

RF360 Europe GmbH

A Qualcomm – TDK Joint Venture

SAW Components

SAW Duplexer

Automotive telematics

Series/type:	B4405
Ordering code:	B39881B4405P810
Date:	November 19, 2015
Version:	2.5

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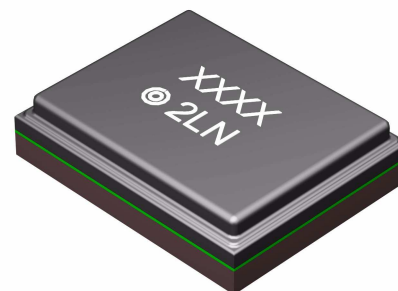
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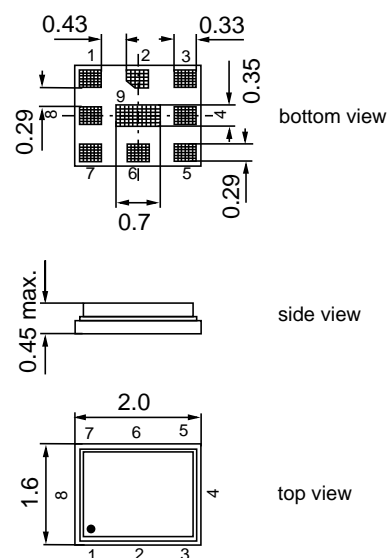
EPCOS AG is a TDK Group Company.

Application

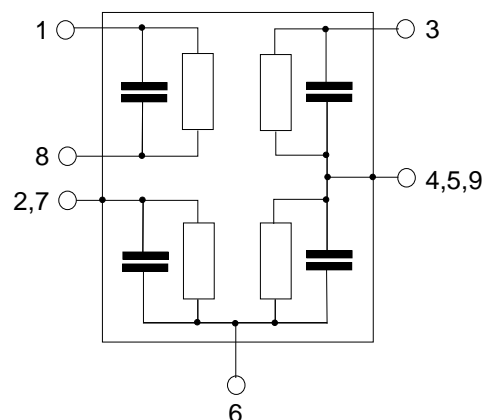
- Low-loss SAW duplexer for BC10 systems
- Low insertion attenuation
- Usable passband 32 MHz


Features

- Package size 2.0 * 1.6 mm²
- Package height max. 0.45 mm
- RoHS compatible
- Approximate 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:	$T = -30\text{ °C to }+85\text{ °C}$
TX terminating impedance:	$Z_{TX} = 50\ \Omega + 4.0\ \text{nH}$
ANT terminating impedance:	$Z_{ANT} = 50\ \Omega \parallel 6.0\ \text{nH}$
RX terminating impedance:	$Z_{RX} = 100\ \Omega\ (\text{balanced}) \parallel 47.0\ \text{nH}$

Characteristics Tx-Ant		min.	typ. @ 25°C	max.	
Center frequency	f_C		833.0		MHz
Maximum insertion attenuation @ $f_{Carrier}$ 817.6 ... 848.37 MHz $\alpha_{CDMA}^{1)}$		—	1.7	2.7	dB
Amplitude ripple (p-p) 817.0 ... 849.0 MHz		—	1.3	2.0	dB
VSWR					
TX port	817.0 ... 849.0 MHz	—	1.6	2.0	
ANT port	817.0 ... 849.0 MHz	—	1.6	2.0	
Attenuation	α				
	100.0 ... 494.0 MHz	33	38	—	dB
	494.0 ... 804.0 MHz	28	31	—	dB
	860.0 ... 862.0 MHz	10	54	—	dB
@ $f_{Carrier}$ 862.6 ... 893.37 MHz $\alpha_{CDMA}^{1)}$		44	49	—	dB
	1565.42 ... 1605.9 MHz	40	42	—	dB
	1624.0 ... 1708.0 MHz	40	43	—	dB
	1844.9 ... 1990.0 MHz	44	49	—	dB
	2110.0 ... 2170.0 MHz	40	46	—	dB
	2400.0 ... 2557.0 MHz	32	36	—	dB
	3258.0 ... 3406.0 MHz	28	38	—	dB
	4075.0 ... 4255.0 MHz	26	37	—	dB

1) Attenuation of CDMA 1x signal ("Powertransferfunction").

