MXD8626C

SPDT Switch for 3G/4G Applications

Description

The MXD8626C is a Single-Pole, Double-Throw (SPDT) LTE/WCDMA switch. Switching is controlled by a GPIO interface with a single control pin.

The MXD8626C is provided in a compact 1.1mm x 0.7mm x 0.45mm 6-lead DFN package, which meets the requirements for board-level assembly. No external DC blocking capacitors are required as long as no DC voltage is applied on any RF path. A functional block diagram and the pin configuration are shown in Figure 1.

Features

- Broadband frequency range: 0.4 to 3.0GHz
- Low insertion loss: 0.35dB @2.7GHz
- High isolation: 25dB @2.7GHz
- High Input 0.1dB compression point: 35dBm
- Single GPIO control line with VDD voltage regulator:
  - V_{DD}= 2.5 to 3.0V
  - V_{CTL_H}= 1.5 to 3.0V
- Compact, 6-Lead DFN, 400um pitch (1.1mm x 0.7mm x 0.45mm) package, MSL1

Applications

- GSM/WCDMA/LTE

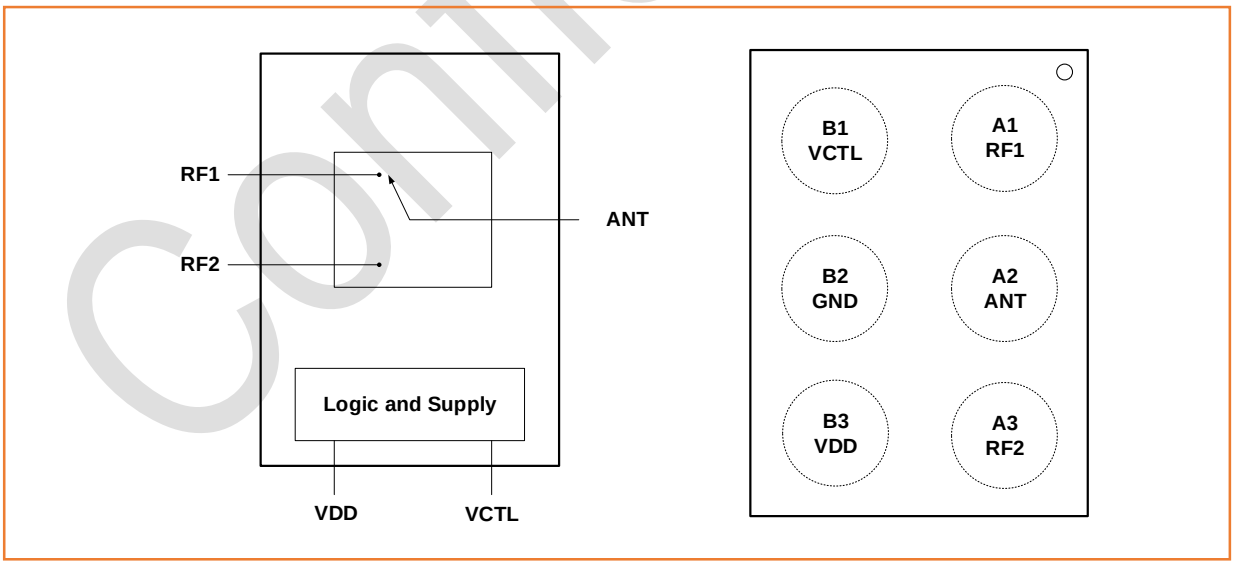


Figure 1 Functional Block and Pin Out(Top View)

