HMC327* PRODUCT PAGE QUICK LINKS

Last Content Update: 10/05/2017

COMPARABLE PARTS

View a parametric search of comparable parts.

EVALUATION KITS

- HMC327MS8G Evaluation Board

DOCUMENTATION

Application Notes

- Broadband Biasing of Amplifiers General Application Note
- MMIC Amplifier Biasing Procedure Application Note
- Thermal Management for Surface Mount Components General Application Note

Data Sheet

- HMC327 Data Sheet

TOOLS AND SIMULATIONS

- HMC327 S-Parameter

REFERENCE MATERIALS

Quality Documentation

- HMC Legacy PCN: MS##, MS##E and MS##G,MS##GE packages - Relocation of pre-existing production equipment to new building
- Package/Assembly Qualification Test Report: MS8G (QTR: 2014-00393)
- PCN: MS, QS, SOT, SOIC Packages - Sn/Pb Plating Vendor Change
- Semiconductor Qualification Test Report: GaAs HBT-B (QTR: 2013-00229)

DESIGN RESOURCES

- HMC327 Material Declaration
- PCN-PDN Information
- Quality And Reliability
- Symbols and Footprints

DISCUSSIONS

View all HMC327 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.

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Last Content Update: 02/23/2017

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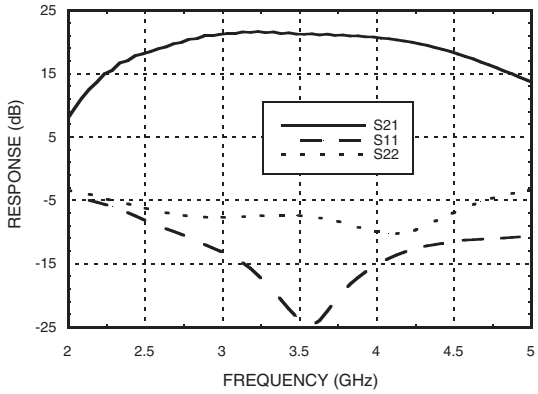
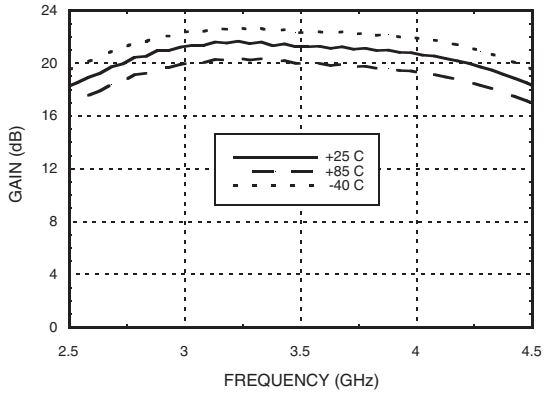
RoHS✓ EARTH FRIENDLY

