

HMC636* PRODUCT PAGE QUICK LINKS

Last Content Update: 02/23/2017

COMPARABLE PARTS

View a parametric search of comparable parts.

EVALUATION KITS

- HMC636ST89 Evaluation Board

DOCUMENTATION

Application Notes

- AN-1363: Meeting Biasing Requirements of Externally Biased RF/Microwave Amplifiers with Active Bias Controllers

Data Sheet

- HMC636 Data Sheet

TOOLS AND SIMULATIONS

- HMC636 S-Parameter

REFERENCE MATERIALS

Quality Documentation

- Package/Assembly Qualification Test Report: 3 Lead Plastic SOT89 Package (QTR: 10002 REV: 02)
- PCN: MS, QS, SOT, SOIC packages - Sn/Pb plating vendor change
- Semiconductor Qualification Test Report: PHEMT-F (QTR: 2013-00269)

DESIGN RESOURCES

- HMC636 Material Declaration
- PCN-PDN Information
- Quality And Reliability
- Symbols and Footprints

DISCUSSIONS

View all HMC636 EngineerZone Discussions.

SAMPLE AND BUY

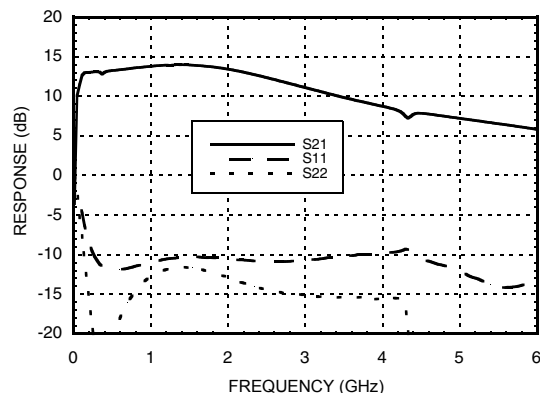
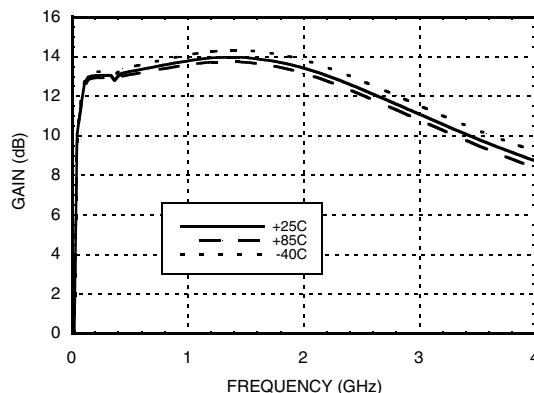
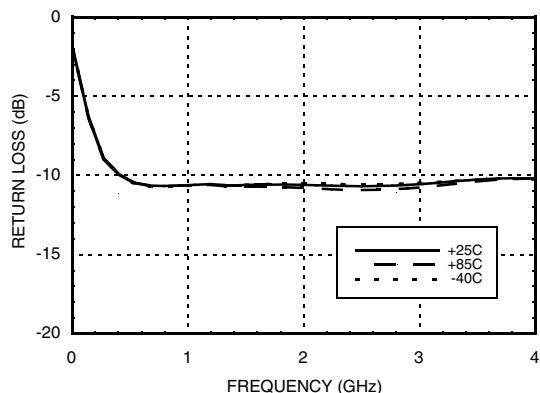
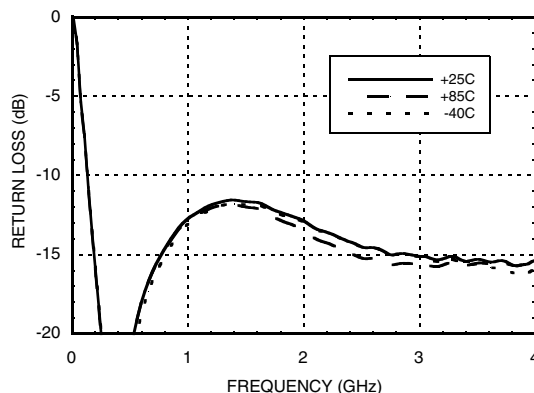
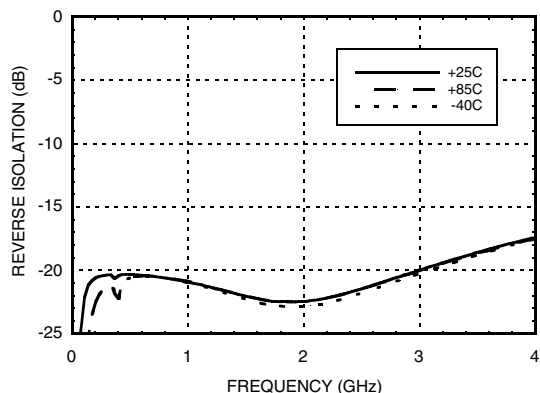
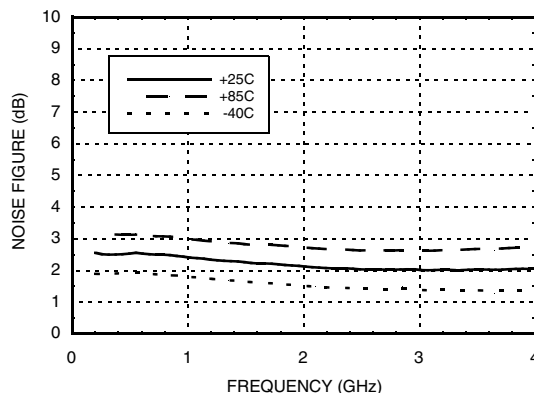
Visit the product page to see pricing options.

