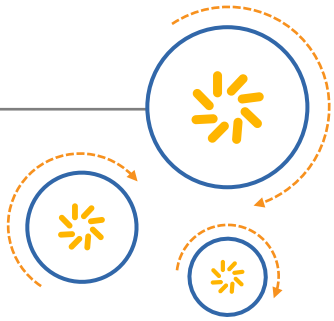
RF360 Europe GmbH

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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Series/type:	**B8030**
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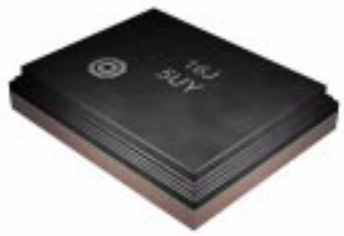
EPCOS AG is a TDK Group Company.

SAW Duplexer for smallcells and femtocells 847.0 / 806.0 MHz

Data sheet SMD

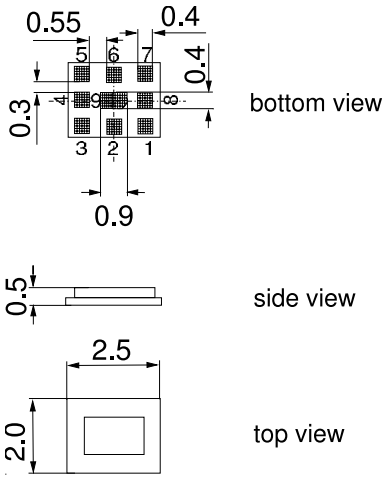
Application

- 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



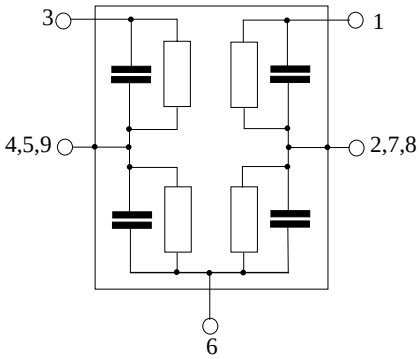
Features

- Package size 2.5 x 2.0 mm²
- Max. package height 0.5mm
- RoHS compatible
- Package for **S**urface **M**ount **T**echnology (**SMT**)
- Ni, gold-plated terminals
- **E**lectrostatic **S**ensitive **D**evice (**ESD**)
- **M**oisture **S**ensitivity **L**evel 2a



Pin configuration

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



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 teminating 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	EVM[1)]	—	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.

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 teminating impedance: Z_{Rx} = 50 Ω

Characteristics Antenna-Rx		min.	typ. @ 25 ˚C	max.	
Center frequency	f_c	—	847.0	—	MHz
Maximum insertion attenuation	α				
832.0 ... 862.0 MHz		—	2.9	3.8	dB
Amplitude ripple (p-p)	$\Delta\alpha$				
832.0 ... 862.0 MHz		—	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.

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 teminating impedance: Z_{Rx} = 50 Ω

