



Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of "Quality Parts,Customers Priority,Honest Operation,and Considerate Service",our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!



Contact us

Tel: +86-755-8981 8866 Fax: +86-755-8427 6832

Email & Skype: info@chipsmall.com Web: www.chipsmall.com

Address: A1208, Overseas Decoration Building, #122 Zhenhua RD., Futian, Shenzhen, China





GaAs MMIC SPDT NON-REFLECTIVE SWITCH, DC - 20 GHz

Features

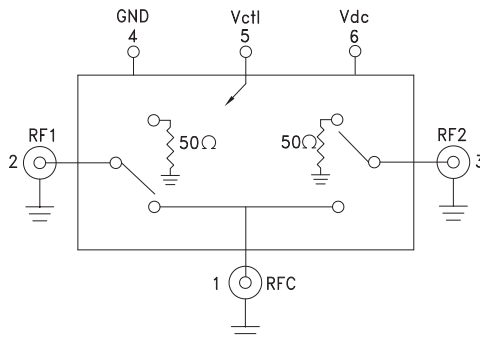
- High Isolation: >45 dB up to 5 GHz
>35 dB up to 20 GHz
- Low Insertion Loss: 2 dB @ 12 GHz
2.5 dB @ 16 GHz
- Fast Switching
- Non-Reflective Design
- Hermetically Sealed Module
- Field Replaceable SMA connectors
- 55 °C to +85 °C Operating Temperature

Typical Applications

The HMC-C011 is ideal for:

- Basestation Infrastructure
- Fiber Optics & Broadband Telecom
- Microwave Radio & VSAT
- Military Radios, Radar, & ECM
- Test Instrumentation

Functional Diagram



General Description

The HMC-C011 is a general purpose broadband high isolation non-reflective GaAs MESFET SPDT switch housed in a miniature hermetic module with field replaceable SMA connectors. Covering DC to 20 GHz, the switch offers high isolation and low insertion loss. The switch features >45 dB isolation up to 5 GHz and >35 dB isolation up to 20 GHz. CMOS interface allows a single positive +5V bias voltage at very low DC currents.

Electrical Specifications, $T_A = +25^\circ\text{C}$, With $V_{dc} = +5V$ & $0/+5V$ Control, 50 Ohm System

Parameter	Frequency	Min.	Typ.	Max.	Units
Insertion Loss	DC - 4.0 GHz		1.8	2.3	dB
	DC - 12.0 GHz		2.0	2.5	dB
	DC - 16.0 GHz		2.5	3.5	dB
	DC - 20.0 GHz		4.0	4.9	dB
Isolation	DC - 4.0 GHz	41	46		dB
	DC - 8.0 GHz	35	40		dB
	DC - 20.0 GHz	25	35		dB
Return Loss	"On State"	DC - 12.0 GHz	15		dB
		DC - 20.0 GHz	10		dB
Return Loss RF1, RF2	"Off State"	DC - 10.0 GHz	20		dB
		DC - 15.0 GHz	15		dB
		DC - 20.0 GHz	10		dB
Input Power for 1 dB Compression	0.5 - 20.0 GHz	20	23		dBm
Input Third Order Intercept (Two-Tone Input Power= +7 dBm Each Tone)	0.5 - 10.0 GHz		48		dBm
	0.5 - 20.0 GHz		45		dBm
Switching Characteristics tRISE, tFALL (10/90% RF) tON, tOFF (50% CTL to 10/90% RF)	DC - 20 GHz		1.3		ns
			5.0		ns
Switching Transients	DC - 20 GHz		20		mVpp

Information furnished by Analog Devices is believed to be accurate and reliable. However, no responsibility is assumed by Analog Devices for its use, nor for any infringements of patents or other rights of third parties that may result from its use. Specifications subject to change without notice. No license is granted by implication or otherwise under any patent or patent rights of Analog Devices. Trademarks and registered trademarks are the property of their respective owners.

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

HMC-C011* PRODUCT PAGE QUICK LINKS

Last Content Update: 02/23/2017

COMPARABLE PARTS

View a parametric search of comparable parts.

