



# SAW Components

## SAW Duplexer

LTE Band 20

<b>Series/type:</b>	<b>B8633</b>
<b>Ordering code:</b>	<b>B39851B8633P810</b>
<b>Date:</b>	<b>September 29, 2014</b>
<b>Version:</b>	<b>2.2</b>

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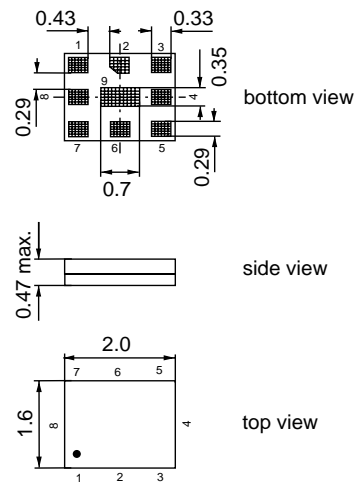
EPCOS AG is a TDK Group Company.


**Application**

- Low-loss SAW duplexer for LTE Band 20 systems
- Very high isolation
- Usable passband 30 MHz
- Very small size and low height


**Features**

- Package size 2.0 \* 1.6 \* 0.47 mm<sup>3</sup>
- RoHS compatible
- Package for **Surface Mount Technology (SMT)**
- Ni, Au-plated terminals
- **Electrostatic Sensitive Device (ESD)**
- **Moisture Sensitivity Level 3**


**Pin configuration**

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

**Datasheet**

**Characteristics**

Temperature range for specification:	T =	-30 °C to +85 °C
TX terminating impedance:	Z <sub>Tx</sub> =	50 Ω + 5nH
ANT terminating impedance:	Z <sub>Ant</sub> =	50 Ω    12 nH
RX terminating impedance:	Z <sub>Rx</sub> =	50 Ω

Characteristics Tx-Antenna					min.	typ. @ 25 °C	max.	
<b>Center frequency</b>	f <sub>c</sub>					847.0		MHz
<b>Maximum insertion attenuation</b>	α							
832.0 ... 862.0	MHz			-	1.7	2.5		dB
832.0 ... 862.0	MHz			-	1.7	2.0 <sup>1)</sup>		dB
<b>Amplitude ripple (p-p)</b>	Δα							
832.0 ... 862.0	MHz			-	0.8	1.5		dB
<b>Error Vector Magnitude</b>								
@ f <sub>Carrier</sub> 834.4 ... 859.6	MHz	EVM <sup>2)</sup>		—	1.5	4.0		%
<b>Input VSWR (Tx port)</b>								
832.0 ... 862.0	MHz			-	1.5	2.0		
<b>Output VSWR (Ant Port)</b>								
832.0 ... 862.0	MHz			-	1.5	2.2		
<b>Absolute attenuation</b>	α							
10.0 ... 771.0	MHz			38	42	-		dB
771.0 ... 791.0	MHz			44	49	-		dB
791.0 ... 821.0	MHz			50	62	-		dB
821.0 ... 827.0	MHz			1.5	5.2	-		dB
873.0 ... 903.0	MHz			13	39	-		dB
925.0 ... 960.0	MHz			35	44	-		dB
1559.0 ... 1606.0	MHz			48	55	-		dB
1664.0 ... 2170.0	MHz			42	49	-		dB
2400.0 ... 2620.0	MHz			42	51	-		dB
2620.0 ... 2690.0	MHz			42	48	-		dB
3328.0 ... 3448.0	MHz			42	53	-		dB
4000.0 ... 6000.0	MHz			30	38	-		dB

<sup>1)</sup> At +25 °C

<sup>2)</sup> Error Vector Magnitude (EVM) based on definition in 3GPP TS 25.141

**Datasheet**

**Characteristics**

Temperature range for specification:	T =	-30 °C to +85 °C
TX terminating impedance:	Z <sub>Tx</sub> =	50 Ω + 5nH
ANT terminating impedance:	Z <sub>Ant</sub> =	50 Ω    12 nH
RX terminating impedance:	Z <sub>Rx</sub> =	50 Ω