Data sheet


Characteristics

Temperature range for specification:	$T = -30\text{ °C to }+85\text{ °C}$
TX terminating impedance:	$Z_{TX} = 50\ \Omega + 4.0\ \text{nH}$
ANT terminating impedance:	$Z_{ANT} = 50\ \Omega \parallel 6.0\ \text{nH}$
RX terminating impedance:	$Z_{RX} = 100\ \Omega\ (\text{balanced}) \parallel 47.0\ \text{nH}$

Characteristics Ant-Rx	min.	typ. @ 25°C	max.	
Center frequency f_C		878.0		MHz
Maximum insertion attenuation @ $f_{Carrier}$ 862.6 ... 893.37 MHz $\alpha_{CDMA}^{1)}$	—	2.1	2.7	dB
Amplitude ripple (p-p) 862.0 ... 894.0 MHz	—	1.1	1.6	dB
VSWR				
RX port 862.0 ... 894.0 MHz	—	1.9	2.2	
ANT port 862.0 ... 894.0 MHz	—	2.0	2.2	
Attenuation α				
100.0 ... 824.0 MHz	45	63	—	dB
@ $f_{Carrier}$ 817.6 ... 848.37 MHz $\alpha_{CDMA}^{1)}$	45	55	—	dB
849.0 ... 854.0 MHz	7	40	—	dB
909.0 ... 1000.0 MHz	10	18	—	dB
1000.0 ... 1850.0 MHz	44	53	—	dB
1850.0 ... 1920.0 MHz	44	60	—	dB
1920.0 ... 4000.0 MHz	44	54	—	dB

1) Attenuation of CDMA 1x signal ("Powertransferfunction").

Data sheet


Characteristics

Temperature range for specification:	$T = -30\text{ °C to }+85\text{ °C}$
TX terminating impedance:	$Z_{TX} = 50\ \Omega + 4.0\ \text{nH}$
ANT terminating impedance:	$Z_{ANT} = 50\ \Omega \parallel 6.0\ \text{nH}$
RX terminating impedance:	$Z_{RX} = 100\ \Omega\ (\text{balanced}) \parallel 47.0\ \text{nH}$

Characteristics Tx-Rx	min.	typ. @ 25°C	max.	
Differential Mode Isolation				
@f _{Carrier} 817.6 ... 848.37 MHz $\alpha_{CDMA}^{1)}$	54	57	—	dB
@f _{Carrier} 862.6 ... 893.37 MHz $\alpha_{CDMA}^{1)}$	48	51	—	dB
1574.0 ... 1577.0 MHz	40	68	—	dB
1624.0 ... 1708.0 MHz	40	67	—	dB
2441.0 ... 2557.0 MHz	40	65	—	dB
Common Mode Isolation				
@f _{Carrier} 817.6 ... 848.37 MHz $\alpha_{CDMA}^{1)}$	53	59	—	dB

1) Attenuation of CDMA 1x signal ("Powertransferfunction").