Function Characteristics

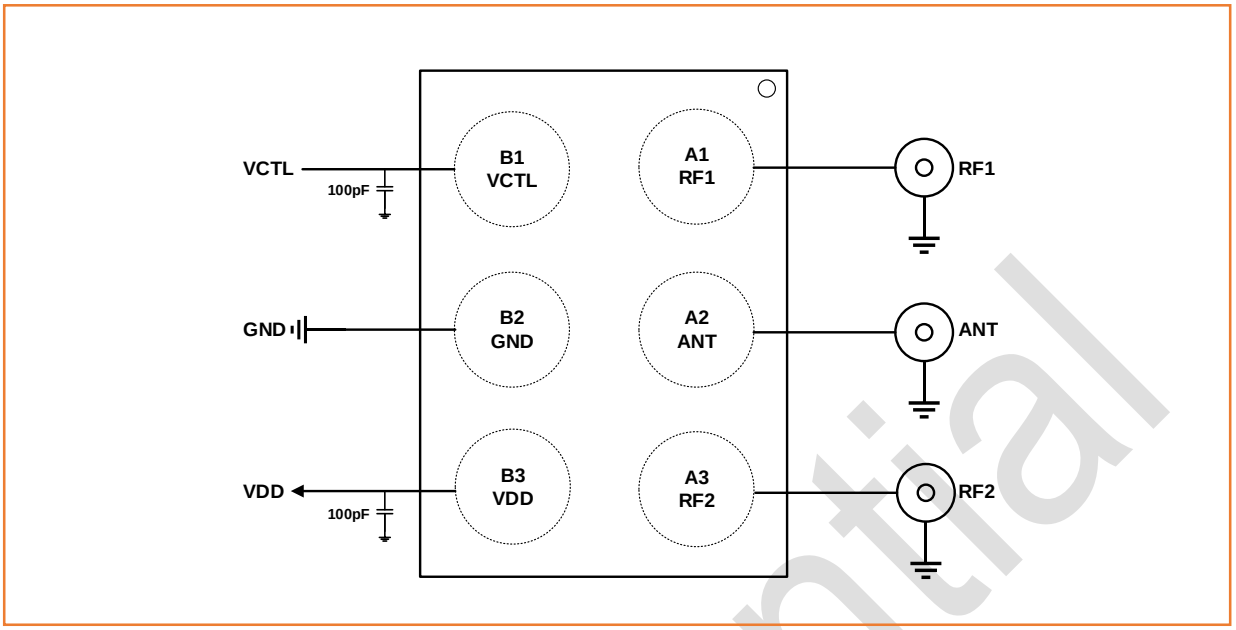


Figure 2 Application Circuit

Table 1 Pin Descriptions

NO.	Name	Description	NO.	Name	Description
A1	RF1	RF Port1	B1	VCTL	Logic Control Voltage
A2	ANT	Antenna Port	B2	GND	Ground
A3	RF2	RF Port2	B3	VDD	DC Supply Voltage

Table 2 VCTL Truth Table for RF Channel Operating Modes

VCTL	RF Channel Operating Mode
Low	ANT to RF1 On
High	ANT to RF2 On

Electrical Characteristics

Table 3 Absolute Maximum Ratings

Parameter	Symbol	Min	Max	Unit	Condition
DC Supply Voltage	V_{DD}	-0.3	3.3	V	T_A=25℃
Logic Control Voltage	V_{CTL}	-0.3	3.3		T_A=25℃
Max RF Input Power (ANT to RF1/RF2)	P_{IN}		36	dBm	F_0=950MHz, 20% DC, V_{DD}=2.8V, V_{CH}=1.8V, Z_O=50Ω, T_A=25℃
Device Operating Temperature	T_{OP}	-40	90	℃	
Device Storage Temperature	T_{STG}	-55	150		
Electrostatic Discharge (All Pins)	$V_{ESD(HBM)}$	1000		V	Human Body Model
	$V_{ESD(CDM)}$	500			Charged Device Model

Notice

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.

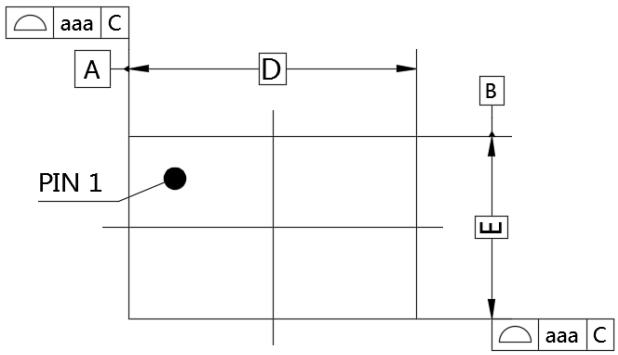
Table 4 Recommended Operating Conditions

Parameter	Symbol	MIN	TYP	MAX	Unit
Operating Frequency	F_0	0.4	-	3.0	GHz
DC Supply Voltage	V_{DD}	2.5	2.8	3.0	V
Control Voltage High	V_{CTL_H}	1.5	1.8	3.0	V
Control Voltage Low	V_{CTL_L}	0	0	0.3	V