GaAs InGaP HBT MMIC 1/2 WATT POWER AMPLIFIER, 3 - 4 GHz

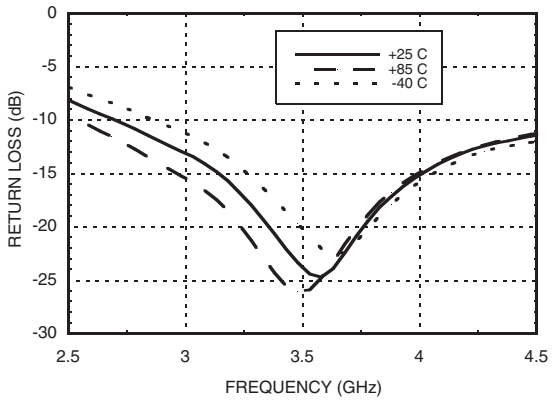
Broadband Gain & Return Loss



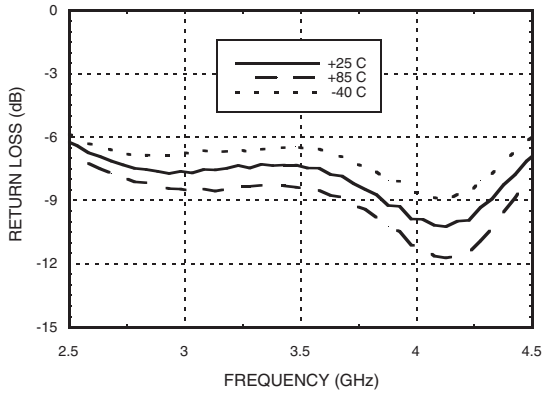
Gain vs. Temperature



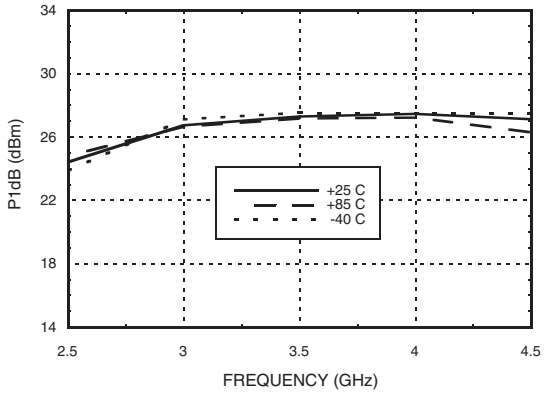
Input Return Loss vs. Temperature



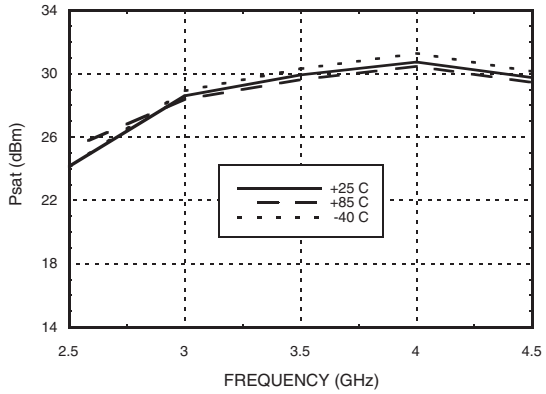
Output Return Loss vs. Temperature



P1dB vs. Temperature



Psat vs. Temperature



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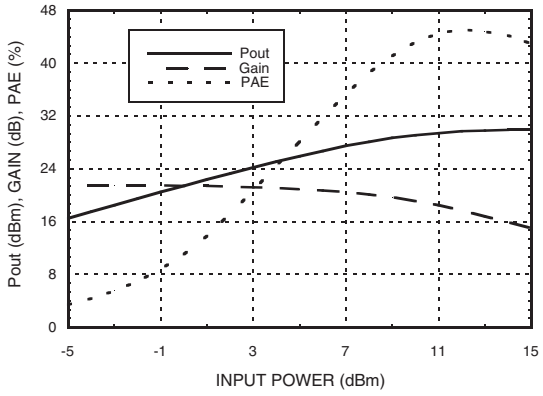
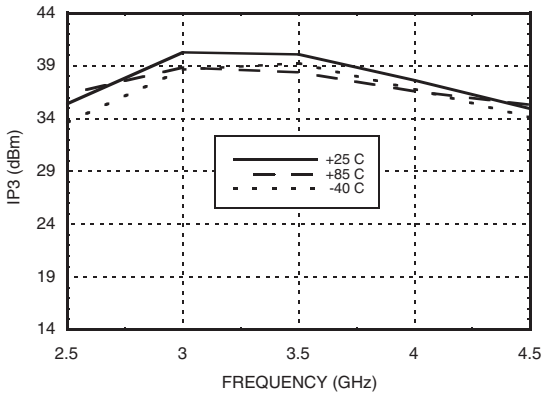
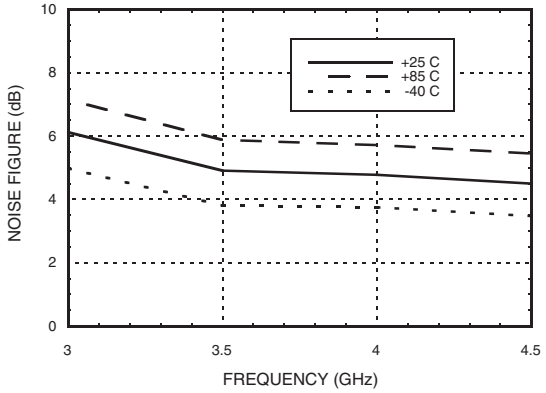
Power Compression @ 3.5 GHz



