

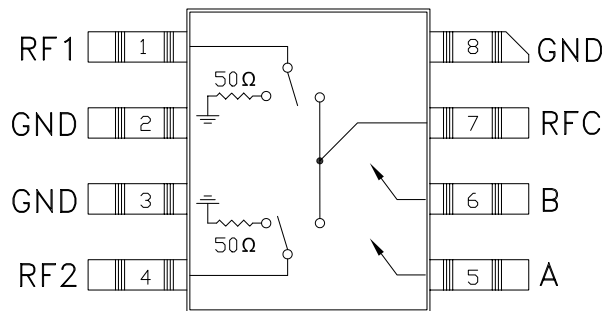
GaAs MMIC SMT HIGH-ISOLATION SPDT SWITCH, DC - 8 GHz

Typical Applications

The HMC132C8 is ideal for:

- T/R switching for 5.2 GHz UNII
- 5.8 GHz ISM circuits
- WLAN
- S,C and X-Band Telecom radios

Functional Diagram



Features

- Bandwidth: DC - 8 GHz
- High Isolation: >40 dB
- Non-Reflective Design

General Description

The HMC132C8 is a surface mount, low cost, non-hermetic packaged version of the HMC132G7 MMIC SPDT switch. The device is a fast, broadband SPDT switch featuring high (> 40 dB) isolation over the entire band. The switch is non-reflective at both the RF1 and RF2 ports.

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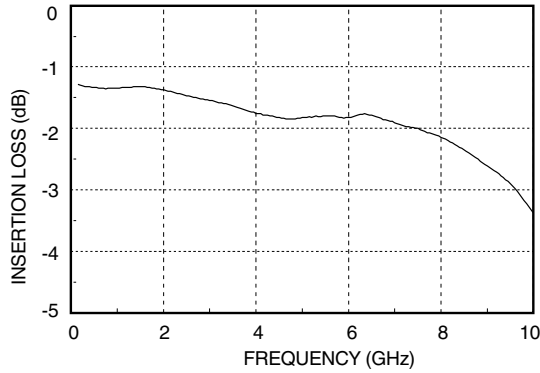
SWITCHES - SMT

Electrical Specifications, $T_A = +25^\circ\text{C}$, With 0/-5V control, 50 Ohm System

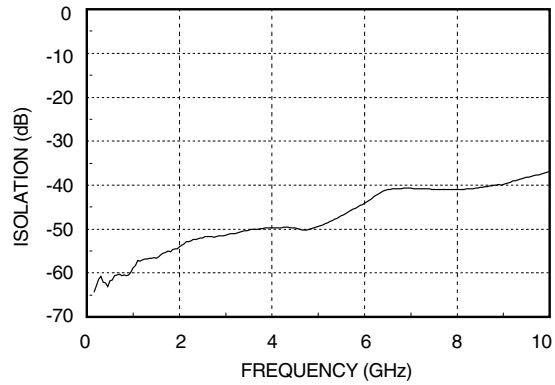
Parameter	Frequency	Min.	Typ.	Max.	Units
Insertion Loss	DC - 2 GHz		1.5	2.0	dB
	DC - 6 GHz		1.8	2.3	dB
	DC - 8 GHz		2.6	3.1	dB
Isolation	DC - 2 GHz	50	54		dB
	DC - 6 GHz	38	45		dB
	DC - 8 GHz	36	40		dB
Return Loss	DC - 2 GHz	14	19		dB
	DC - 6 GHz	10	14		dB
	DC - 8 GHz	8	13		dB
Input Power for 0.1 dB Compression	0.5 - 8 GHz	+20	+25		dBm
Input Power for 1dB Compression (0/-5V Ctl)	0.5 - 8 GHz	+22	+27		dBm
Input Third Order Intercept	0.5 - 8 GHz	+38	+42		dBm
Switching Characteristics	DC - 8 GHz				
		tRISE, tFALL (10/90% RF) tON, tOFF (50% CTL to 10/90% RF)		3 6	ns ns