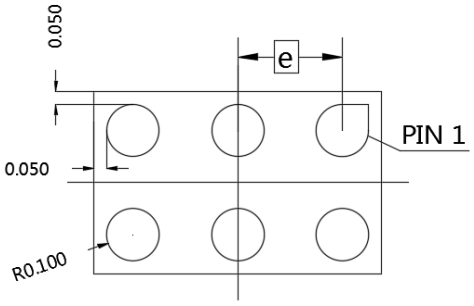
Table 5 Nominal Operating Parameters

Parameter	Symbol	Specification			Unit	Condition
		MIN	TYP	MAX		
Normal Conditions	V_{DD}=2.8V, V_{CTL_H}=1.8V, V_{CTL_L}=0V, P_{IN}=0dBm, Z_0=50Ω, T_A=25℃, Unless Otherwise Stated					
DC Performances						
DC Supply Current	I_{DD}		83	90	μA	
Current on VCTL	I_{CTL}			5		
Timing Performances						
Switching Speed	T_{SW}		1	2	μs	50% of VCTL to 10%/90% of RF
Turn On Time	T_{ON}			10	μs	50% of VDD to 90% of RF
RF Performances						
Insertion Loss (ANT to RF1/RF2)	IL		0.31 0.34 0.35	0.35 0.40 0.50	dB	F_0=0.4 to 1.0GHz F_0=1.7 to 2.1GHz F_0=2.2 to 3.0GHz
Isolation (ANT to RF1/RF2)	ISO	35 28 23	40 30 25		dB	F_0=0.4 to 1.0GHz F_0=1.7 to 2.1GHz F_0=2.2 to 3.0GHz
Voltage Standing Wave Ratio(All Ports)	VSWR		1.25:1	1.50:1		F_0=0.4 to 3.0GHz
Input 0.1dB Compression Point (ANT to RF1/RF2)	$P_{0.1dB}$		35		dBm	F_0=950MHz, 20% DC
2nd Order Harmonic (ANT to RF1/RF2)	$2F_0$		-100	-94	dBc	F_0=0.4 to 3.0GHz @26dBm
3rd Order Harmonic (ANT to RF1/RF2)	$3F_0$		-100	-95	dBc	

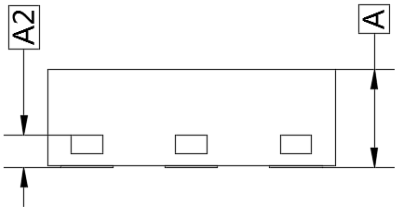
Package Outline Dimensions



TOP VIEW



BOTTOM VIEW



SIDE VIEW

SYMBOL	MILIMETER		
	MIN	NOM	MAX
A	0.400	0.450	0.500
A2	---	0.127	---
D	1.050	1.100	1.150
E	0.650	0.700	0.750
e	0.400 BSC		
aaa	0.100		

Figure 3 Package Outline Dimensions

Marking Specifications

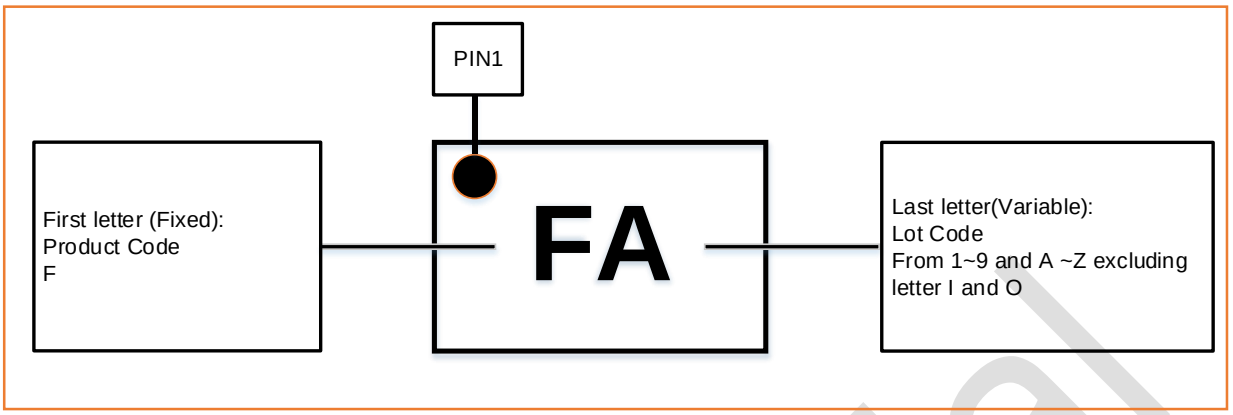


Figure 4 Marking Specifications (Top View)