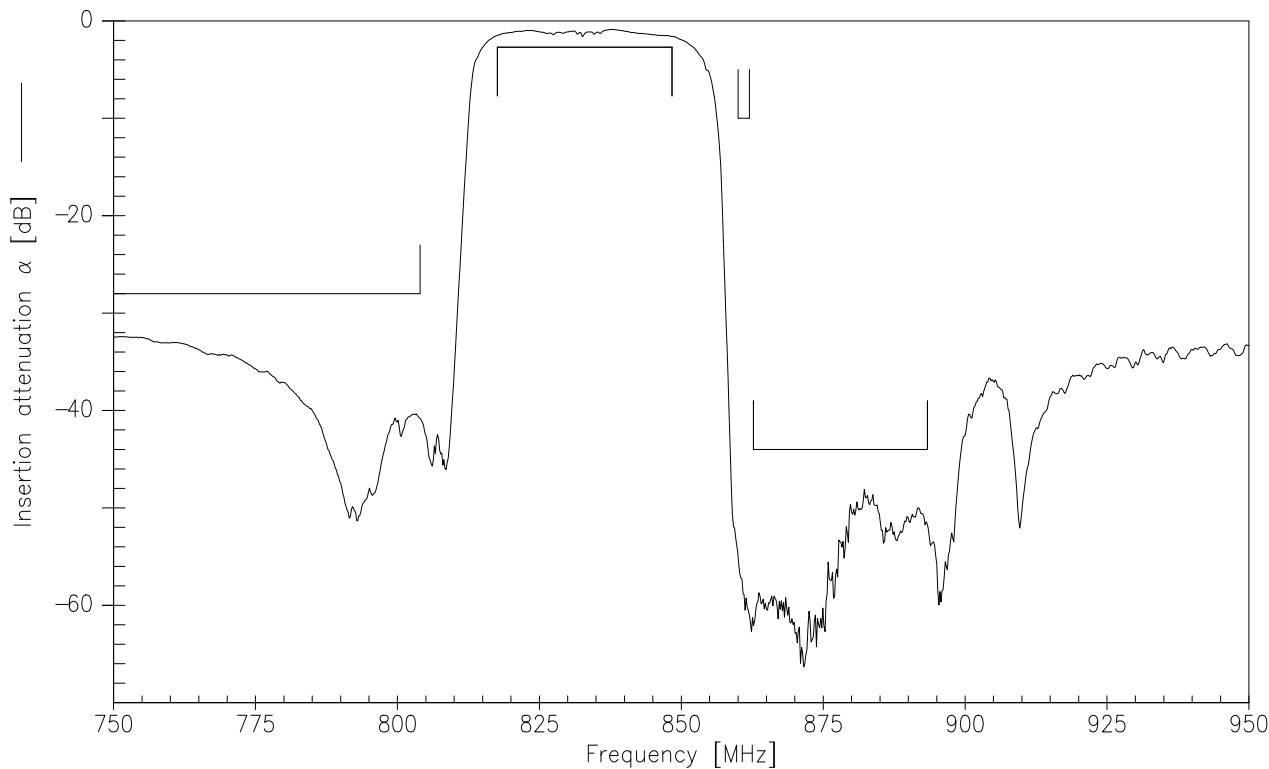
Maximum ratings

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}			
817.0 ... 849.0 MHz		26.5	dBm	} continuous wave 50 °C, 5000 h
elsewhere		10	dBm	
817.0 ... 849.0 MHz		29	dBm	LTE 5 MHz uplink signal 50 °C, 1000 h

