

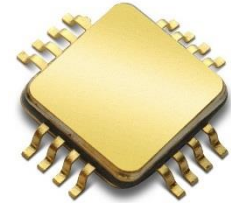
# KCB827

## High Isolation SP4T, With Driver

0.02 – 4 GHz

### Description

The KCB827 is a GaAs pHEMT Non Reflective high performance, low loss on switch in a hermetic surface-mount technology (SMT) compatible package for Defense and Satellite application. The switch features logic that uses two control lines for switch operation and can be supplied and tested to the screening requirements of MIL-PRF-38534 in addition to the required QCI.

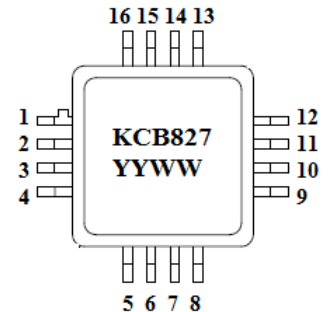


### Features

- Wideband frequency range: 0.02 to 4 GHz
- Isolation: 50 dB @ 2 GHz / Low Loss: 1.0 dB @ 2 GHz
- Positive Voltage Control: 0/3V to 0/5 V
- Non Reflective Ports
- High Reliability Screening Available
- See Page 2 for Hi-Rel Ordering Details

### Electrical Characteristics (+25°C)

Parameter	Conditions	Min.	Typ.	Max.	Units
Insertion Loss	0.02– 1.0 GHz		0.9	1.10	dB
	1.0 – 2.0 GHz		1.0	1.20	dB
	2.0 – 2.5 GHz		1.1	1.30	dB
	2.5 – 4.0 GHz		1.5	1.90	dB
RF1/RF2 Return Loss (ON-State)	0.02– 1.0 GHz		22		dB
	1.0 – 2.0 GHz		22		dB
	2.0 – 2.5 GHz		18		dB
	2.5 – 4.0 GHz		12		dB
RF1/RF2 Return Loss (OFF-State)	0.02– 1.0 GHz		12		dB
	1.0 – 2.0 GHz		15		dB
	2.0 – 2.5 GHz		15		dB
	2.5 – 4.0 GHz		13		dB
Isolation	0.02– 1.0 GHz	45	55		dB
	1.0 – 2.0 GHz	40	50		dB
	2.0 – 2.5 GHz	35	45		dB
	2.5 – 4.0 GHz	33	38		dB
1 dB Input Compression (P1dB)	V <sub>dd</sub> = 5V		+30		dBm
Third Order Output Intercept Point (IP3)	+7 dBm Input Tones, 1 MHz Spacing		+47		dBm
Switching Speed: (Rise/Fall)	10/90% or 90/10% RF		21		nS
		50%CTL to 90/10% RF	125		nS



### Pinout

1	GND
2	RF4
3	GND
4	RF3
5	GND
6	VDD
7	VC1
8	VC2
9	RF2
10	GND
11	RF1
12	GND
13	GND
14	GND
15	RFC
16	GND

### Absolute Maximum Ratings

Characteristic	Min.	Max.	Units
Supply Voltage (V <sub>DD</sub> )	3	5.5	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

### Truth Table / Control Voltages

(V<sub>Low</sub> = 2.5V to V<sub>DD</sub>, V<sub>HI</sub> = 0V to 0.8V)

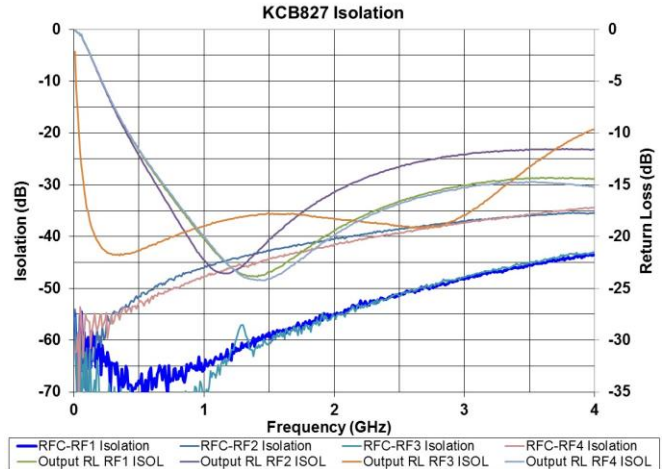
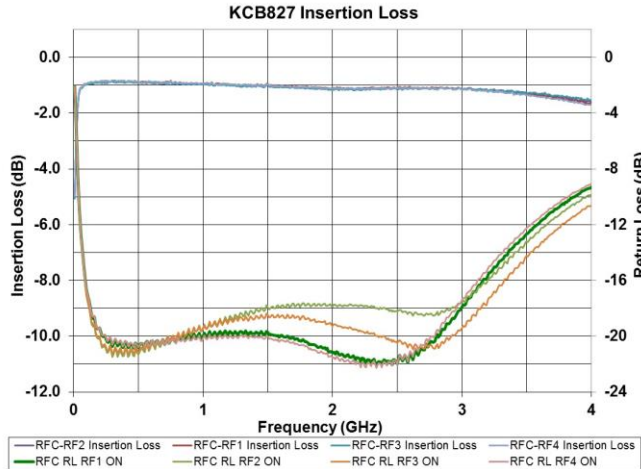
State	VC1	VC2	RF Path
1	Low	Low	RFC – RF1
2	Low	High	RFC – RF2
3	High	Low	RFC – RF3
4	High	High	RFC – RF4

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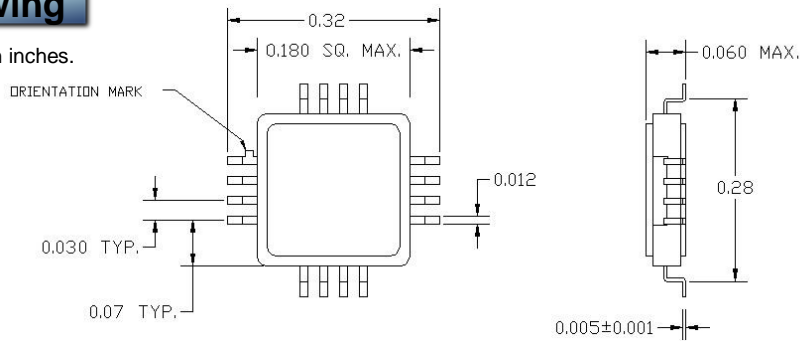
0.02 – 4 GHz

## Typical Performance( +25°C)



## Outline Drawing

Dimensions are shown in inches.



## Screening Flow

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

## Ordering Information

	Unscreened	Class H
KCB Solutions Part Number	KCB827C	KCB827H