



Product Features

- Excellent Insertion Loss and Isolation performance
- GPIO Control Interface
- Support up to WiFi 6/6E
- Compatible with WiFi 5/4
- Broadband frequency range: 0.5 to 7.2 GHz
- Small package: QFN-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 LX3585 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 LX3585 is manufactured in a compact 1.0mm x 1.0mm x 0.45mm 6-lead QFN package. 6-pin surface mount Quad Flat No-Lead (QFN) package.

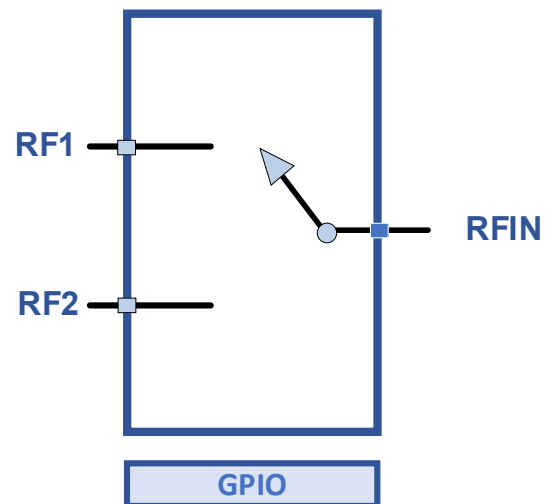


Figure 1 Functional Block Diagram

Absolute Maximum Conditions

Parameters	Symbol	Minimum	Maximum	Units
Supply voltage	V _{DD}	-0.3	4.2	V
Control voltage	V _{CTL}	-0.3	3.6	V
RF input power	P _{in}		+33	dBm
Storage temperature	T _{STG}	-55	+150	°C
Operating temperature	T _{OP}	-40	+90	°C
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
Supply voltage	V _{DD}		1.6	1.8~3.3	4.2	V
Supply current, active mode	I _{DD}			100	150	μA
Control signal: High Low	V _{CTL}		1.5	1.8	3.6 0.3	V
Control current:	I _{CTL}				5	μA
Turn-on time (PIN = +24 dBm)	T _{ON}	Measured from 50% of final VDD supply voltage to 90% of RF power			10	μs
Switching time (PIN = +24 dBm)	T _{SW}	Measured from 50% of final VDD supply voltage to 90% of RF power		50	100	ns

(VDD = 2.85 V, VCT = 1.8 V, TOP = +25 °C, Characteristic Impedance [Z0] = 50 Ω, Unless Otherwise Noted)

RF Specifications

Vdd=3.3V, VC=1.8V/0V, Pin=0dBm, ZL=50Ω, TA=25℃ Unless Otherwise Stated

Parameters	Symbol	Test Condition	Min.	Typ.	Max.	Units
Operating frequency	f		0.5		7.2	GHz
Insertion loss	IL	Up to 0.9 GHz		0.29	0.35	dB
		Up to 2.1 GHz		0.35	0.42	
		Up to 2.7 GHz		0.40	0.50	
		Up to 3.8 GHz		0.45	0.55	
		Up to 5.0 GHz		0.47	0.57	
		Up to 6.0 GHz		0.55	0.65	
		Up to 7.2 GHz		0.65	0.75	
Isolation (ANT port to any receive port)	Iso	Up to 0.9 GHz	50	55		dB
		Up to 2.1 GHz	40	50		
		Up to 2.7 GHz	35	40		
		Up to 3.8 GHz	30	36		
		Up to 5.0 GHz	28	30		
		Up to 6.0 GHz	25	28		
		Up to 7.2 GHz	20	25		
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	0.9~6GHz, 50Ω		+33		dBm
EVM	EVM	802.11a, 54Mbps, Pin≤27dBm 802.11g, 54Mbps, Pin≤27dBm	2.5			%