Tape and Reel Dimensions

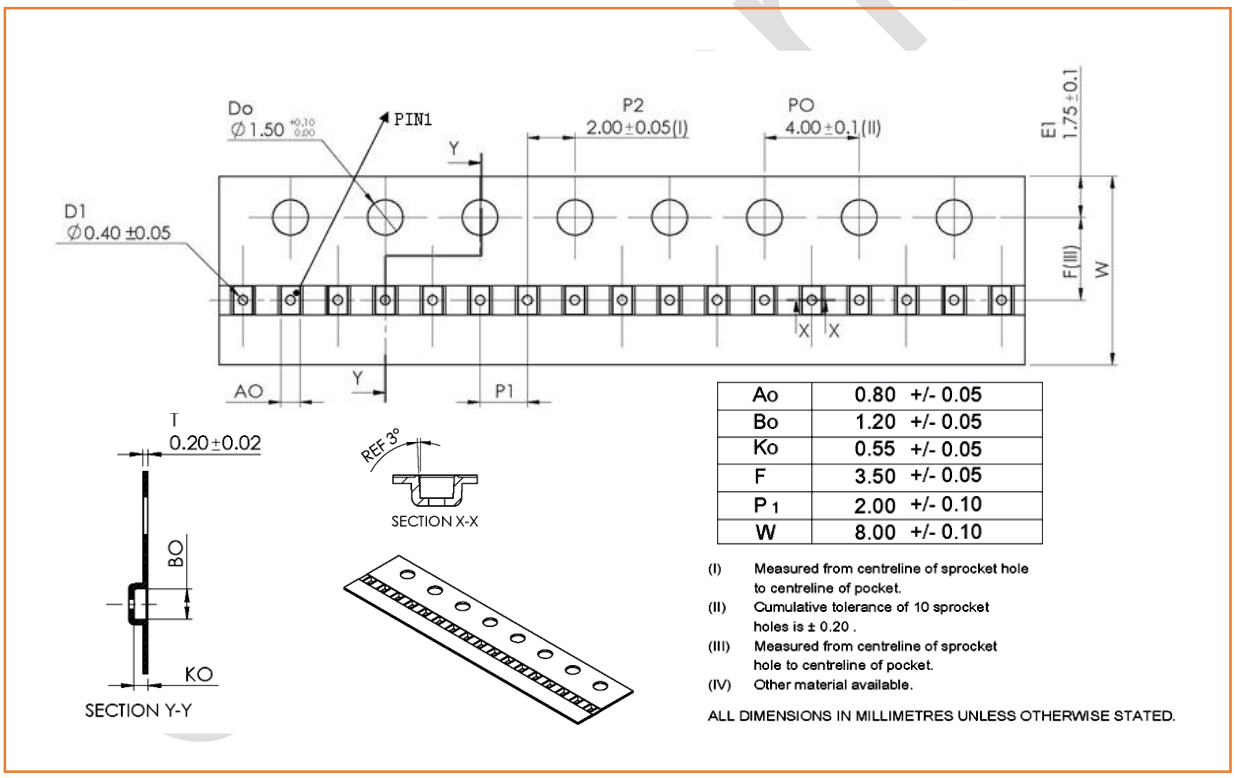


Figure 5 Tape and Reel Dimensions

Reflow Chart

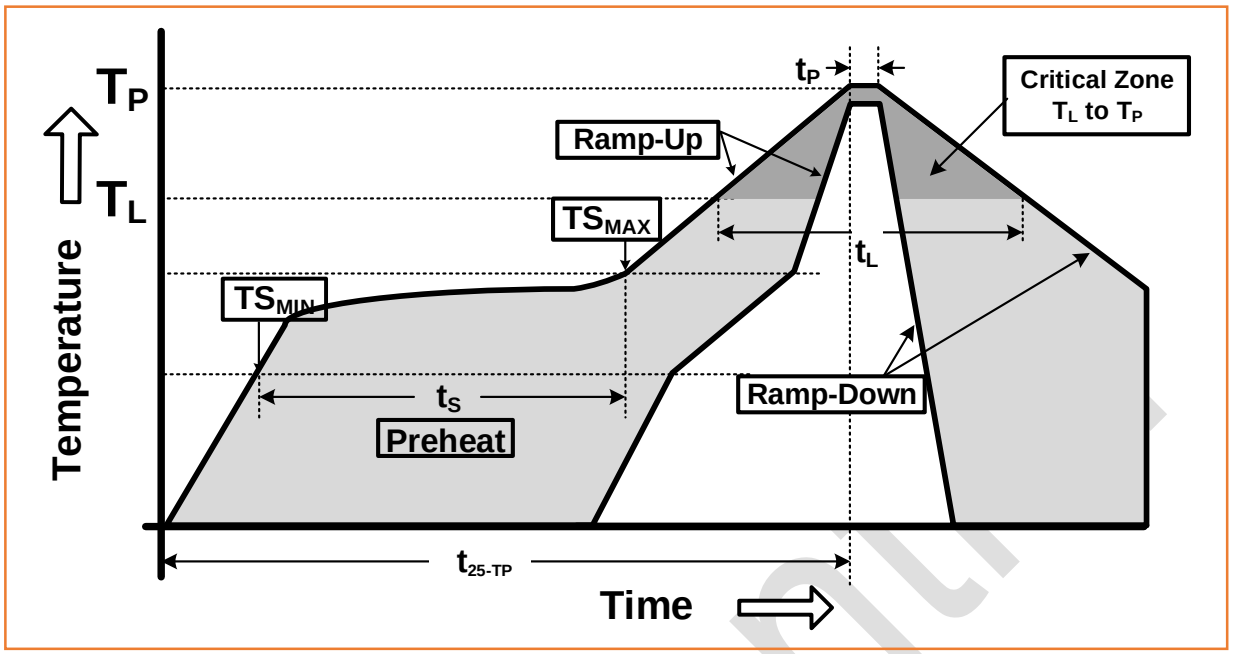


Figure 6 Recommended Lead-Free Reflow Profile

Table 6 Reflow Chart Parameters

Reflow Profile	Parameter
Preheat Temperature(TS_{MIN} to TS_{MAX})	150℃ to 200℃
Preheat Time(t_s)	60 to 180 Seconds
Ramp-Up Rate(TS_{MAX} to T_P)	3℃/s MAX
Time Above T_L 217℃(t_L)	60 to 150 Seconds
Peak Temperature (T_P)	260℃
Time within 5℃ of Peak Temperature(t_P)	20 to 40 Seconds
Ramp-Down Rate(TS_{MAX} to T_P)	6℃/s MAX
Time for 25℃ to Peak Temperature($t_{25\text{-}TP}$)	8 Minutes MAX

ESD Sensitivity

Integrated circuits are ESD sensitive and can be damaged by static electric charge. Proper ESD protection techniques should be applied when devices are operated.

RoHS Compliant

This product does not contain lead, mercury, cadmium, hexavalent chromium, polybrominated biphenyls (PBB) and polybrominated diphenyl ethers (PBDE), and are considered RoHS compliant.

