

PRELIMINARY DATA SHEET : CKRF2409XS03



High Power SPDT Switch for WiMAX

Features

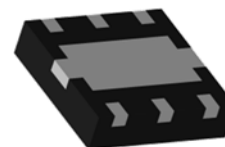
- Control voltage :
 $VC(H) = 1.8 \text{ to } 5.0 \text{ V (3.0V TYP.)}$
 $VC(L) = -0.2 \text{ to } 0.2 \text{ V (0V TYP.)}$
- Low insertion loss :
 $L_{ins1} = 0.45 \text{ dB TYP. @ } f = 2.5 \text{ GHz}$
 $L_{ins2} = 0.55 \text{ dB TYP. @ } f = 3.8 \text{ GHz}$
 $L_{ins3} = 0.60 \text{ dB TYP. @ } f = 6.0 \text{ GHz}$
- High isolation :
 $ISL1 = 32 \text{ dB TYP. @ } f = 2.5 \text{ GHz}$
 $ISL2 = 32 \text{ dB TYP. @ } f = 3.8 \text{ GHz}$
 $ISL3 = 28 \text{ dB TYP. @ } f = 6.0 \text{ GHz}$
- Handling power :
 $P_{in(0.1dB)} = +37.5 \text{ dBm TYP. @ } f = 2.5 \text{ GHz,}$
 $VC(H) = 3.0 \text{ V, } VC(L) = 0 \text{ V}$

Package

- 6-pin Thin SON Package(XS03)
 $(1.5\text{mm} \times 1.5\text{mm} \times 0.37\text{mm})$

Description

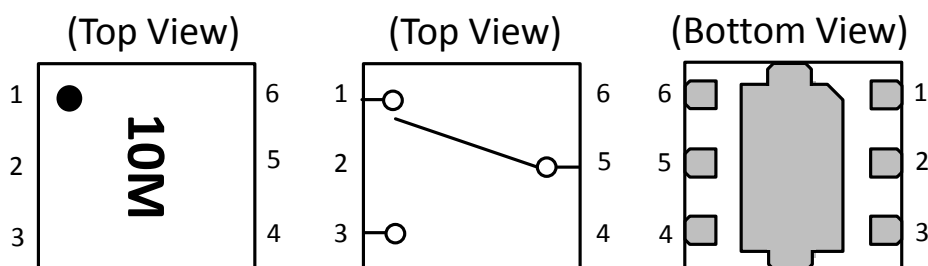
- The CKRF2409XS03 is a GaAs MMIC SPDT(Single Pole Double Throw) switch which was developed for WiMAX and wireless LAN



Applications

- WiMAX and wireless LAN
 (IEEE802.11a/b/g/n), etc.

Pin Configuration and Internal Block Diagram



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

Remark Exposed pad : GND

Ordering Information

Part Number	Order Number	Package	Marking	Supplying Form
CKRF2409XS03-C2	CKRF2409XS03-C2	6-pin TSON (Pb-Free)	10M	<ul style="list-style-type: none"> · Embossed tape 8 mm wide · Pin 1, 6 face the perforation side of the tape · Qty 10 kpcs/reel

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Absolute Maximum Ratings

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

Parameter	Symbol	Rating	Unit
Control Voltage	VC	6.0 ^{Note 1}	V
Input Power	P _{in}	+38.0 ^{Note 2}	dBm
Operating Ambient Temperature	T _A	-45~+85	°C
Storage Temperature	T _{stg}	-55~+150	°C

- Note**
1. $|VC1 - VC2| \leq 6.0V$
 2. $3.0V \leq |VC1 - VC2| \leq 5.0V$

Recommended Operating Range

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

Parameter	Symbol	MIN.	TYP.	MAX.	Unit
Operating Frequency	f	0.05	-	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

Truth Table

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

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•Electrical Characteristics

($T_A=+25\text{ }^\circ\text{C}$, $V_C(H)=3.0\text{V}$, $V_C(L)=0\text{V}$, $Z_0=50\ \Omega$, DC Block Capacitance=8pF, unless otherwise specified)

Parameter	Symbol	Test Conditions	MIN.	TYP.	MAX.	Unit
Insertion Loss	Lins1	f = 0.05 to 0.5 GHz Note 1	-	0.30	0.50	dB
	Lins2	f = 0.5 to 1.0 GHz Note 2	-	0.35	0.55	dB
	Lins3	f = 1.0 to 2.0 GHz Note 2	-	0.40	0.60	dB
	Lins4	f = 2.0 to 2.5 GHz	-	0.45	0.65	dB
	Lins5	f = 2.5 to 3.0 GHz	-	0.50	0.70	dB
	Lins6	f = 3.0 to 3.8 GHz	-	0.55	0.80	dB
	Lins7	f = 3.8 to 6.0 GHz	-	0.60	0.90	dB
Isolation	ISL1	f = 0.05 to 0.5 GHz Note 1	29	32	-	dB
	ISL2	f = 0.5 to 1.0 GHz Note 2	29	32	-	dB
	ISL3	f = 1.0 to 2.0 GHz Note 2	29	32	-	dB
	ISL4	f = 2.0 to 2.5 GHz	29	32	-	dB
	ISL5	f = 2.5 to 3.0 GHz	29	32	-	dB
	ISL6	f = 3.0 to 3.8 GHz	29	32	-	dB
	ISL7	f = 3.8 to 6.0 GHz	25	28	-	dB
Return Loss	RL1	f = 0.05 to 0.5 GHz Note 1	15	20	-	dB
	RL2	f = 0.5 to 2.0 GHz Note 2	15	20	-	dB
	RL3	f = 2.0 to 3.8 GHz	15	20	-	dB
	RL4	f = 3.8 to 6.0 GHz	15	20	-	dB
0.1 dB Loss Compression Input Power Note 3	$P_{in(0.1dB)}$	f = 2.5 GHz	-	+37.5	-	dBm
2nd Harmonics	2f ₀	f = 2.5 GHz, $P_{in}=+26\text{dBm}$	-	75	-	dBc
3rd Harmonics	3f ₀	f = 2.5 GHz, $P_{in}=+26\text{dBm}$	-	80	-	dBc
Input 3rd Order Intercept Point	IIP3	f = 2.5GHz 2-tone 1MHz Spacing		+60		dBm
Switch Control Speed	t _{sw}	50% CTL to 90/10% RF	-	100	-	ns
Switch Control Current	I _{cont}	Non RF	-	7	-	μA

Note 1 DC block capacitance = 1,000pF at f=0.05 to 0.5 GHz

Note 2 DC block capacitance = 56pF at f=0.5 to 2.0 GHz

Note 3 $P_{in(0.1dB)}$ is the measured input power level when the insertion loss increases 0.1dB more than that of the linear range.

[CAUTION]

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- Do not chemically make gas or powder with this product.
- When discard this product, please obey the law of your country.
- Do not lick the product or in any way allow it to enter the mouth.

[CAUTION]

Although this device is designed to be as robust as possible, ESD (Electrostatic Discharge) can damage this device. This device must be protected at all times from ESD. Static charges may easily produce potentials of several kilovolts on the human body or equipment, which can discharge without detection. Industry-standard ESD precautions should be used at all times.

CHUO DENSHI KOGYO CO., LTD
3400 Kooyama, Matsubase, Uki-City,
Kumamoto 869-0512, Japan
Tel : +81-964-32-2730
Fax : +81-964-32-3549
URL : <http://www.en.cdk.co.jp/>

Contact info for inquiries
Electronic Devices Division Sales and Planning Department
TEL : +81-964-32-2750
E-mail : info@cdk.co.jp
FAX : +81-964-32-3549
