HMC455* PRODUCT PAGE QUICK LINKS

Last Content Update: 11/29/2017

COMPARABLE PARTS

View a parametric search of comparable parts.

EVALUATION KITS

- HMC455LP3 Evaluation Board

DOCUMENTATION

Application Notes

- AN-1363: Meeting Biasing Requirements of Externally Biased RF/Microwave Amplifiers with Active Bias Controllers
- Broadband Biasing of Amplifiers General Application Note
- MMIC Amplifier Biasing Procedure Application Note
- Thermal Management for Surface Mount Components General Application Note

Data Sheet

- HMC455 Data Sheet

TOOLS AND SIMULATIONS

- HMC455 S-Parameter

REFERENCE MATERIALS

Product Selection Guide

- RF, Microwave, and Millimeter Wave IC Selection Guide 2017

Quality Documentation

- Package/Assembly Qualification Test Report: LP2, LP2C, LP3, LP3B, LP3C, LP3D, LP3F, LP3G (QTR: 2014-0364)
- Package/Assembly Qualification Test Report: Plastic Encapsulated QFN (QTR: 05006 REV: 02)
- Semiconductor Qualification Test Report: GaAs HBT-B (QTR: 2013-00229)

DESIGN RESOURCES

- HMC455 Material Declaration
- PCN-PDN Information
- Quality And Reliability
- Symbols and Footprints

DISCUSSIONS

View all HMC455 EngineerZone Discussions.

SAMPLE AND BUY

Visit the product page to see pricing options.

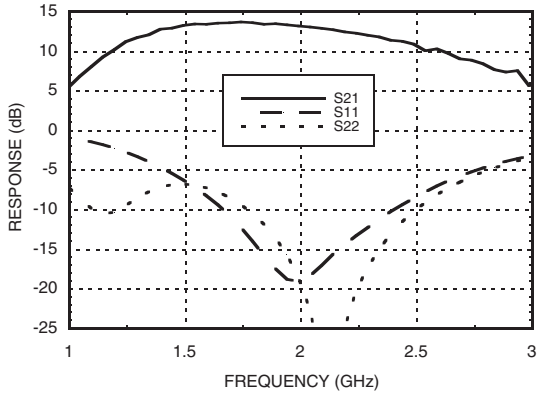
TECHNICAL SUPPORT

Submit a technical question or find your regional support number.

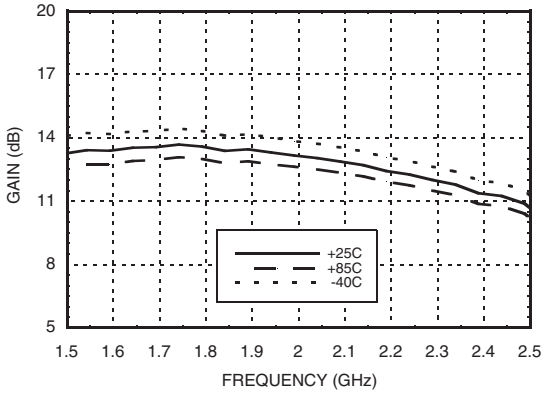
DOCUMENT FEEDBACK

Submit feedback for this data sheet.

