



## **SAW Components**

### **SAW Duplexer**

LTE Band 13

<b>Series/type:</b>	<b>B7678</b> <b>B39781B7678A710</b>
<b>Date:</b>	January 24, 2011
<b>Version:</b>	2.1





DataSheet



Characteristics

Temperature range for specification: T = -30 °C to +85 °C  
 Antenna terminating impedance: Z<sub>ANT</sub> = 50 Ω || 18 nH  
 RX terminating impedance: Z<sub>RX</sub> = 50 Ω  
 TX terminating impedance: Z<sub>TX</sub> = 50 Ω

Characterisitcs TX - ANT					min.	typ. @ 25 °C	max.	
<b>Center frequency</b>	f <sub>C</sub>					782.0		MHz
<b>Maximum insertion attenuation</b>								
777.0 ... 787.0 MHz	α			—	1.9	2.4		dB
<b>Amplitude ripple (p-p)</b>								
777.0 ... 787.0 MHz	Δα			—	0.5	1.3		dB
<b>Input VSWR (TX port)</b>								
777.0 ... 787.0 MHz				—	1.5	2.0		
<b>Output VSWR (ANT port)</b>								
777.0 ... 787.0 MHz				—	1.5	2.0		
<b>Attenuation</b>								
			α					
10.0 ... 150.0 MHz				40	60	—		dB
150.0 ... 350.0 MHz				35	47	—		dB
350.0 ... 650.0 MHz				30	42	—		dB
728.0 ... 746.0 MHz				35	50	—		dB
746.0 ... 756.0 MHz				47	57	—		dB
758.0 ... 768.0 MHz				30	32	—		dB
808.0 ... 818.0 MHz				30	43	—		dB
869.0 ... 894.0 MHz				35	45	—		dB
1452.0 ... 1492.0 MHz				35	49	—		dB
1554.0 ... 1574.0 MHz				35	50	—		dB
1574.0 ... 1577.0 MHz				45	51	—		dB
1670.0 ... 1675.0 MHz				35	51	—		dB
1930.0 ... 1990.0 MHz				35	50	—		dB
2110.0 ... 2170.0 MHz				35	48	—		dB
2300.0 ... 2361.0 MHz				30	40	—		dB
2361.0 ... 2690.0 MHz				30	41	—		dB
3300.0 ... 3800.0 MHz				20	24	—		dB
5150.0 ... 5850.0 MHz				5	12	—		dB



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Characteristics

Temperature range for specification: T = -30 °C to +85 °C  
 Antenna terminating impedance: Z<sub>ANT</sub> = 50 Ω || 18 nH  
 RX terminating impedance: Z<sub>RX</sub> = 50 Ω  
 TX terminating impedance: Z<sub>TX</sub> = 50 Ω

Characterisitcs ANT - RX					min.	typ. @ 25 °C	max.	
<b>Center frequency</b>	f <sub>C</sub>					751.0		MHz
<b>Maximum insertion attenuation</b>								
746.0 ... 756.0 MHz	α			—	2.1	2.6		dB
<b>Amplitude ripple (p-p)</b>								
746.0 ... 756.0 MHz	Δα			—	0.5	1.2		dB
<b>Input VSWR (ANT port)</b>								
746.0 ... 756.0 MHz				—	1.6	2.0		
<b>Output VSWR (RX port)</b>								
746.0 ... 756.0 MHz				—	1.6	2.0		
<b>Attenuation</b>				α				
10.0 ... 150.0 MHz					40	60	—	dB
150.0 ... 350.0 MHz					35	47	—	dB
350.0 ... 650.0 MHz					30	39	—	dB
698.0 ... 716.0 MHz					35	40	—	dB
716.0 ... 722.0 MHz					35	43	—	dB
777.0 ... 787.0 MHz					51	59	—	dB
788.0 ... 818.0 MHz					35	42	—	dB
824.0 ... 849.0 MHz					30	40	—	dB
1492.0 ... 1543.0 MHz					32	38	—	dB
1554.0 ... 1574.0 MHz					35	38	—	dB
1574.0 ... 1577.0 MHz					35	38	—	dB
1710.0 ... 1770.0 MHz					35	39	—	dB
1920.0 ... 1980.0 MHz					35	39	—	dB
2200.0 ... 2690.0 MHz					35	38	—	dB
2690.0 ... 3800.0 MHz					25	30	—	dB
5150.0 ... 5850.0 MHz					5	11	—	dB



