

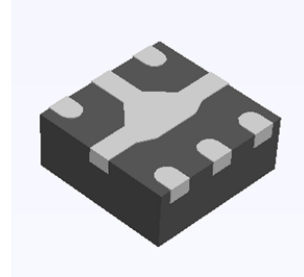
## WS7872DE-6/TR

[www.omnivision-group.com](http://www.omnivision-group.com)

### 0.1GHz – 7.125GHz SPDT Antenna Switch

#### Descriptions

The WS7872DE-6/TR is a single-pole, double-throw (SPDT) switch. The high linearity performance and low insertion loss make the device an ideal choice for WLAN applications such as 802.11 a/b/g/n. The WS7872DE-6/TR is provided in a compact Dual Flat No-lead Package (DFN) 1.0 x 1.0 mm<sup>2</sup> package.



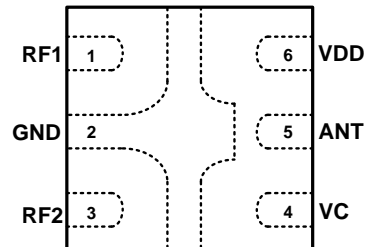
**DFN 1.0X1.0-6L (Bottom view)**

#### Features

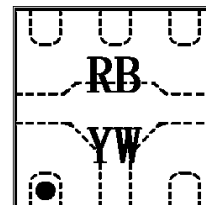
- Small, low profile package 1.0mm x 1.0mm x 0.55mm
- Working frequency up to 7.125 GHz
- Very low insertion loss
- Excellent isolation performance
- Low power consumption
- Exceptional linearity performance for WLAN application
- Low harmonic generation
- Very good ESD performance

#### Applications

- WLAN 802.11 a/b/g/n
- Tablets
- Other RF front-end modules



**Pin configuration (Top view)**



RB = Device code

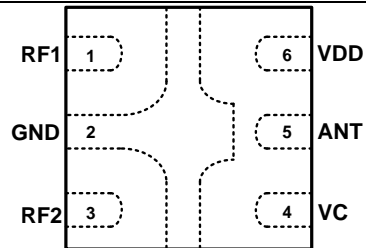
YW = Year/Week code (A~Z)

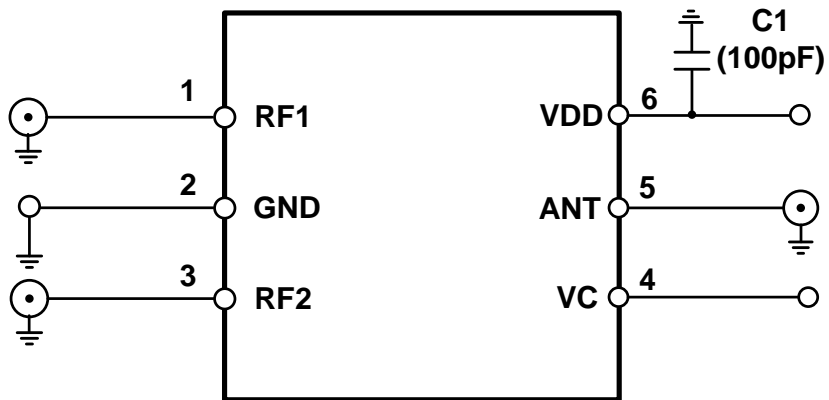
**Marking(Top view)**

#### Order information

Device	Package	Shipping
WS7872DE-6/TR	DFN 1.0X1.0-6L	3000/Reel&Tape

**Pinning information**

Pin	Function	Description	Transparent top view
1	RF1	RF port 1	
2	GND	Ground	
3	RF2	RF port 2	
4	VC	Control pin	
5	ANT	RF common(antenna) port	
6	VDD	Supply voltage	

