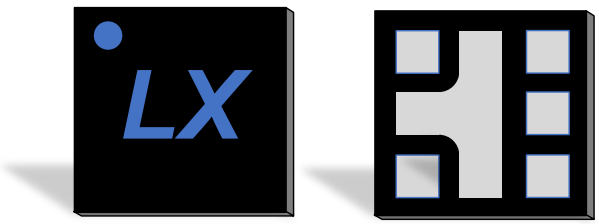


Product Features

- Excellent Insertion Loss and Isolation performance
- Support up to WiFi 6/6E
- Compatible with WiFi 5/4
- Broadband frequency range: 0.5 to 7.125 GHz
- Small package: DFN-6-pin, 1.0mm x 1.0mm x 0.45mm
- No DC blocking capacitors required
- 1kV HBM ESD Protection on all pins

Product Applications

- WiFi 6/6E AP & Router
- WiFi 6/5/4 wireless application

Product Description

The LX3351 is a Silicon On Insulator (SOI) Single Pole, Double-Throw (SPDT) antenna switch which require very low insertion loss, high isolation and high linearity performance.

The high linearity performance and low insertion loss for WiFi 6/6E applications.

The LX3351 is manufactured in a compact 1.0mm x 1.0mm x 0.45mm 6-lead DFN package. 6-pin surface mount Duad Flat No-Lead (DFN) package.

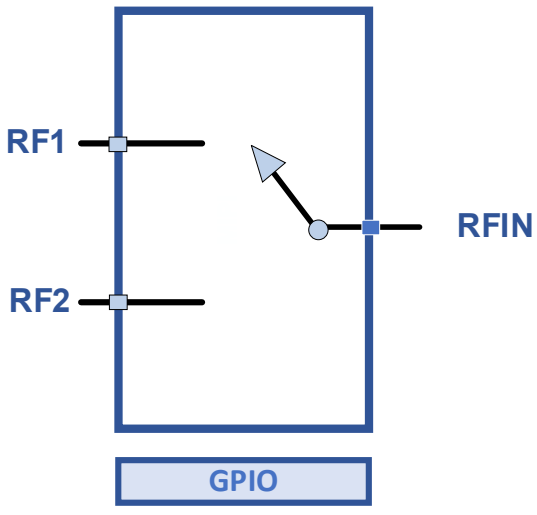


Figure 1 Functional Block Diagram

Absolute Maximum Conditions

Parameters	Symbol	Minimum	Maximum	Units
Control voltage	VCTL	-0.3	3.6	V
RF input power	Pin		34.5	dBm
Storage temperature	T_{STG}	-55	+150	℃
Operating temperature	T_{OP}	-40	+90	℃
Human Body Model, Class 1C	ESD	1000		V

1: Test condition 50% duty cycle, VSWR=1:1, +25 ° C

Note: *Exposure to maximum rating conditions for extended periods may reduce device reliability. There is no damage to device with only one parameter set at the limit and all other parameters set at or below their nominal value. Exceeding any of the limits listed here may result in permanent damage to the device.*

General Electrical Specifications

Parameters	Symbol	Test Condition	Min.	Typ.	Max.	Units
Control signal: High Low	 V_{CTL-H} V_{CTL-L}		1.5	2.85	 3.6 0.3	V
Control current:	I_{CTL}				5	μA
Turn-on time (PIN = +24 dBm)	T_{ON}	Measured from 50% of final VCTL to 90% of RF power			10	μs
Switching time (PIN = +24 dBm)	T_{SW}	Measured from 50% of final VCTL to 90% of RF power		120	200	ns

(VCT = 2.85 V, TOP = +25 ℃, Characteristic Impedance [ZO] = 50 Ω, Unless Otherwise Noted)