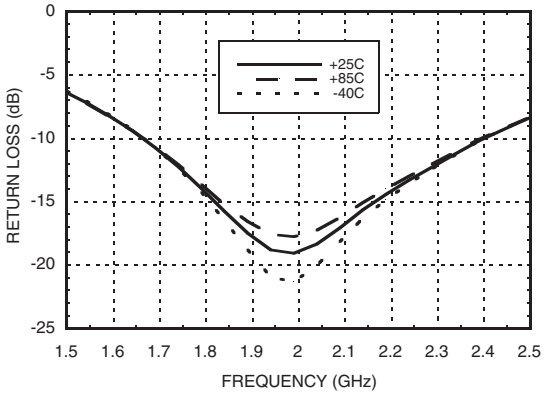
Broadband Gain & Return Loss



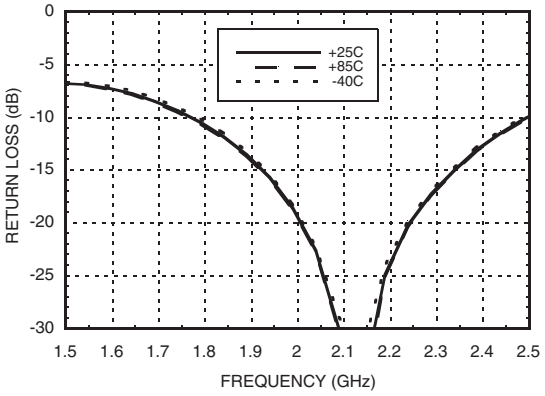
Gain vs. Temperature



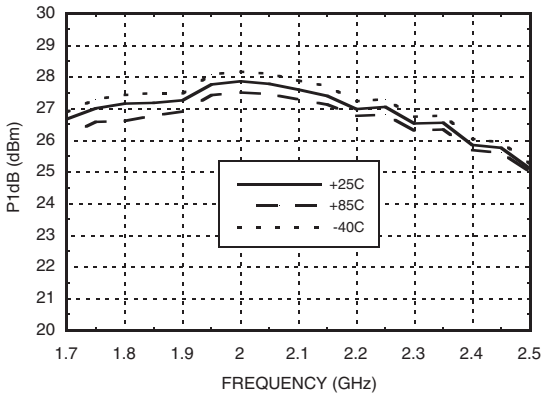
Input Return Loss vs. Temperature



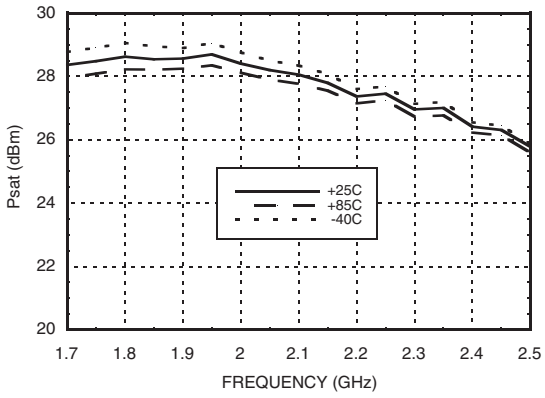
Output Return Loss vs. Temperature



P1dB vs. Temperature



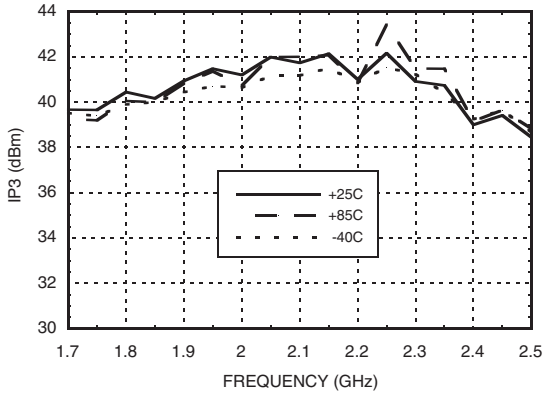
Psat vs. Temperature



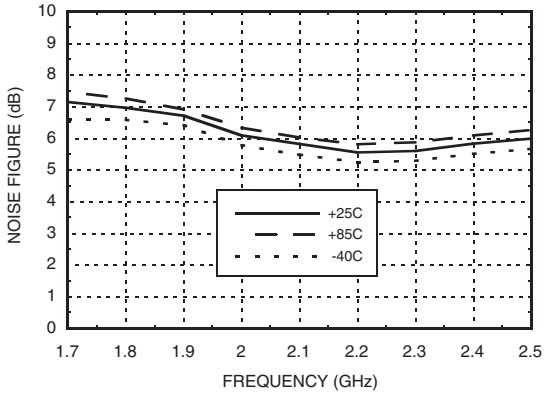
Data shown is tuned for 1.85 - 2.2 GHz, contact HMC
Applications for recommended 1.7 - 1.85 GHz & 2.2 - 2.5 GHz tuning circuits.