Characteristics Antenna-Rx				min.	typ. @ 25 °C	max.	
<b>Center frequency</b>	f <sub>c</sub>				806.0		MHz
<b>Maximum insertion attenuation</b>	α						
	791.0 ... 821.0 MHz		-	1.6	3.2		dB
	791.0 ... 821.0 MHz		-	1.6	2.5 <sup>1)</sup>		
<b>Amplitude ripple (p-p)</b>	Δα						
	791.0 ... 821.0 MHz		-	1.0	2.0		dB
<b>Input VSWR (Ant port)</b>							
	791.0 ... 821.0 MHz		-	1.5	2.2		
<b>Output VSWR (Rx Port)</b>							
	791.0 ... 821.0 MHz		-	1.7	2.45		
<b>Absolute attenuation</b>	α						
	10.0 ... 770.0 MHz		35	45	-		dB
	770.0 ... 782.0 MHz		10	34	-		dB
	832.0 ... 862.0 MHz		50	55	-		dB
	862.0 ... 915.0 MHz		45	52	-		dB
	1710.0 ... 1785.0 MHz		40	46	-		dB
	2373.0 ... 2570.0 MHz		35	42	-		dB
	4900.0 ... 6000.0 MHz		25	33	-		dB
<b>IMD Level at Rx port, CW tone at Tx port, 847MHz<sup>2)</sup></b>							
	IMD2, Blocker CW, -15dBm, 41 MHz		-115	-136	-		dBm
	IMD2, Blocker CW, -15dBm, 1653 MHz		-97	-119	-		dBm
	IMD3, Blocker CW, -15dBm, 888 MHz		-87	-98	-		dBm
	IMD3, Blocker CW, -15dBm, 2500 MHz		-94	-106	-		dBm

<sup>1)</sup> At +25 °C

<sup>2)</sup> Power level: +21.5dBm on Tx port

**Datasheet**

**Characteristics**

Temperature range for specification:	T	=	-30 °C to +85 °C
TX terminating impedance:	Z <sub>Tx</sub>	=	50 Ω + 5nH
ANT terminating impedance:	Z <sub>Ant</sub>	=	50 Ω    12 nH
RX terminating impedance:	Z <sub>Rx</sub>	=	50 Ω

Characteristics Tx-Rx				min.	typ. @ 25 °C	max.	
<b>Isolation</b>			α				
	791.0 ... 821.0		MHz	55	63	-	dB
	832.0 ... 848.0		MHz	55	63	-	dB
	848.0 ... 862.0		MHz	54	58	-	dB
	1574.0 ... 1577.0		MHz	40	60	-	dB
	1664.0 ... 1724.0		MHz	20	60	-	dB
	2496.0 ... 2586.0		MHz	20	57	-	dB

**Maximum Ratings**

Storage temperature range	T <sub>stg</sub>	-40/+125	°C	
DC voltage	V <sub>DC</sub>	0 <sup>1)</sup>	V	
ESD voltage, Tx, Ant Port	V <sub>ESD</sub>	200 <sup>2)</sup>	V	MM Model
ESD voltage, Tx, Ant Port	V <sub>ESD</sub>	275 <sup>3)</sup>	V	HB Model
ESD voltage	V <sub>ESD</sub>	600 <sup>4)</sup>	V	CD Model
Input power at Tx Port				
832.0 ...862.0 MHz	P <sub>in</sub>	29	dBm	} LTE UP 5 MHz 55 °C, 5000h
elsewhere	P <sub>in</sub>	10	dBm	

1) DC resistance at RX output might be less than 100Mohm at elevated temperatures.

