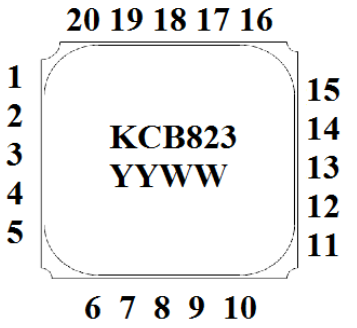
KCB823

Low Loss SPDT W/ Driver
DC – 6 GHz

Features

- ❑ Wideband frequency range: DC to 6 GHz
- ❑ Isolation: 50 dB @ 2 GHz / Insertion Loss: .75 dB @ 2 GHz
- ❑ Integrated Silicon CMOS Driver
- ❑ Single Positive Control (0 to 3V and 0 to 5V)
- ❑ Non Reflective
- ❑ High Reliability Class H Screening Available
- ❑ See Page 3 for Hi –Rel Ordering Details



1	VDD	11	RF1
2	VCTL	12	GND
3	RFC	13	GND
4	GND	14	GND
5	GND	15	RF2
6	GND	16	GND
7	GND	17	GND
8	GND	18	GND
9	GND	19	GND
10	GND	20	GND

Description

The KCB823 is a GaAs pHEMT Non Reflective high performance, low loss on switch with integrated silicon CMOS driver.
The KCB823 uses Hermetic Surface-Mount Technology (SMT) for Defense and Satellite application.
The device can be supplied and tested to the screening requirements of MIL-PRF-38534 Class H, in addition to the required QCI.

Electrical Characteristics (+25°C)

Parameter	Conditions	Min.	Typ.	Max.	Units
Insertion Loss	DC – 2.0 GHz		0.75	1.10	dB
	2.0 – 3.0 GHz		0.8	1.25	dB
	3.0 – 4.0 GHz		1.0	1.35	dB
	4.0 – 6.0 GHz		1.5	1.8	dB
RF1/RF2 Return Loss (ON-State)	DC – 2.0 GHz		22		dB
	2.0 – 3.0 GHz		22		dB
	3.0 – 4.0 GHz		18		dB
	4.0 – 6.0 GHz		12		dB
RF2 Return Loss (OFF-State)	DC – 2.0 GHz		12		dB
	2.0 – 3.0 GHz		15		dB
	3.0 – 4.0 GHz		15		dB
	4.0 – 6.0 GHz		13		dB
Isolation	DC – 2.0 GHz	50	50		dB
	2.0 – 3.0 GHz	50	55		dB
	3.0 – 4.0 GHz	45	50		dB
	4.0 – 6.0 GHz	40	45		dB
Input Power for 1 dB Output Compression Vdd=5.0V, 0.7-2 GHz	CW		+30		dBm
Third Order Output Intercept Point (IP3) Vdd=5.0V, 0.7-2 GHz	Two Tone input power = 8 dBm per tone 1 MHz Spacing		+46		dBm
Switching Characteristics	10/90% or 90/10% RF		30		nS
Rise, Fall	50%CTL to 90/10% RF		50		nS

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Rev(-), Date 5/14/13

KCB823

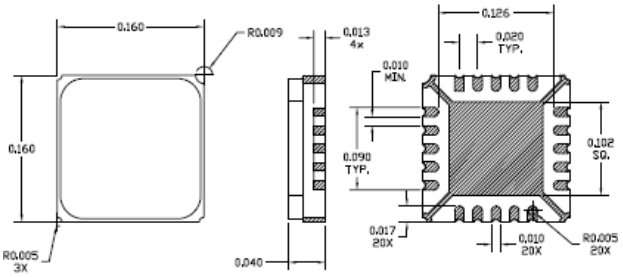
Low Loss SPDT W/ Driver
DC – 6 GHz

KCB SOLUTIONS
RF DESIGN & MANUFACTURING

Absolute Maximum Ratings

Characteristic	Min Value	Max Value	Units
Supply Voltage	+2.7	+5.0	Volts
RF Input Power		+30	dBm
Storage Temperature	-65	+150	° C
Operating Case Temp	-55	+125	° C
Junction Temperature		+150	° C
Operating Frequency	0.03	6.00	GHz

Outline Drawing



Truth Table / Control Voltages

Control Input VCTL	Signal Path State	
	RFC to J1	RFC to J2
0	ON	OFF
1	OFF	ON

State	Bias Conditions
Low (0)	0 to 0.3 x Vdd @ 5uA
High (1)	.7 x Vdd to Vdd @ 5 uA

Screening Flow

Test Inspection	MIL – STD -883		Requirement	
	Method	Condition	Class B	Class S
Wafer Lot Acceptance	5007		N/A	Per Wafer Lot
Non-Destructive Bond Pull	2023		Process under Statistical Control	100%
Internal Visual	2010	A= Class S B = Class B	100%	100%
Temperature Cycle	1010	C	100%	100%
Acceleration	2001	E (Y1 only)	100%	100%
PIND	2020	A (5 Cycles)	N/A	100%
Serialization	Per Product Specification		100%	100%
Radiographic	2012		N/A	100%
Electrical Test	Per Product Specification	+25°C	100%	100%
Burn In	1015	A	100% 160 Hours @ 125°C	100% 320 Hours @ 125 °C
Final Electrical	Per Product Specification	+25°C	100%	100%
Group A Electrical	Per Product Specification	-55°C + 125°C	45/0	45/0
Seal Fine Leak Gross Leak	1014	 A C	100%	100%
External Visual	2009		100%	100%

Ordering Information

KCB Solutions Part Number	Screening Level
KCB823C	Unscreened
KCB823B	Class B Screening
KCB823S	Class S Screening

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