<b>SAW Components</b>	<b>B7678</b>
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**Characteristics**

Temperature range for specification:	T = -30 °C to +85 °C
Antenna terminating impedance:	Z <sub>ANT</sub> = 50 Ω    18 nH
RX terminating impedance:	Z <sub>RX</sub> = 50 Ω
TX terminating impedance:	Z <sub>TX</sub> = 50 Ω

Characteristics TX - RX				min.	typ. @ 25 °C	max.		
<b>Isolation</b>	746.0 ... 756.0 MHz	...	756.0 ... 787.0 MHz	α	48	59	—	dB
					52	59	—	dB

**Maximum ratings**

Storage temperature range	T <sub>stg</sub>	-40/+85	°C	machine model, 1 pulse
DC voltage	V <sub>DC</sub>	5	V	
ESD voltage	V <sub>ESD</sub>	100 <sup>1)</sup>	V	
Input power at Tx Port				} LTE uplink signal 55 °C, 50000 H
779.5 ... 784.5 MHz	P <sub>IN</sub>	28	dBm	
Elsewhere	P <sub>IN</sub>	10		

<sup>1)</sup> acc. to JESD22-A115A (machine model), 1 negative & 1 positive pulse.



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B7678

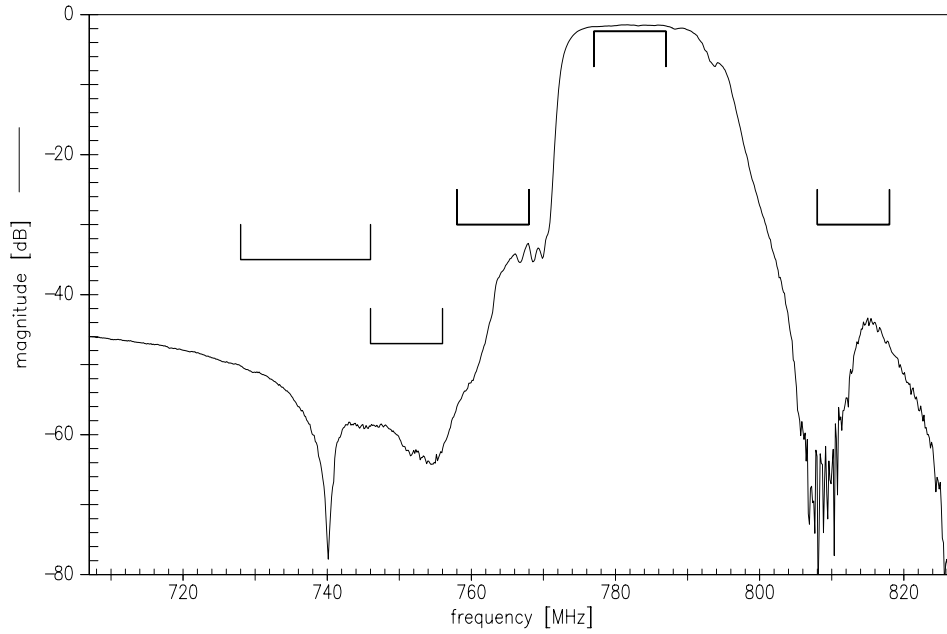
SAW Duplexer

782.0 / 752.0 MHz

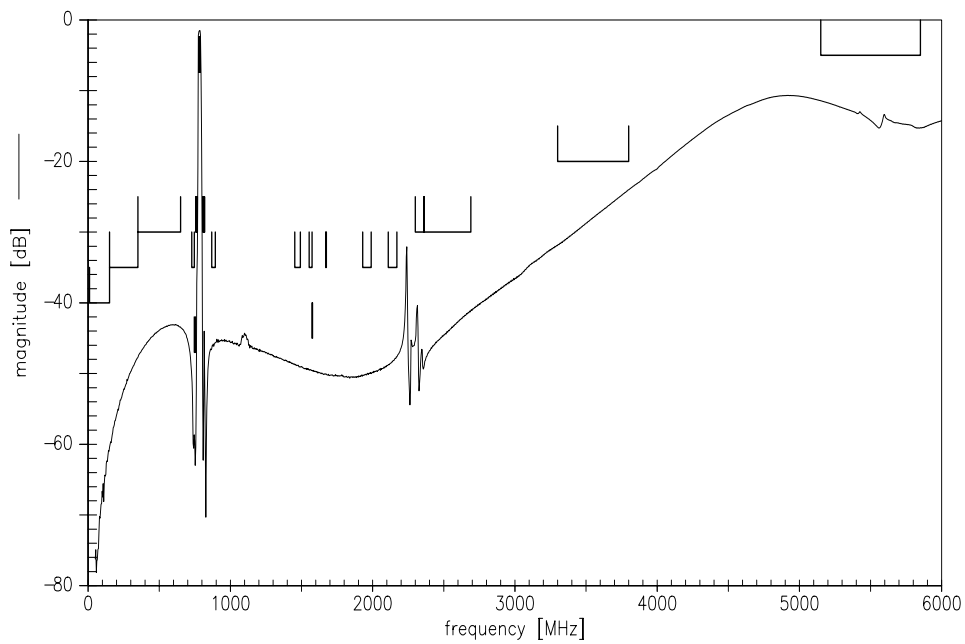
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Frequency Response TX-ANT



