

Broadband SPDT RF Switch for Dual-Band wireless LAN

DESCRIPTION

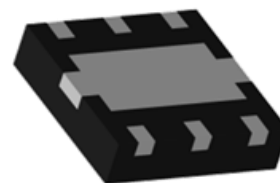
- The CG6002X3 is a GaAs MMIC SPDT(Single Pole Double Throw) switch for 2.4 GHz and 6 GHz dual-band wireless LAN applications

FEATURES

- Control voltage :
VC(H) = 1.8 to 5.0 V (3.0V TYP.)
VC(L) = -0.2 to 0.2 V (0V TYP.)
- Low insertion loss :
L_{ins1} = 0.35 dB TYP. @ f = 2.4 to 2.5 GHz
L_{ins2} = 0.55 dB TYP. @ f = 4.9 to 6.0 GHz
- High isolation :
ISL1 = 40 dB TYP. @ f = 2.4 to 2.5 GHz
ISL2 = 38 dB TYP. @ f = 4.9 to 6.0 GHz
- Power handling :
Pin (1dB) = +33 dBm TYP. @ f = 2.5 GHz,
VC(H) = 3.0 V, VC(L) = 0 V
Pin (1dB) = +32 dBm TYP. @ f = 6.0 GHz,
VC(H) = 3.0 V, VC(L) = 0 V

PACKAGE

- 6-pin XSON Package
(1.5mm x 1.5mm x 0.37mm)



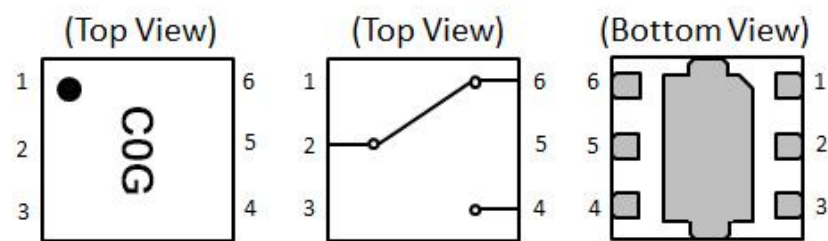
APPLICATIONS

- Dual-band wireless LAN
LAN (IEEE802.11a/b/g/n/ac)

ORDERING INFORMATION

Part Number	Order Number	Package	Marking	Description
CG6002X3	CG6002X3-C2	6-pin plastic TSON (Pb-Free)	C0G	- Embossed tape 8 mm wide - Pin 1, 6 face the perforation side of the tape - MOQ 10 kpcs/reel
CG6002X3-EVAL	CG6002X3-EVAL			- Evaluation Board with DC block capacitors, power supply bypass capacitors, and RF and DC connectors - MOQ 1

PIN CONFIGURATION AND INTERNAL BLOCK DIAGRAM



Pin No.	Pin Name
1	VC1
2	RFC
3	VC2
4	RF2
5	GND
6	RF1

Remark Exposed pad : GND

TRUTH TABLE

VC1	VC2	RFC-RF1	RFC-RF2
High	Low	OFF	ON
Low	High	ON	OFF

ABSOLUTE MAXIMUM RATINGS

(TA = +25°C, unless otherwise specified)

Parameter	Symbol	Rating	Unit
Control Voltage	VC	6.0 ^{Note 1}	V
Input Power	Pin	+33.5 ^{Note 2}	dBm
Operating Ambient Temperature	T _A	-45 ~ +85	°C
Storage Temperature	T _{stg}	-55 ~ +150	°C

Note 1. |VC1 - VC2| ≤ 6.0V
2. 3.0V ≤ |VC1 - VC2| ≤ 5.0V

RECOMMENDED OPERATING RANGE

(TA = +25°C, unless otherwise specified)

Parameter	Symbol	MIN.	TYP.	MAX.	Unit
Operating Frequency	f1	2.4	-	2.5	GHz
	f2	4.9	-	6.0	GHz
Switch Control Voltage (H)	VC(H)	+1.8	+3.0	+5.0	V
Switch Control Voltage (L)	VC(L)	-0.2	0	+0.2	V

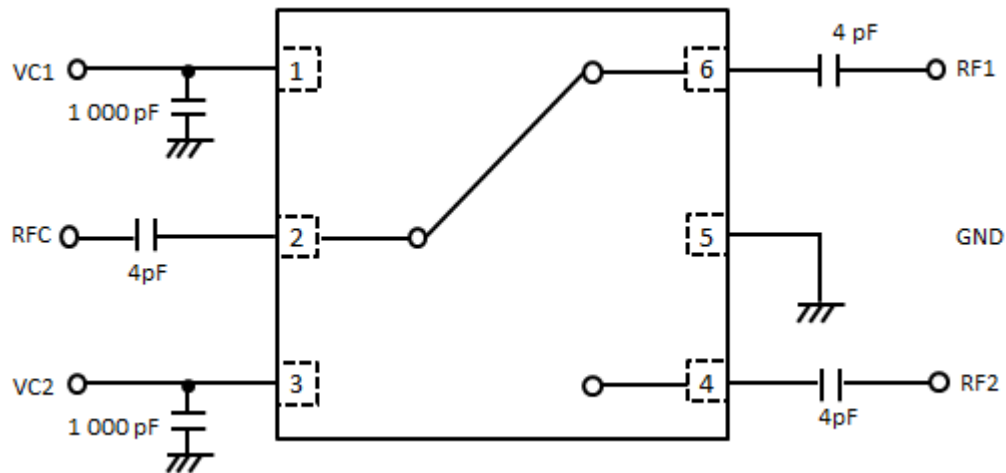
ELECTRICAL CHARACTERISTICS

(TA=+25°C, VC(H)=3.0V, VC(L)=0V, Zo=50Ω, DC Block Capacitance=4pF, unless otherwise specified)

