

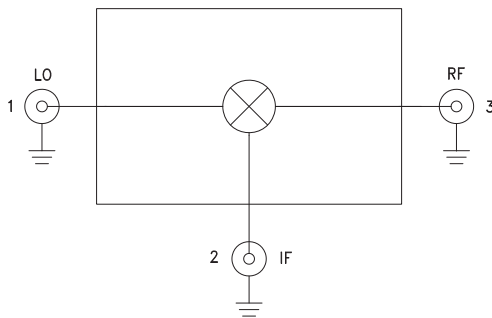


### Typical Applications

The HMC-C049 is ideal for:

- Point-to-Point Radios
- Point-to-Multit-Point Radios
- Test Equipment & Sensors
- Military End-Use

### Functional Diagram



### Features

- Passive Double Balanced Topology
- High LO/RF Isolation: 48 dB
- Low Conversion Loss: 7 dB
- Wide IF Bandwidth: DC - 5 GHz
- Robust 1,000V ESD, Class 1C
- Hermetic Module

### General Description

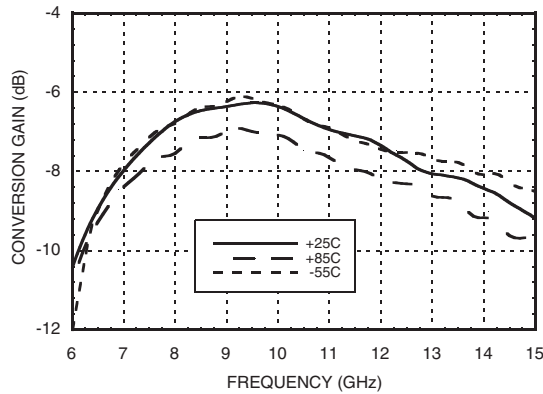
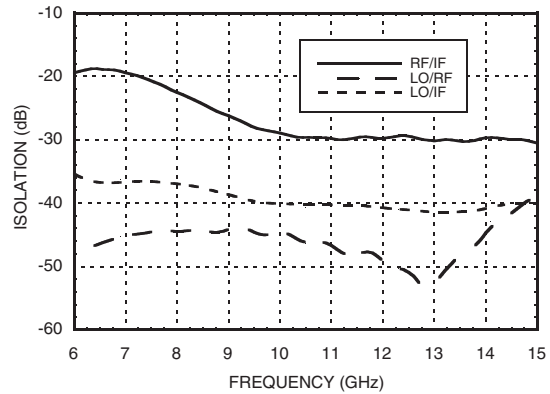
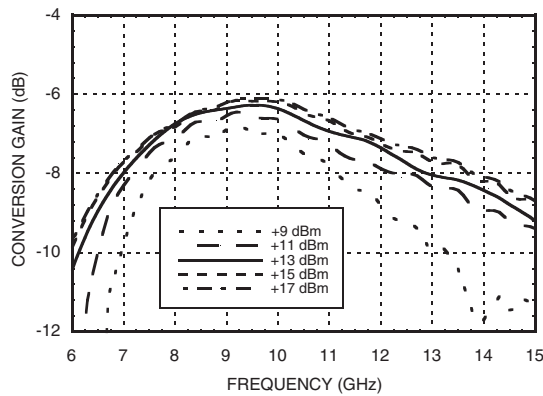
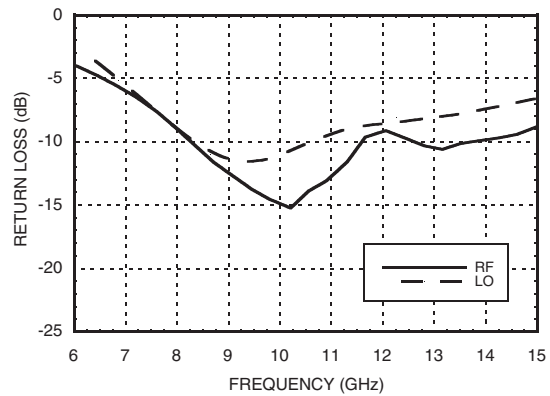
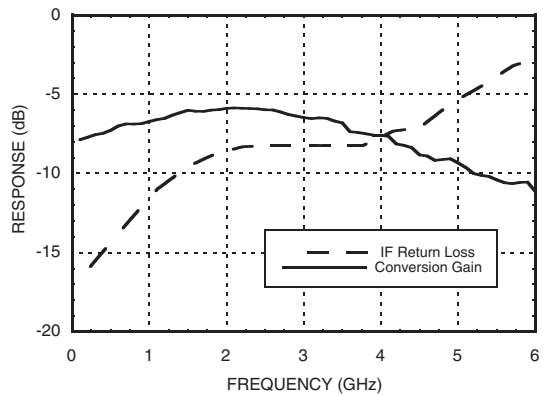
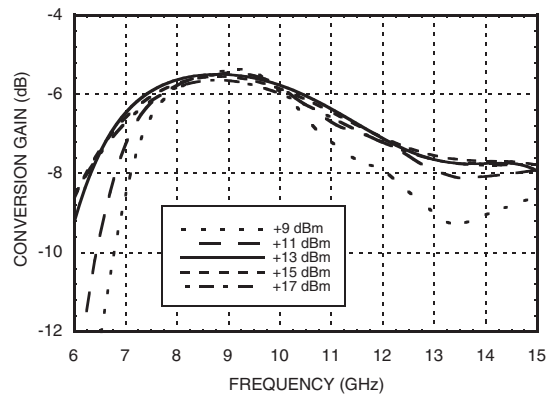
The HMC-C049 is a 7 - 14 GHz double balanced mixer which provides a low conversion loss, high isolation, and a wide IF bandwidth. This mixer does not require a DC bias and can operate with an LO power level of +9 dBm. The package is a hermetically sealed module that is assembled and tested to meet MIL-883-STD qualifications.