TECHNICAL SUPPORT

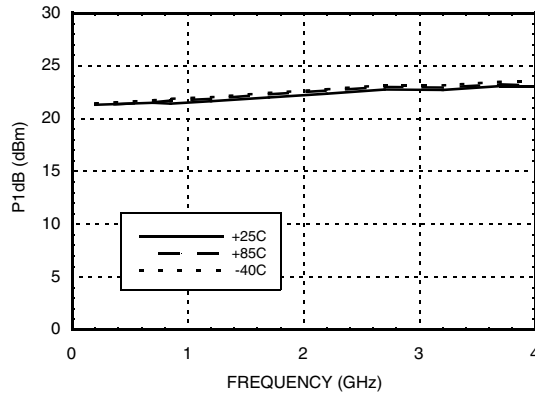
Submit a technical question or find your regional support number.

DOCUMENT FEEDBACK

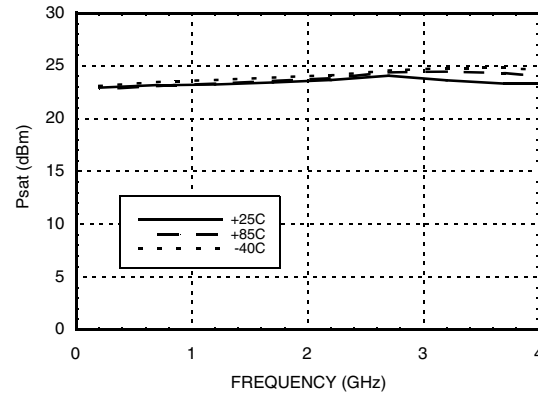
Submit feedback for this data sheet.