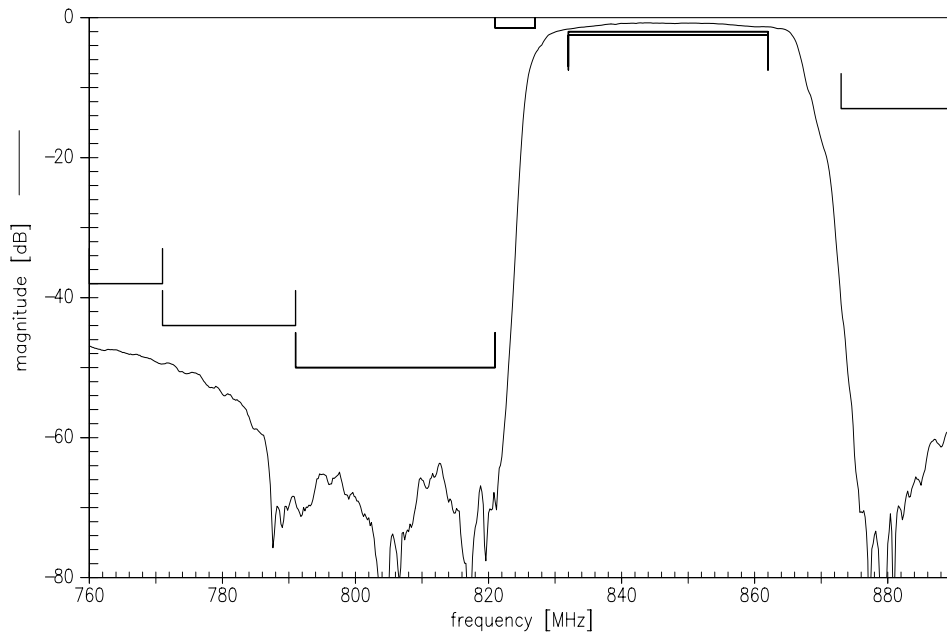
2) Acc. to JESD22-A115B (MM - Machine Model), 10 negative & 10 positive pulses.

3) Acc. to JESD22-A114F (HBM - Human Body Level), 1 negative & 1 positive pulses.

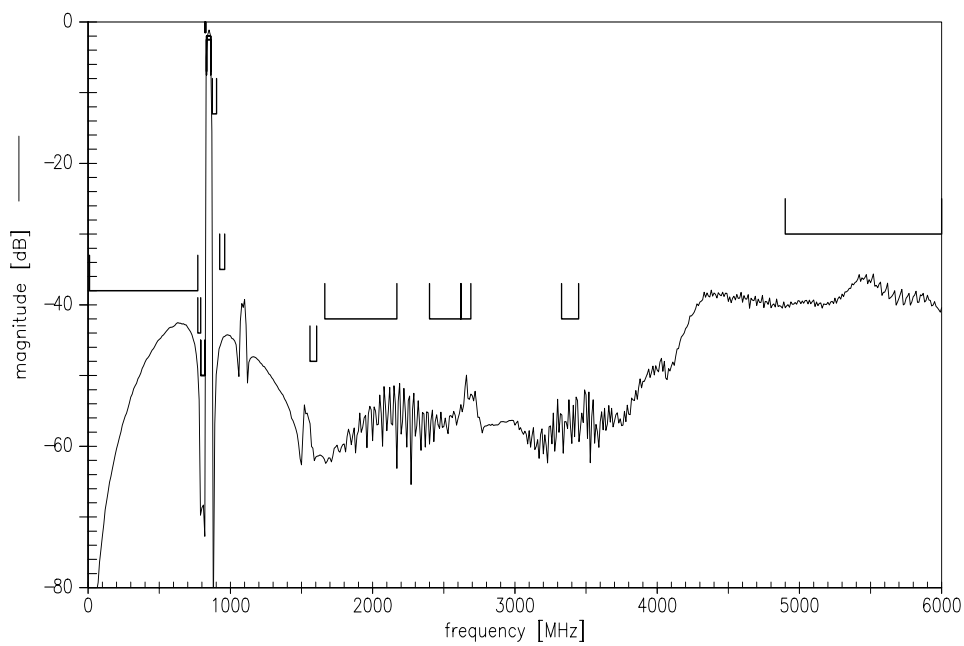
4) Acc. to JESD22-C101C (CDM - Field Inducted Charged Device Model), 3 negative & 3 positive pulses.



