



GW2151A

CMOS SOI SP3T Switch 0.1~6.0GHz for 802.11a/b/g/n

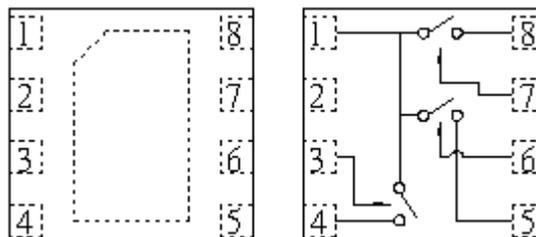
Ver. 0.1

■ Features

- Low Insertion Loss: 0.45dB@0.1 ~ 2.5GHz
0.70dB@4.9~6.0GHz
- High Isolation: 30dB@0.1 ~ 2.5 GHz
28dB@4.9~6.0GHz
- DFN 1.5mm×1.5mm×0.6mm 8 Lead Green Package
- CMOS SOI Process
- Low Cost and Good Reliability Performance

■ Pin Functional Schematic and Assignment

DFN 1.5×1.5 (Top View)



■ General Description

The GW2151A is a CMOS SOI MMIC SP3T antenna switch in a DFN 1.5mm×1.5mm×0.6mm 8 lead plastic package and operates in the 0.1–6 GHz frequency range. Switching between the antenna (RFC) and RF1, RF2, RF3 ports is accomplished with 3 control voltages that employs antenna for transmit and receive diversity. This switch is ideal for all WLAN (operating in the 2.4~2.5 GHz and 4.9~5.9 GHz bands).

Pin No.	Pin Name	Description
1	RFC(Input)	Input Port
2	NC	Not connected
3	Vcont1	Voltage Control 1
4	RF1(Output1)	Output1 Port
5	RF2(Output2)	Output2 Port
6	Vcont2	Voltage Control 2
7	Vcont3	Voltage Control 3
8	RF3(Output3)	Output3 Port

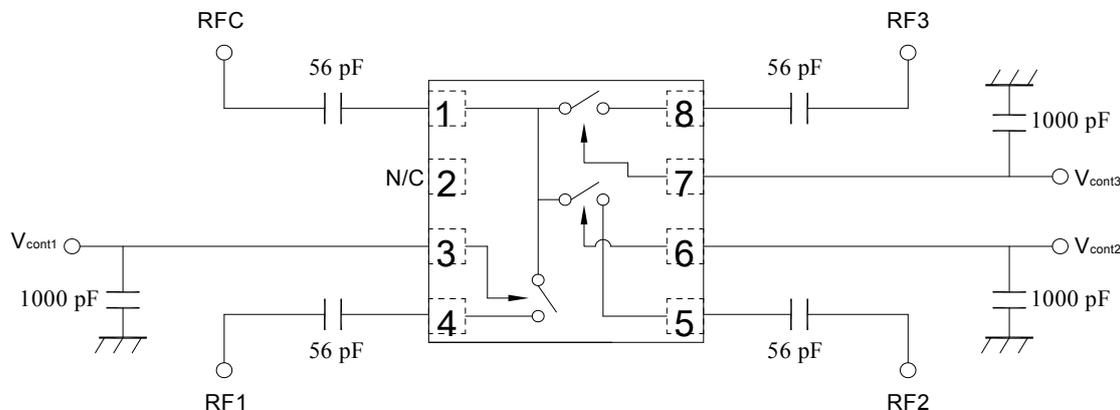
■ Electrical Specifications at 25°C with (0, +3.0V) Control Voltages, 56pF Capacitor