Truth Table

VC	RF Channel Operating Mode
1	ANT to RF1 On
0	ANT to RF2 On

Pin-out Information

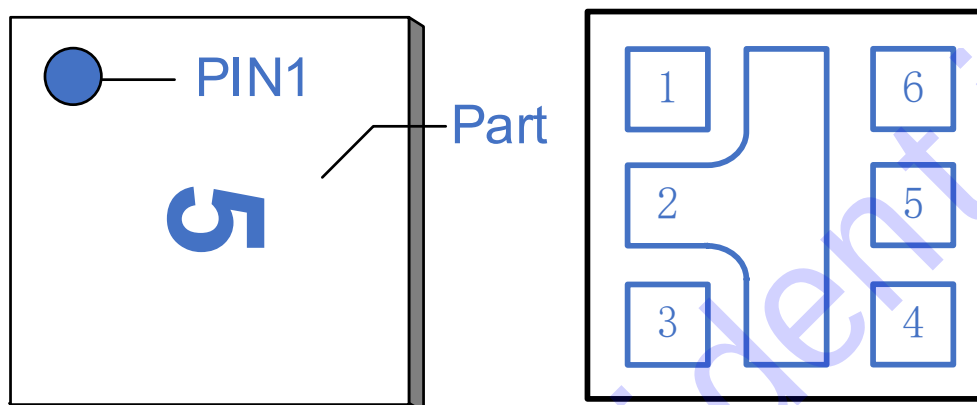


Figure 2 Pin-out Information

Table 1. Pin Description

Pin #	Name	Description	Pin #	Name	Description
1	RF1	RF OUT 1	4	VC	Logic Control Voltage
2	GND	Ground	5	RFIN	Antenna Port
3	RF2	RF OUT 2	6	VDD	Power Supply Voltage