DOCUMENTATION

Data Sheet

- HMC-C011 Data Sheet

TOOLS AND SIMULATIONS

- HMC-C011 S-Parameter

REFERENCE MATERIALS

Technical Articles

- Hittite Launches HMC-T2100 10 MHz to 20 GHz Synthesized Signal Generator

DESIGN RESOURCES

- HMC-C011 Material Declaration
- PCN-PDN Information
- Quality And Reliability
- Symbols and Footprints

DISCUSSIONS

View all HMC-C011 EngineerZone Discussions.

SAMPLE AND BUY

Visit the product page to see pricing options.

TECHNICAL SUPPORT

Submit a technical question or find your regional support number.

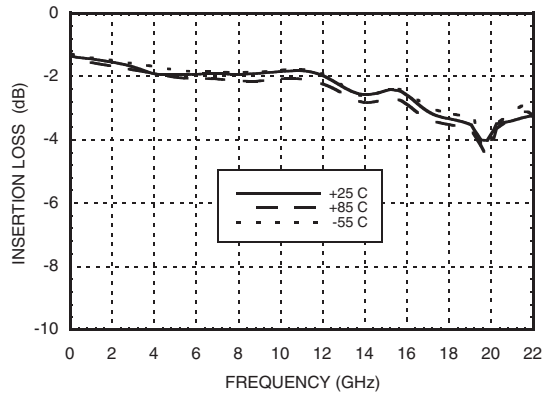
DOCUMENT FEEDBACK

Submit feedback for this data sheet.