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

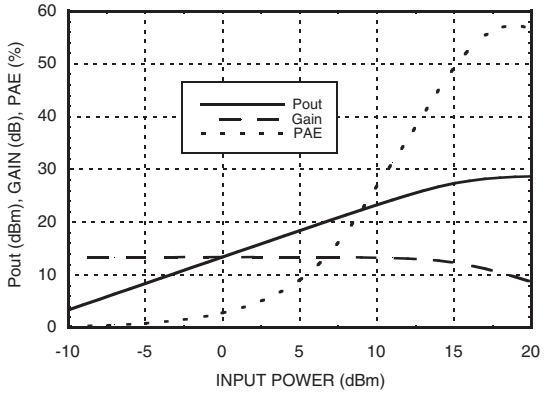
Output IP3 vs. Temperature



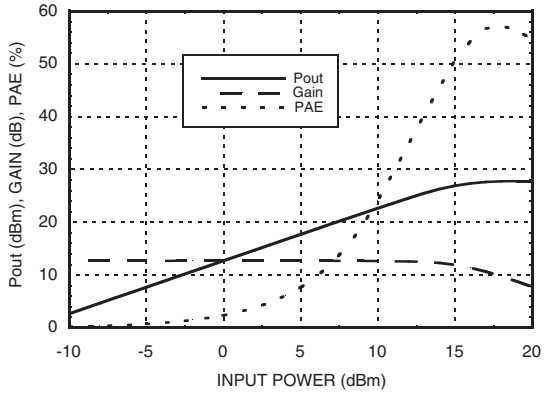
Noise Figure vs. Temperature



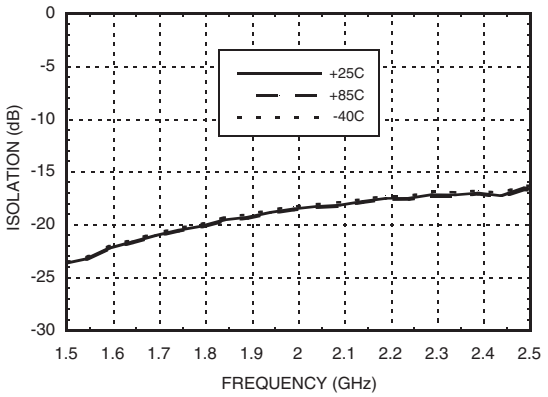
Power Compression @ 1.95 GHz



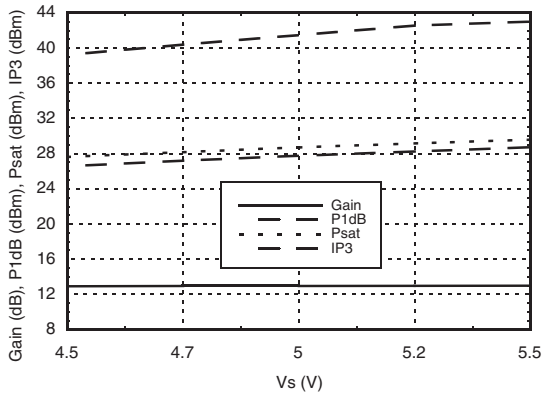
Power Compression @ 2.15 GHz



Reverse Isolation vs. Temperature



Gain, Power & IP3 vs. Supply Voltage @ 1.95 GHz



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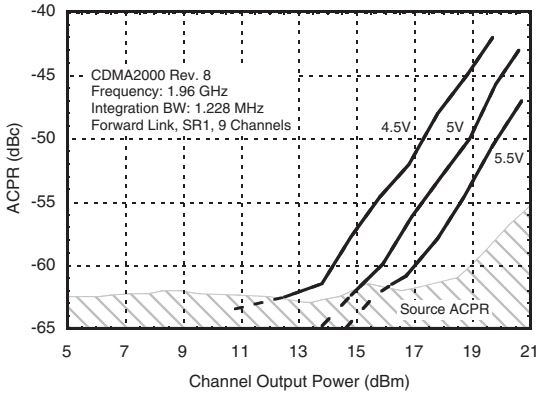
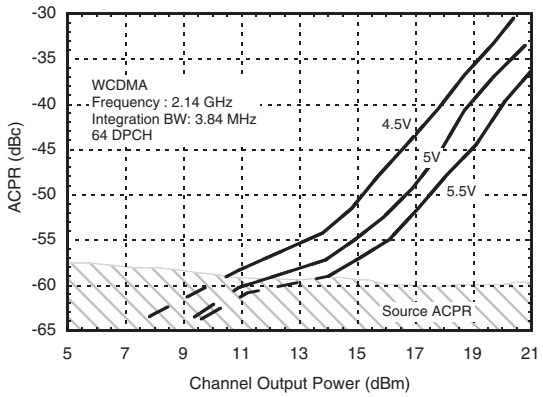