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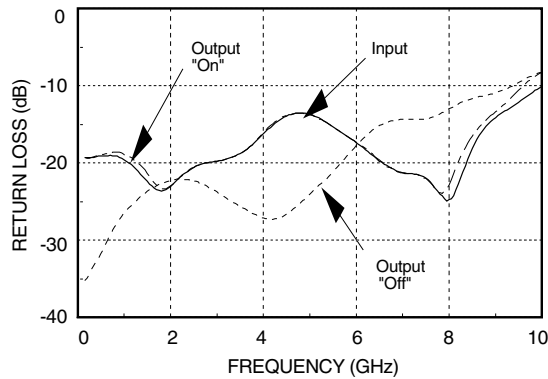
Insertion Loss



Isolation



Return Loss



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Truth Table

Control Input		Single Path State	
A	B	RF to RF1	RF to RF2
HIGH	LOW	ON	OFF
LOW	HIGH	OFF	ON

Do not "HOT" switch power levels $>+15\text{dBm}$ ($V_{ctl} = 0/-5\text{Vdc}$)

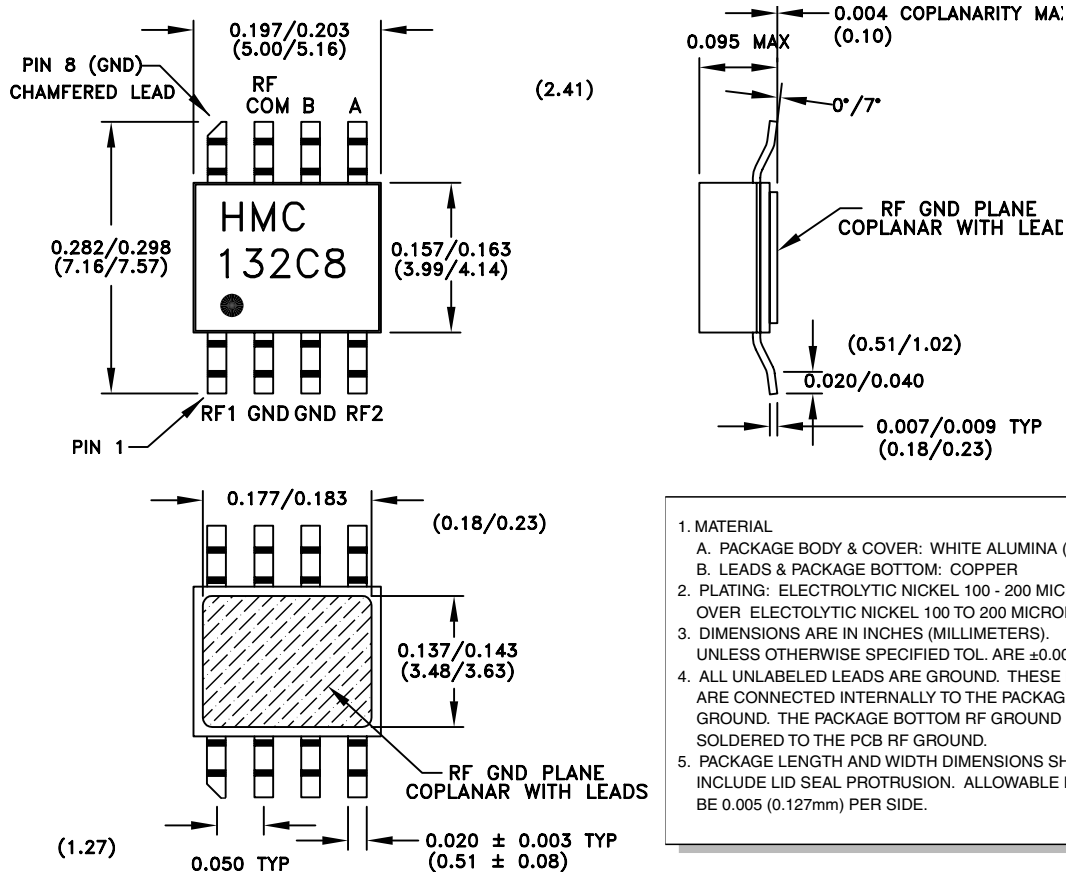
Control Voltages

State	Bias Condition
Low	0 to -0.2V @ $20\mu\text{A}$ Max.
High	-5V @ $200\mu\text{A}$ Typ to -7V @ $600\mu\text{A}$ Max

Absolute Maximum Ratings

Control Voltage Range	+0.5V to -7.5 Vdc
Storage Temperature	-65 to +175 deg C
Operating Temperature	-55 to +85 deg C