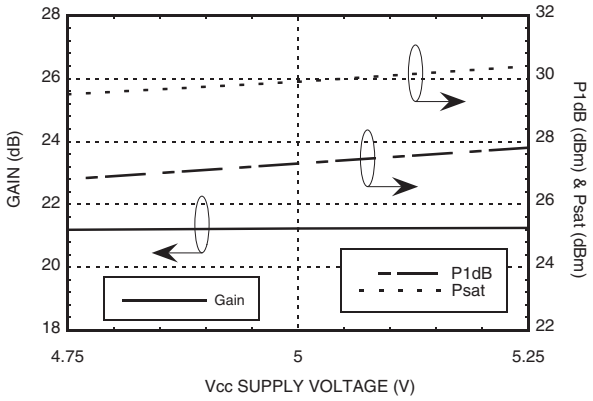
Output IP3 vs. Temperature



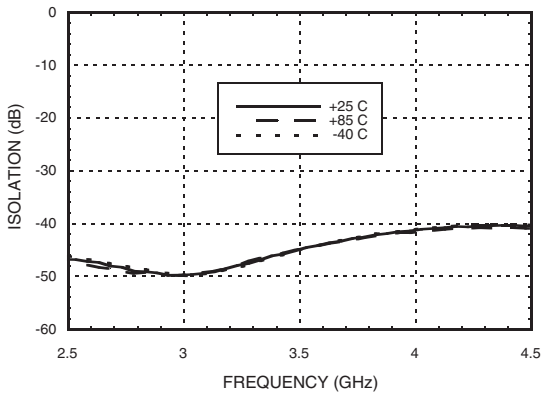
Noise Figure vs. Temperature



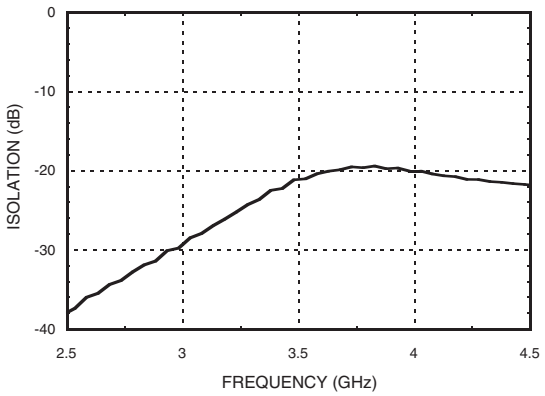
Gain & Power vs. Supply Voltage



Reverse Isolation vs. Temperature



Power Down Isolation



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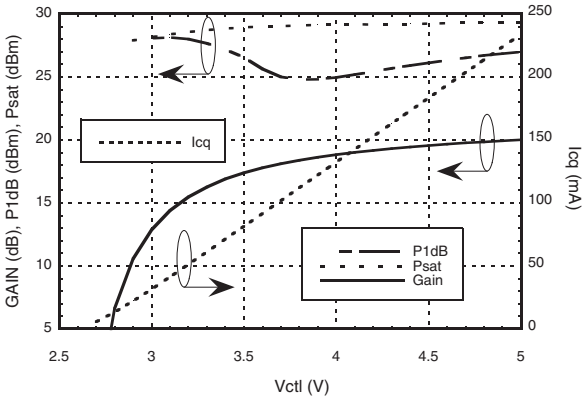
RoHS✓ EARTH FRIENDLY

