

KCB816

Low Loss SPST

DC – 4 GHz



Features

- Wideband frequency range: DC to 4 GHz
- Isolation: 45 dB @ 2 GHz
- Low Loss: .8 dB @ 2 GHz
- RF1 Reflective / RF2 Non Reflective
- High Reliability Class B and S Screening Available
- See Page 3 for Hi –Rel Ordering Details



Description

The KCB816 is a GaAs pHEMT Non Reflective high performance, low loss on switch.

The KCB816 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-38535 Class B and S, in addition to the required QCI.

1	GND
2	A
3	B
4	GND
5	RF2
6	GND
7	GND
8	RF1

Electrical Characteristics (+25°C)

Parameter	Conditions	Min.	Typ.	Max.	Units
Insertion Loss	DC – 2.0 GHz		0.6	0.8	dB
	2.0 – 3.0 GHz		0.9	1.0	dB
	3.0 – 4.0 GHz		1.0	1.20	dB
RF1/RF2 Return Loss (ON-State)	DC – 2.0 GHz		20		dB
	2.0 – 3.0 GHz		15		dB
	3.0 – 4.0 GHz		14		dB
RF2 Return Loss (OFF-State)	DC – 2.0 GHz		24		dB
	2.0 – 3.0 GHz		20		dB
	3.0 – 4.0 GHz		14		dB
Isolation	DC – 2.0 GHz	41	45		dB
	2.0 – 3.0 GHz	38	42		dB
	3.0 – 4.0 GHz	33	38		dB
Input Power for 1 dB Output Compression Vctl = 0V/-5V, 0.5- 2.0 GHz	CW		+24		dBm
Third Order Output Intercept Point (IP3) Vctl = 0V/5V, 0.5 - 2.0 GHz	Two Tone input power = 13 dBm per tone 1 MHz Spacing		+46		dBm
Switching Characteristics Rise, Fall	10/90% or 90/10% RF		5		nS
	50%CTL to 90/10% RF		15		nS

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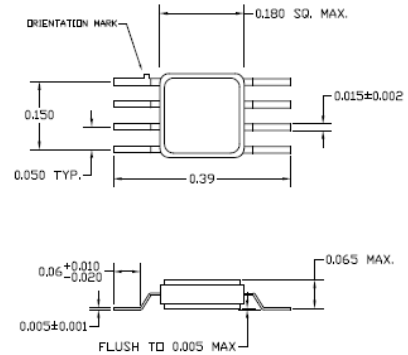
DC – 4 GHz



Absolute Maximum Ratings

Characteristic	Min Value	Max Value	Units
Control Voltages (A+B)	-7.5	+1.0	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	4.00	GHz

Outline Drawing



Truth Table / Control Voltages

Control Input		Signal Path State
A	B	RF1 to RF2
High	Low	ON
Low	High	OFF

State	Bias Conditions
Low	0 to -0.2V @ 20 µA Max.
High	-5V @ 100 µA Typ. to -7V @ 200 µA Typ.

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	1014	A	100%	100%
Gross Leak		C		
External Visual	2009		100%	100%

Ordering Information

KCB Solutions Part Number	Screening Level
KCB816C	Unscreened
KCB816B	Class B Screening
KCB816S	Class S Screening