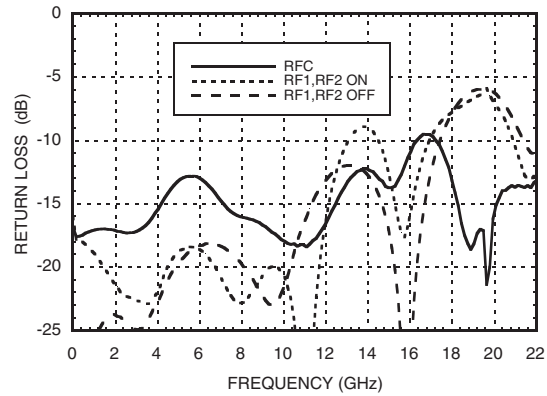


**GaAs MMIC SPDT NON-REFLECTIVE
SWITCH, DC - 20 GHz**

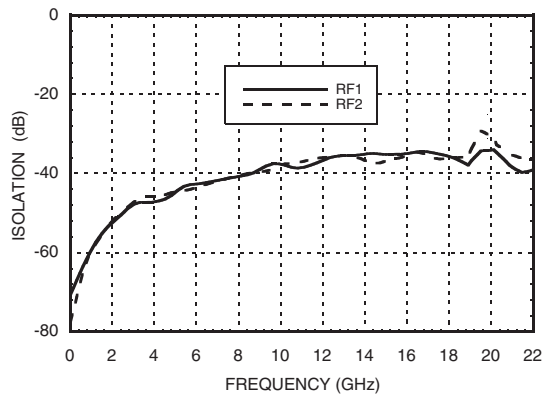
Insertion Loss



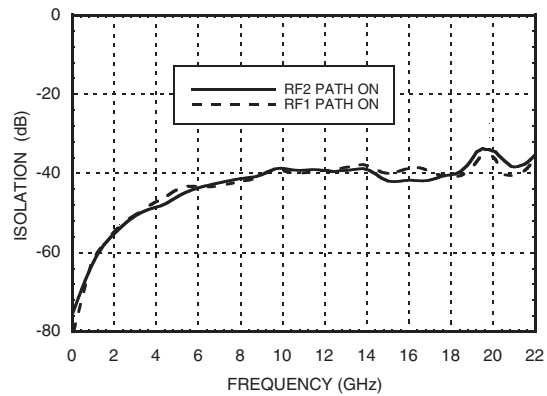
Return Loss



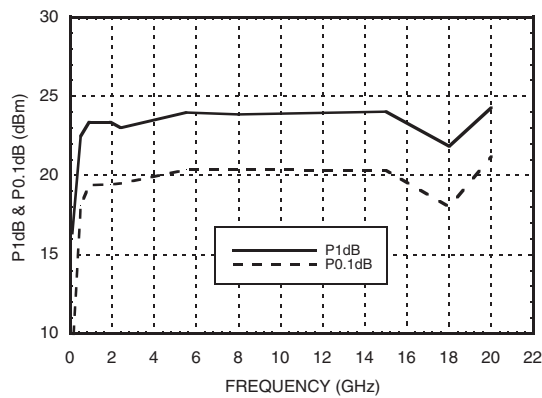
Isolations



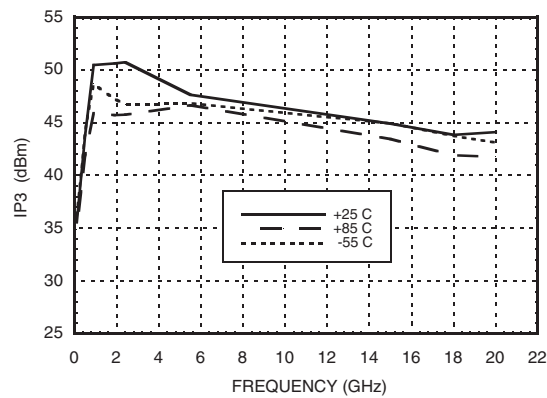
Isolation Between Ports RF1 and RF2



Input P1dB & P0.1dB Compression Point



Input Third Order Intercept Point



Information furnished by Analog Devices is believed to be accurate and reliable. However, no responsibility is assumed by Analog Devices for its use, nor for any infringements of patents or other rights of third parties that may result from its use. Specifications subject to change without notice. No license is granted by implication or otherwise under any patent or patent rights of Analog Devices. Trademarks and registered trademarks are the property of their respective owners.

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

GaAs MMIC SPDT NON-REFLECTIVE SWITCH, DC - 20 GHz



Absolute Maximum Ratings

RF Input Power	+27 dBm
Supply Voltage (Vdc)	+7 Vdc
Control Voltage Range (Vctl)	-0.5V to Vdd +0.5V
Hot Switch Power Level	+23 dBm
Storage Temperature	-65 to +150 °C
Operating Temperature	-55 to +85 °C



**ELECTROSTATIC SENSITIVE DEVICE
OBSERVE HANDLING PRECAUTIONS**

Control Voltages

State	Bias Condition
High	+3.5 to Vdc @ 1 mA Typ.
Low	0 to +1.5V @ 20 µA Typ.

Truth Table

Control Input	Signal Path State	
	RFC to RF1	RFC to RF2
High	On	Off
Low	Off	On

Bias Voltage & Current

Vdc Range = +5 Vdc ± 10%	
Vdc (Vdc)	Idc (Typ.) (mA)
+5.0	1.4

(Bias current increases with switching rate to 15 - 20 mA.)