Frequency Response TX-ANT

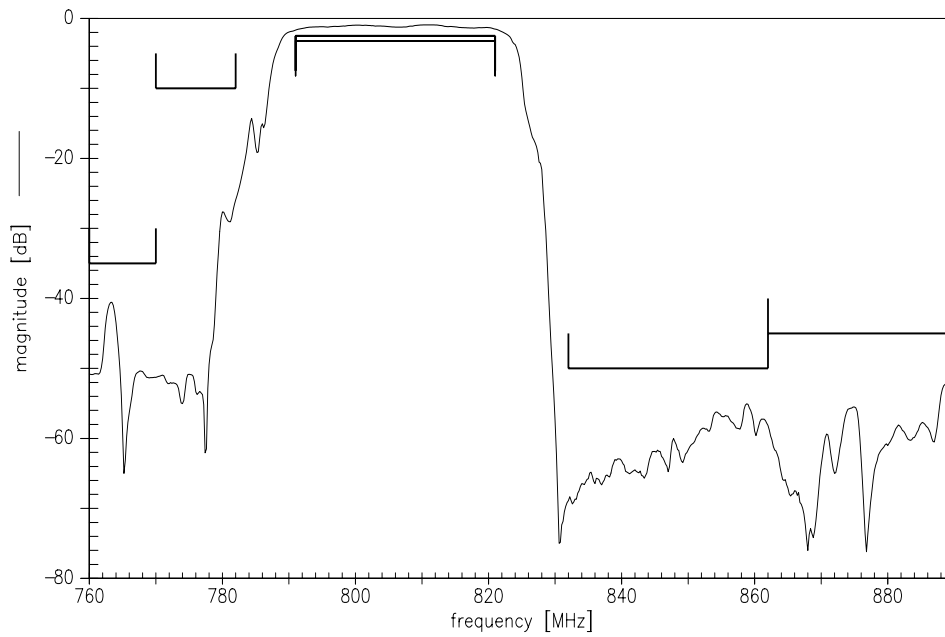


Frequency Response TX-ANT

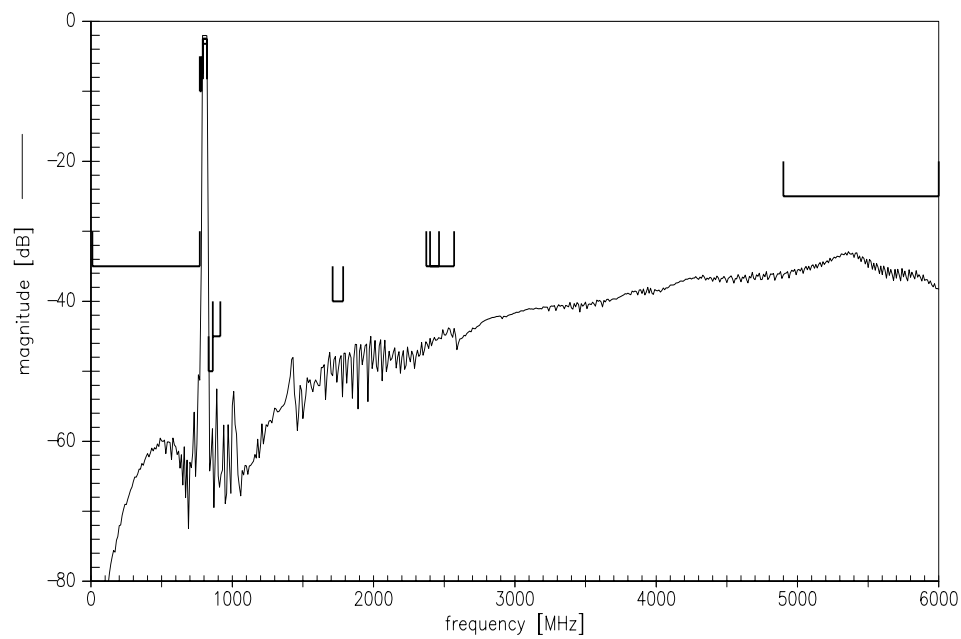




Frequency Response RX-ANT