Broadband Gain & Return Loss

Gain vs. Temperature

Input Return Loss vs. Temperature

Output Return Loss vs. Temperature

Reverse Isolation vs. Temperature

Noise Figure vs. Temperature


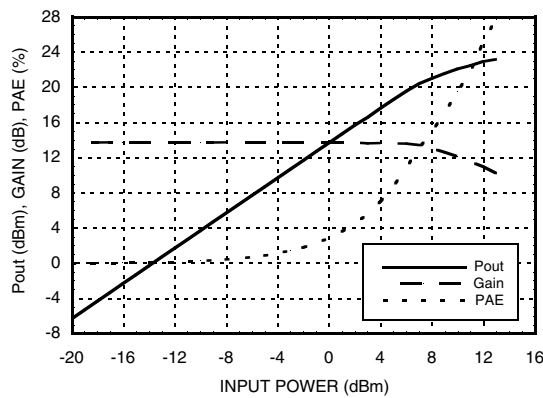
P1dB vs. Temperature



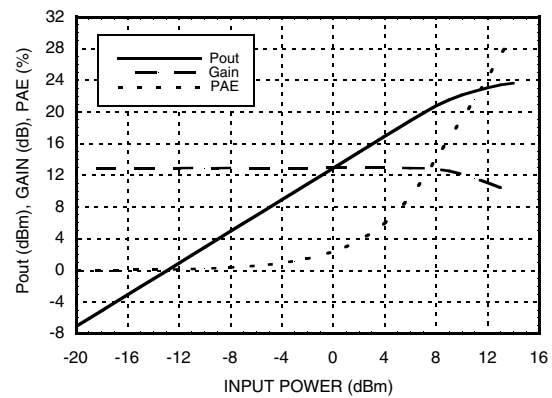
Psat vs. Temperature



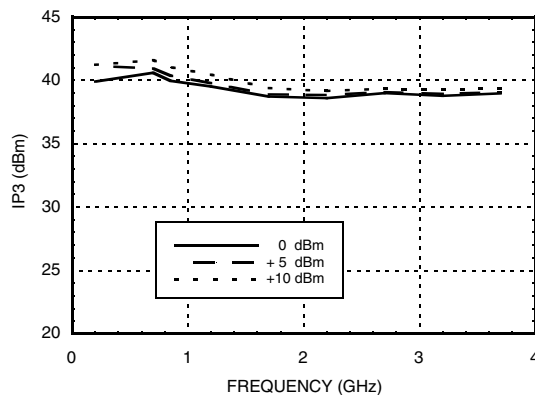
Power Compression @ 850 MHz



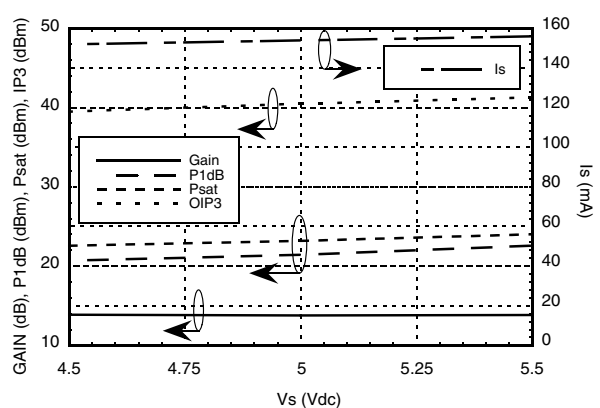
Power Compression @ 2200 MHz



Output IP3 vs. Input Tone Power



**Gain, Power, Output IP3 & Supply Current
vs. Supply Voltage @ 850 MHz**



GaAs PHEMT HIGH LINEARITY Gain Block, 0.2 - 4.0 GHz



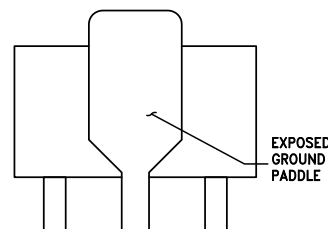
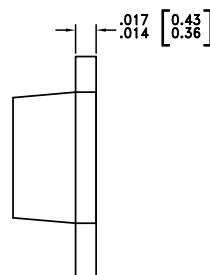
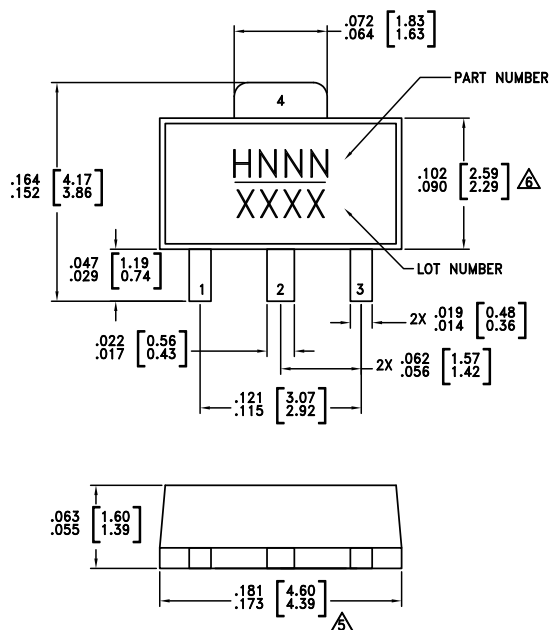
Absolute Maximum Ratings