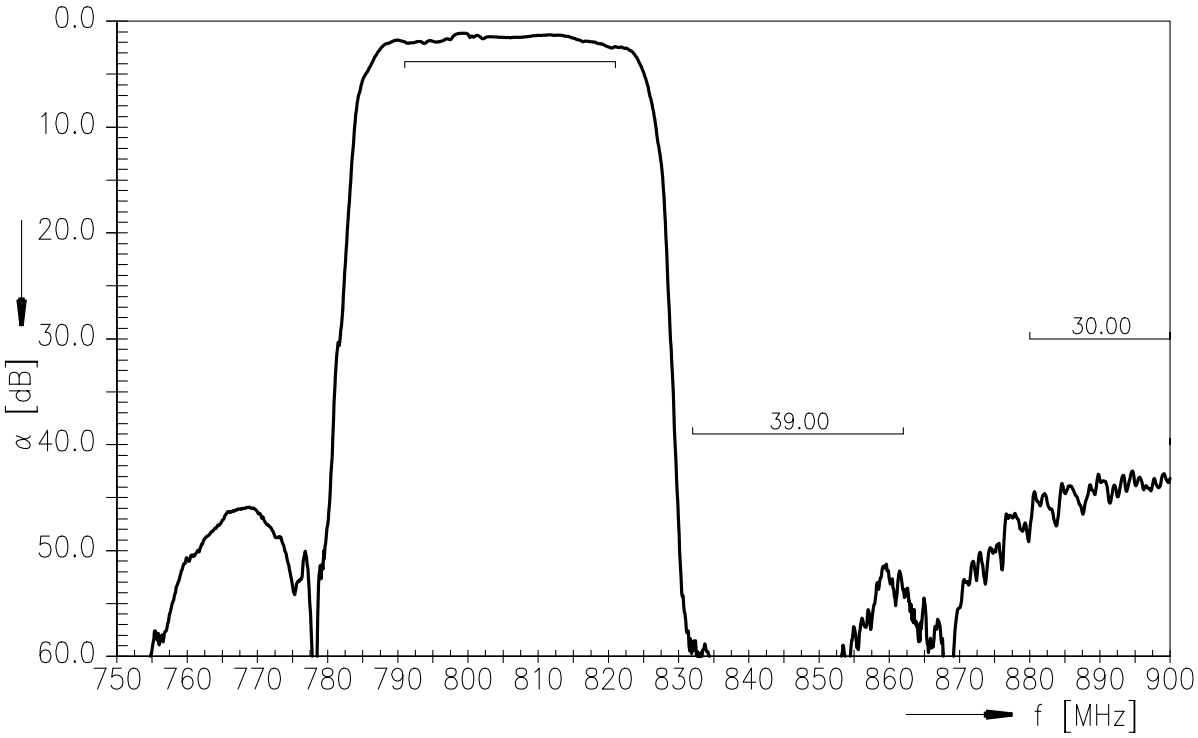
Characteristics Tx-Rx		min.	typ. @ 25 ˚C	max.	
Isolation	α				
791.0 ... 821.0 MHz		44	46	—	dB
832.0 ... 862.0 MHz		42	53	—	dB

Maximum Ratings

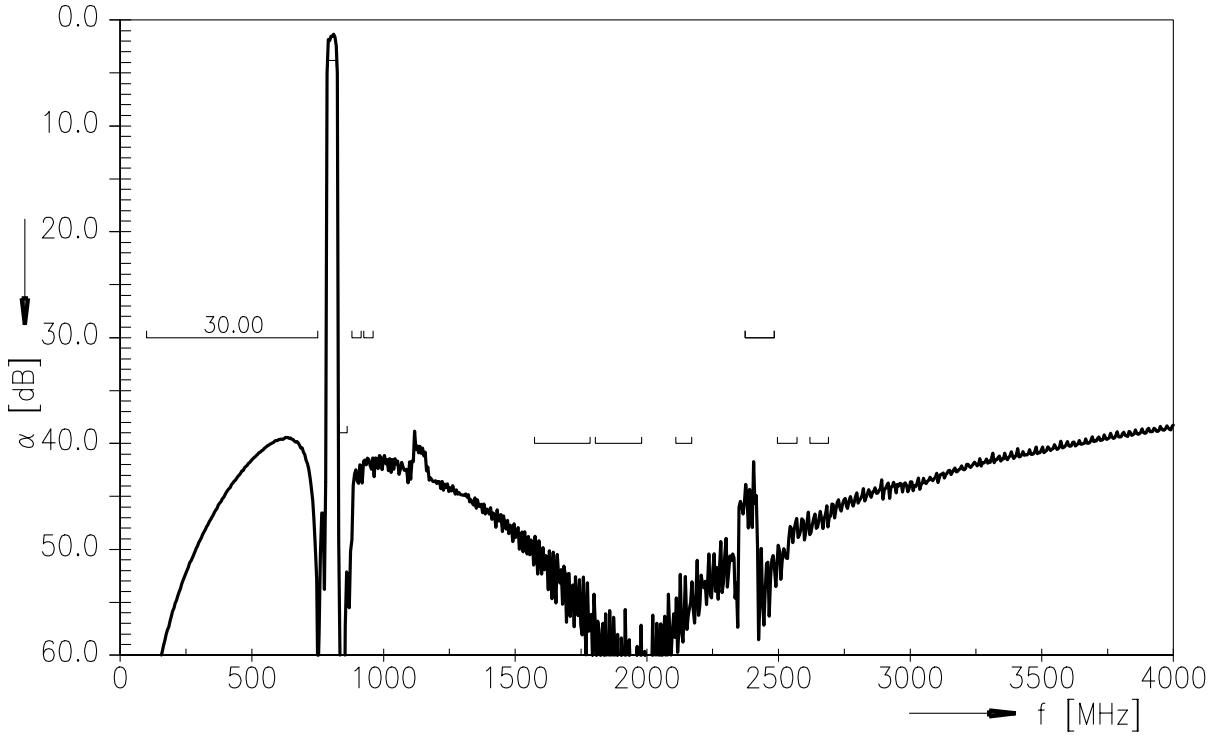
Storage temperature range	T_{stg}	–40/+85	˚C	
DC voltage	V_{DC}	0	V	
ESD voltage	V_{ESD}	100[1)]	V	machine model, 1 pulse
Input power at pin 1				source and load impedance 50 Ω
791.0 ...821.0 MHz	P_{in}	28[2)]	dBm	} P_{in} 28dBm average - 39dBm peak, LTE 5 MHz dowlink, T = 55 ˚C, 100 000 hrs
elsewhere	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 postive pulse.
2) Time to failure (TTF) according to accelerated power durabilty 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.