X-ON Electronics

Largest Supplier of Electrical and Electronic Components

Click to view similar products for RF Switch ICs ***category:***

Click to view products by Maxscend ***manufacturer:***

Other Similar products are found below :

MASW-007921-002SMB BGSA142GN12E6327XTSA1 BGSA142MN12E6327XTSA1 BGSA142M2N12E6327XTSA1 MASW-004100-11930W MASW-008853-TR3000 BGS13SN8E6327XTSA1 BGSF18DM20E6327XUMA1 BGSX210MA18E6327XTSA1 BGSX212MA18E6327XTSA1 SKY13446-374LF SW-227-PIN PE42524A-X CG2185X2 CG2415M6 MA4AGSW1A MA4AGSW2 MA4AGSW3 MA4AGSW5 MA4SW210B-1 MA4SW410 MASW-002102-13580G BGS 12PL6 E6327 BGS1414MN20E6327XTSA1 BGS1515MN20E6327XTSA1 BGSA11GN10E6327XTSA1 BGSX28MA18E6327XTSA1 HMC199AMS8 HMC595AETR HMC986A SKY13374-397LF SKY13453-385LF CG2430X1-C2 TGS4304 UPG2162T5N-A CG2415M6-C2 AS222-92LF SW-314-PIN UPG2162T5N-E2-A BGS18GA14E6327XTSA1 MASWSS0204TR-3000 MASWSS0201TR MASWSS0181TR-3000 MASW-007588-TR3000 MASW-007075-000100 MASW-004103-13655P MASW-003102-13590G MASWSS0202TR-3000 MASW-008543-TR3000 MA4SW310B-1