HMC536MS8G / 536MS8GE

v04.0320

GaAs MMIC POSITIVE CONTROL T/R SWITCH, DC - 6 GHz

Designer's Kit Available

Typical Applications

The HMC536MS8G / HMC536MS8GE is ideal for:

- Cellular/PCS/3G Infrastructure
- ISM/MMDS/WiMAX
- CATV/CMTS
- Test Instrumentation

Features

Input P0.1dB: +34 dBm @ +5V

Insertion Loss: 0.5 dB

Positive Control: +3V or +5V

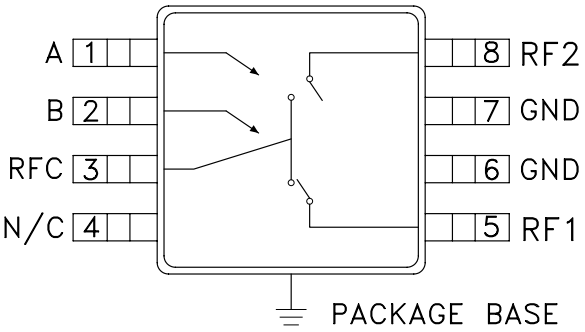
MS8G SMT Package, 14.8 mm^2

Isolation: 27 dB

Very Fast Switching Speed

Included in the HMC-DK005 Designer's Kit

Functional Diagram



General Description

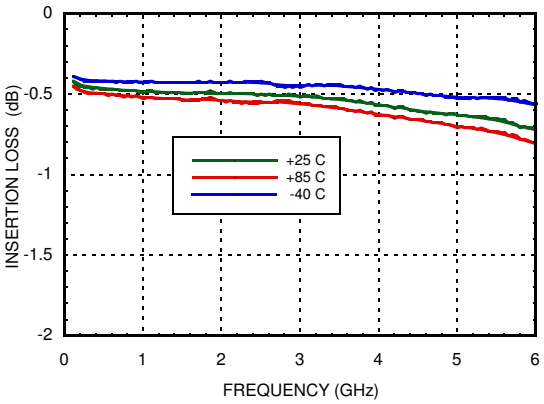
The HMC536MS8G & HMC536MS8GE are DC to 6 GHz GaAs MMIC T/R switches in 8 lead MSOP8G surface mount packages with an exposed ground paddle. The switch is ideal for cellular/PCS/3G basestation applications featuring low 0.5 dB insertion loss and +55 dBm input IP3. Power handling is excellent up through 6 GHz with the switch offering a P0.1dB compression point of +29 dBm at +3 volts control. On-chip circuitry allows positive voltage control of 0/+3 volts or 0/+5 volts at very low DC currents.

Electrical Specifications, T_A = +25° C, Vctl = 0/+3 Vdc to +5 Vdc, 50 Ohm System

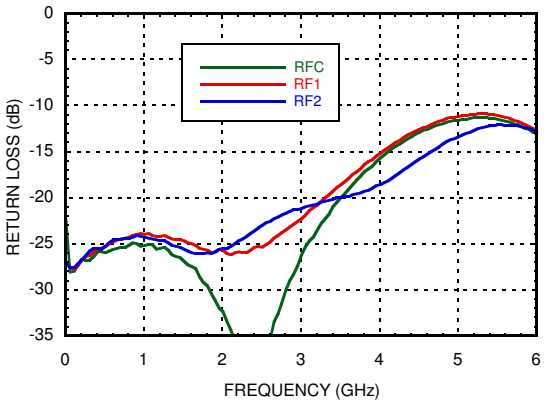
Parameter		Frequency	Min.	Typ.	Max.	Units
Insertion Loss		DC - 3.0 GHz DC - 4.5 GHz DC - 6.0 GHz		0.5 0.6 0.7	0.8 0.9 1.0	dB dB dB
Isolation (RFC to RF1/RF2)		DC - 4.0 GHz 4.0 - 5.0 GHz 5.0 - 6.0 GHz	23 26 27	27 30 32		dB dB dB
Return Loss		DC - 3.0 GHz 3.0 - 4.0 GHz 4.0 - 6.0 GHz		25 20 12		dB dB dB
Input Power for 0.1 dB Compression	(Vctl = 3V) (Vctl = 5V)	0.5 - 6.0 GHz 0.5 - 6.0 GHz	27 32	29 34		dBm dBm
Input Third Order Intercept (Two-Tone Input Power = +7 dBm Each Tone)	(Vctl = 3V, 5V)	0.5 - 1.0 GHz 1.0 - 3.0 GHz 3.0 - 6.0 GHz		56 52 48		dBm dBm dBm
Switching Speed	tRISE, tFALL (10/90% RF) tON, tOFF (50% CTL to 10/90% RF)	DC - 6.0 GHz		15 30		ns ns

For price, delivery, and to place orders: Analog Devices, Inc., One Technology Way, P.O. Box 9106, Norwood, MA 02062-9106
Phone: 781-329-4700 • Order online at www.analog.com
Application Support: Phone: 1-800-ANALOG-D

