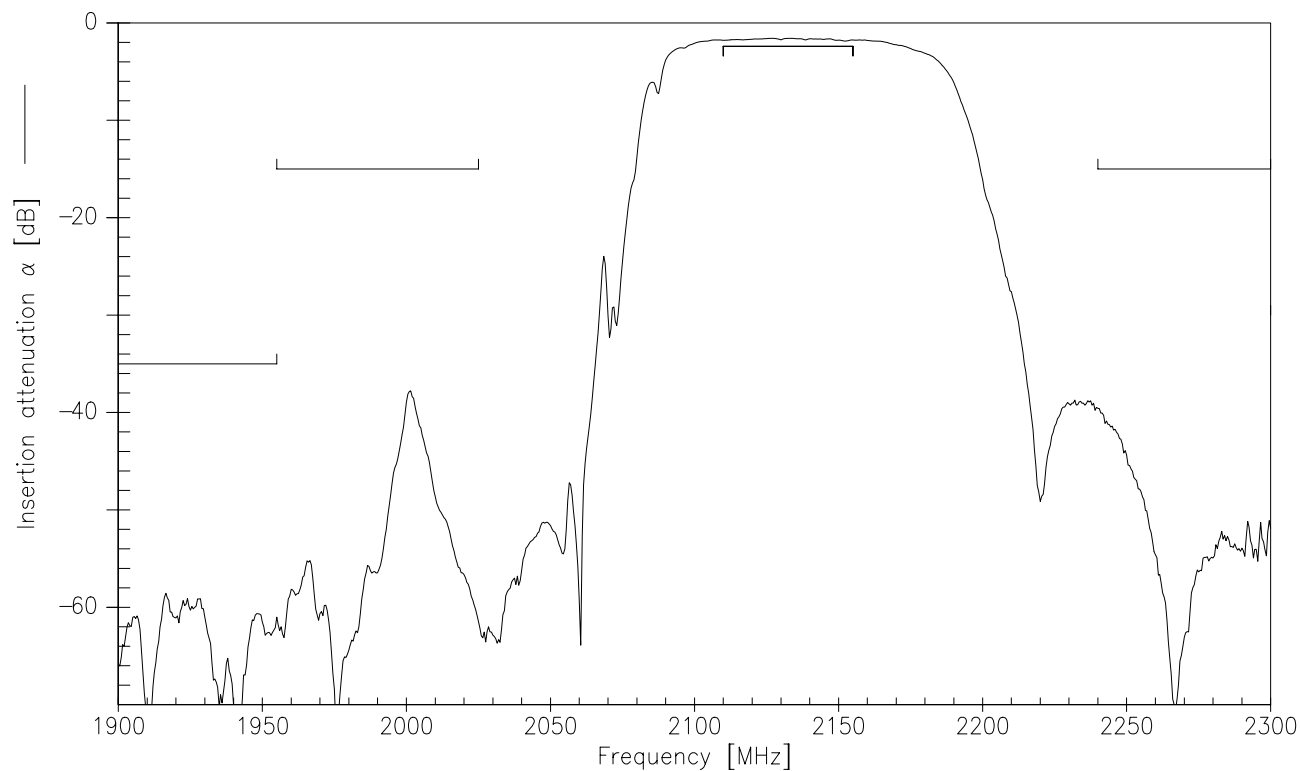
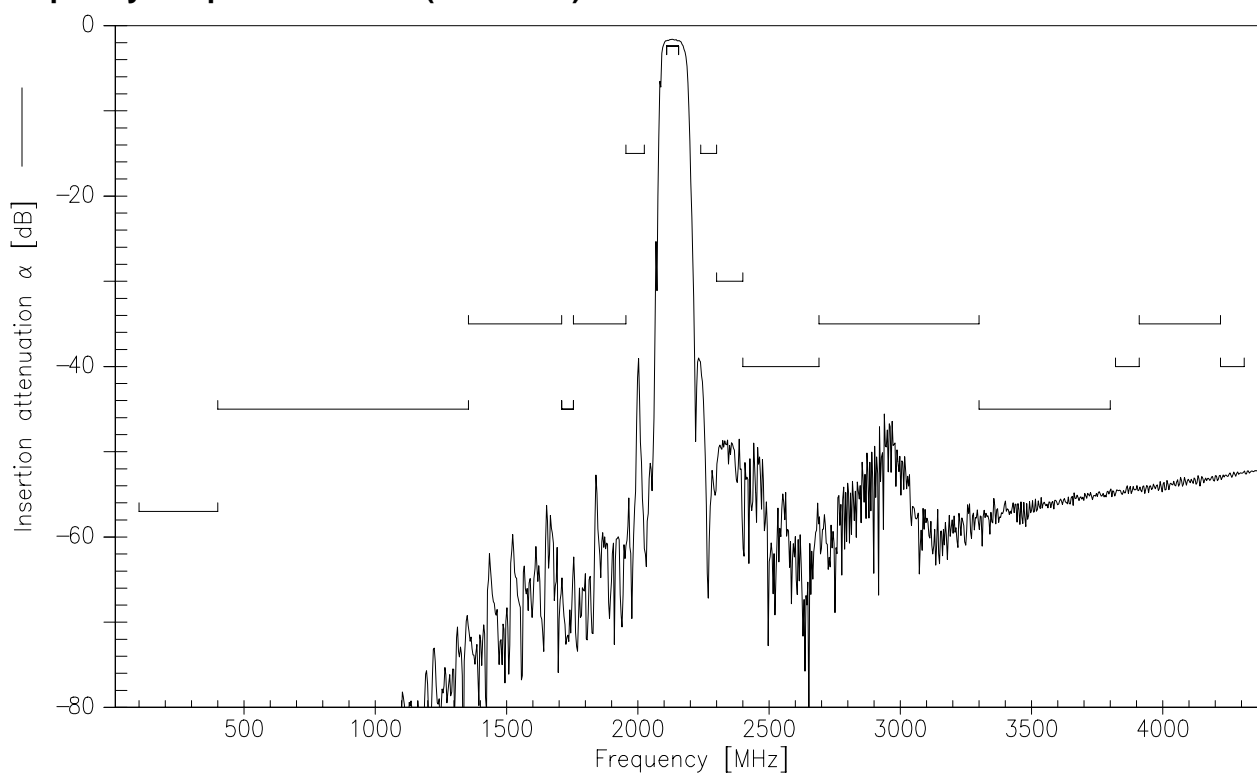
Maximum Ratings