RF Specifications

VC=2.85V/0V，Pin=0dBm，ZL=50Ω, TA=25℃ Unless Otherwise Stated

Parameters	Symbol	Test Condition	Min.	Typ.	Max.	Units
Operating frequency	f		0.5		7.125	GHz
Insertion loss	IL	Up to 0.9 GHz		0.40	0.45	dB
		Up to 2.1 GHz		0.46	0.47	
		Up to 2.7 GHz		0.47	0.49	
		Up to 3.8 GHz		0.48	0.52	
		Up to 5.0 GHz		0.56	0.59	
		Up to 6.0 GHz		0.67	0.70	
		Up to 7.2 GHz		0.70	0.75	
Isolation (ANT port to any receive port)	I_{SO}	Up to 0.9 GHz	46	49		dB
		Up to 2.1 GHz	37	40		
		Up to 2.7 GHz	34	36		
		Up to 3.8 GHz	30	30		
		Up to 5.0 GHz	25	26		
		Up to 6.0 GHz	22	23		
		Up to 7.2 GHz	19	20		
2nd Order harmonics	2fo	+24 dBm, 0.9~2.7 GHz +24 dBm, 4.8~6.0 GHz	-63	-65		dBm
3rd Order harmonics	3fo	+24 dBm, 0.9~2.7 GHz +24 dBm, 4.8~6.0 GHz	-56	-58		dBm
0.1 dB Compression Point 50% duty cycle, VSWR=1:1	P0.1dB	0.9~7.2GHz, 50Ω		+34.5		dBm

Truth Table

V1	V2	RF Channel Operating Mode
0	1	ANT to RF1 On
1	0	ANT to RF2 On

Note: “1” =1.5V to 3.6V, “0” =0V to 0.3V

Pin-out Information

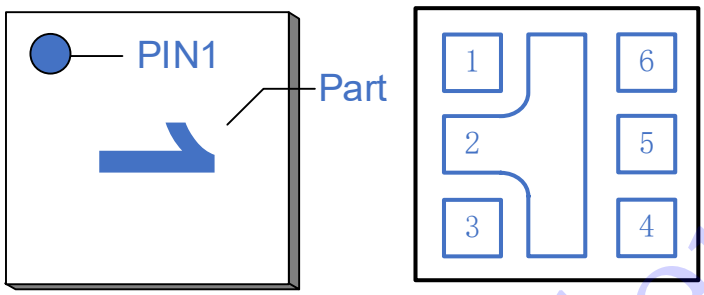


Figure 2 Pin-out Information

Table 1. Pin Description

Pin #	Name	Description	Pin #	Name	Description
1	RF1	RF Port1	4	V2	DC control and supply voltage
2	GND	Ground	5	ANT	Antenna Port
3	RF2	RF port 2	6	V1	DC control and supply voltage

