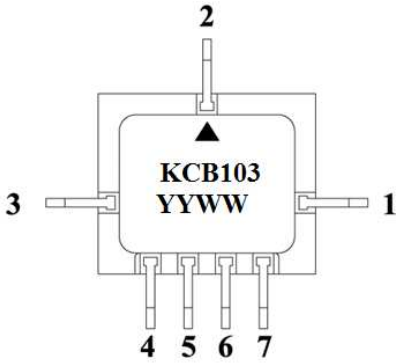
KCB103

SPST w/ Variable Attenuation State
DC – 6 GHz

KCB SOLUTIONS
RF DESIGN & MANUFACTURING

Features

- Wideband frequency range: DC to 6 GHz
- Integrated Pin Diode Attenuator
- Non Reflective
- High Reliability Class B and S Screening Available
- See Page 2 for Hi –Rel Ordering Details



1	RF 2
2	GND
3	RF 1
4	B
5	A
6	GND
7	GND

Description

The KCB103 is a GaAs FET Non Reflective, high performance, with pin diode variable attenuation state switch.
The KCB103 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.

Electrical Characteristics (+25°C)

Parameter	Conditions	Min.	Typ.	Max.	Units
Insertion Loss	I Bias = 0 I Bias = 1 mA	 6.0		2.0 10	dB dB
Return Loss ON (RF1,2) Return Loss OFF (RF 1)	I Bias = 0	12 12			dB dB
Isolation		30			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 50%CTL to 90/10% RF		5 15		nS nS

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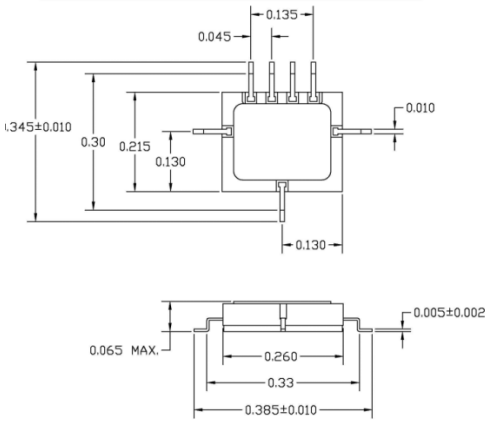
Absolute Maximum Ratings

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	6.00	GHz

Outline Drawing



Truth Table / Control Voltages

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

State	Bias Conditions
Low	+0.2 to -1.0V @ 50 µA Max.
High	-8V to -4V@ 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	Process under Statistical Control
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		N/A	100%
Radiographic	2012		N/A	100%
Electrical Test	Per Product Specification	+25^{O}C	100%	100%
Burn In	1015	A	100% 80 Hours @ 150^{O}C	100%
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
KCB103C	Unscreened
KCB103B	Class B Screening
KCB103S	Class S Screening