Collector Bias Voltage (Vcc)	+5.5 Volts
RF Input Power (RFIN)(Vcc = +5 Vdc)	+16 dBm
Channel Temperature	150 °C
Continuous P _{diss} (T = 85 °C) (derate 13.3 mW/°C above 85 °C)	0.86 W
Thermal Resistance (Channel to lead)	75.6 °C/W
Storage Temperature	-65 to +150 °C
Operating Temperature	-40 to +85 °C
ESD Sensitivity (HBM)	Class 1A



ELECTROSTATIC SENSITIVE DEVICE
OBSERVE HANDLING PRECAUTIONS

Outline Drawing



NOTES:

- PACKAGE BODY MATERIAL:
MOLDING COMPOUND MP-180S OR EQUIVALENT.
- LEAD MATERIAL: Cu w/ Ag SPOT PLATING.
- LEAD PLATING: 100% MATTE TIN.
- DIMENSIONS ARE IN INCHES [MILLIMETERS]
- DIMENSION DOES NOT INCLUDE MOLDFLASH OF 0.15mm PER SIDE.
- DIMENSION DOES NOT INCLUDE MOLDFLASH OF 0.25mm PER SIDE.
- ALL GROUND LEADS MUST BE SOLDERED TO PCB RF GROUND.

Package Information

Part Number	Package Body Material	Lead Finish	MSL Rating	Package Marking ^[3]
HMC636ST89	Low Stress Injection Molded Plastic	Sn/Pb Solder	MSL1 ^[1]	H636 XXXX
HMC636ST89E	RoHS-compliant Low Stress Injection Molded Plastic	100% matte Sn	MSL1 ^[2]	<u>H636</u> XXXX

[1] Max peak reflow temperature of 235 °C

[2] Max peak reflow temperature of 260 °C

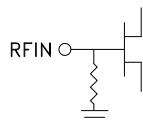
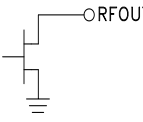
[3] 4-Digit lot number XXXX

