

Product Features

- Excellent Insertion Loss and Isolation performance
- High Linearity
- GPIO Control Interface
- Broadband frequency range: 0.5 to 7.125 GHz
- Small package: QFN-8 1.5mm x 1.5mm x 0.45mm
- No DC blocking capacitors required
- 1kV HBM ESD Protection on all pins

Product Applications

- 802.11 b/g/n/ac/ax WLAN networks
- Bluetooth systems

Product Description

The LX8730L is a Silicon On Insulator (SOI) Single Pole, Three Throw (SP3T) antenna switch which require very low insertion loss, high isolation and high linearity performance.

The high linearity performance and low insertion loss for 802.11 /b/g/n/ac/ax WLAN networks.

The is manufactured in a compact 1.5mm x 1.5mm x 0.45mm, 8-pin surface mount QFN package.

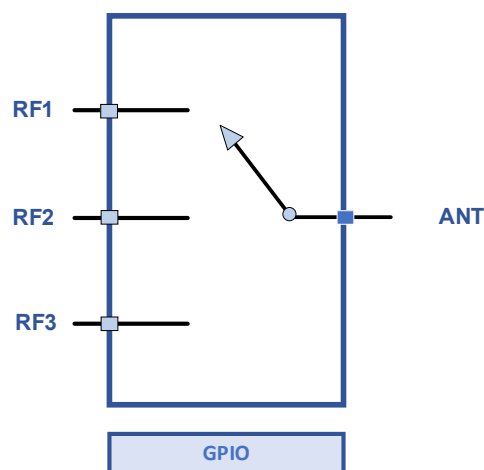


Figure 1 Functional Block Diagram

Absolute Maximum Conditions

Parameters	Symbol	Minimum	Maximum	Units
Supply voltage	V _{DD}	-0.5	3.6	V
Control voltage	V _{CC}	-0.5	3.6	V
RF input power	P _{in}		+32.5	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}		1.65	3.3	3.6	V
Supply current, active mode	I _{DD}			25	60	μA
Control signal:						
High	V _{CT}		1.35	1.8	2.70	V
Low					0.3	
Control current:						
High	I _{CTL}				5	μA
Low						
Turn-on time (PIN = +27 dBm)	T _{ON}	Measured from 50% of final VDD supply voltage to 90% of RF power		1.5	2.2	μs
Switching time (PIN = +27 dBm)	T _{SW}	Measured 50% VC to 10%/90% final RF power		200	300	ns

(VDD = 3.3 V, VCT = 1.8 V, TOP = +25 °C, Characteristic Impedance [Z0] = 50 Ω, Unless Otherwise Noted)

RF Specifications

Parameters	Symbol	Test Condition	Min.	Typ.	Max.	Units
Operating frequency	f		0.1		7.125	GHz
Insertion loss	IL	1.0 to 1.5 GHz		0.50	0.55	dB
		2.4 to 2.5 GHz		0.55	0.60	
		3.3 to 3.6 GHz		0.65	0.70	
		3.6 to 5.0 GHz		0.70	0.80	
		5.0 to 7.2 GHz		0.90	0.95	
Isolation (ANT port to any receive port)	ISO	1.0 to 1.5 GHz	37	40		dB
		2.4 to 2.5 GHz	31	35		
		3.3 to 3.6 GHz	28	31		
		3.6 to 5.0 GHz	25	28		
		5.0 to 7.2 GHz	22	25		
Isolation (RF port to other inactive RF port)	ISO	1.0 to 1.5 GHz	30	34		
		2.4 to 2.5 GHz	26	30		
		3.3 to 3.6 GHz	22	26		
		3.6 to 5.0 GHz	19	26		
		5.0 to 7.2 GHz	17	23		
2nd Order harmonics	2fo	Pin = +26 dBm,900MHz		-49		dBm
3rd Order harmonics	3fo	Pin = +26 dBm,900MHz		-52		dBm
0.1 dB Compression Point 50% duty cycle, VSWR=1:1	P0.1dB	900M, 50Ω		+32.5		dBm