GaAs InGaP HBT MMIC 1/2 WATT POWER AMPLIFIER, 3 - 4 GHz

Gain, Power & Quiescent Supply Current vs. Vpd @ 3.5 GHz

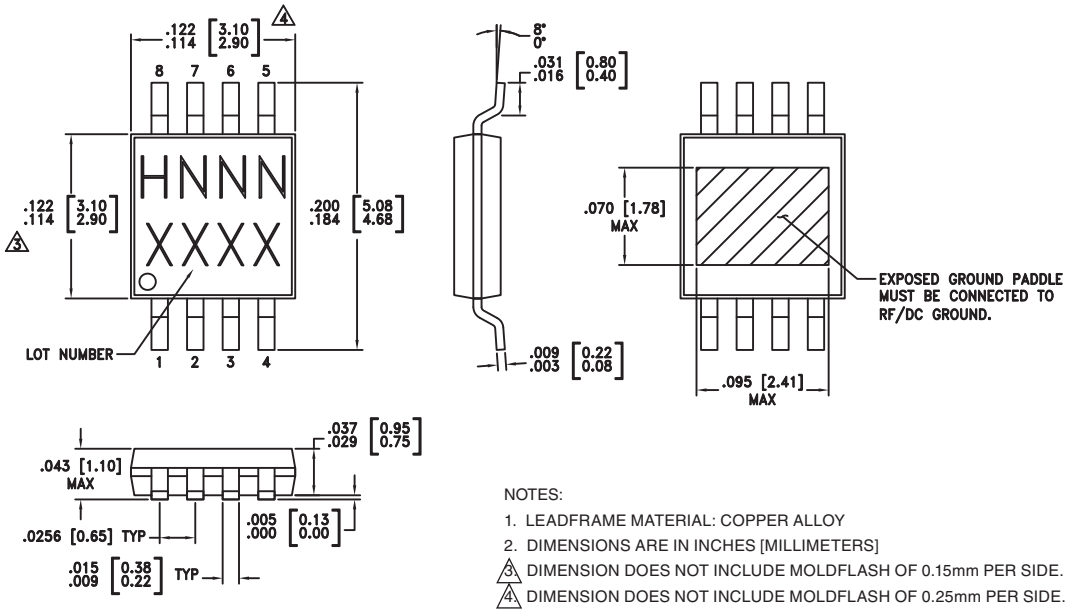


Absolute Maximum Ratings

Collector Bias Voltage (Vcc)	+5.5V
Control Voltage (Vpd)	+5.5V
RF Input Power (RFIN)(Vs = Vctl = +5V)	+16 dBm
Junction Temperature	150 °C
Continuous Pdiss (T = 85 °C) (derate 29 mW/°C above 85 °C)	1.88 W
Thermal Resistance (junction to ground paddle)	34 °C/W
Storage Temperature	-65 to +150 °C
Operating Temperature	-40 to +85 °C

ELECTROSTATIC SENSITIVE DEVICE
OBSERVE HANDLING PRECAUTIONS

Outline Drawing



NOTES:

1. LEADFRAME MATERIAL: COPPER ALLOY
2. DIMENSIONS ARE IN INCHES [MILLIMETERS]
3. DIMENSION DOES NOT INCLUDE MOLDFLASH OF 0.15mm PER SIDE.
4. DIMENSION DOES NOT INCLUDE MOLDFLASH OF 0.25mm PER SIDE.
5. ALL GROUND LEADS AND GROUND PADDLE MUST BE SOLDERED TO PCB RF GROUND.

Package Information

Part Number	Package Body Material	Lead Finish	MSL Rating	Package Marking [3]
HMC327MS8G	Low Stress Injection Molded Plastic	Sn/Pb Solder	MSL1 [1]	H327 XXXX
HMC327MS8GE	RoHS-compliant Low Stress Injection Molded Plastic	100% matte Sn	MSL1 [2]	H327 XXXX

[1] Max peak reflow temperature of 235 °C
[2] Max peak reflow temperature of 260 °C
[3] 4-Digit lot number XXXX

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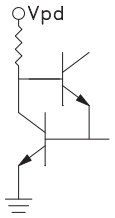
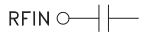
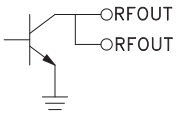
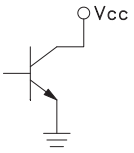
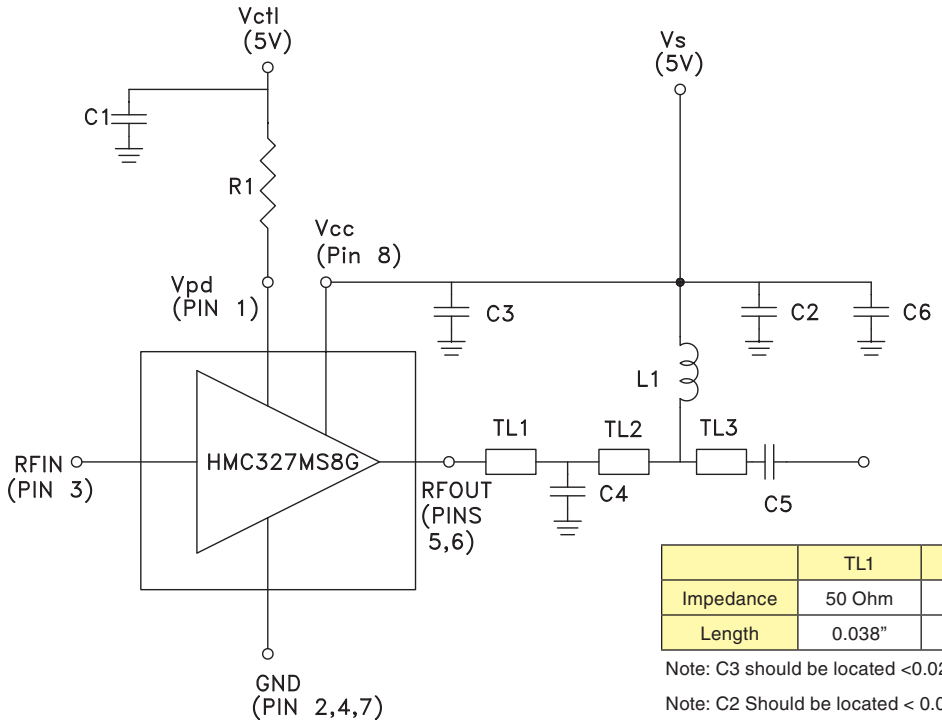
Pin Descriptions