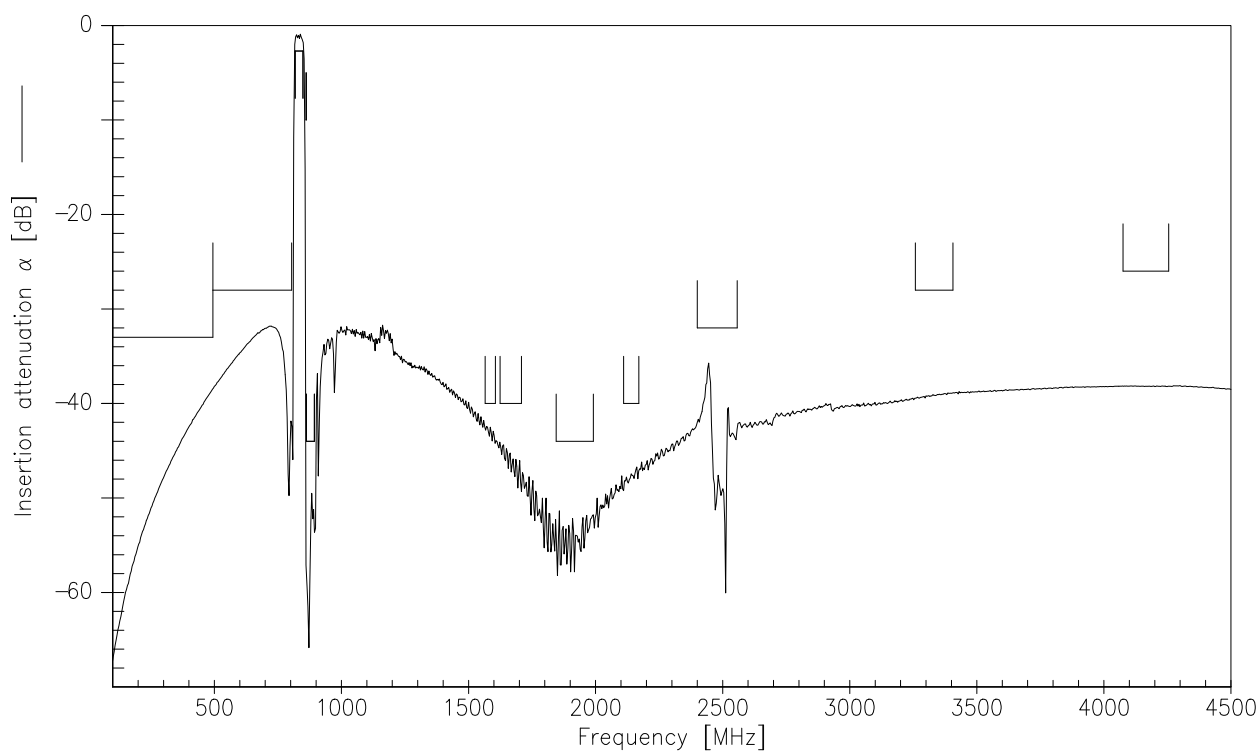
Data sheet

SMD

Frequency Response TX-ANT