Application circuit

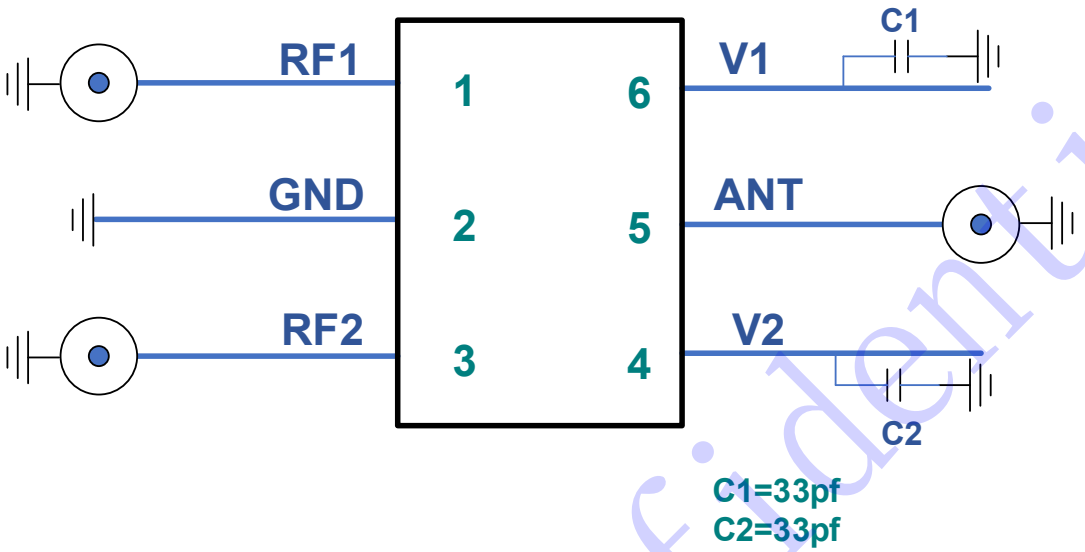


Figure 3 Application circuit

Evaluation Board

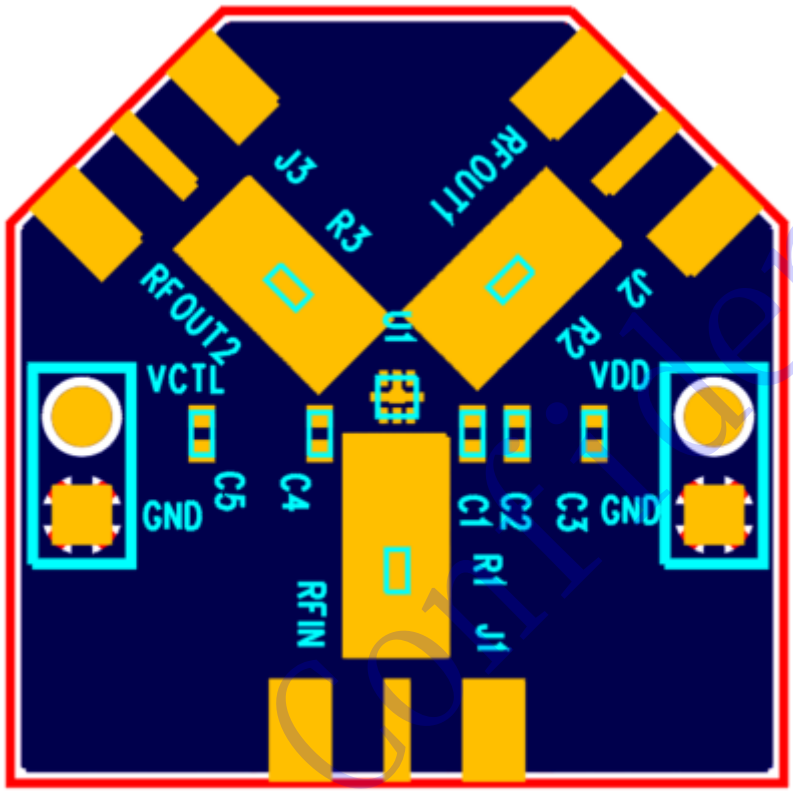
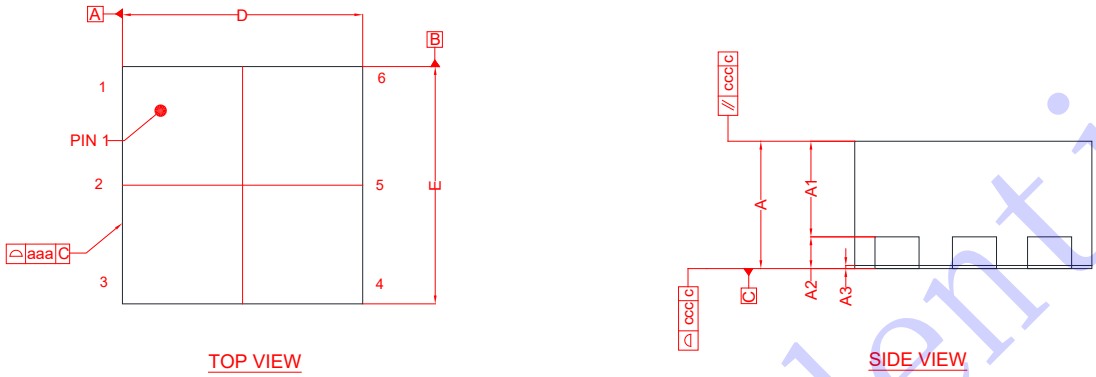
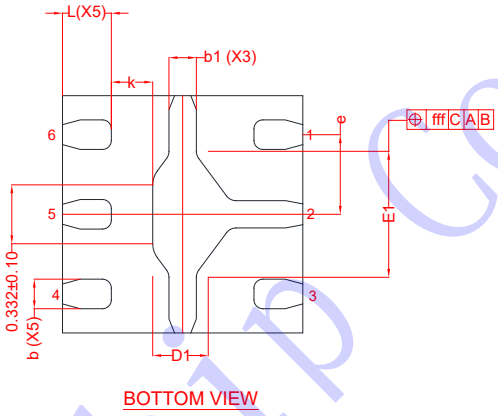