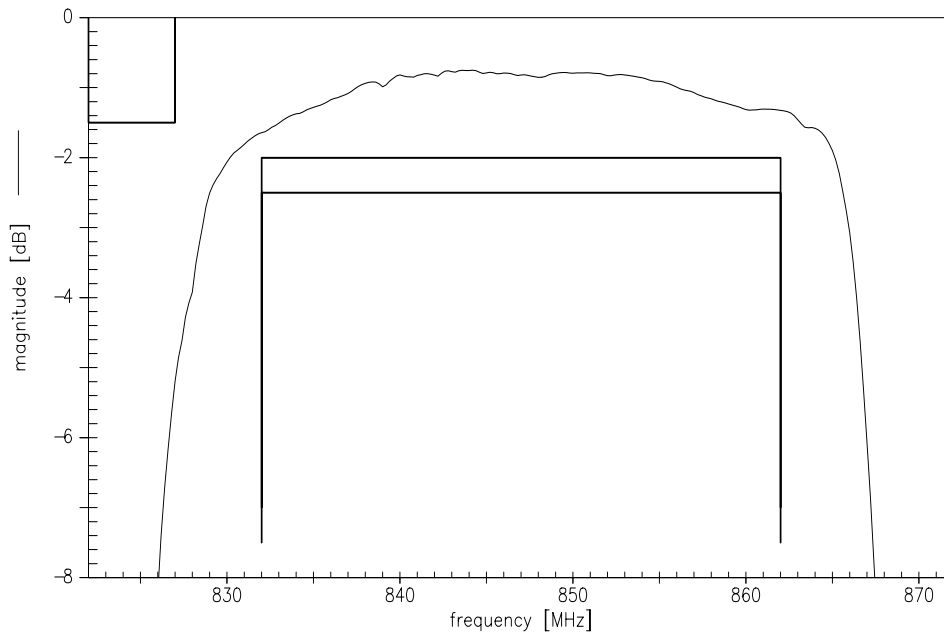


Frequency Response RX-ANT

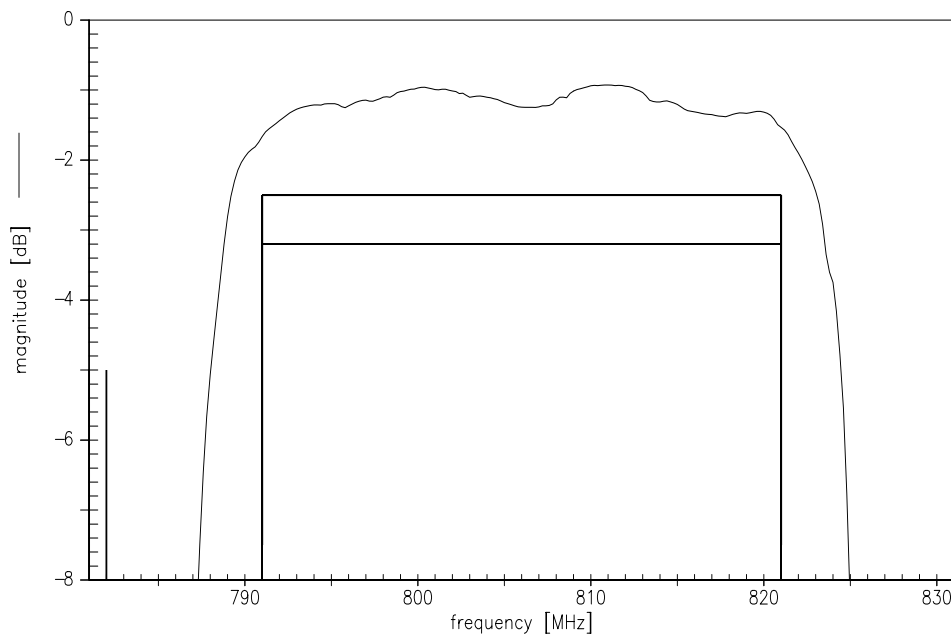




Frequency Response ANT-TX