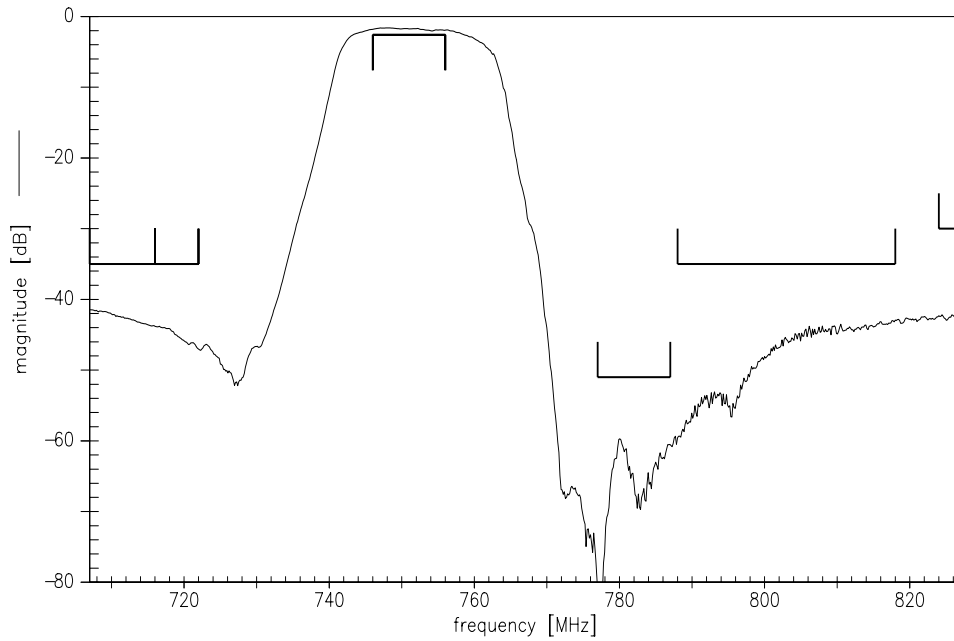
Frequency Response TX-ANT



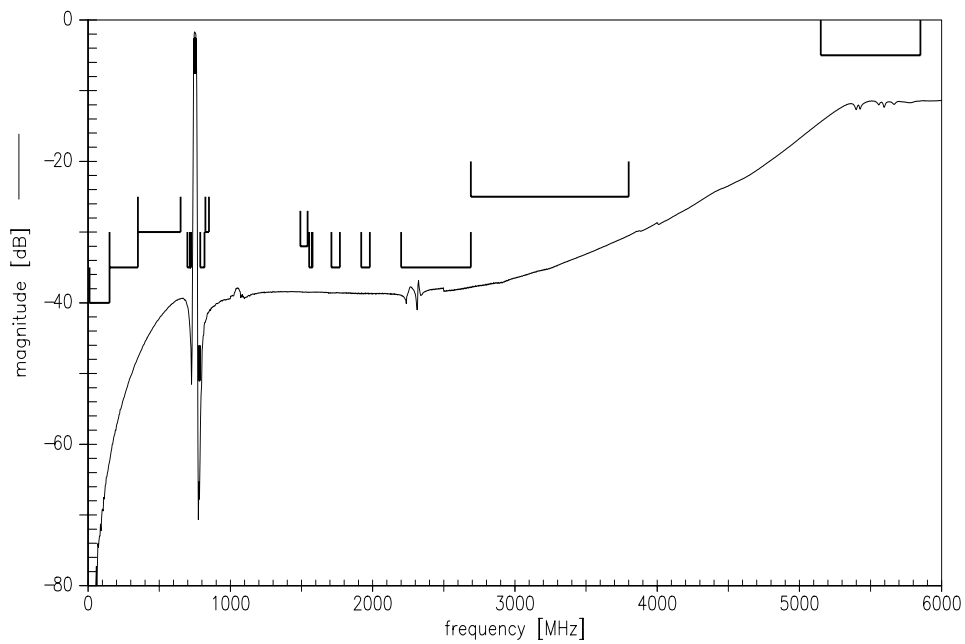
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Frequency Response ANT-RX