RoHS✓ EARTH FRIENDLY

InGaP HBT ½ Watt High IP3 AMPLIFIER, 1.7 - 2.5 GHz

ACPR vs. Supply Voltage @ 1.96 GHz CDMA 2000, 9 Channels Forward



ACPR vs. Supply Voltage @ 2.14 GHz W-CDMA, 64 DPCH

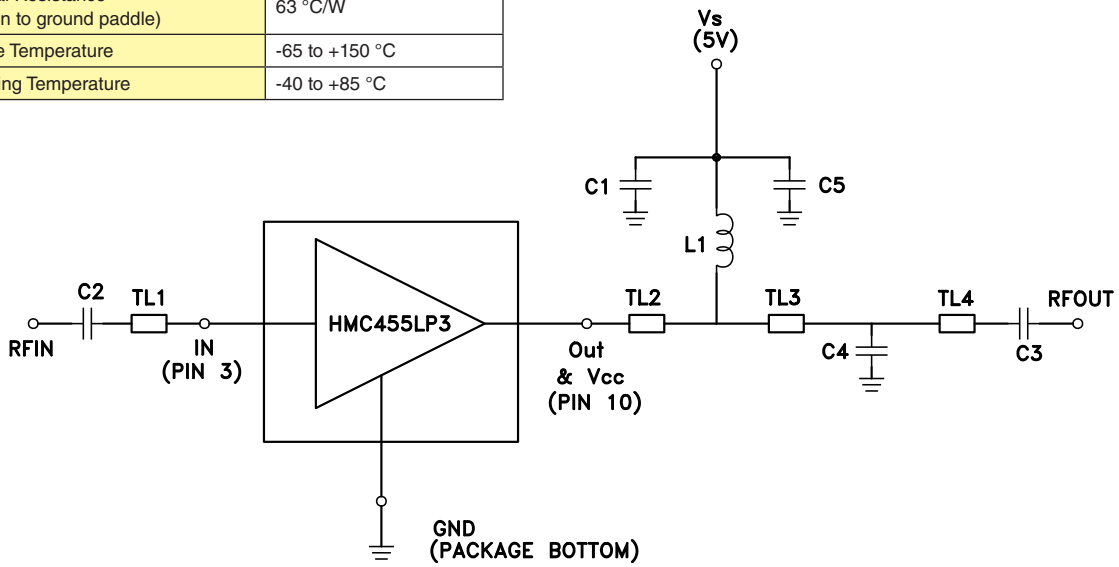


Absolute Maximum Ratings

Collector Bias Voltage (Vcc)	+6.0 Vdc
RF Input Power (RFIN)(Vs = +5Vdc)	+25 dBm
Junction Temperature	150 °C
Continuous Pdiss (T = 85 °C) (derate 16 mW/°C above 85 °C)	1.04 W
Thermal Resistance (junction to ground paddle)	63 °C/W
Storage Temperature	-65 to +150 °C
Operating Temperature	-40 to +85 °C