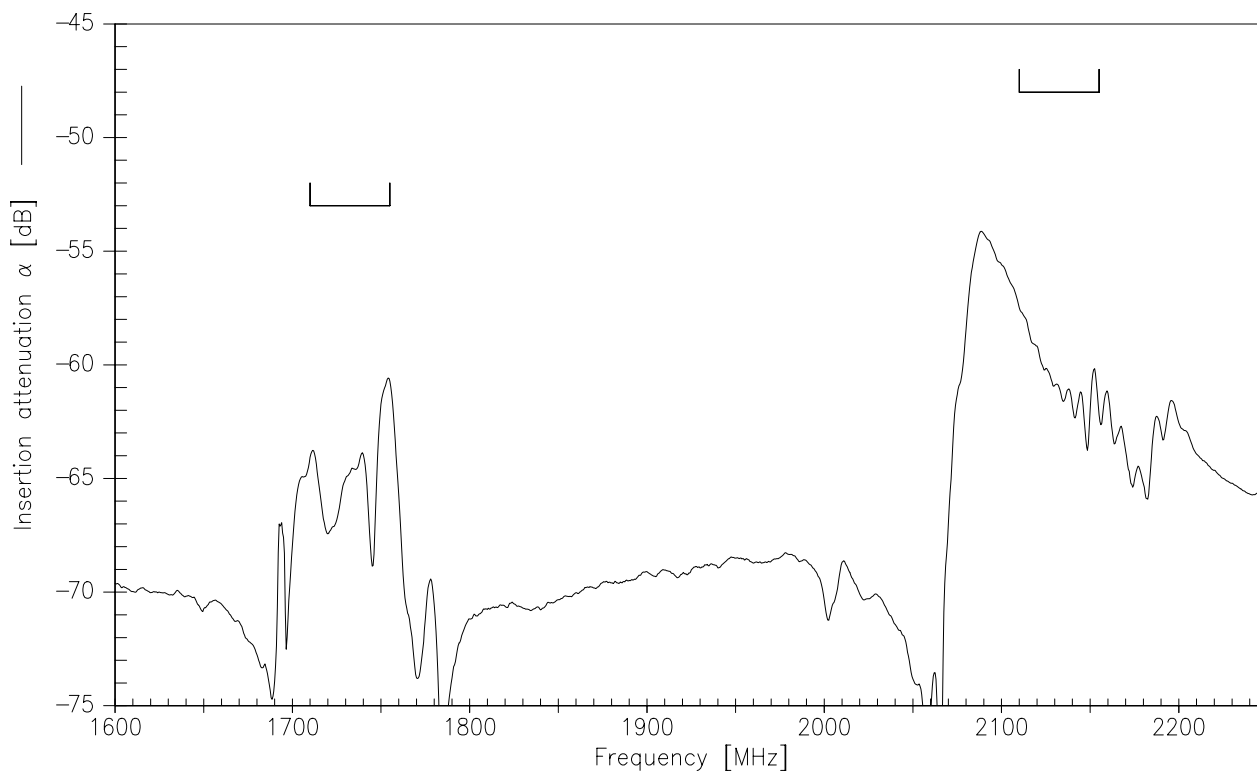
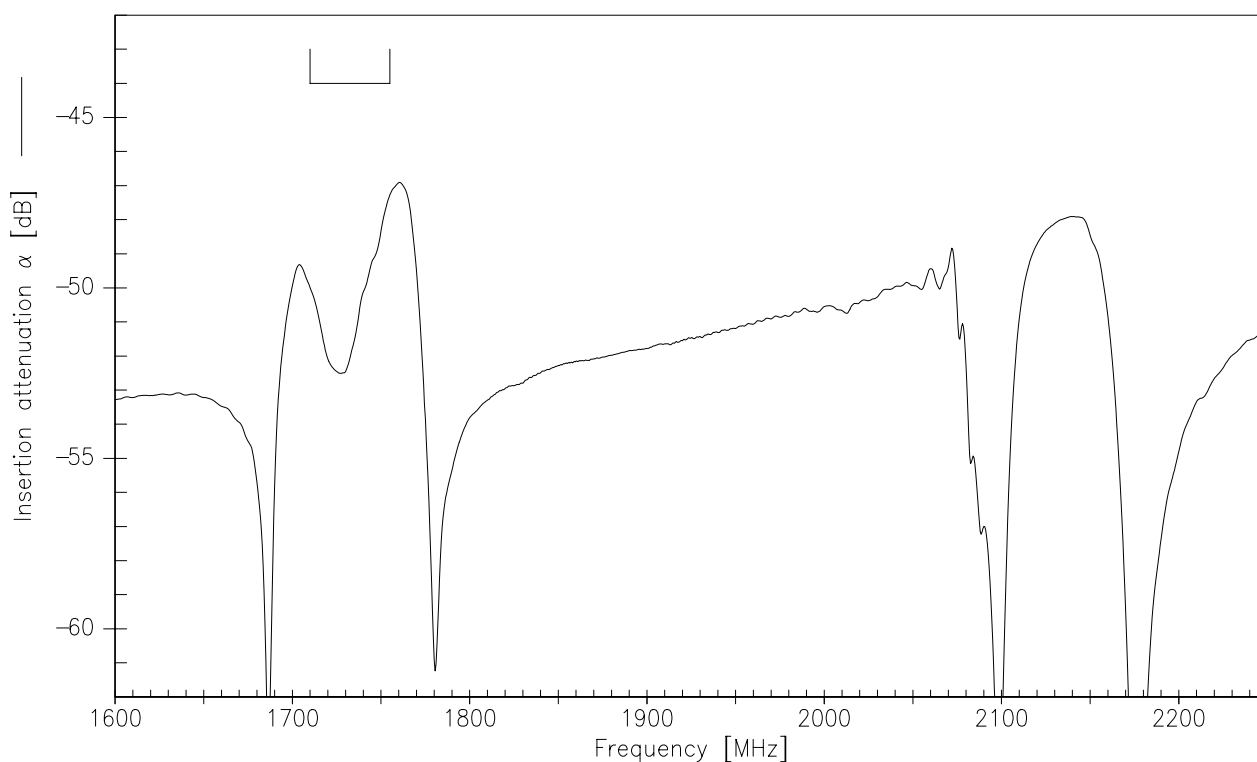
Operable temperature range	T	-40/+85	°C	
Storage temperature range	T _{stg}	-40/+85	°C	
DC voltage	V _{DC}	0	V	
Input power at	P _{IN}			source and load impedance 50 Ω } continuous wave } 50 °C, 5000 h
1710.0 ... 1755.0 MHz		29	dBm	
elsewhere		10	dBm	