Truth Table

V1	V2	ANT-RFX
0	0	ANT-RF1 on
1	0	ANT-RF2 on
1	1	ANT-RF3 on

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Pin-out Information

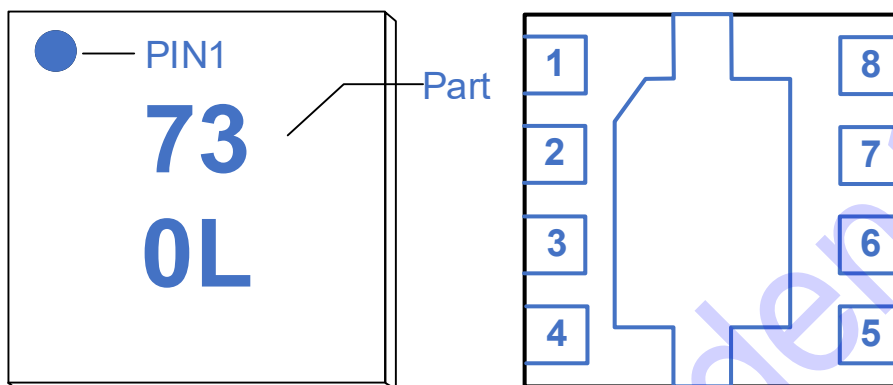


Figure 2 Pin-out Information

Table 1. Pin Description

Pin #	Name	Description	Pin #	Name	Description
1	ANT	Antenna Port	5	RF2	RF Port 2
2	NC	Not Connect	6	VDD	DC Power Supply Voltage
3	VC1	Logic Control Voltage 1	7	VC2	Logic Control Voltage 2
4	RF1	RF Port 1	8	RF3	RF Port 3

Application circuit

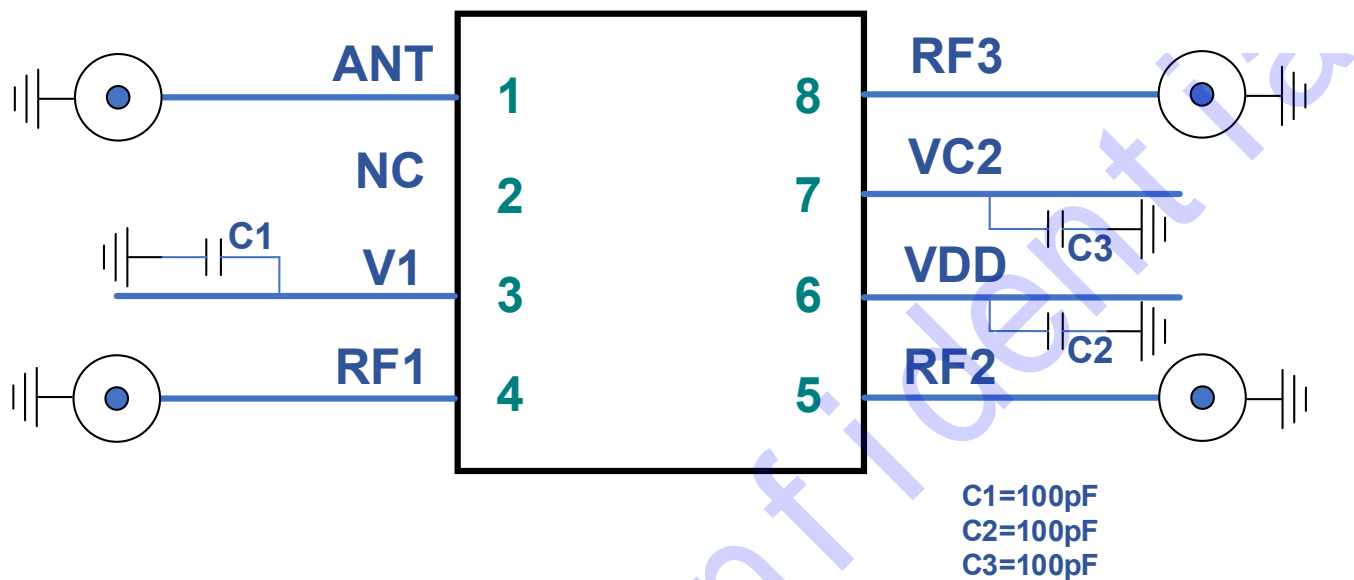
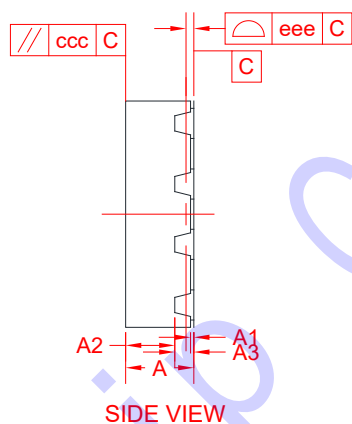
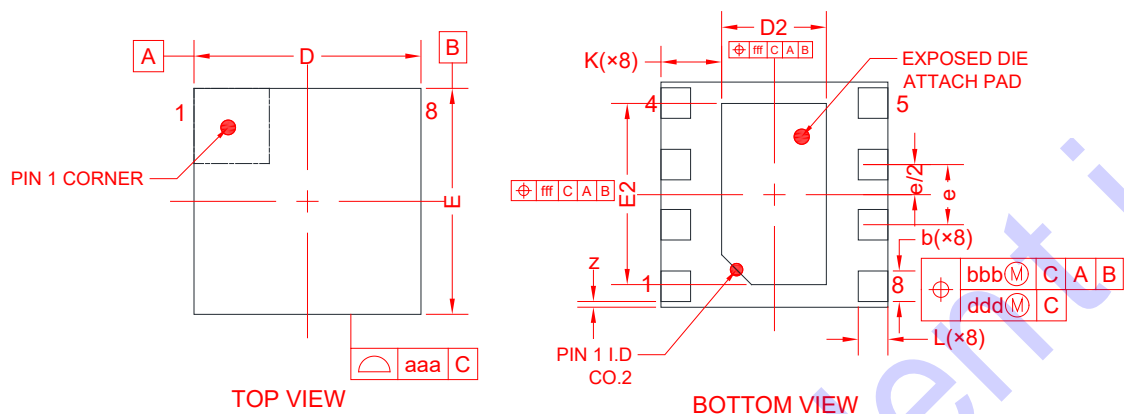