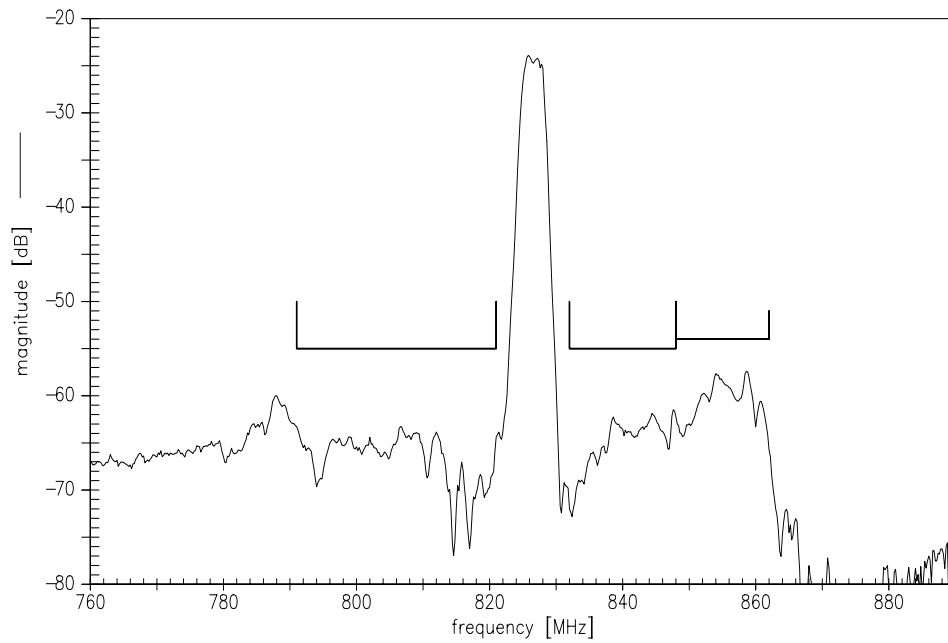
Frequency Response ANT-RX





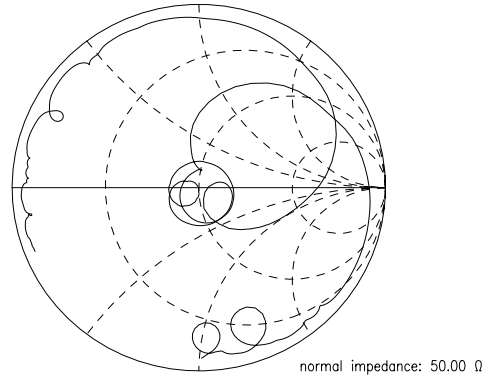
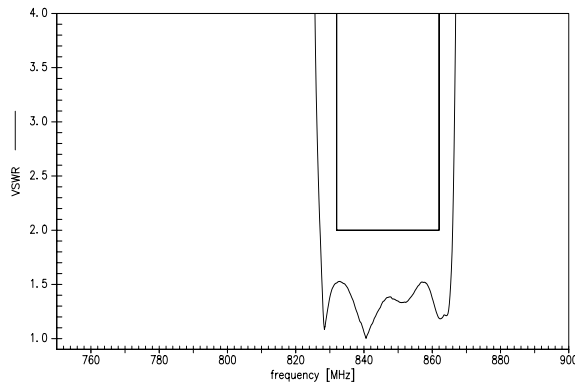