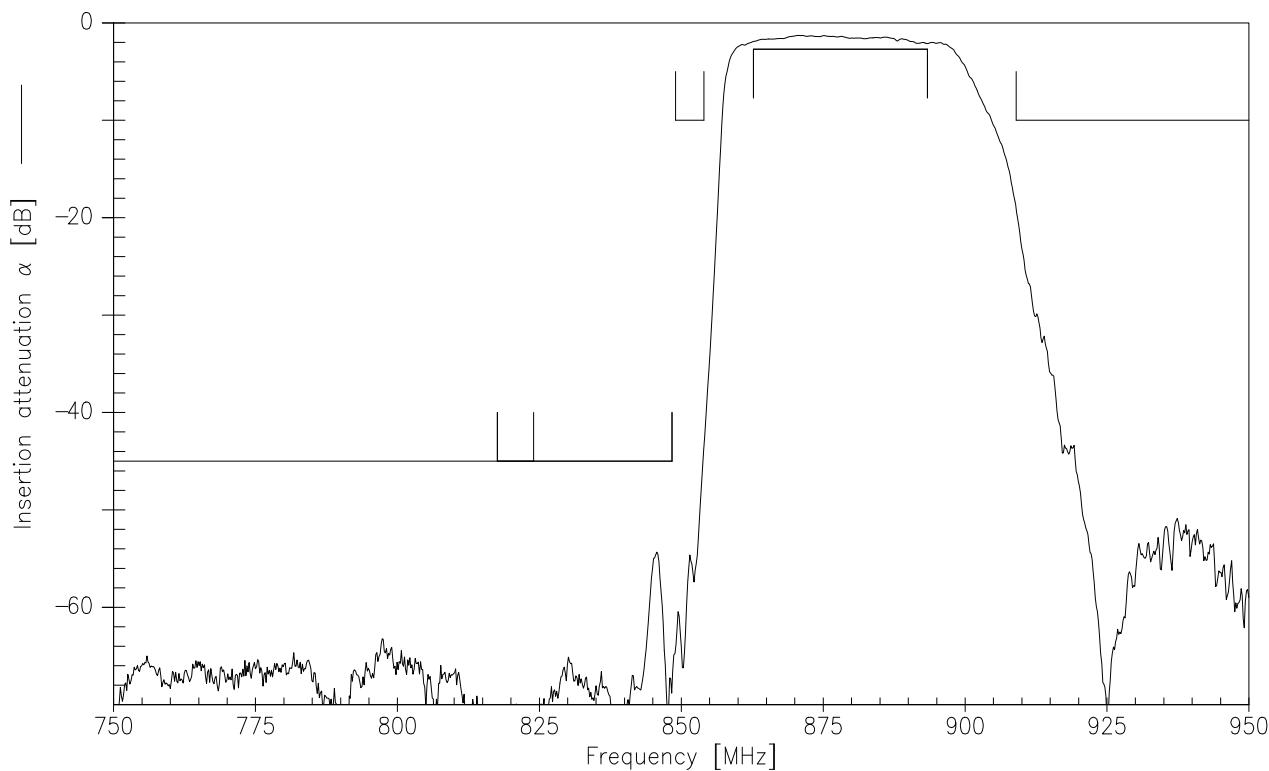
Frequency Response TX-ANT (wideband)