Data sheet

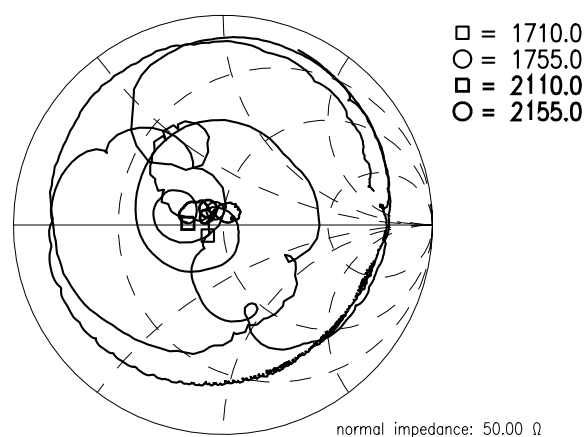
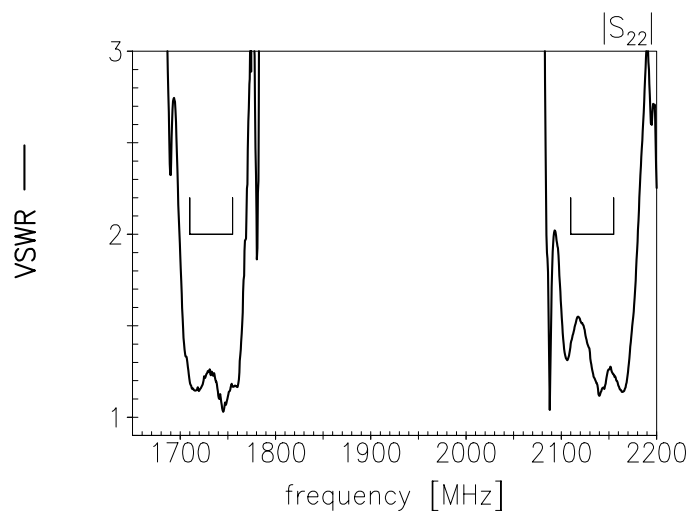
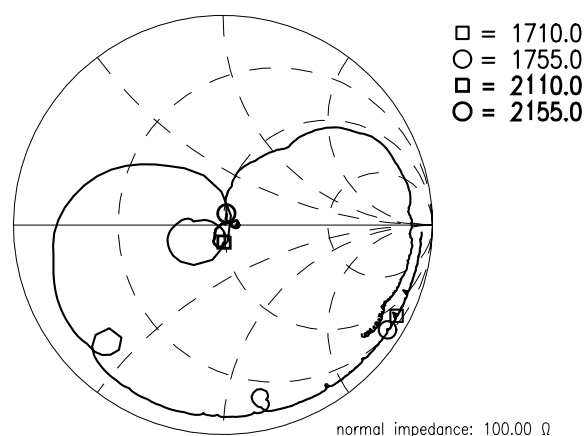
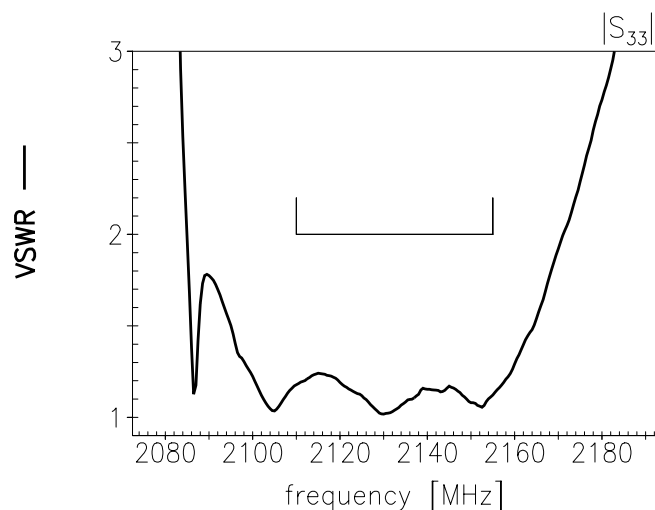
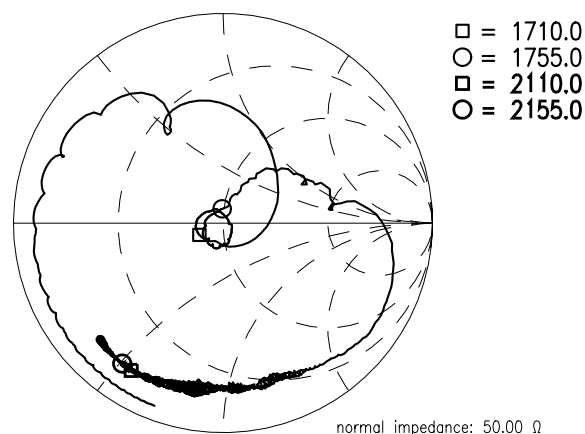
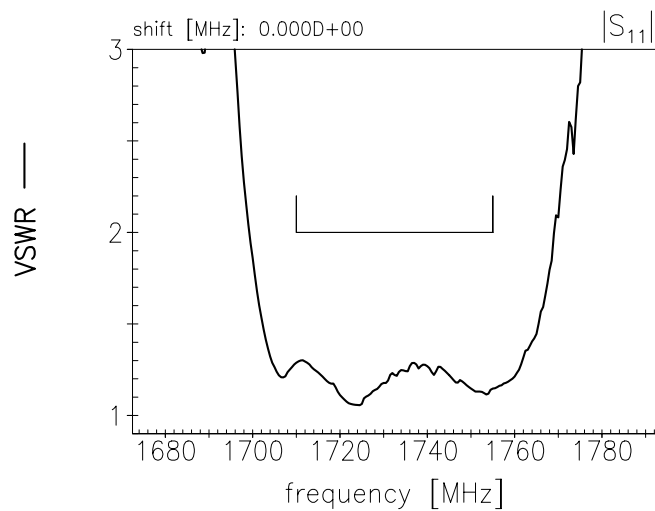

Frequency Response TX-ANT

Frequency Response TX-ANT (wideband)


Data sheet


Frequency Response RX-ANT

Frequency Response RX-ANT (wideband)



Frequency Response TX-RX (Differential Mode)

Frequency Response TX-RX (Common Mode)


Data sheet


Return Loss
S₁₁ TX- port
S₃₃ RX-port
S₂₂ ANT-port



References

Type	B4403
Ordering code	B39212B4403P810
Marking and package	C61157-A8-A50
Packaging	F61074-V8247-Z000
Date codes	L_1126
S-parameters	B4403_NB_UN.s4p B4403_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 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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