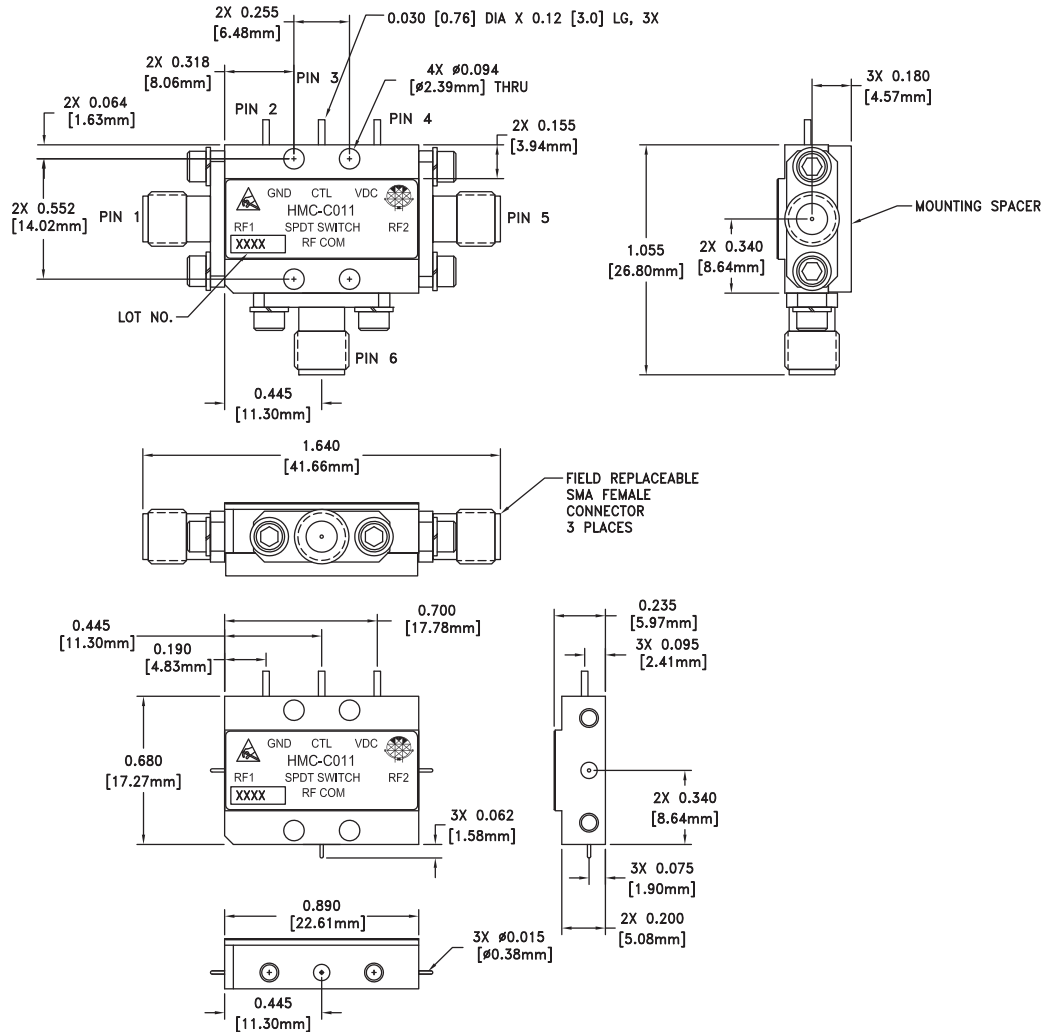
Pin Descriptions

Pin Number	Function	Description	Interface Schematic
1, 2, 3	RFC, RF1, RF2	RF connector, SMA female, field replaceable. These pins are DC coupled and matched to 50 Ohms. DC blocking capacitors are required if external RF line potential is not equal to 0V.	
4	GND	Power supply ground.	
5	Vctl	CMOS interface, control voltages per table. Requires active pullup to +5V (V _{dc}).	
6	Vdc	Supply voltage	

GaAs MMIC SPDT NON-REFLECTIVE SWITCH, DC - 20 GHz



Outline Drawing



VIEW SHOWN WITH CONNECTORS REMOVED

Package Information

Package Type	C-5
Package Weight [1]	17.7 gms [2]
Spacer Weight	2.6 gms [2]

[1] Includes the connectors

[2] \pm 1 gms Tolerance

NOTES:

1. PACKAGE, LEADS, COVER MATERIAL: KOVAR™
2. FINISH: GOLD PLATE OVER NICKEL PLATE
3. MOUNTING SPACER: NICKEL PLATED ALUMINUM
4. ALL DIMENSIONS ARE IN INCHES [MILLIMETERS]
5. TOLERANCES:
 - 5.1 .XX = \pm 0.02
 - 5.2 .XXX = \pm 0.010
6. FIELD REPLACEABLE SMA CONNECTORS
TENSOLITE 5602 - 5CCSF OR EQUIVALENT
7. TO MOUNT MODULE TO SYSTEM PLATFORM REPLACE 0 -80
HARDWARE WITH DESIRED MOUNTING SCREWS