

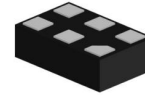
WS7802C

0.1GHz – 3GHz SPDT Antenna Switch

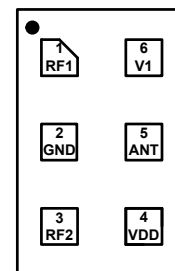
<http://www.sh-willsemi.com>

Descriptions

The WS7802C is a Single Pole, Double-Throw (SPDT) switch. The device is optimized for 4G routing and diversity applications. The high linearity performance and low insertion loss make the device an ideal choice for WCDMA/LTE handset and data card applications. The WS7802C is provided in a compact Land Grid Array (LGA) 1.1 x 0.7 mm² package.



LGA 1.1X0.7-6L (Bottom view)



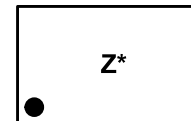
Pin configuration (Top view)

Features

- Small, low profile package 1.1mm x 0.7mm x 0.45mm
- Working frequency up to 3GHz
- Very low insertion loss
- Excellent isolation performance
- Low power consumption
- Exceptional linearity performance for WCDMA/LTE application
- Low harmonic generation
- Very good ESD performance

Applications

- Cell phones
- Tablets
- Other RF front-end modules



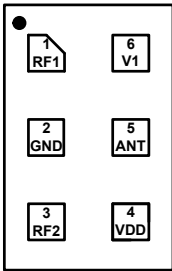
Z = Device code
* = Month code (A~Z)

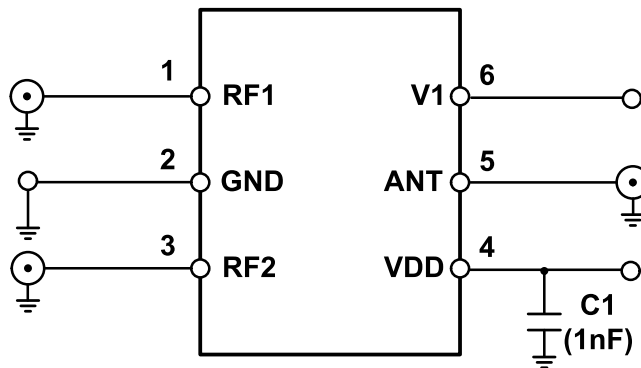
Marking(Top view)

Order information

Device	Package	Shipping
WS7802C-6/TR	LGA 1.1X0.7-6L	6000/Reel&Tape

Pinning information

Pin	Function	Description	Transparent top view
1	RF1	RF port 1	
2	GND	Ground	
3	RF2	RF port 2	
4	VDD	DC power supply	
5	ANT	RF common (antenna) port	
6	V1	DC control voltage1	

Application information


Recommended operating conditions

Parameters	Conditions	Specifications			Unit
		Min.	Typ.	Max.	
ESD Rating					
ESD All Pins	HBM, JESD22-A114			1000	V
Power Supply					
Power Supply Voltage	Operating Voltage	2.4	2.8	3.0	V
Power Supply Current	VDD≤3.0V	20	28	40	μA
Control Voltage					
Logic Control "Low"		0	0	0.3	V
Logic Control "High"		1.2	1.8	2.7	V
RF Impedance					
RF Port Input and Output Impedance			50		Ω

Absolute maximum ratings

Maximum ratings are absolute ratings, exceeding only one of these values may cause irreversible damage to the integrated circuit.

Items	Value	Unit
VDD Voltage	-0.3 to +3.0	V
Control Voltage	-0.3 to +2.7	V
Maximum Input Power @ RF ports	26@0.88GHz, 32@2.0GHz	dBm
Operation Temperature	-40 to +85	°C
Storage Temperature	-65 to +150	°C

Characteristics (RF spec)