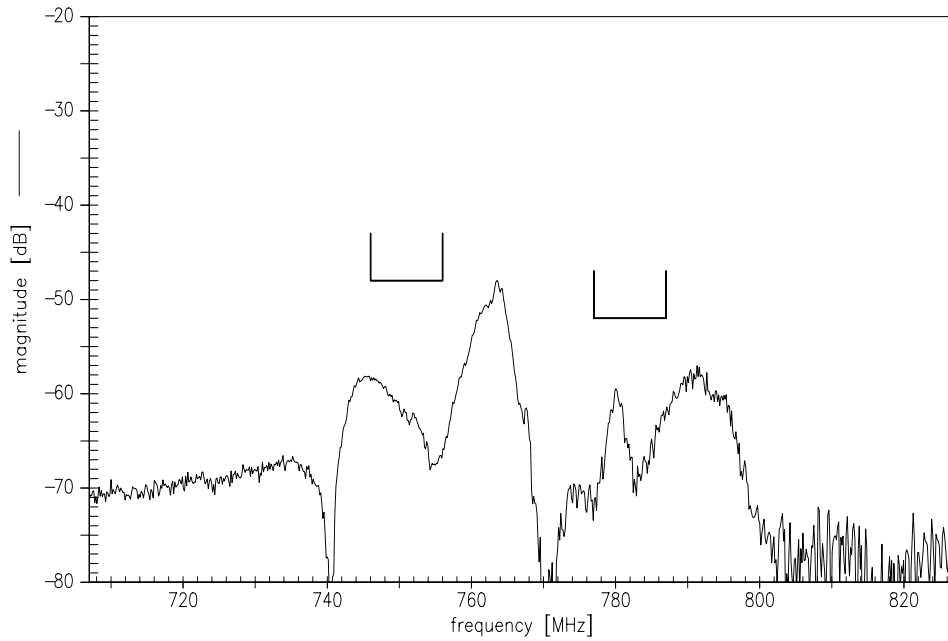
Frequency Response ANT-RX



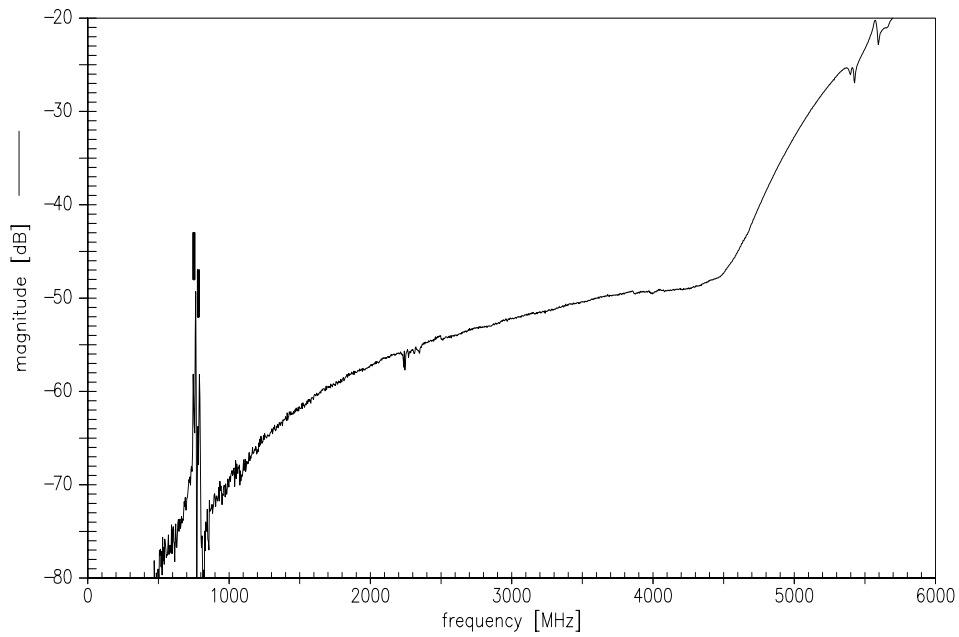
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