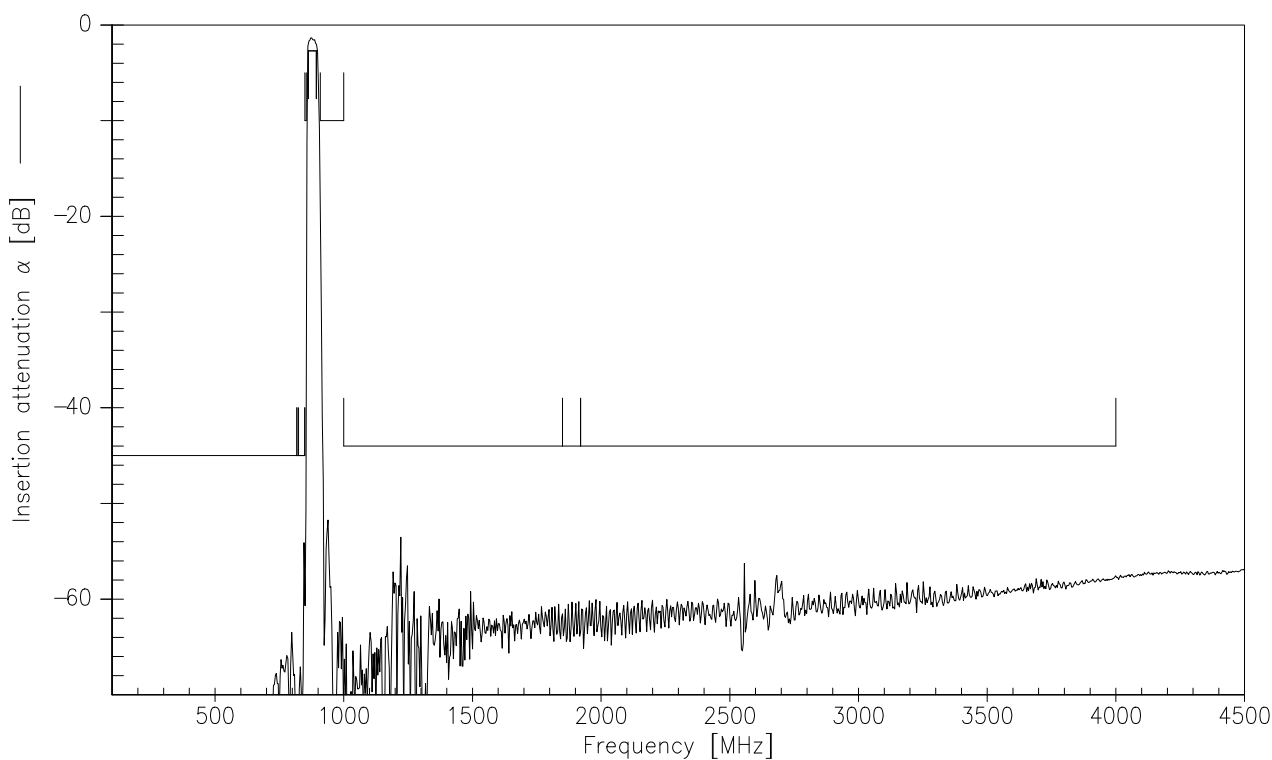
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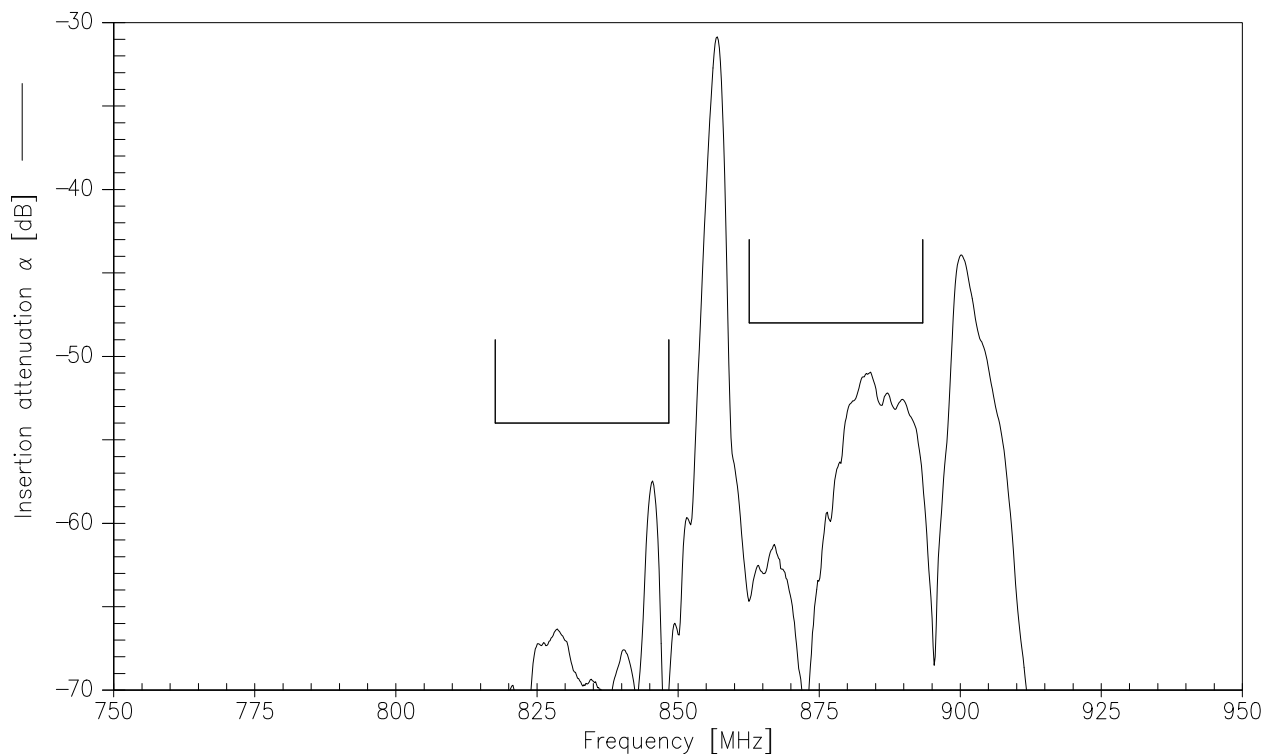
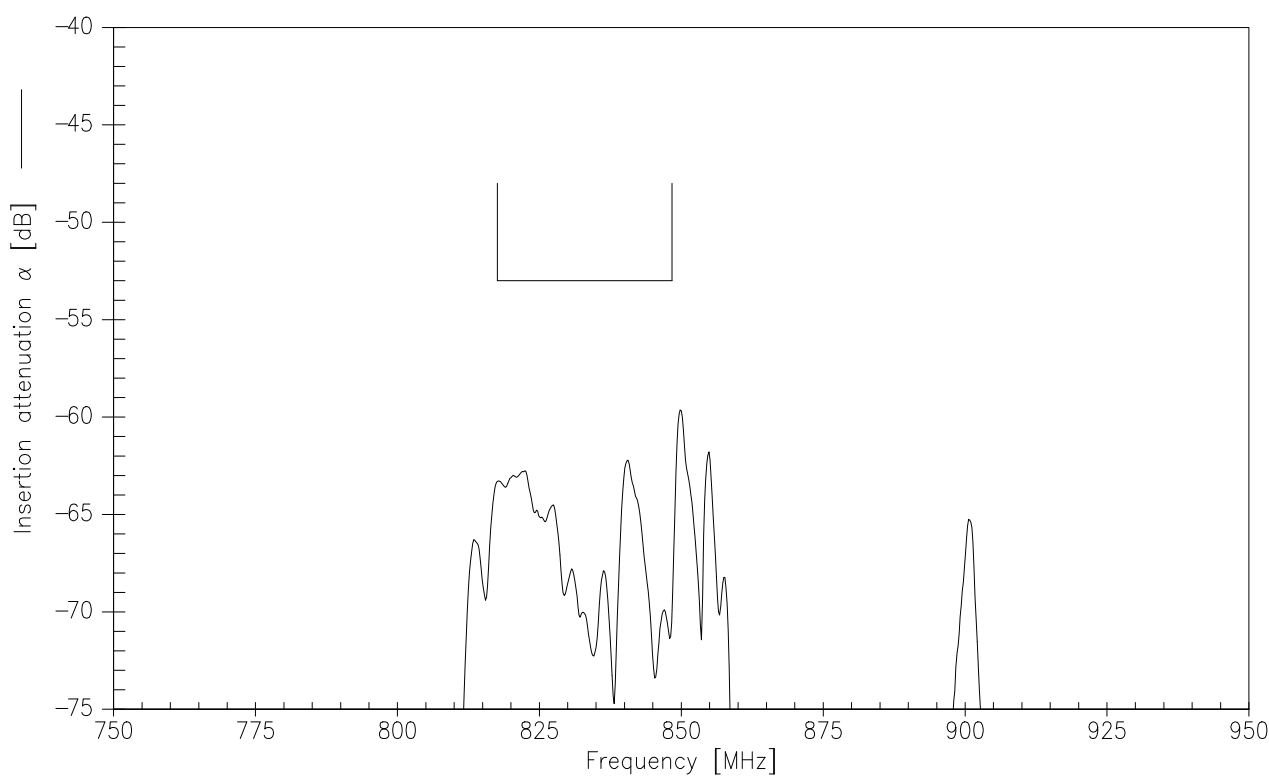
Frequency Response RX-ANT



Frequency Response RX-ANT (wideband)



Data sheet


Frequency Response TX-RX (Differential Mode)

Frequency Response TX-RX (Common Mode)


References

Type	B4405
Ordering code	B39881B4405P810
Marking and package	C61157-A8-A37
Packaging	F61074-V8247-Z000
Date codes	L_1126
S-parameters	B4405_NB_UN.s4p, B4405_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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