Application circuit

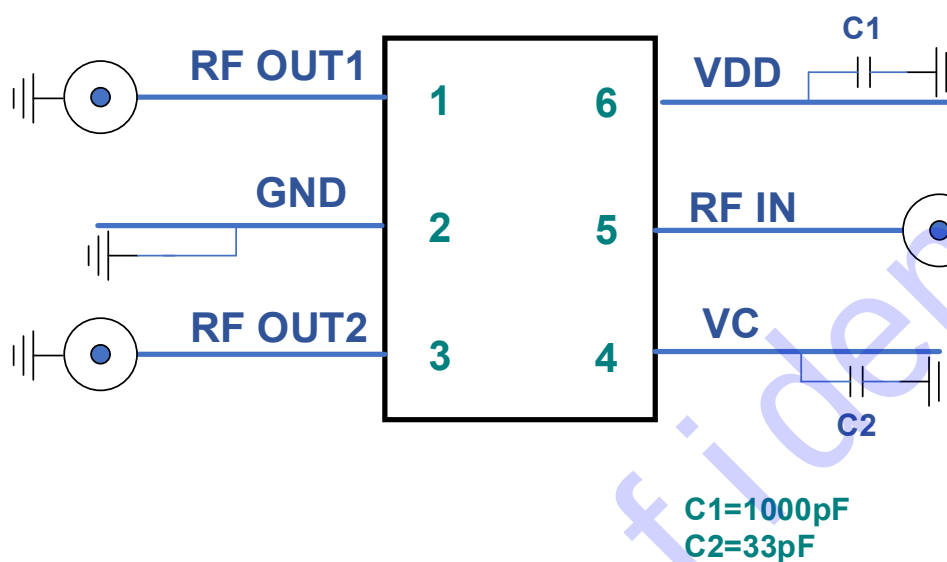


Figure 3 Application circuit

Evaluation Board

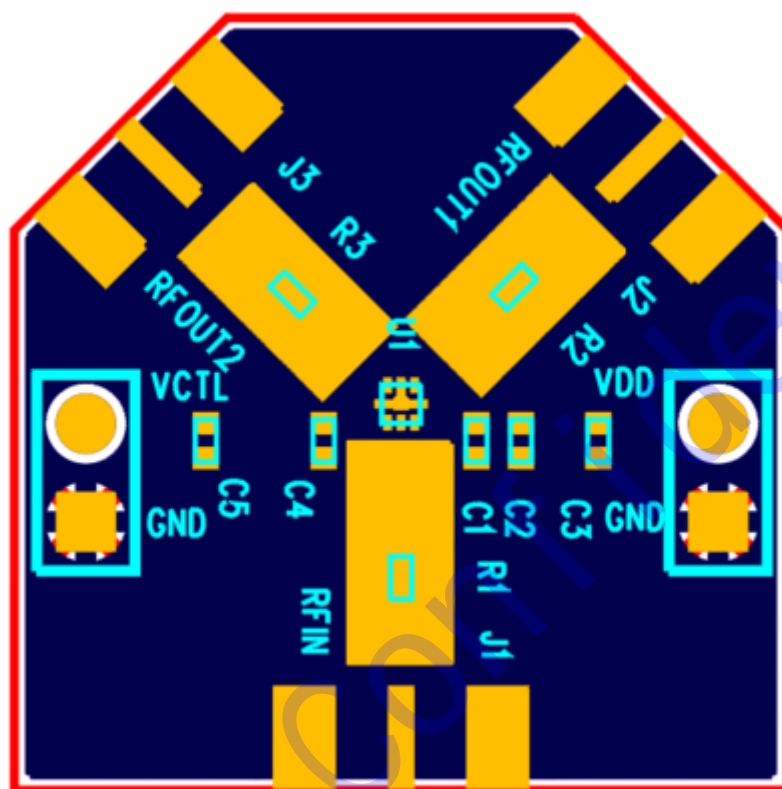
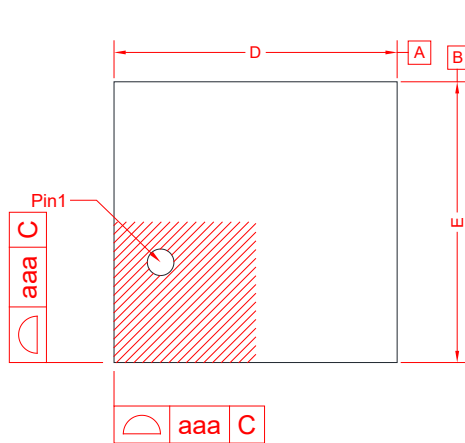
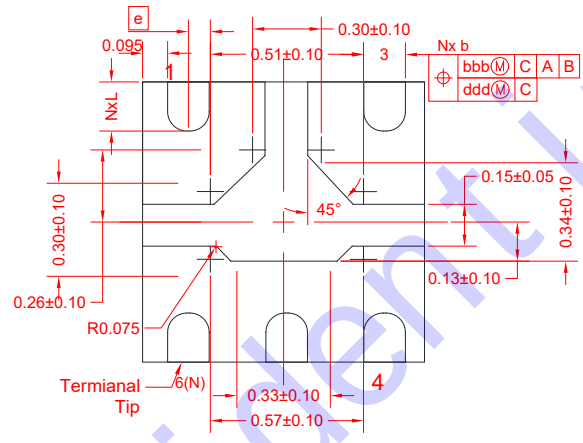


Figure 4 Evaluation Board Assembly Diagram

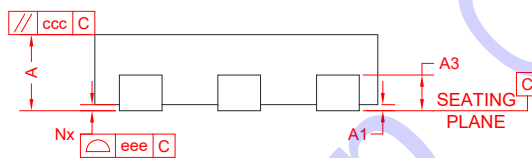
Package Outline Dimension



TOP-VIEW:



BOTTOM-VIEW:



SIDE-VIEW:

SYMBOL	MILLIMETER		
	MIN	NOM	MAX
A	0.41	0.45	0.50
A1	0.00	0.02	0.05
A3	0.127REF		
b	0.10	0.15	0.20
L	0.100	0.175	0.250
D	1.00 BSC		
E	1.00 BSC		
e	0.35 BSC		
aaa	0.05		
bbb	0.10		
ccc	0.05		
ddd	0.05		
eee	0.05		

Figure 5 Package Outline Dimension

Package Dimensions (5000pcs)