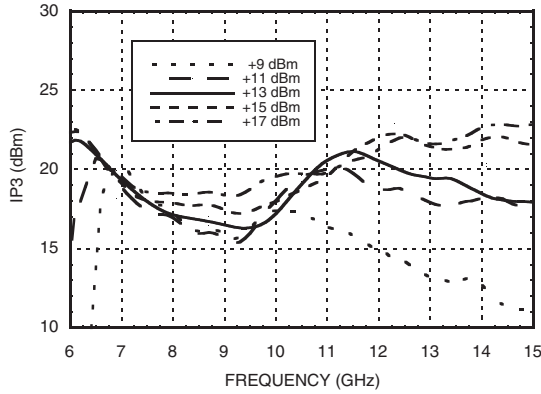
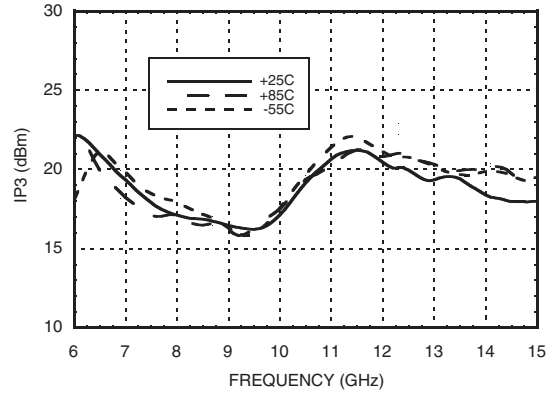
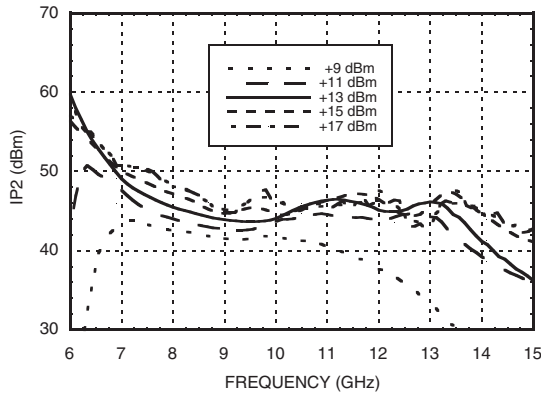
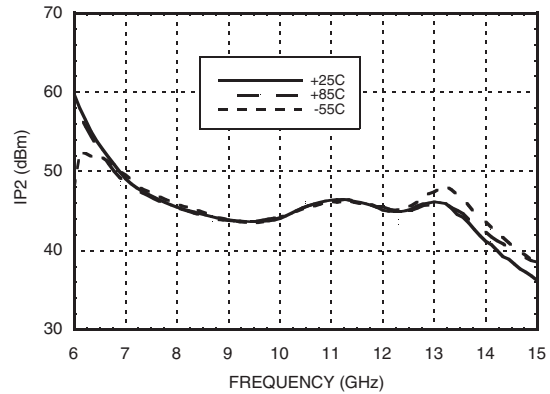
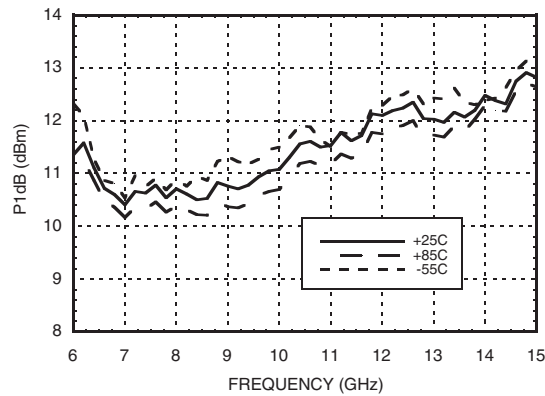
This product comes standard with three female SMA field replaceable connectors that can also be interchanged with blind mate SMP connectors or detached to allow direct connection of the I/O Pins to a microstrip or coplaner circuit.