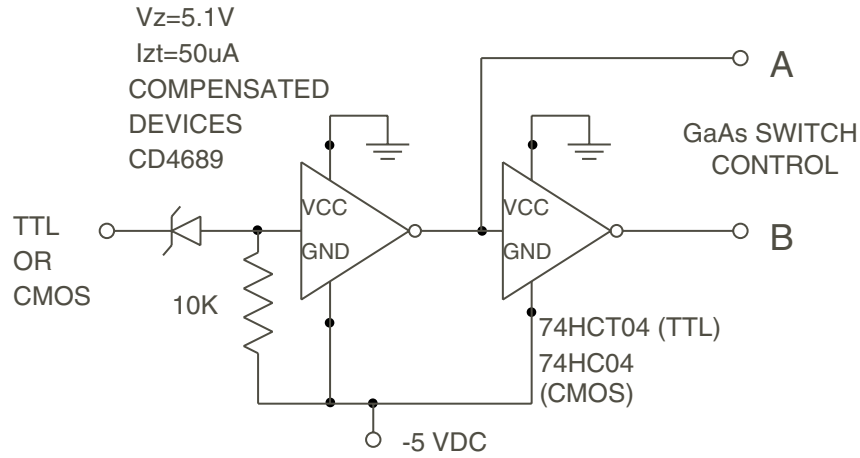
Outline Drawing



For price, delivery, and to place orders, please contact Hittite Microwave Corporation:
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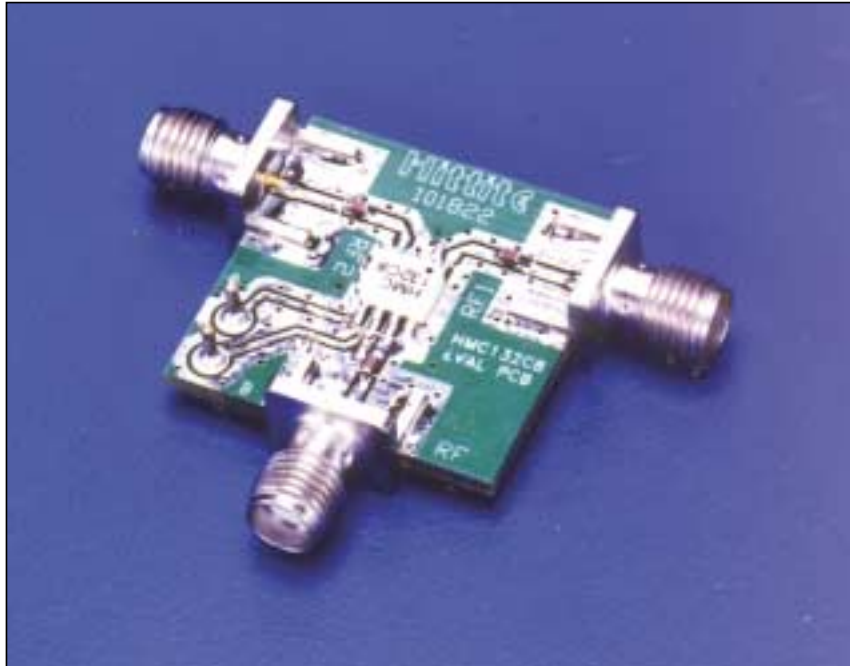
Suggested Driver Circuit



Simple driver using inexpensive standard logic ICs provides fast switching using minimum DC current.

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Evaluation Circuit Board



The circuit board used in the final application should use RF circuit design techniques. Signal lines should have 50 ohm impedance while the package ground leads and exposed paddle should be connected directly to the ground plane similar to that shown above. A sufficient number of VIA holes should be used to connect the top and bottom ground planes. The evaluation circuit board as shown above is available from Hittite Microwave Corporation upon request.

Evaluation Circuit Board Layout Design Details

Layout Technique	Grounded Co-Planar Waveguide (GCPW)
Material	Rogers 4350
Dielectric Thickness	0.020" (0.51 mm)
50 Ohm Line Width	0.034" (0.86 mm)
Gap to Ground Edge	0.010" (0.25 mm)
Ground VIA Hole Diameter	0.014" (0.36 mm)
Connectors	SMA-F (EF - Johnson P/N 142-0701-806)

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Notes: