

# KCB821

High Isolation SPDT

DC – 4 GHz



## Features

- Wideband frequency range: DC to 4 GHz
- Isolation: 55 dB @ 2 GHz
- Low Loss: .8 dB @ 2 GHz
- Non Reflective
- High Reliability Class B and S Screening Available
- See Page 3 for Hi –Rel Ordering Details



## Description

The KCB821 is a GaAs pHEMT Non Reflective high performance, low loss on switch.

The KCB821 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	RF 1
2	GND
3	GND
4	RF2
5	A
6	B
7	RFC
8	GND

## Electrical Characteristics ( +25°C)

Parameter	Conditions	Min.	Typ.	Max.	Units
Insertion Loss	DC – 2.0 GHz		0.8	1.10	dB
	2.0 – 3.0 GHz		0.8	1.25	dB
	3.0 – 4.0 GHz		1.0	1.35	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
RF1/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
Isolation	DC – 2.0 GHz	50	55		dB
	2.0 – 3.0 GHz	50	55		dB
	3.0 – 4.0 GHz	45	50		dB
Input Power for 1 dB Output Compression	CW		+30		dBm
Third Order Output Intercept Point (IP3)	Two Tone input power = 8 dBm per tone 1 MHz Spacing		+46		dBm
Switching Characteristics	10/90% or 90/10% RF		5		nS
Rise, Fall	50%CTL to 90/10% RF		15		nS

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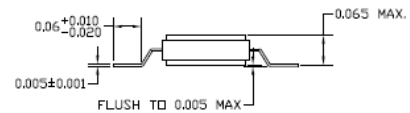
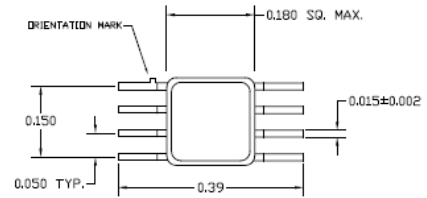
DC – 4 GHz



## 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	
B	A	RFC to RF1	RFC to RF2
High	Low	ON	OFF
Low	High	OFF	ON

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
KCB821C	Unscreened
KCB821B	Class B Screening
KCB821S	Class S Screening