Parameter	Test Conditions	Min.	Typ.	Max.	Unit
Insertion Loss	0.1 – 2.5 GHz	-	0.45	0.65	dB
	4.9 – 6.0 GHz	-	0.70	0.90	
Isolation (RFC to RF1 , RFC to RF2 , RFC to RF3)	0.1 – 2.5 GHz	26	30	-	dB
	4.9 – 6.0 GHz	26	30	-	
Isolation (RF1 to RF2 , RF1 to RF3 , RF2 to RF3)	0.1 – 2.5 GHz	26	30	-	dB
	4.9 – 6.0 GHz	24	28	-	
Input/Output Return Loss	0.1 – 2.5 GHz	-	15	-	dB
	4.9 – 6.0 GHz	-	15	-	
Input Power for 1 dB compression	$2.3V \leq V_{cont(H)} - V_{cont(L)} \leq 3.3V$	-	32	-	dBm
	$1.8V \leq V_{cont(H)} - V_{cont(L)} \leq 2.3V$	-	27	-	dBm
Second Harmonics	2.5 GHz, $P_{IN} = 20dBm$	-	-70	-	dBc
Third Harmonics	2.5 GHz, $P_{IN} = 20dBm$	-	-70	-	dBc
Switch Time	50% CTL to 90/10%	-	200	-	ns
Control Current	Input Power +20dBm	-	8	20	μA

Notes: All measurements made in 50Ω system, unless otherwise specified.



■ Evaluation Circuit



■ Truth Table

Vcont1	Vcont2	Vcont3	RFC-RF1	RFC-RF2	RFC-RF3
High	Low	Low	ON (Insertion Loss)	OFF (Isolation)	OFF (Isolation)
Low	High	Low	OFF (Isolation)	ON (Insertion Loss)	OFF (Isolation)
Low	Low	High	OFF (Isolation)	OFF (Isolation)	ON (Insertion Loss)

■ Recommended Operating Conditions

Parameter	MIN.	MAX.	Unit
Control Voltage (High)	+1.6	+3.5	V
Control Voltage (Low)	0	+0.4	V
Operating frequency	0.1	6.0	GHz

■ Absolute Maximum Ratings

Parameter	Symbol	Absolute Maximum	Unit
Switch Control Voltage	Vcont	3.5	V
Max input Power	Pin	32	dBm
Operating Temperature	T _A	-40 to +85	°C
Storage Temperature	T _{stg}	-40 to +125	°C

Operational exceed any one of these limits may cause permanent damage to this device.