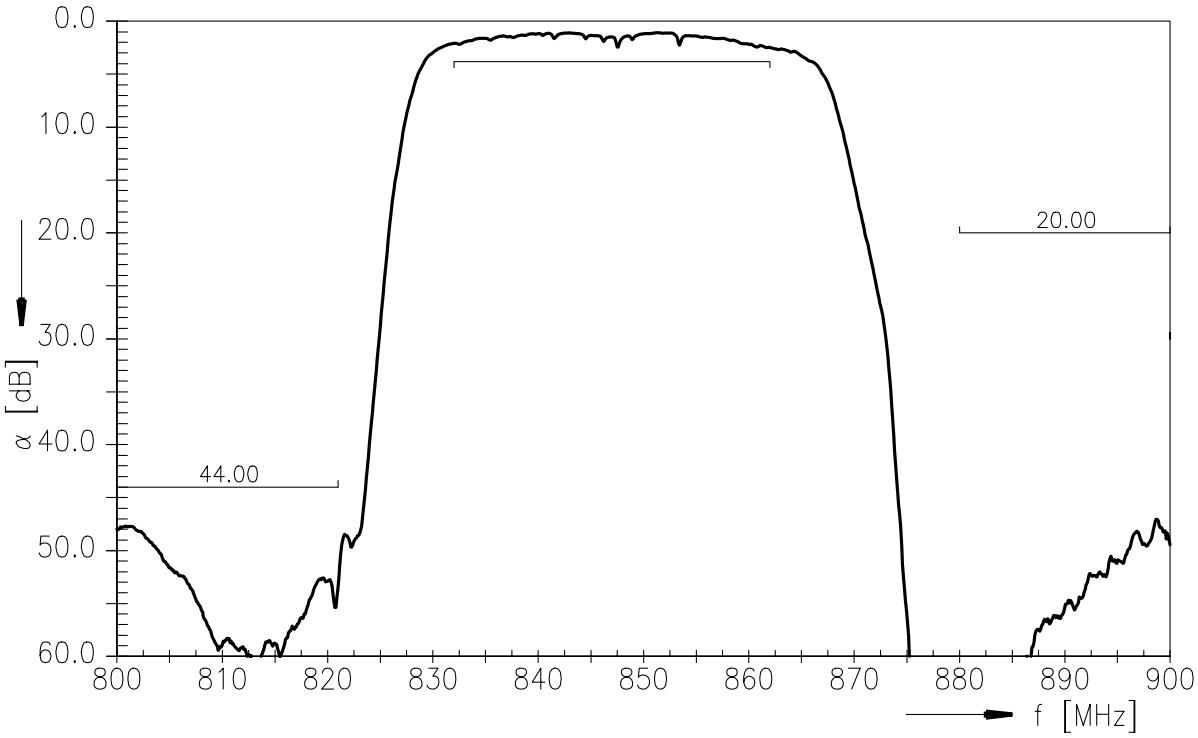
Frequency response TX-ANT



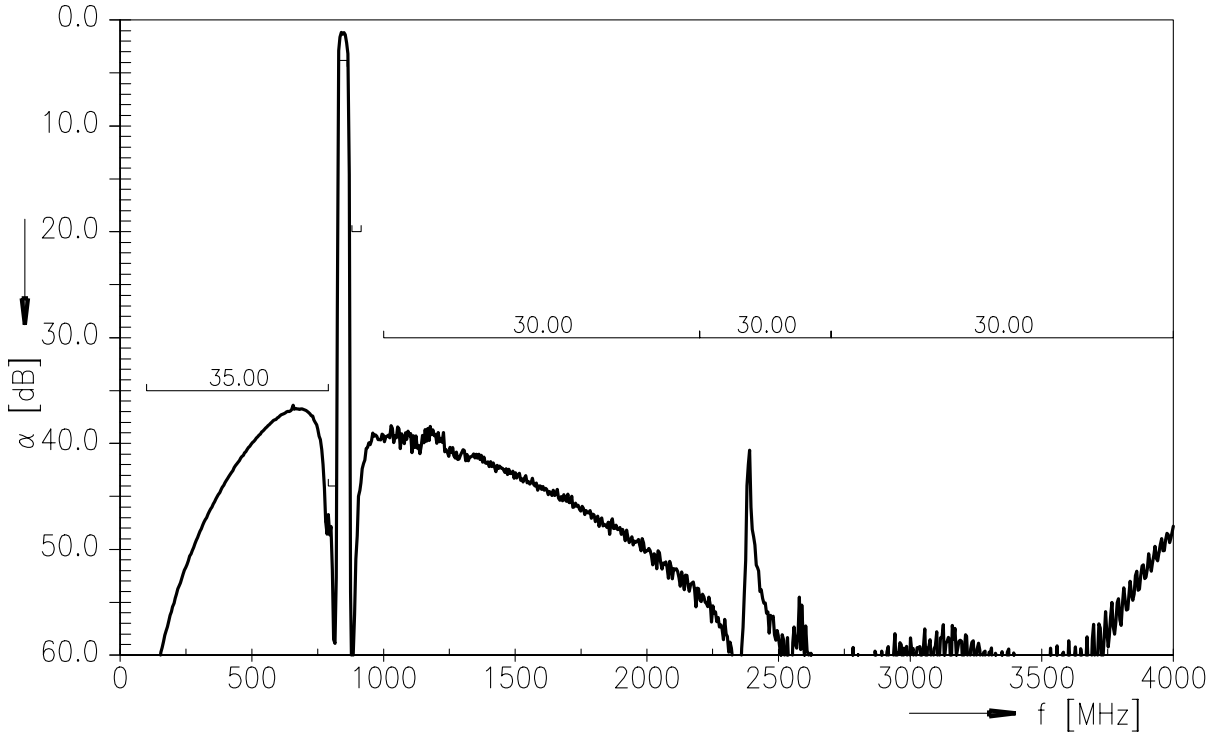
Frequency response TX-ANT (wideband)