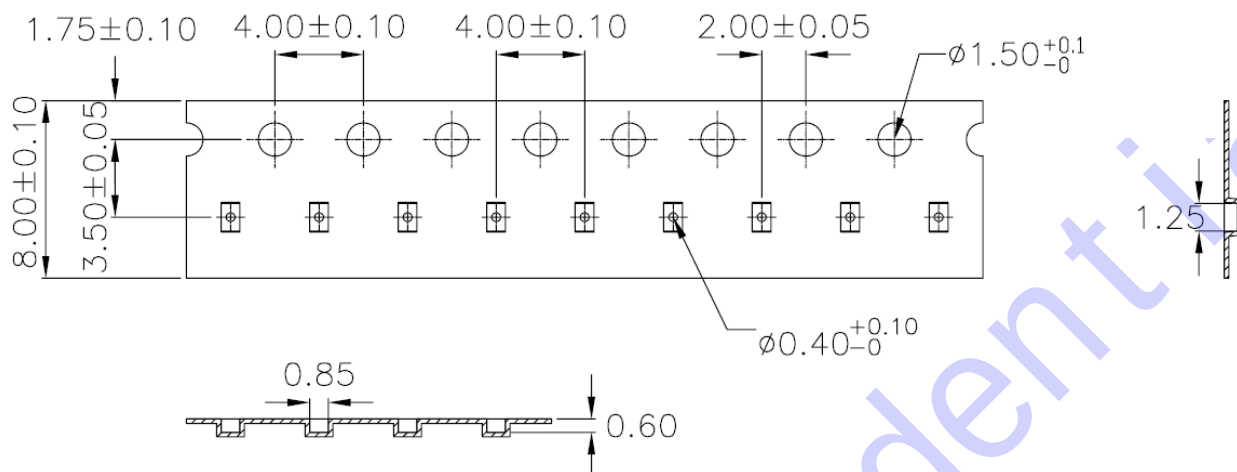


Figure 6 Tape and Reel Dimensions

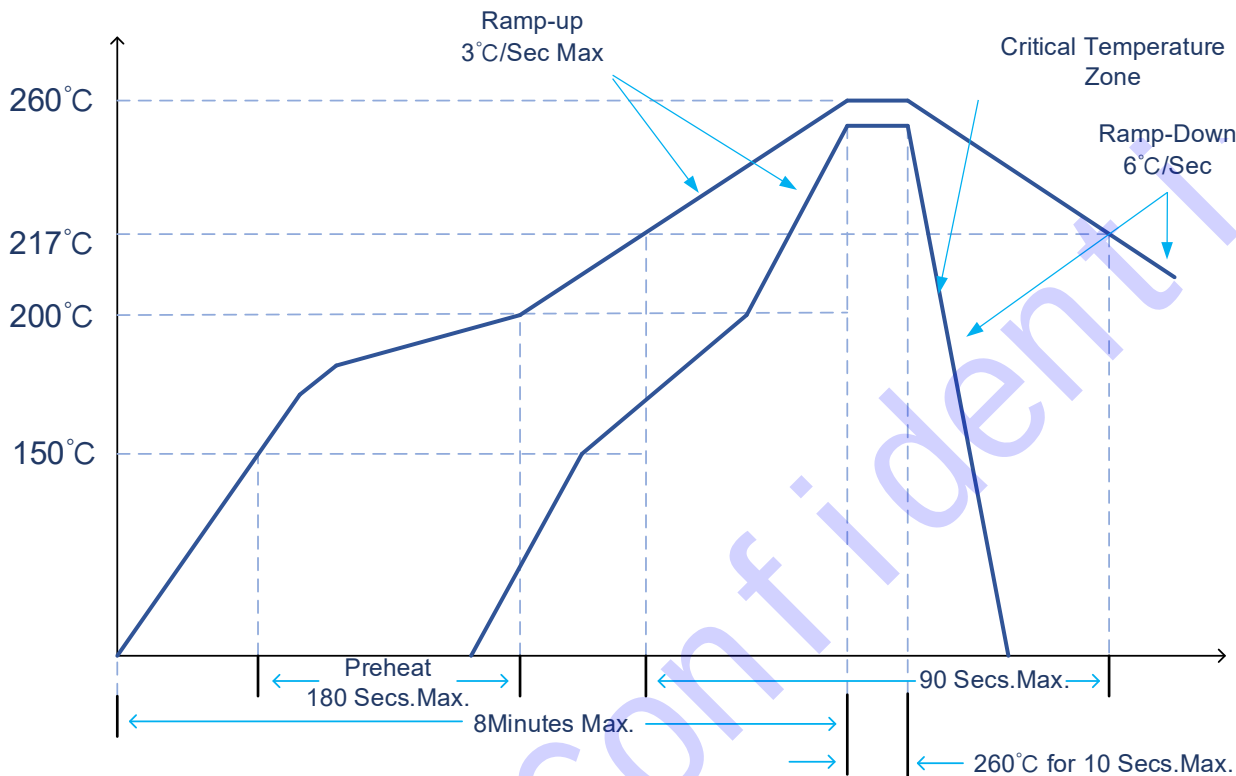
Declaration of No Harmful Substances

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.