Figure 3 Application circuit

Package Outline Dimension



SYMBOL	MIN	NOM	MAX
A	0.4	0.45	0.5
A1	0	0.02	0.05
A2	---	0.325	---
A3	0.127 REF		
b	0.15	0.2	0.25
D	1.5 BSC		
E	1.5 BSC		
e	0.4 BSC		
D2	0.6	0.7	0.8
E2	1.1	1.2	1.3
L	0.15	0.2	0.25
K	0.2REF		
z	0.05REF		
aaa	0.1		
ccc	0.1		
eee	0.05		
bbb	0.07		
ddd	0.05		
fff	0.1		

Figure 5 Package Outline Dimension

Package Dimensions (5000pcs)

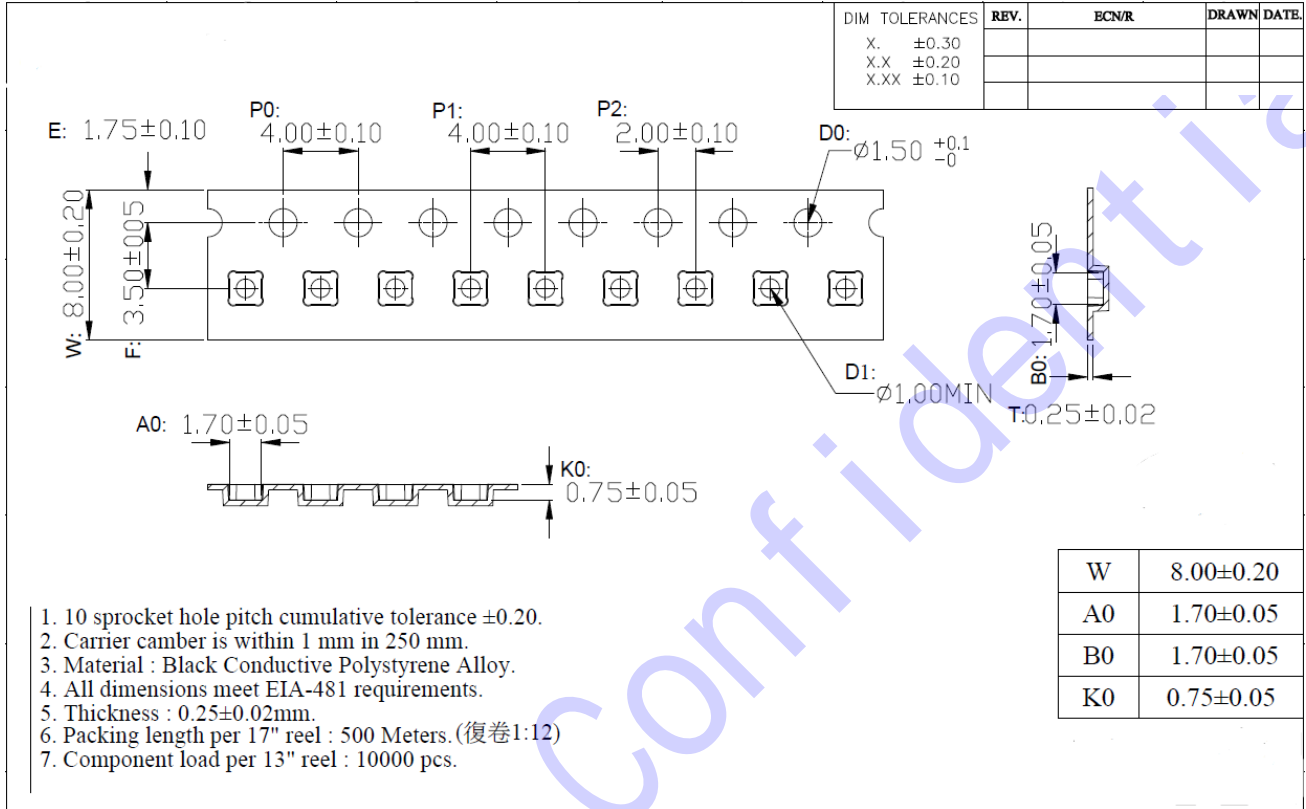


Figure 6 Tape and Reel Dimensions

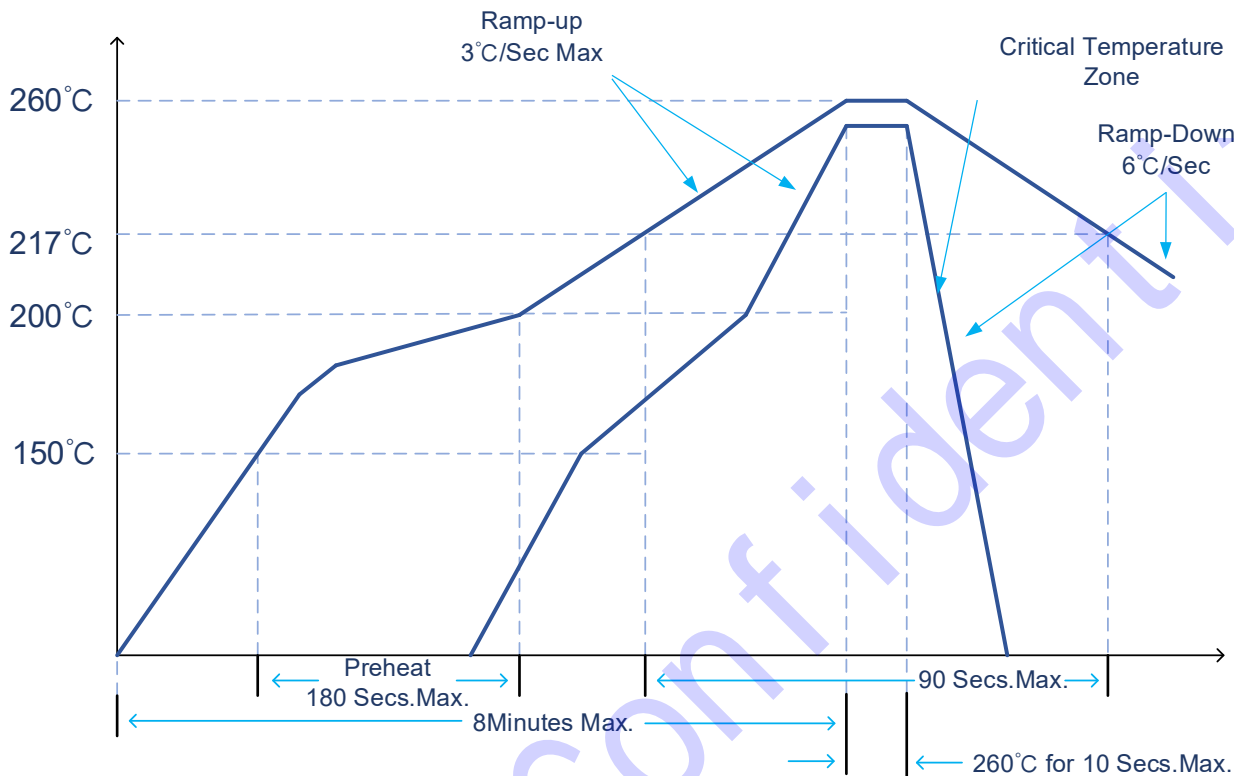
Declaration of No Harmful Substances

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.