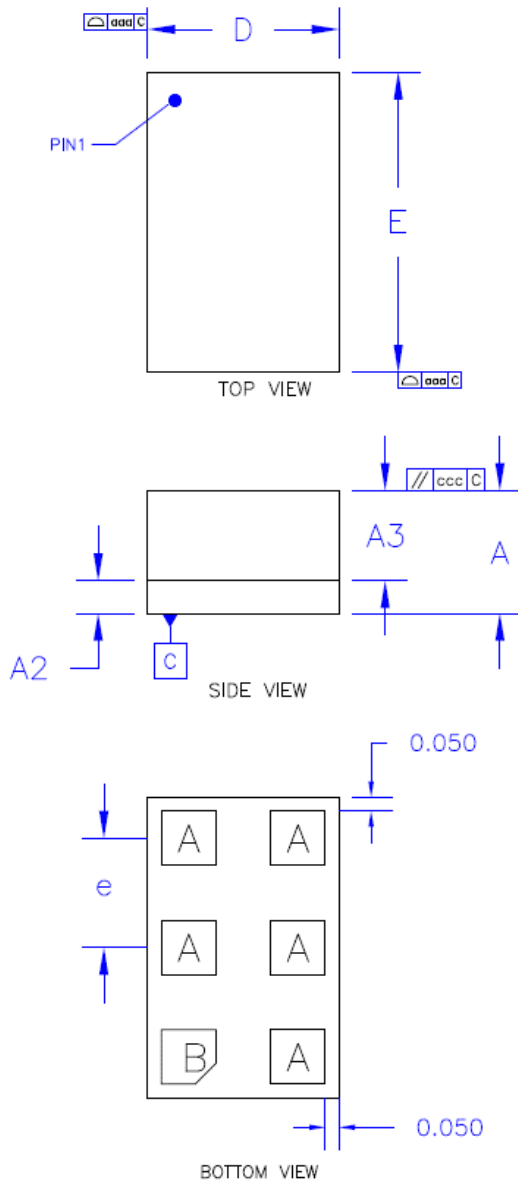
Normal test condition unless other-wise stated. All unused ports are 50Ω terminated. VDD=2.8V, Temp=+25°C. P_{IN}=0dBm.

Parameters	Conditions	Specifications			Unit
		Min.	Typ.	Max.	
Insertion Loss (RF1/RF2)	0.1GHz to 1.0GHz		0.40	0.55	dB
	1.0GHz to 2.0GHz		0.45	0.60	
	2.0GHz to 2.7GHz		0.50	0.65	
Isolation (ANT to RF1/RF2)	0.1GHz to 1.0GHz	32			dB
	1.0GHz to 2.0GHz	28			
	2.0GHz to 2.7GHz	24			
Return Loss (ANT/RF1/RF2)	0.1GHz to 1.0GHz	25			dB
	1.0GHz to 2.0GHz	22			
	2.0GHz to 2.7GHz	20			
Second Harmonics (RF1/RF2)	P _{IN} =+26dBm@0.88G		84		dBc
Third Harmonics (RF1/RF2)	P _{IN} =+26dBm@0.88G		78		dBc
0.1dB Compression Point (RF1/RF2)	@0.88GHz		24		dBm
	@2.00GHz		30		
3 rd Order Input Intercept Point (RF1/RF2)	P ₂ = +20dBm, P ₁ = -15dBm, Note 1		55		dBm

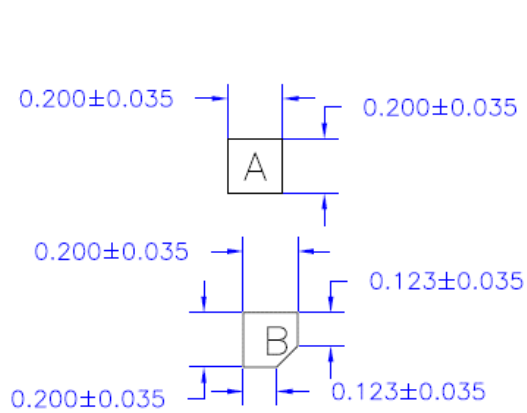
Note 1: $f_2=836.5\text{MHz}$, $f_1=791.5\text{MHz}$, $f_{\text{IMD3}}=881.5\text{MHz}$