ISOLATION TX-RX



ISOLATION TX-RX

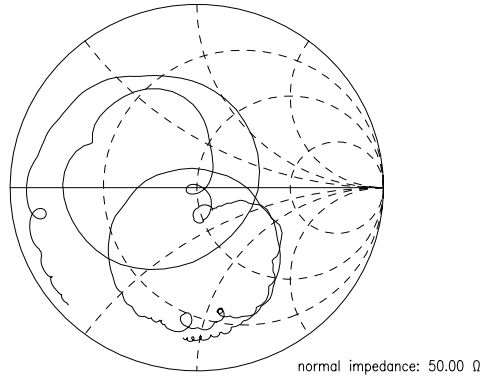
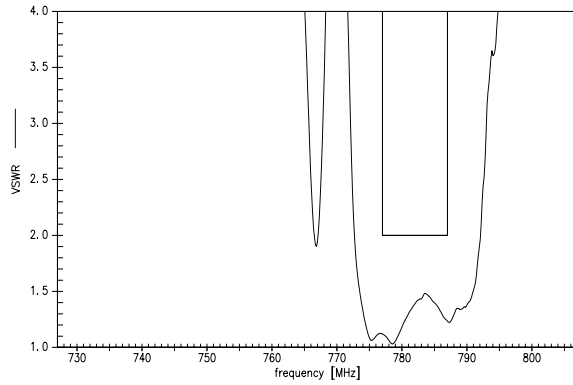