Pin Number	Function	Description	Interface Schematic
1	Vpd	Power Control Pin. For proper control bias, this pin should be connected to 5V through a series resistor of 130 Ohms. A higher voltage is not recommended. For lower idle current, this voltage can be reduced.	
2, 4, 7	GND	Ground: Backside of package has exposed metal ground paddle that must be connected to ground thru a short path. Vias under the device are required.	
3	RFIN	This pin is AC coupled and matched to 50 Ohms.	
5, 6	RFOUT	RF output and bias for the output stage. The power supply for the output device needs to be supplied to these pins.	
8	Vcc	Power supply voltage for the first amplifier stage. An external bypass capacitor of 330 pF is required. This capacitor should be placed as close to the device as possible.	

Application Circuit



	TL1	TL2	TL3
Impedance	50 Ohm	50 Ohm	50 Ohm
Length	0.038"	0.231"	0.1"

Note: C3 should be located <0.020" from Pin 8 (Vcc)

Note: C2 Should be located < 0.020" from L1

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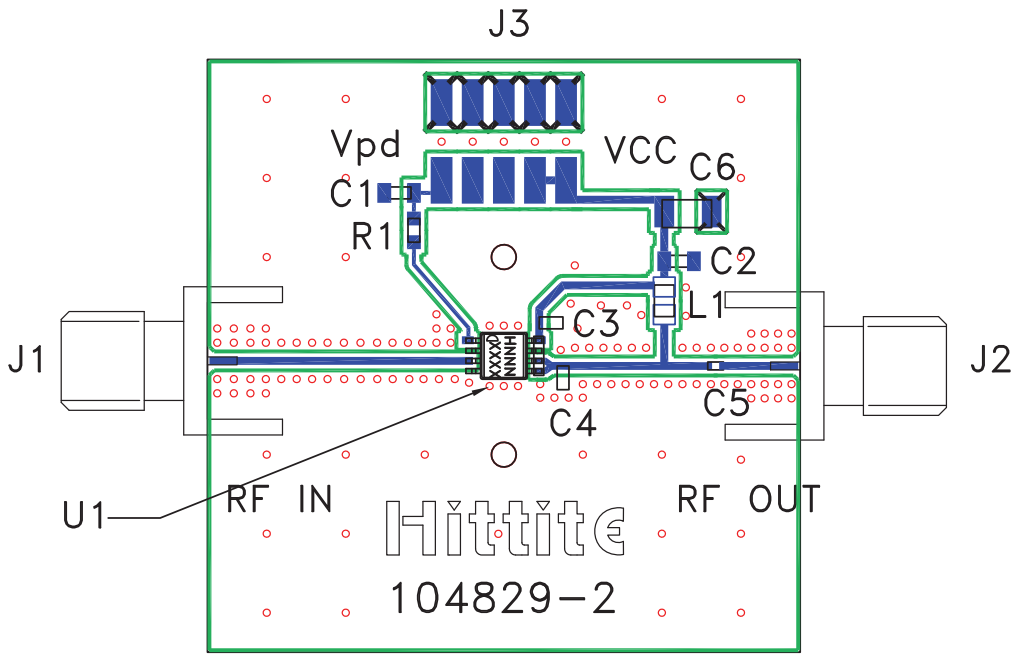
Evaluation PCB



List of Materials for Evaluation PCB 104991 [1]

Item	Description
J1 - J2	PCB Mount SMA RF Connector
J3	2 mm DC Header
C1 - C3	330 pF Capacitor, 0603 Pkg.
C4	1.2 pF Capacitor, 0603 Pkg.
C5	2 pF Capacitor, 0402 Pkg.
C6	2.2 µF Capacitor, Tantalum
L1	3 nH Inductor, 0805 Pkg.
R1	130 Ohm Resistor, 0603 Pkg.
U1	HMC327MS8G(E) Amplifier
PCB [2]	104829 Eval Board

[1] Reference this number when ordering complete evaluation PCB

[2] Circuit Board Material: Rogers 4350

The circuit board used in the 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. A sufficient number of via holes should be used to connect the top and bottom ground planes. The evaluation board should be mounted to an appropriate heat sink. The evaluation circuit board shown is available from Hittite upon request.

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