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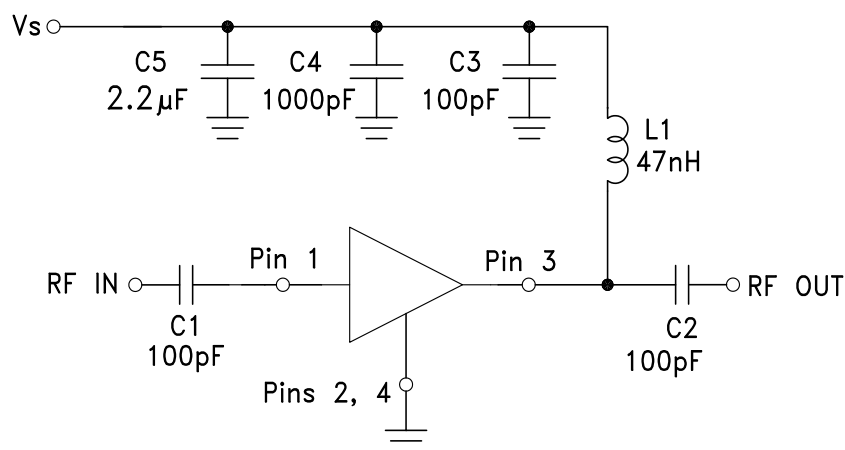
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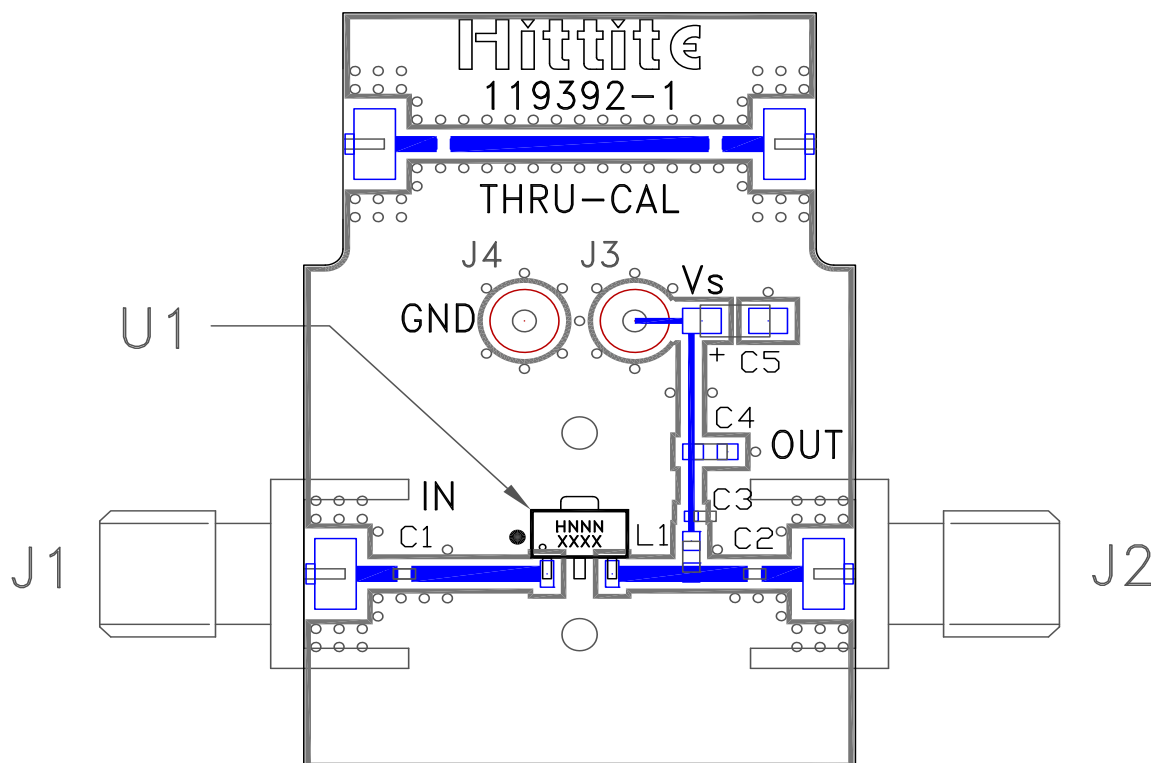
Pin Descriptions

Pin Number	Function	Description	Interface Schematic
1	RFIN	This pin is DC coupled. An off-chip DC blocking capacitor is required.	
3	RFOUT	RF Output and DC BIAS for the amplifier. See Application Circuit for off-chip components.	
2, 4	GND	These pins and package bottom must be connected to RF/DC ground.	

Application Circuit



Evaluation PCB



List of Materials for Evaluation PCB 119394 [1]

Item	Description
J1 - J2	PCB Mount SMA Connector
J3 - J4	DC Pin
C1 - C3	100 pF Capacitor, 0402 Pkg.
C4	1000 pF Capacitor, 0603 Pkg.
C5	2.2 μ F Capacitor, Tantalum
L1	47 nH Inductor, 0603 Pkg.
U1	HMC636ST89(E)
PCB [2]	119392 Evaluation PCB

[1] Reference this number when ordering complete evaluation PCB

[2] Circuit Board Material: FR4

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 package bottom 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.