**Application information**


**Note:** filter capacitor is needed on VDD

**Recommended operating conditions**

Parameters	Conditions	Specifications			Unit
		Min.	Typ.	Max.	
<b>ESD Rating</b>					
ESD All Pins	HBM, JESD22-A114	2000			V
	CDM	1000			V
<b>Power Supply</b>					
Power Supply Voltage	Operating Voltage	2.5	3.3	3.6	V
Power Supply Current			17		μA
<b>Control Voltage</b>					
Logic Control "Low"		0	0	0.3	V
Logic Control "High"		1.5	1.8	3.6	V
VC Current				5	μA
<b>RF Impedance</b>					
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 to +4.0	V
Control Voltage	0 to +4.0	V
Maximum Input Power @ RF ports 50Ω, CW, +25°C	32@0.7GHz to 7.125GHz	dBm
Operation Temperature	-40 to +85	°C
Storage Temperature	-65 to +150	°C

**Characteristics (RF spec)**

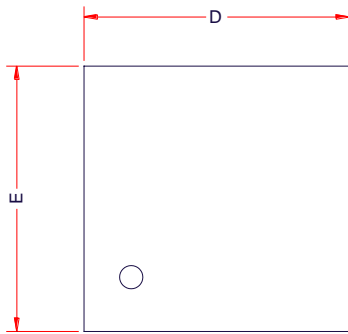
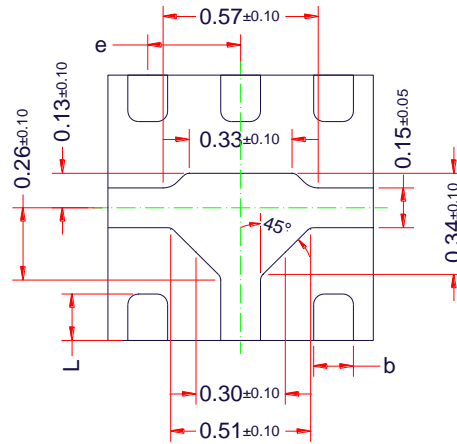
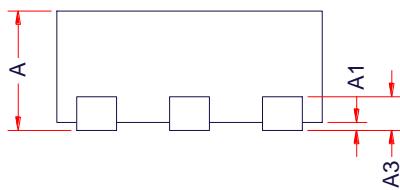
Normal test condition unless otherwise stated. All unused ports are 50Ω terminated.

V<sub>DD</sub>=3.3V. V<sub>C</sub>=1.8V. Temp=+25°C. P<sub>IN</sub>=0dBm.