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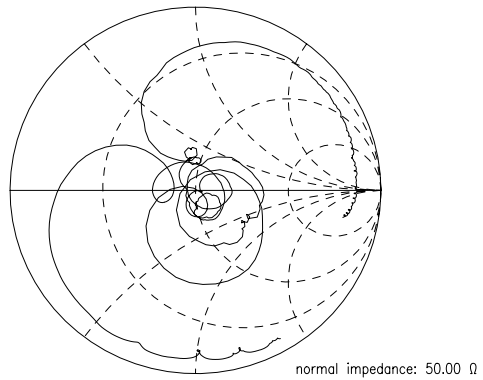
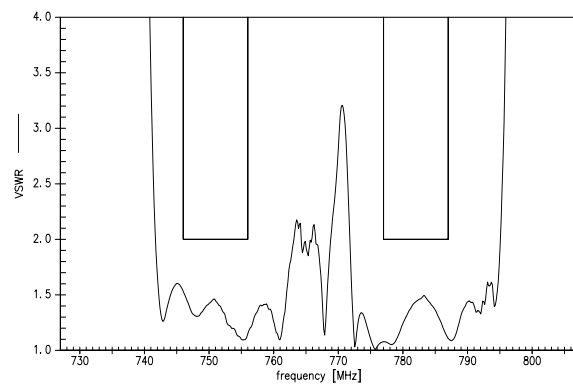




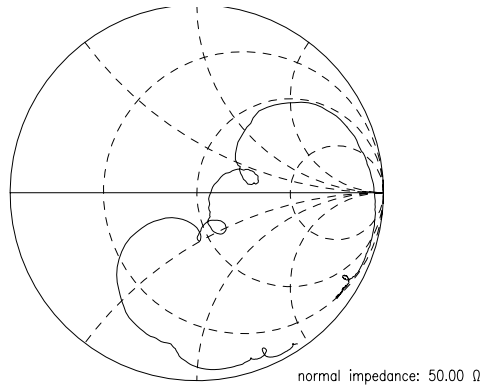
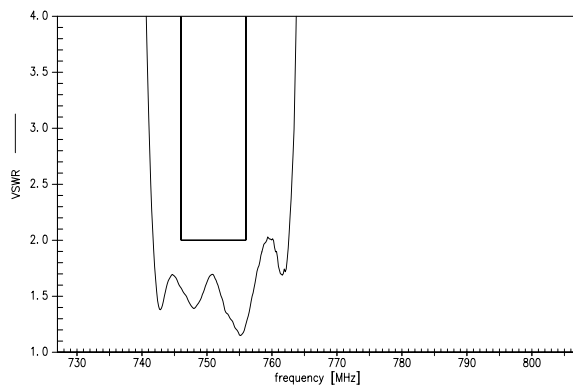
S11 VSWR (TX)



S22 VSWR (ANT)



S33 VSWR (RX)





SAW Components

B7678

SAW Duplexer

782.0 / 752.0 MHz

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## References

Type	B7678
Ordering code	B39781B7678A710
Marking and package	C61157-A3-A61
Packaging	F61074-V8153-Z000
Date codes	L_1126
S-parameters	B7678_NB.s3p B7678_WB.s3p See file header for port/pin assignment table
Soldering profile	S_6001
RoHS compatible	defined as compatible with the following documents: "DIRECTIVE 2002/95/EC OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 27 January 2003 on the restriction of the use of certain hazardous substances in electrical and electronic equipment. 2005/618/EC from April 18th, 2005, amending Directive 2002/95/EC of the European Parliament and of the Council for the purposes of establishing the maximum concentration values for certain hazardous substances in electrical and electronic equipment."
Matching coils	See Inductor pdf-catalog <a href="http://www.tdk.co.jp/tefe02/coil.htm#aname1">http://www.tdk.co.jp/tefe02/coil.htm#aname1</a> and Data Library for circuit simulation <a href="http://www.tdk.co.jp/etvcl/index.htm">http://www.tdk.co.jp/etvcl/index.htm</a>

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