Figure 4 Evaluation Board Assembly Diagram

Package Outline Dimension

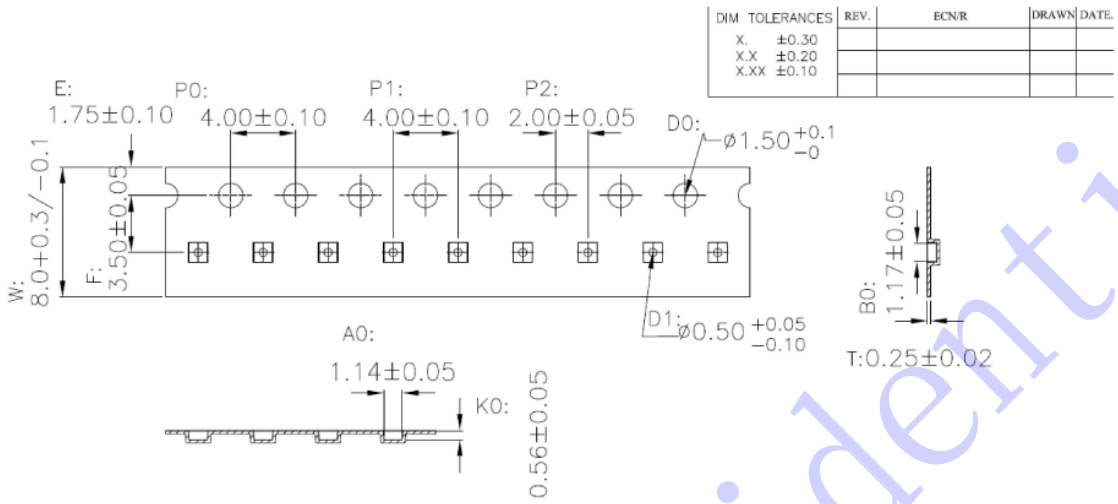




Symbol	Minimum	Normal	Maximum
D		1.0 BSC	
E		1.0 BSC	
D1	0.2	0.3	0.4
E1	0.41	0.51	0.61
A	0.4	0.45	0.5
A1		0.32	
A2		0.127 REF	
A3	0	0.02	0.05
b	0.10	0.15	0.20
b1	0.1	0.15	0.20
L	0.125	0.175	0.225
e		0.350 BSC	
k		0.2 MIN	
aaa		0.0500	
bbb		0.07	
ccc		0.1	
eee		0.08	
fff		0.1	

Figure 5 Package Outline Dimension

Package Dimensions (5000pcs)



1. 10 sprocket hole pitch cumulative tolerance ±0.20.
2. Carrier camber is within 1 mm in 250 mm.
3. Material : Black Conductive Polycarbonate Alloy.
4. All dimensions meet EIA-481 requirements.
5. Thickness : 0.25±0.02mm.
6. Packing length per 17 " reel : 500 Meters.