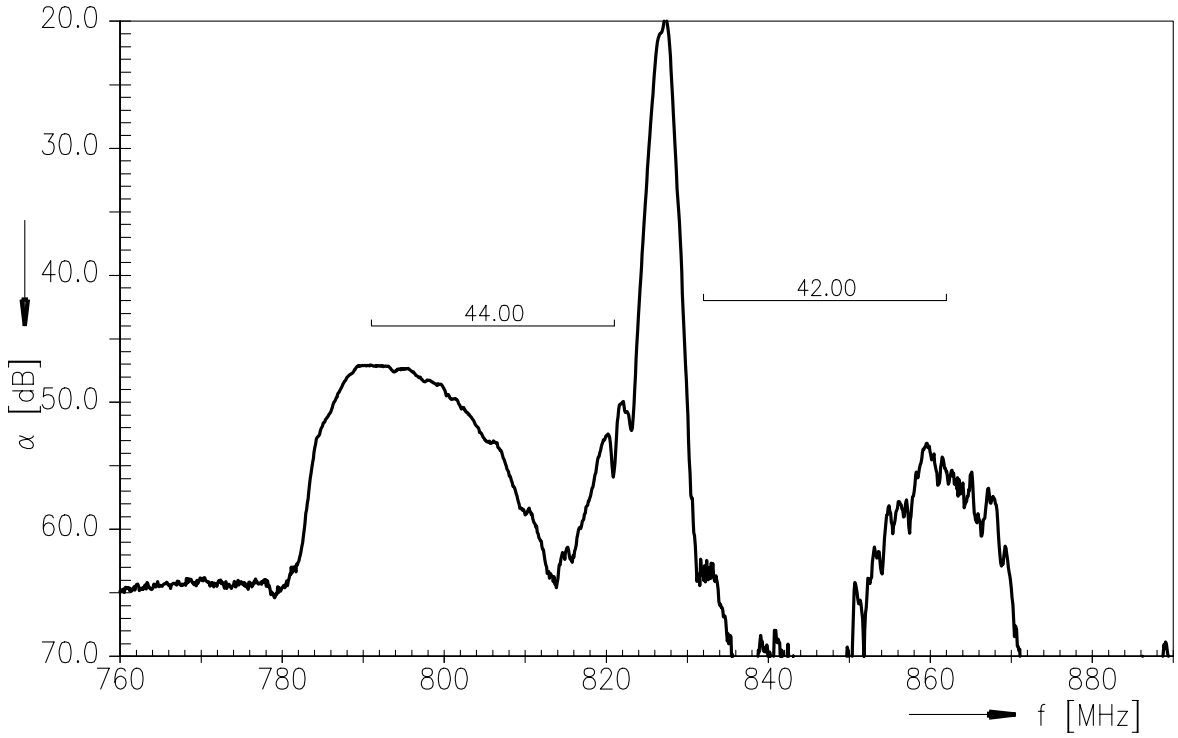
Frequency response ANT-RX



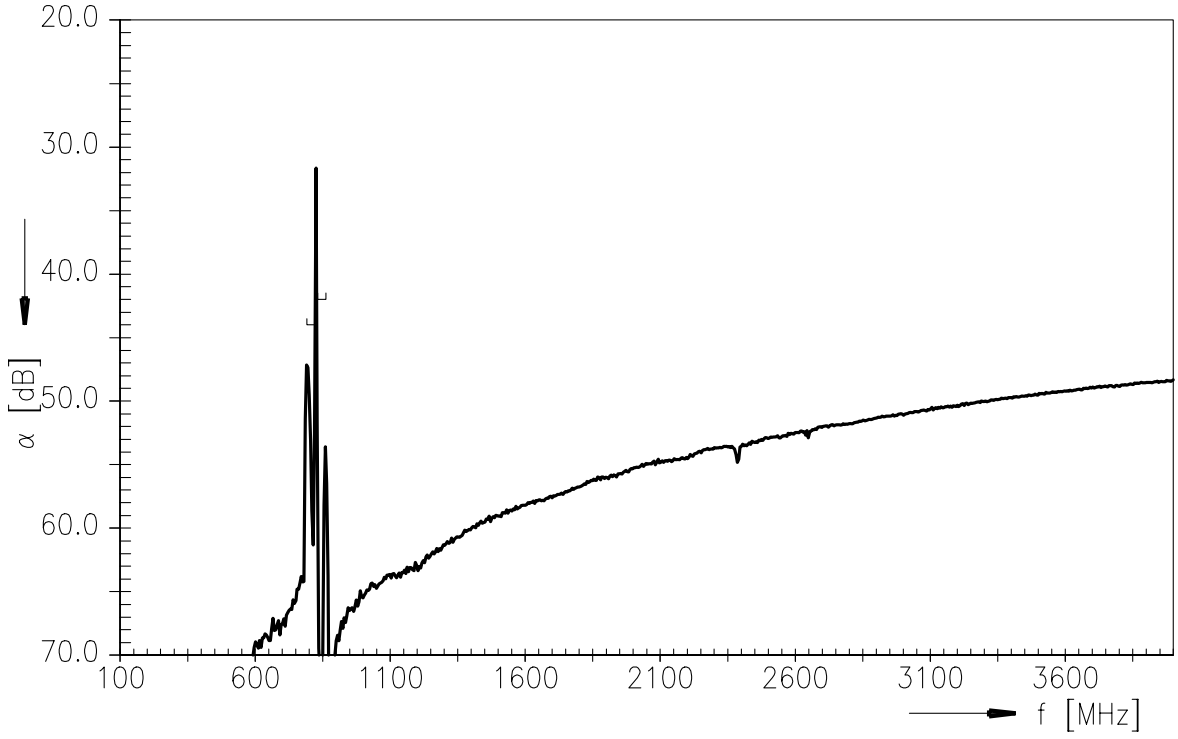
Frequency response ANT-RX (wideband)