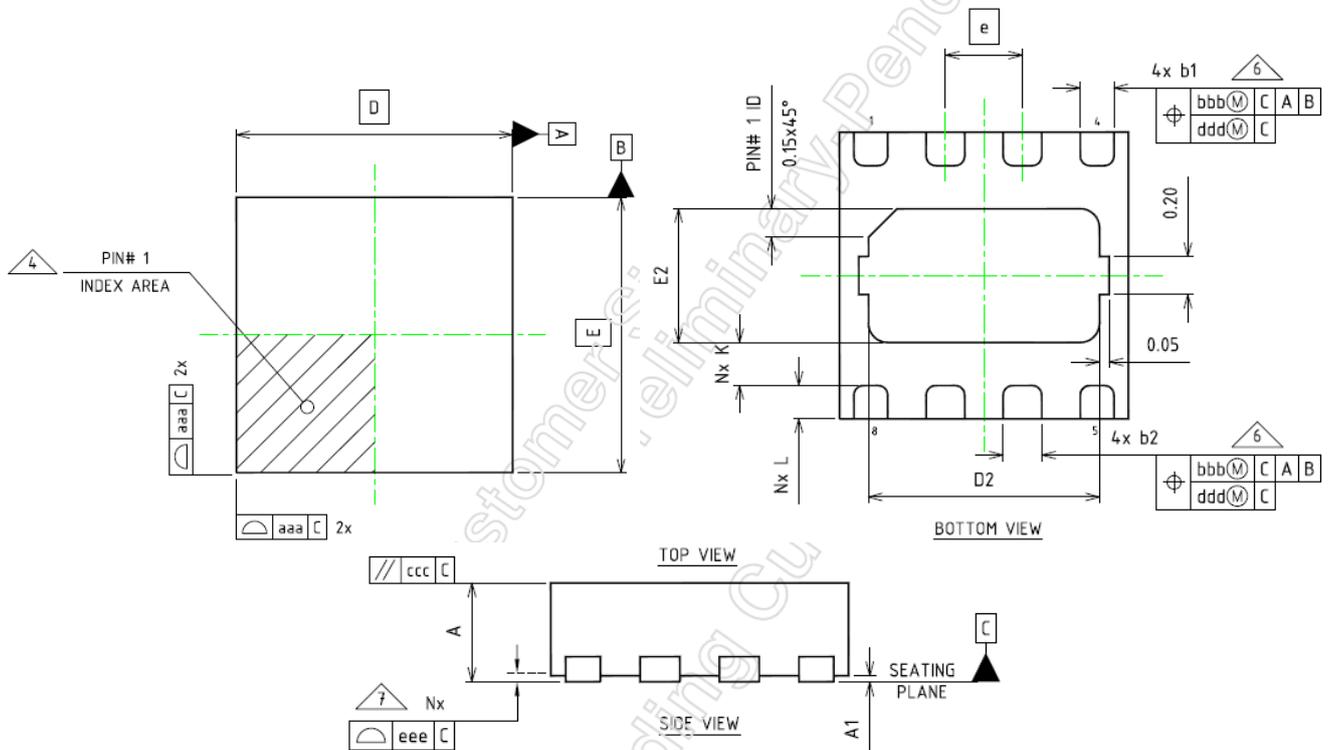


GW2151A

CMOS SOI SP3T Switch 0.1~6.0GHz for 802.11a/b/g/n

Ver. 0.1

DFN 1.5mm×1.5mm 8Lead Package Dimensions (Unit : mm)





Dimension Table							NOTE
Thickness Symbol	X1			UT1			
	MINIMUM	NOMINAL	MAXIMUM	MINIMUM	NOMINAL	MAXIMUM	
A	0.41	0.45	0.50	0.45	0.50	0.55	
A1	0.00	0.02	0.05	0.00	0.02	0.05	
A3	---	0.127 Ref.	---	---	0.127 Ref.	---	
b1	0.125	0.175	0.225	0.125	0.175	0.225	6
b2	0.15	0.20	0.25	0.15	0.20	0.25	6
D	1.50 BSC			1.50 BSC			
E	1.50 BSC			1.50 BSC			
e	0.40 BSC			0.40 BSC			
D2	1.05	1.20	1.30	1.05	1.20	1.30	
E2	0.55	0.70	0.80	0.55	0.70	0.80	
K	0.15	---	---	0.15	---	---	
L	0.125	0.175	0.225	0.125	0.175	0.225	
aaa	0.05			0.05			
bbb	0.07			0.07			
ccc	0.10			0.10			
ddd	0.05			0.05			
eee	0.08			0.08			
N	8			8			3
ND	4			4			5
NOTES	1, 2						
PART NO.	441965						
LF DWG. NO.	CARSEM-HS08455 Rev A						

■ Recommended Soldering Conditions

This product should be mounted and soldered under the following recommended conditions. For soldering methods and conditions other than those recommended below, contact your nearby sales office.

Soldering Method	Soldering Conditions	Rating
Infrared Reflow	Peak temperature (package surface temperature) Time at peak temperature Time at temperature of 200°C or higher Preheating time at 120 to 180°C Maximum number of reflow processes Maximum chlorine content of rosin flux (%mass)	260°C or below 10 seconds or less 60 seconds or less 120±30 seconds 3 times 0.2%(Wt.) or below
Wave Soldering	Peak temperature (molten solder temperature) Time at peak temperature Preheating temperature (package surface temperature) Maximum number of flow processes Maximum chlorine content of rosin flux (%mass)	260°C or below 10 seconds or less 120°C or below 1 times 0.2%(Wt.) or below
Partial Heating	Peak temperature (terminal temperature) Soldering time (per side of device) Maximum chlorine content of rosin flux (%mass)	350°C or below 3 seconds or less 0.2%(Wt.) or below



GW2151A

CMOS SOI SP3T Switch 0.1~6.0GHz for 802.11a/b/g/n

Ver. 0.1

Caution Do not use different soldering methods together (except for partial heating).