### Electrical Specifications, $T_A = +25^\circ \text{C}$ , $IF = 100 \text{ MHz}$ , $LO = +13 \text{ dBm}^*$

Parameter	Min.	Typ.	Max.	Min.	Typ.	Max.	Units
Frequency Range, RF & LO	7 - 11		11 - 14				GHz
Frequency Range, IF	DC - 5		DC - 5				GHz
Conversion Loss		7	9.5		8	11	dB
Noise Figure (SSB)		7			8		dB
LO to RF Isolation	37	48		35	45		dB
LO to IF Isolation	27	35		32	40		dB
RF to IF Isolation	12	22		22	30		dB
IP3 (Input)		18			20		dBm
IP2 (Input)		48			47		dBm
1 dB Compression (Input)		11			12		dBm

\*Unless otherwise noted, all measurements performed as downconverter,  $IF = 100 \text{ MHz}$ .


**GaAs MMIC FUNDAMENTAL  
MIXER, 7 - 14 GHz**
**Conversion Gain vs. Temperature  
@ LO = +13 dBm**

**Isolation @ LO = +13 dBm**

**Conversion Gain vs. LO Drive**

**Return Loss @ LO = +13 dBm**

**IF Bandwidth @ LO = +13 dBm**

**Upconverter Performance  
Conversion Gain vs. LO Drive**



**GaAs MMIC FUNDAMENTAL  
MIXER, 7 - 14 GHz**
**Input IP3 vs. LO Drive \***

**Input IP3 vs. Temperature  
@ LO = +13 dBm \***

**Input IP2 vs. LO Drive \***

**Input IP2 vs. Temperature  
@ LO = +13 dBm \***

**Input P1dB vs. Temperature  
@ LO = +13 dBm**


\* Two-tone input power = -10 dBm each tone, 1 MHz spacing.