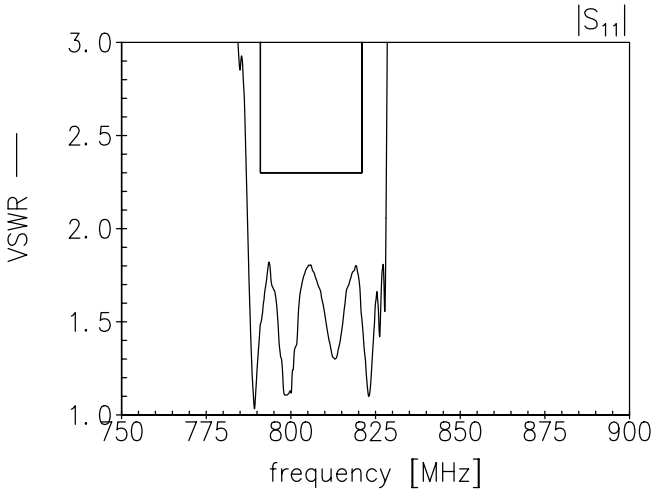
Frequency response TX-RX

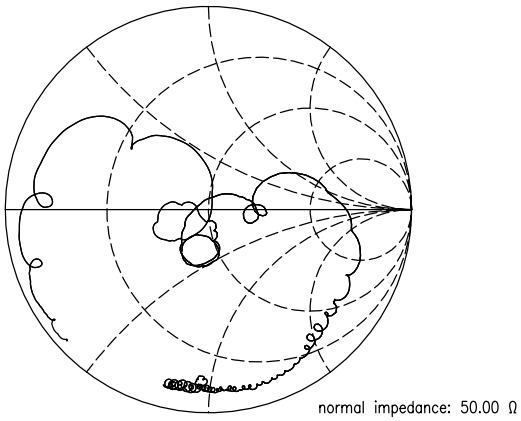


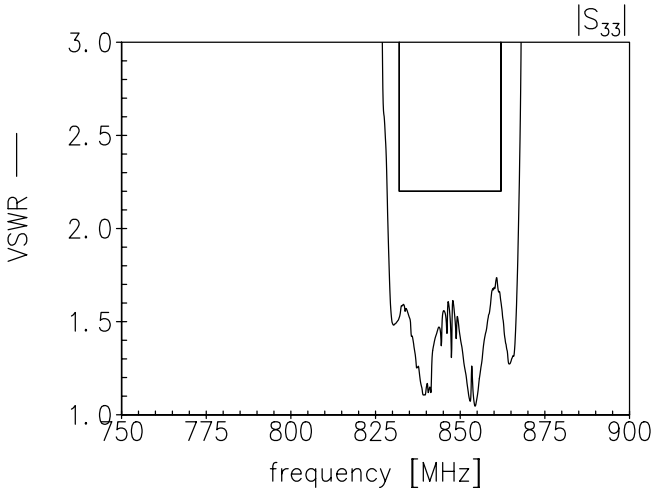
Frequency response TX-RX (wideband)

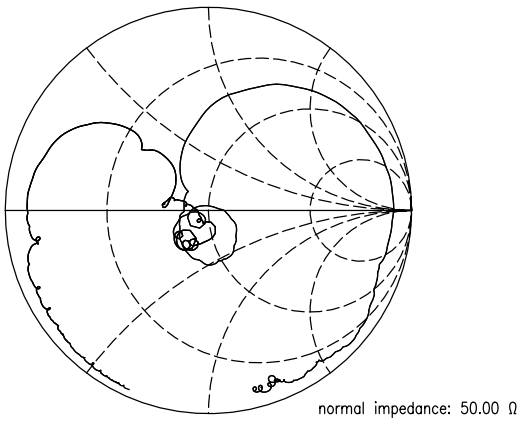


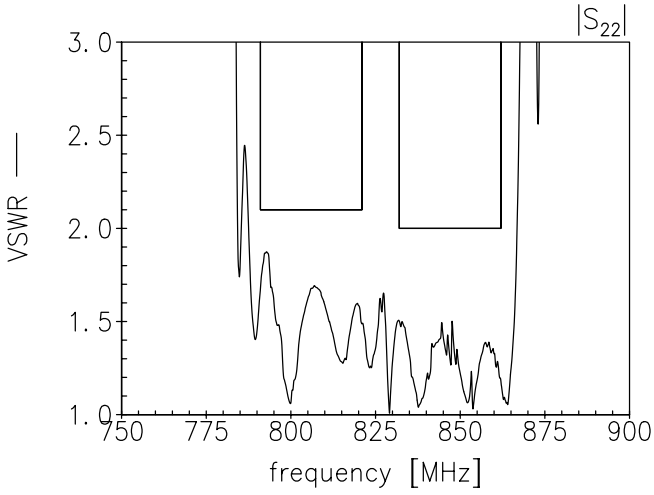
Return Loss **S_{11} TX- port** **S_{22} ANT-port** **S_{33} RX-port**

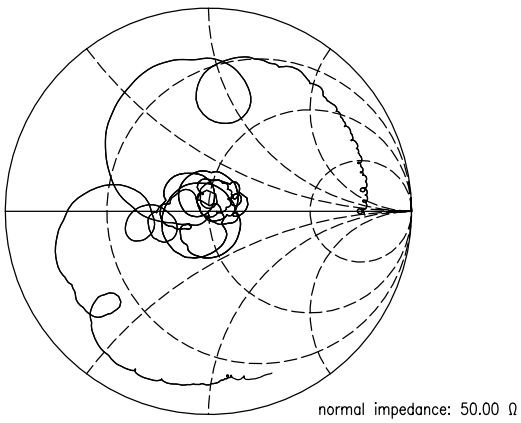












References

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 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.
Moldability	Before using in overmolding environment, please contact your EPCOS sales office.
Matching coils	See Inductor pdf-catalog http://www.tdk.co.jp/tefe02/coil.htm#aname1 and Data Library for circuit simulation http://www.tdk.co.jp/etvcl/index.htm for a large variety of matching coils.

For further information please contact your local EPCOS sales office or visit our webpage at www.epcos.com .

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