Parameter	Symbol	Test Conditions	MIN.	TYP.	MAX.	Unit
Insertion Loss	Lins1	f = 2.4 to 2.5 GHz	-	0.35	0.55	dB
	Lins2	f = 4.9 to 6.0 GHz	-	0.55	0.85	dB
Isolation	ISL1	f = 2.4 to 2.5 GHz	38	40	-	dB
	ISL2	f = 4.9 to 6.0 GHz	35	38	-	dB
Return Loss	RL1	f = 2.4 to 2.5 GHz	-	20	-	dB
	RL2	f = 4.9 to 6.0 GHz	-	17	-	dB
1 dB Loss Compression Input Power ^{Note}	Pin(1 dB)	f = 2.4 to 2.5 GHz, VC(H)=1.8V, VC(L)=0V	-	+29	-	dBm
		f = 2.4 to 2.5 GHz, VC(H)=3.0V, VC(L)=0V	-	+33	-	dBm
		f = 4.9 to 6.0 GHz, VC(H)=1.8V, VC(L)=0V	-	+26	-	dBm
		f = 4.9 to 6.0 GHz VC(H)=3.0V, VC(L)=0V	-	+32	-	dBm
3rd Order Input Intercept Point	IIP3	f = 2.5GHz 2-tone 1MHz Spacing	-	+55	-	dBm
		f = 6.0GHz 2-tone 1MHz Spacing	-	+55	-	dBm
Switch Control Speed	tsw	50% CTL to 90/10%	-	80	-	ns
Switch Control Current	Icont	RF None	-	2	-	μA

Note Pin(1dB) is the measured input power level when the insertion loss increases 1dB more than that of the linear range.

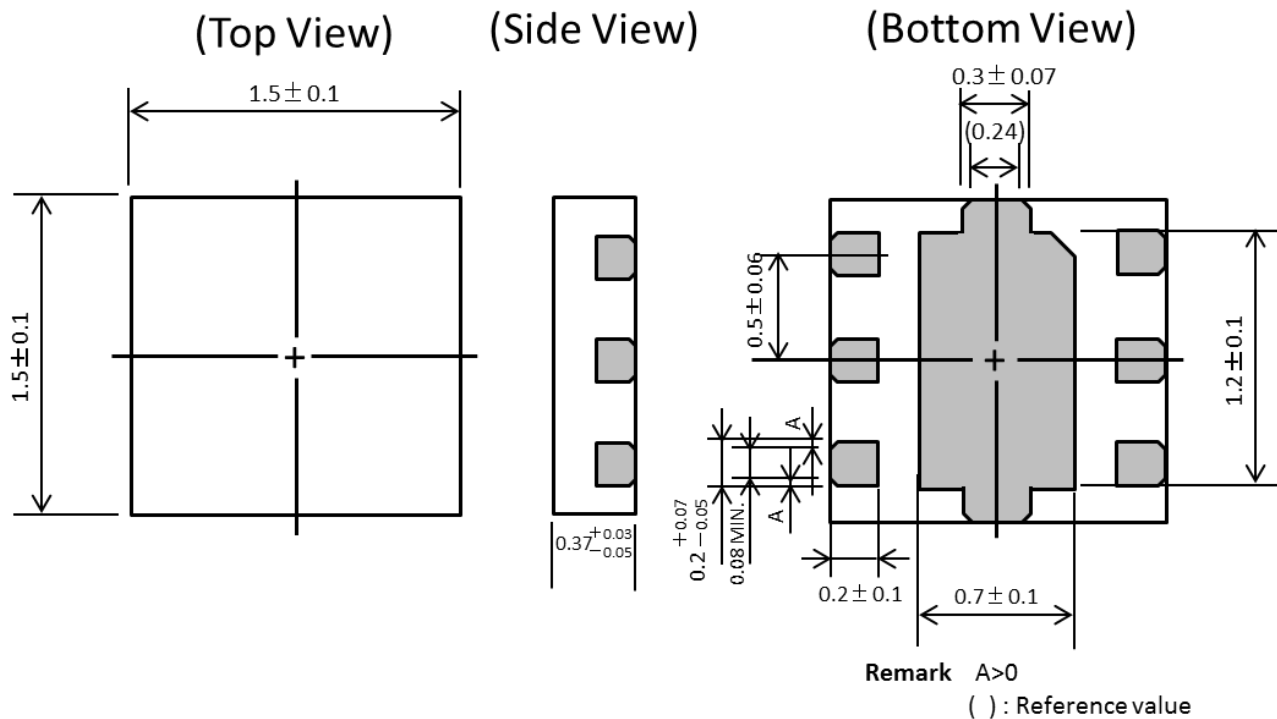
EVALUATION CIRCUIT



The application circuits and their parameters are for reference only and are not intended for use in actual designs. DC Blocking Capacitors are required at all RF ports.

PACKAGE DIMENSIONS

6-pin Plastic XSON (Unit: mm)



REVISION HISTORY

Version	Change to current version	Page(s)
CDS-0035-01 (Issue A) September 20, 2016	Preliminary datasheet	N/A
CDS-0035-02 (Issue B) January 12, 2017	Initial datasheet	N/A
CDS-0035-03 (Issue C) June 21, 2017	Updated Electrical Characteristics Table	3

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CEL Headquarters • 4590 Patrick Henry Drive • Santa Clara, CA 95054 • Tel: (408) 919-2500 • www.cel.com

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