**GaAs MMIC FUNDAMENTAL  
MIXER, 7 - 14 GHz**
**Absolute Maximum Ratings**

RF / IF Input	+25 dBm
LO Drive	+25 dBm
Channel Temperature	150 °C
Continuous Pdiss (T = 85 °C) (derate 2.75 mW/°C above 85 °C)	178 mW
Thermal Resistance (channel to ground paddle)	364 °C/W
Storage Temperature	-65 to +150 °C
Operating Temperature	-55 to +85 °C
ESD Sensitivity (HBM)	Class 1C

**MxN Spurious Outputs**

mRF	nLO				
	0	1	2	3	4
0	xx	11	36	24	39
1	23	0	37	37	60
2	88	86	61	80	89
3	97	92	93	71	91
4	>120	>120	>120	>120	111

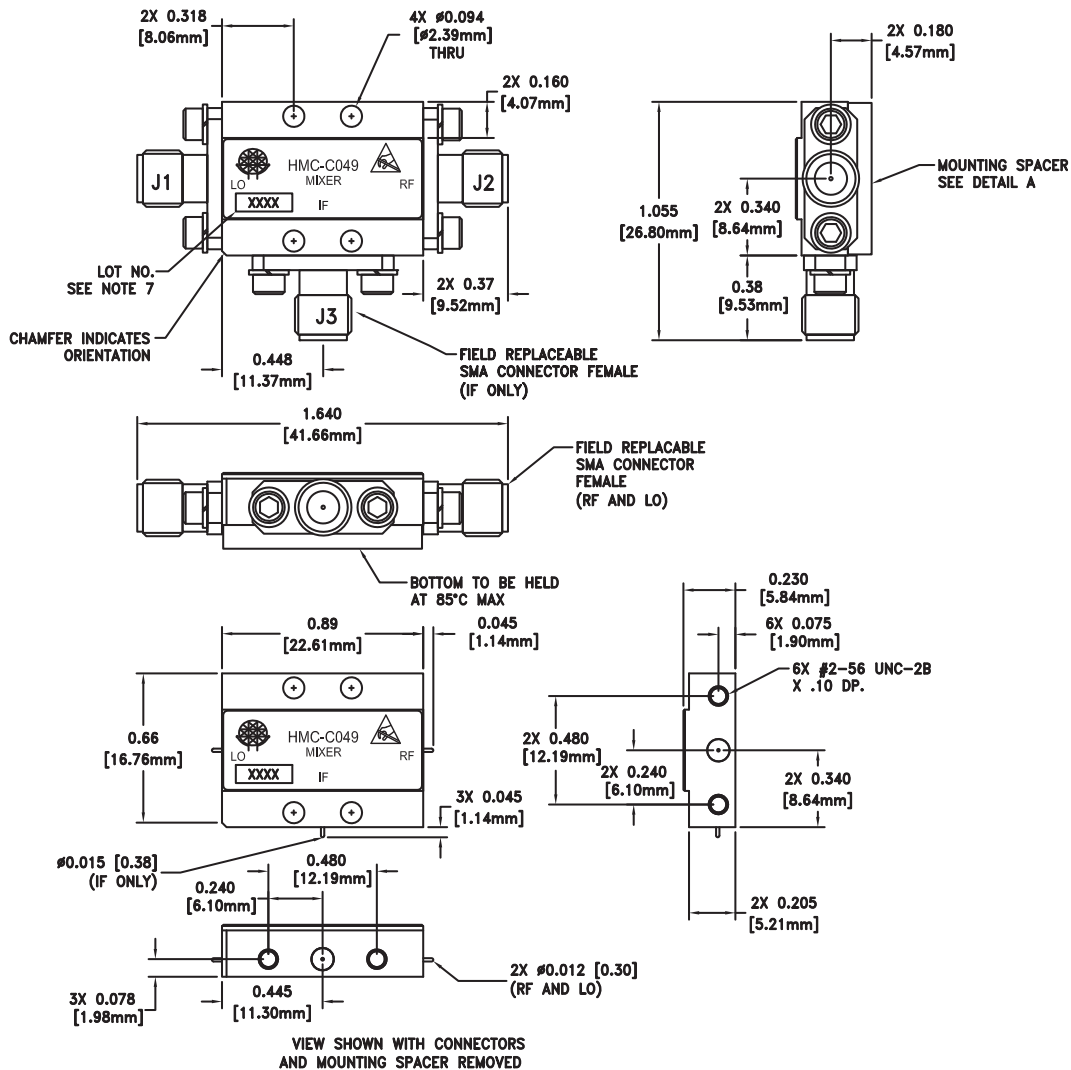
RF = 10.1 GHz @ -10 dBm  
LO = 10 GHz @ +13 dBm  
All values in dBc below the IF output power level.