Frequency Response TX-RX (ISOLATION)

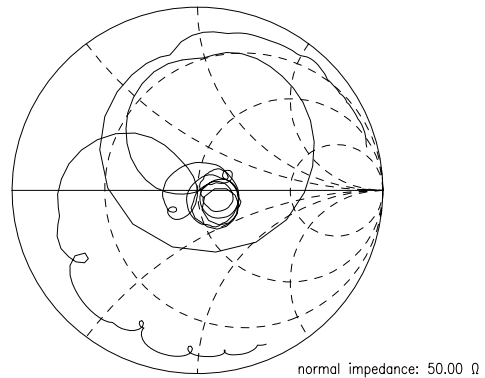
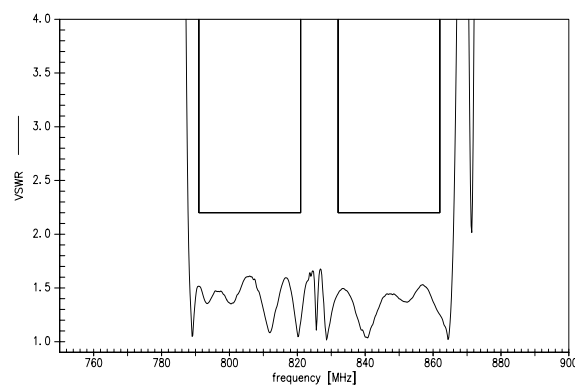




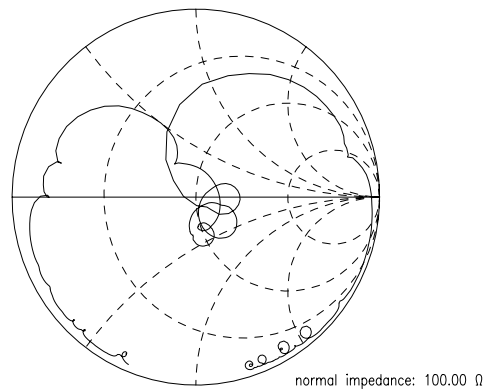
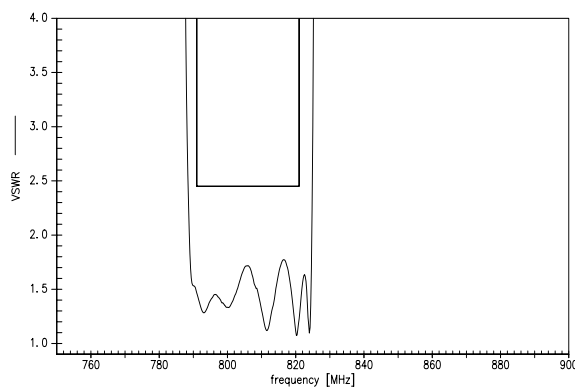
**S11 VSWR (TX)**



**S22 VSWR (ANT)**



**S33 VSWR (RX)**



**SAW Components**
**B8633**
**SAW Duplexer**
**847.0 / 806.0 MHz**

Datasheet



References

<b>Type</b>	B8633
<b>Ordering code</b>	B39851B8633P810
<b>Marking and package</b>	C61074-V8248-Z000
<b>Packaging</b>	C61157-A8-A99
<b>Date codes</b>	L_1126
<b>S-parameters</b>	B8633_NB_UN.s3p, B8633_WB_UN.s3p See file header for port/pin assignment table.
<b>Soldering profile</b>	S_6001
<b>RoHS compatible</b>	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 <sup>th</sup> , 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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