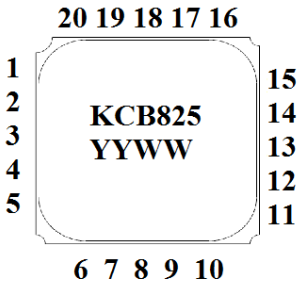
KCB825

High Isolation SP4T
0.02 – 4 GHz

KCB SOLUTIONS
RF DESIGN & MANUFACTURING

Features

- ❑ Wideband frequency range: DC to 4 GHz
- ❑ Isolation: 55 dB @ 2 GHz
- ❑ Low Loss: 1.0 dB @ 2 GHz
- ❑ Non Reflective
- ❑ High Reliability Class B and S Screening Available
- ❑ See Page 3 for Hi –Rel Ordering Details



Description

The KCB825 is a GaAs pHEMT Non Reflective high performance low loss on switch.
The KCB825 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	RF4
2	GND
3	RF3
4	CTL8
5	CTL7
6	CTL6
7	CTL5
8	GND
9	CTL4
10	CTL3

11	CTL2
12	CTL1
13	RF2
14	GND
15	RF1
16	GND
17	GND
18	RFC
19	GND
20	GND

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	55	60		dB
	1.0 – 2.0 GHz	50	54		dB
	2.0 – 2.5 GHz	48	51		dB
	2.5 – 4.0 GHz	40	46		dB
Input Power for 1 dB Output Compression Vctrl= 0/5V, .5 – 2.0 GHz	CW		+30		dBm
Third Order Output Intercept Point (IP3) Vctrl= 0/5V, .5 – 2.0 GHz	Two Tone input power = 7 dBm per tone 1 MHz Spacing		+47		dBm
Switching Characteristics	10/90% or 90/10% RF		21		nS
Rise, Fall	50%CTL to 90/10% RF		125		nS

KCB Solutions, LLC
900 Mount Laurel Circle, Shirley, MA 01464
Office: (978) 425-0400

info@kcbsolutions.com
www.kcbsolutions.com
Rev(-), Date 5/14/13

Absolute Maximum Ratings

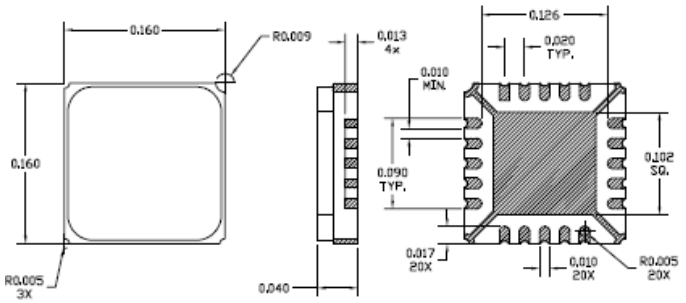
Characteristic	Min Value	Max Value	Units
Control Voltages	-7.5	+1.0	Volts
RF Input Power		+30	dBm
Storage Temperature	-65	+150	° C
Operating Case Temp	-55	+125	° C
Junction Temperature		+150	° C
Operating Frequency	0.03	4.00	GHz

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

Truth Table / Control Voltages

Control Input								Signal Path States RFC to			
CT1	CT2	CT3	CT4	CT5	CT6	CT7	CT8	RF1	RF2	RF3	RF4
Low	High	High	Low	High	Low	High	Low	ON	OFF	OFF	OFF
High	Low	Low	High	High	Low	High	Low	OFF	ON	OFF	OFF
High	Low	High	Low	Low	High	High	Low	OFF	OFF	ON	OFF
High	Low	High	Low	High	Low	Low	High	OFF	OFF	OFF	ON

Outline Drawing



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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^{O}C	100%	100%
Burn In	1015	A	100% 160 Hours @ 125^{O}C	100% 320 Hours @ 125 ^{O}C
Final Electrical	Per Product Specification	+25^{O}C	100%	100%
Group A Electrical	Per Product Specification	-55^{O}C + 125^{O}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
KCB825C	Unscreened
KCB825B	Class B Screening
KCB825S	Class S Screening