**ELECTROSTATIC SENSITIVE DEVICE  
OBSERVE HANDLING PRECAUTIONS**

LO Freq. (MHz)	nLO			
	1	2	3	4
5.9	47	40	56	85
6.9	95	45	60	99
7.9	44	37	64	71
8.9	44	41	68	75
9.9	44	46	72	75
10.9	47	51	62	76
11.9	48	52	58	74
12.9	47	54	59	xx
13.9	42	57	60	xx
14.9	39	59	61	xx

#### Outline Drawing



#### Package Information

Package Type	C-11
Package Weight [1]	20 gms [2]
Spacer Weight	2.6 gms [2]

[1] Includes the connectors

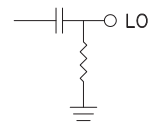
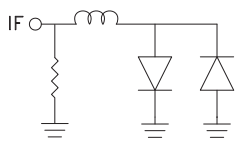
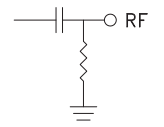
[2] ±1 gms Tolerance

#### NOTES:

1. PACKAGE, LEADS, COVER MATERIAL: KOVART™
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 = ±.02
  - 5.2 .XXX = ±.010
6. MARK LOT NUMBER ON 0.080 X 0.250 LABEL WHERE SHOWN, WITH 0.030" MIN TEXT HEIGHT.
7. MOUNTING SPACER PART NUMBER 109812.



**Pin Descriptions**

Pin Number	Function	Description	Interface Schematic
1	LO	This pin is DC coupled and matched to 50 Ohms.	
2	IF	This pin is DC coupled. For applications not requiring operation to DC, this port should be DC blocked externally using a series capacitor whose value has been chosen to pass the necessary IF frequency range. For operation to DC, this pin must not source or sink more than 2 mA of current or part non-function and possible part failure will result.	
3	RF	This pin is DC coupled and matched to 50 Ohms.	

## Данный компонент на территории Российской Федерации

### Вы можете приобрести в компании MosChip.

Для оперативного оформления запроса Вам необходимо перейти по данной ссылке:

<http://moschip.ru/get-element>

Вы можете разместить у нас заказ для любого Вашего проекта, будь то серийное производство или разработка единичного прибора.

В нашем ассортименте представлены ведущие мировые производители активных и пассивных электронных компонентов.

Нашей специализацией является поставка электронной компонентной базы двойного назначения, продукции таких производителей как XILINX, Intel (ex.ALTERA), Vicor, Microchip, Texas Instruments, Analog Devices, Mini-Circuits, Amphenol, Glenair.

Сотрудничество с глобальными дистрибьюторами электронных компонентов, предоставляет возможность заказывать и получать с международных складов практически любой перечень компонентов в оптимальные для Вас сроки.

На всех этапах разработки и производства наши партнеры могут получить квалифицированную поддержку опытных инженеров.

Система менеджмента качества компании отвечает требованиям в соответствии с ГОСТ Р ИСО 9001, ГОСТ РВ 0015-002 и ЭС РД 009

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