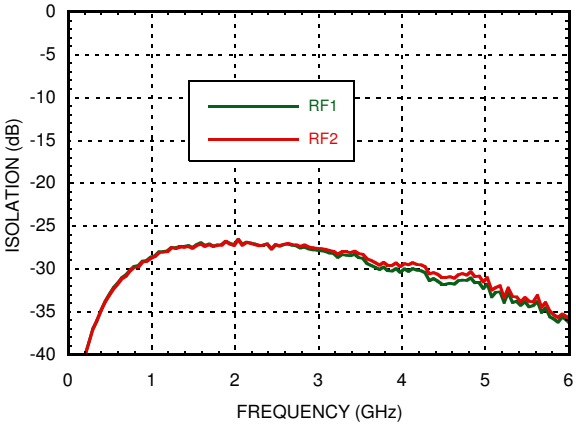
Insertion Loss



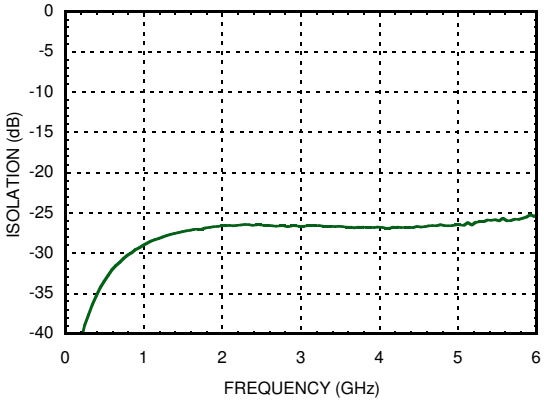
Return Loss



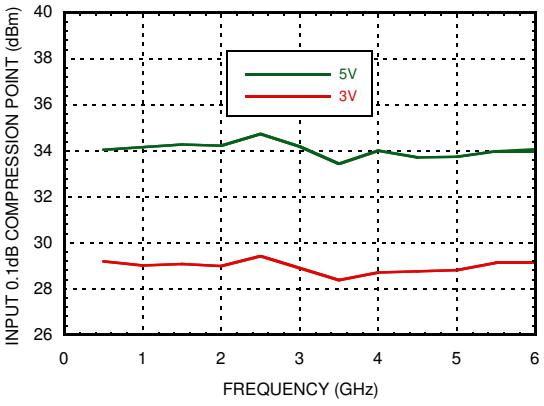
Isolation Between Ports RFC and RF1 / RF2



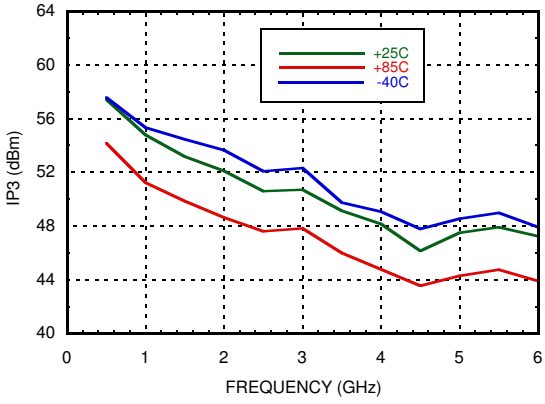
Isolation Between Ports RF1 and RF2



Input 0.1 dB Compression Point



Input Third Order Intercept Point, Vctl = 3v



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Absolute Maximum Ratings

Control Voltage Range	-0.5 to +7.5 Vdc
Hot Switch Power Level (Vctl = +3V)	+29 dBm
Channel Temperature	150 °C
Continuous Pdiss (T = 85 °C) (derate 13 mW/°C above 85 °C)	0.867 W
Thermal Resistance	75 °C/W
Storage Temperature	-65 to +150 °C
Operating Temperature	-40 to +85 °C
ESD Sensitivity (HBM)	Class 1A

Control Voltages

*Control Input Tolerances are ± 0.2 Vdc

State	Bias Condition*
Low	0 Vdc @ 25 µA Typical
High	+3 Vdc to +5 Vdc @ 25 µA Typical

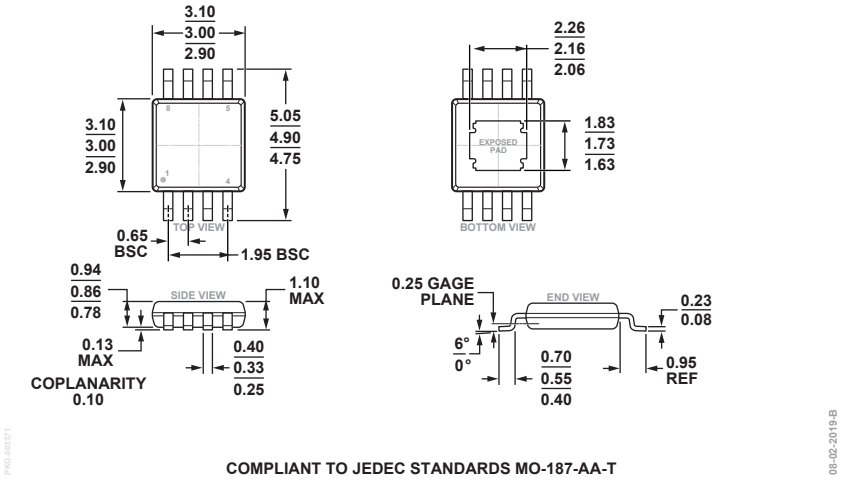
Truth Table

Control Input		Signal Path State
A	B	RFC to:
Low	High	RF1
High	Low	RF2

DC blocks are required at ports RFC, RF1, RF2.

Choose value for lowest frequency of operation.

Outline Drawing



COMPLIANT TO JEDEC STANDARDS MO-187-AA-T

8-Lead Mini Small Outline Package with Exposed Pad [MINI_SO_EP]
(RH-8-1)
Dimensions shown in millimeters

Package Information

Part Number	Package Body Material	Lead Finish	MSL Rating [1]	Package Marking [2]
HMC536MS8GE	RoHS-compliant Low Stress Injection Molded Plastic	100% matte Sn	MSL3	H536 XXXX
HMC536MS8GETR	RoHS-compliant Low Stress Injection Molded Plastic	100% matte Sn	MSL3	H536 XXXX

[1] Max peak reflow temperature of 260 °C
[2] 4-Digit lot number XXXX