ELECTROSTATIC SENSITIVE DEVICE
OBSERVE HANDLING PRECAUTIONS

Application Circuit



	TL1	TL2	TL3	TL4
Impedance	50 Ohm	50 Ohm	50 Ohm	50 Ohm
Physical Length	0.33"	0.18"	0.13"	0.04"
Electrical Length	34°	19°	13.5°	4°
PCB Material: 10 mil Rogers 4350, Er = 3.48				

Recommended Component Values	
L1	8.2 nH
C1	2.2 µF
C2, C3	3.0 pF
C4	0.9 pF
C5	100 pF

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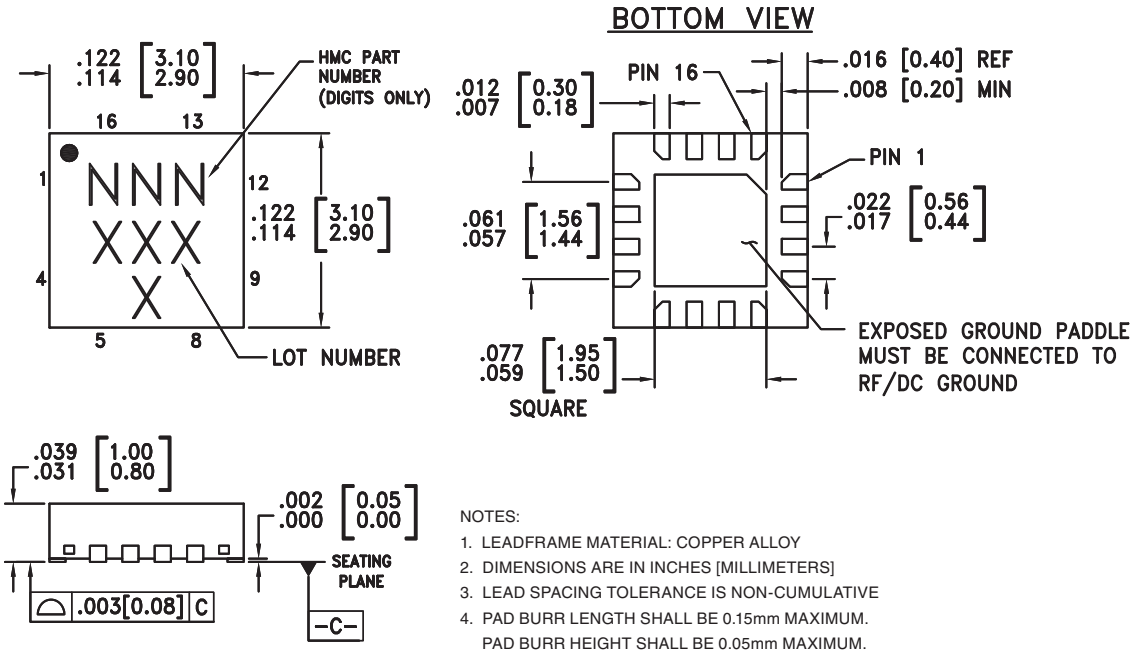
Outline Drawing



NOTES:

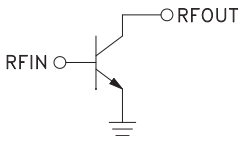
1. LEADFRAME MATERIAL: COPPER ALLOY
2. DIMENSIONS ARE IN INCHES [MILLIMETERS]
3. LEAD SPACING TOLERANCE IS NON-CUMULATIVE
4. PAD BURR LENGTH SHALL BE 0.15mm MAXIMUM. PAD BURR HEIGHT SHALL BE 0.05mm MAXIMUM.
5. PACKAGE WARP SHALL NOT EXCEED 0.05mm.
6. ALL GROUND LEADS AND GROUND PADDLE MUST BE SOLDERED TO PCB RF GROUND.
7. REFER TO HITTITE APPLICATION NOTE FOR SUGGESTED LAND PATTERN.