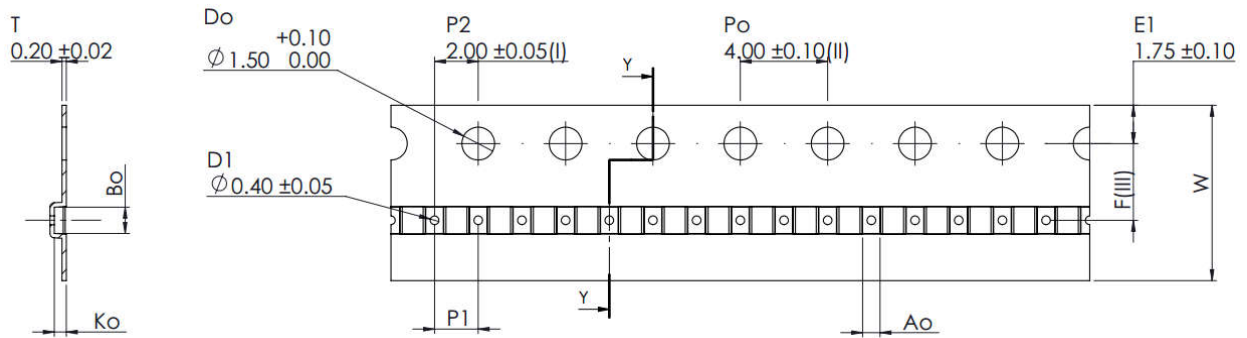
Truth Table for Operation

Mode	V1
RF1	1
RF2	0

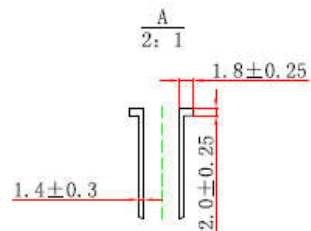
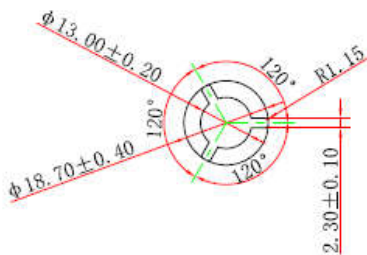
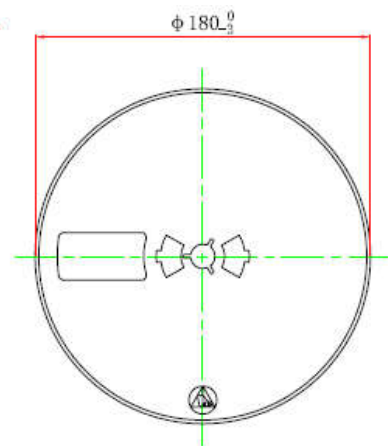
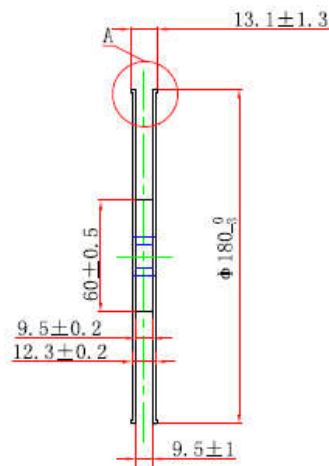
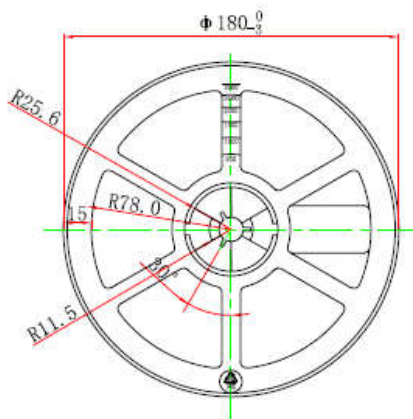
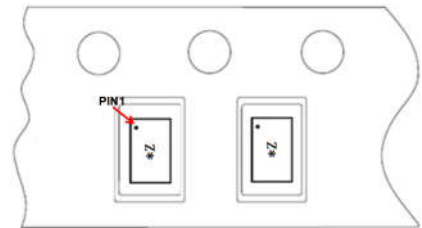
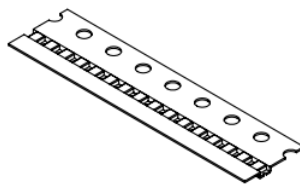
Package outline dimensions
LGA 1.1X0.7-6L


MILLIMETER			
SYMBOL	MIN	NOR	MAX
A	—	0.45	0.53
A2	0.09	0.12	0.15
A3	0.28	0.33	0.38
e	0.35	0.40	0.45
D	0.65	0.70	0.75
E	1.05	1.10	1.15
aaa	0.10		
ccc	0.20		



Tape reel information


Ao	0.80	+/- 0.05
Bo	1.20	+/- 0.05
Ko	0.55	+/- 0.05
F	3.50	+/- 0.05
P1	2.00	+/- 0.10
W	8.00	+/- 0.10


Note:

1. Measured from centreline of sprocket hole to centreline of pocket.
2. Cumulative tolerance of 10 sprocket holes is ± 0.20 .
3. Measured from centreline of sprocket hole to centreline of pocket.
4. All dimensions in millimetres unless otherwise stated.