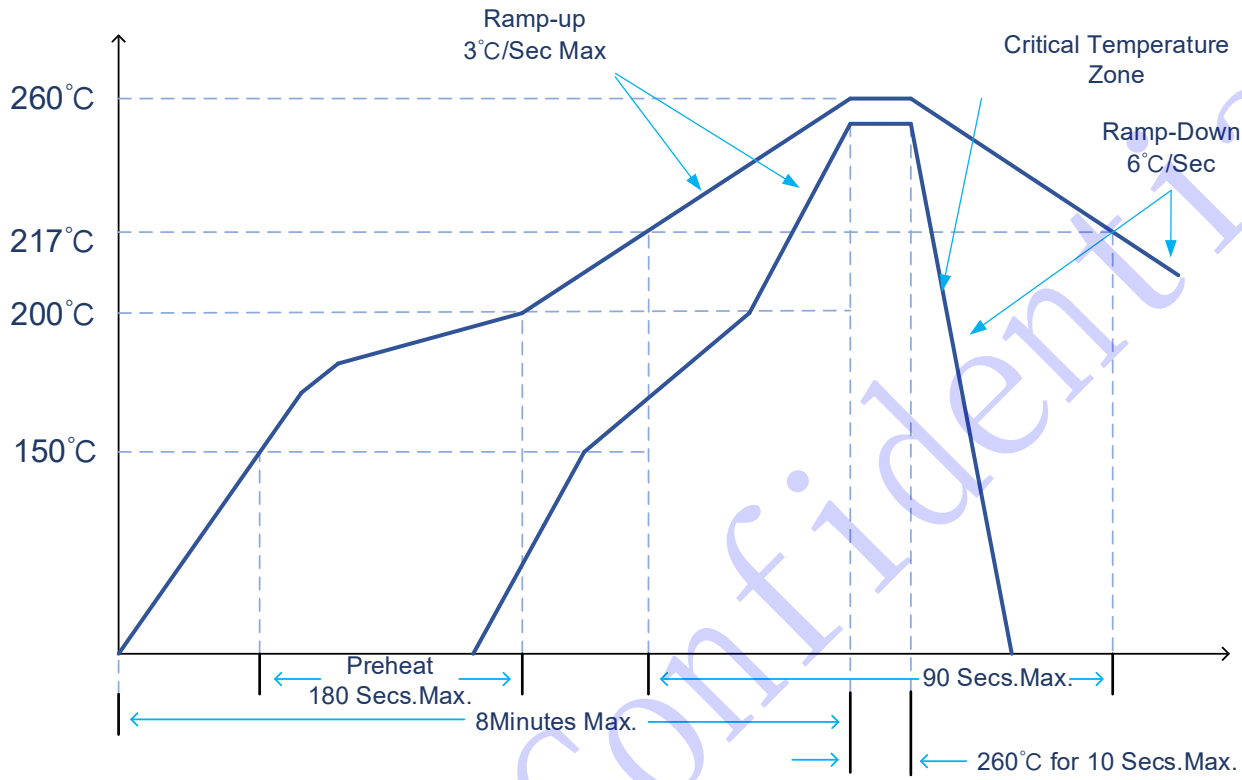
Declaration of No Harmful Substances

This part is compliant with 2005/20/EC packaging directive, 1907/2006/EC REACH directive and the 2011/65/EU RoHS directive (Restrictions on the Use of Certain Hazardous Substances in Electrical and Electronic Equipment), as amended by Directive 2015/863/EU.

This product also has the following attributes:

- Lead free
- Halogen Free (Chlorine, Bromine)
- SVHC Free

Reflow Chart



NOTE: Reflow Profile with 240°C peak also acceptable.