Package Information

Part Number	Package Body Material	Lead Finish	MSL Rating	Package Marking [3]
HMC455LP3	Low Stress Injection Molded Plastic	Sn/Pb Solder	MSL1 [1]	455 XXXX
HMC455LP3E	RoHS-compliant Low Stress Injection Molded Plastic	100% matte Sn	MSL1 [2]	455 XXXX

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

Pin Descriptions

Pin Number	Function	Description	Interface Schematic
1, 2, 4 - 9, 11 - 16	N/C	This pin may be connected to RF ground.	
3	RFIN	This pin is AC coupled. An off chip series matching capacitor is required.	
10	RFOUT	RF output and DC Bias for the output stage.	
	GND	Package bottom must be connected to RF/DC ground.	

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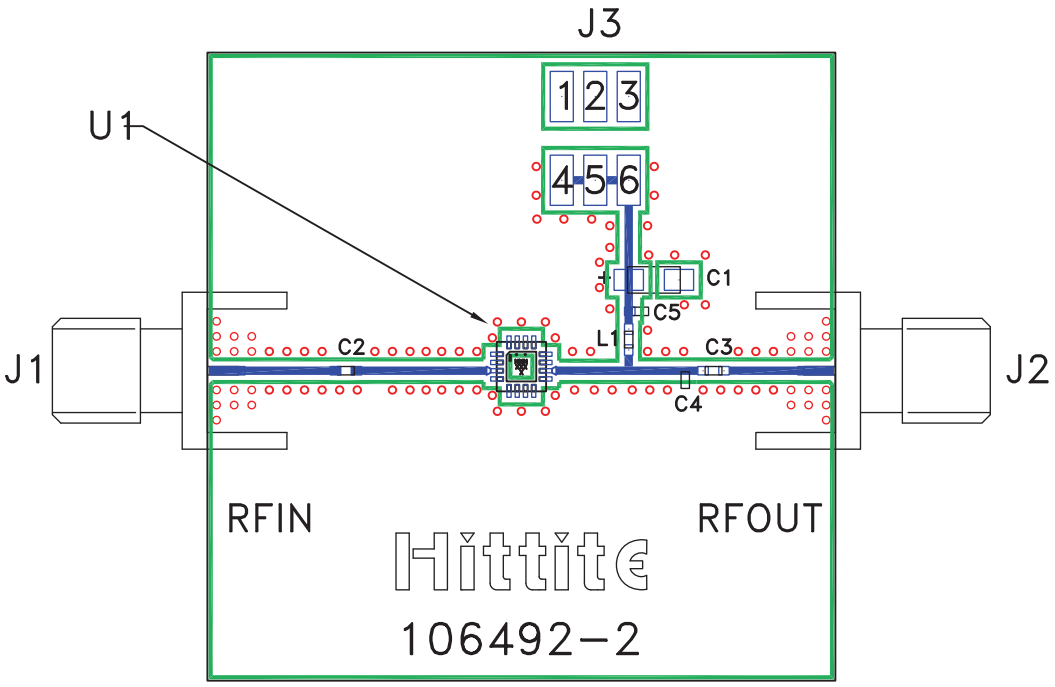
Evaluation PCB



J3

Pin Number	Description
1, 2, 3	GND
4, 5, 6	Vs

List of Materials for Evaluation PCB 106058 [1]

Item	Description
J1 - J2	PCB Mount SMA Connector
J3	2 mm DC Header
C1	2.2 µF Capacitor, Tantalum
C2, C3	3.0 pF Capacitor, 0402 Pkg.
C4	0.9 pF Capacitor, 0402 Pkg.
C5	100 pF Capacitor, 0402 Pkg.
L1	8.2 nH Inductor, 0402 Pkg.
U1	HMC455LP3 / HMC455LP3E Power Amplifier
PCB [2]	106492 Evaluation PCB, 10 mils

[1] Reference this number when ordering complete evalution PCB

[2] Circuit Board Material: Rogers 4350, Er = 3.48

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 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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