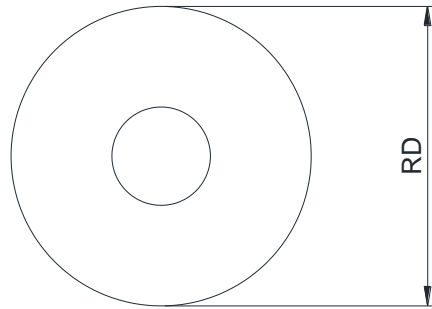
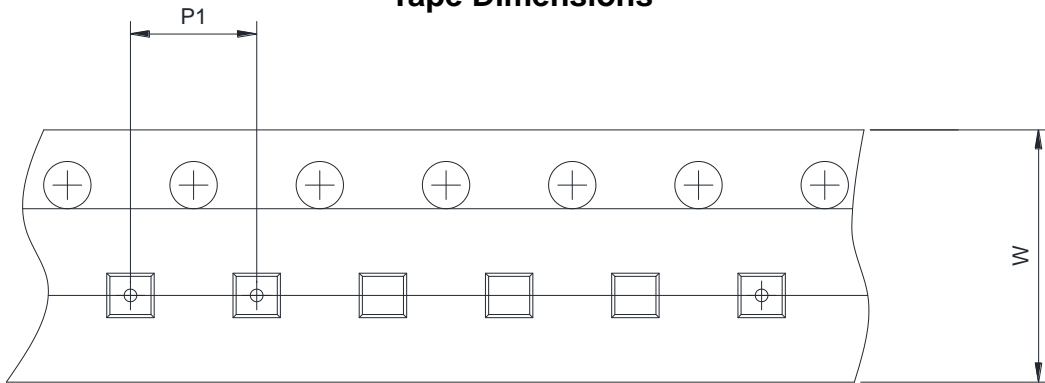
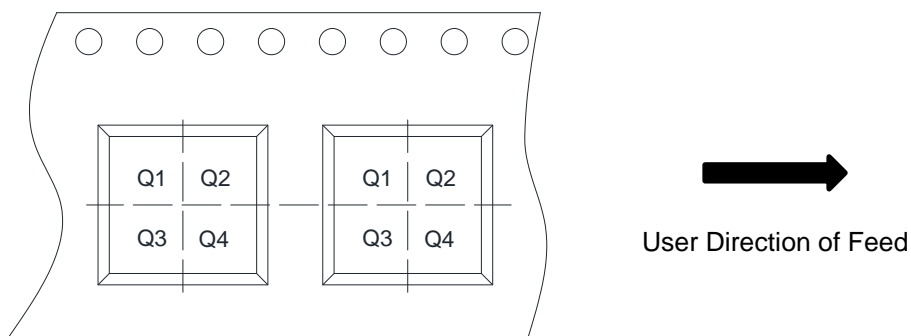
Parameters	Conditions	Specifications			Unit
		Min.	Typ.	Max.	
Insertion Loss (RF1/RF2)	0.5GHz to 3.0GHz		0.5		dB
	3.0GHz to 6.0GHz		0.7		
	6.0GHz to 7.125GHz		0.75		
Input Return Loss (RF1/RF2)	0.5GHz to 3.0GHz		25		dB
	3.0GHz to 6.0GHz		18		
	6.0GHz to 7.125GHz		15		
Isolation (ANT to RF1/RF2)	0.5GHz to 3.0GHz		30		dB
	3.0GHz to 6.0GHz		21		
	6.0GHz to 7.125GHz		19		
Second Harmonics (RF1/RF2)	0.5GHz to 3.0GHz, P <sub>IN</sub> =+25dBm		89		dBc
	3.0GHz to 7.125GHz, P <sub>IN</sub> =+25dBm		92		
Third Harmonics (RF1/RF2)	0.5GHz to 3.0GHz, P <sub>IN</sub> =+25dBm		77		dBc
	3.0GHz to 7.125GHz, P <sub>IN</sub> =+25dBm		80		
0.1dB Compression Point (RF1/RF2)	0.5GHz to 7.125GHz		29		dBm
Startup Time	50% of final VDD voltage to 90%/10% of final RF Power			10	μs
RF Path Switching Time	50% of final VC voltage to 10%/90% of final RF Power		320	500	ns

**Truth Table for Operation**

Mode	CTRL
RF1	1
RF2	0

**PACKAGE OUTLINE DIMENSIONS**
**DFN1x1-6L**

**TOP VIEW**

**BOTTOM VIEW**

**SIDE VIEW**

Symbol	Dimensions in Millimeters		
	Min.	Typ.	Max.
A	0.45	0.50	0.55
A1	0.00	0.02	0.05
A3	0.12Ref		
b	0.10	0.15	0.20
L	0.10	0.17	0.25
D	1.00BSC		
E	1.00BSC		
e	0.35BSC		

**TAPE AND REEL INFORMATION**
**Reel Dimensions**

**Tape Dimensions**

**Quadrant Assignments For PIN1 Orientation In Tape**


RD	Reel Dimension	<input checked="" type="checkbox"/> 7inch	<input type="checkbox"/> 13inch
W	Overall width of the carrier tape	<input checked="" type="checkbox"/> 8mm	<input type="checkbox"/> 12mm <input type="checkbox"/> 16mm
P1	Pitch between successive cavity centers	<input type="checkbox"/> 2mm	<input checked="" type="checkbox"/> 4mm <input type="checkbox"/> 8mm
Pin1	Pin1 Quadrant	<input checked="" type="checkbox"/> Q1	<input type="checkbox"/> Q2 <input type="checkbox"/> Q3 <input type="checkbox"/> Q4

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