HMC493* PRODUCT PAGE QUICK LINKS

Last Content Update: 02/23/2017

COMPARABLE PARTS

View a parametric search of comparable parts.

EVALUATION KITS

- HMC493LP3 Evaluation Board

DOCUMENTATION

Data Sheet

- HMC493 Data Sheet

REFERENCE MATERIALS

Quality Documentation

- Package/Assembly Qualification Test Report: 16L 3x3mm QFN Package (QTR: 11003 REV: 02)
- 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-A (QTR: 2013-00228)

DESIGN RESOURCES

- HMC493 Material Declaration
- PCN-PDN Information
- Quality And Reliability
- Symbols and Footprints

DISCUSSIONS

View all HMC493 EngineerZone Discussions.

SAMPLE AND BUY

Visit the product page to see pricing options.

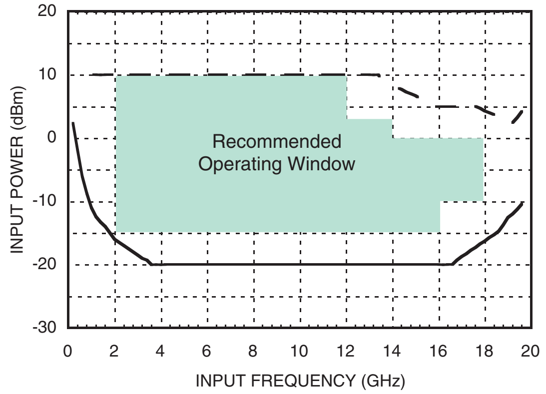
TECHNICAL SUPPORT

Submit a technical question or find your regional support number.

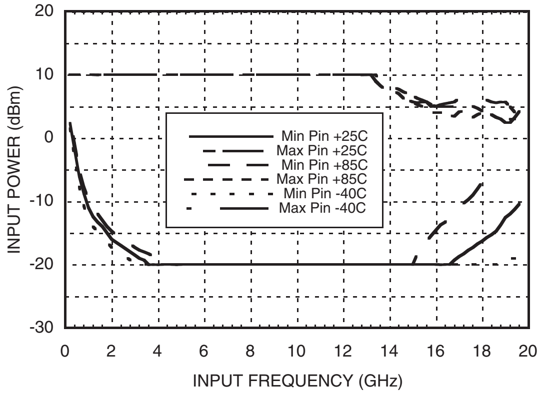
DOCUMENT FEEDBACK

Submit feedback for this data sheet.

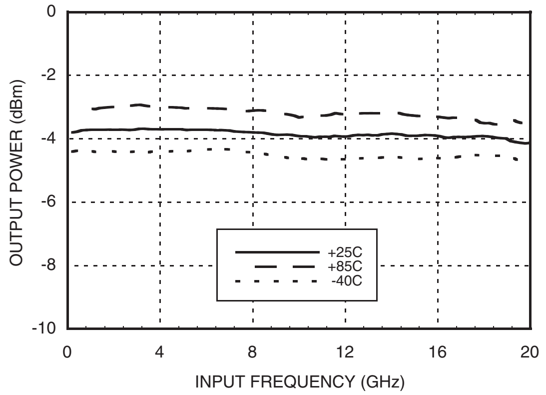
Input Sensitivity Window, T= 25 °C



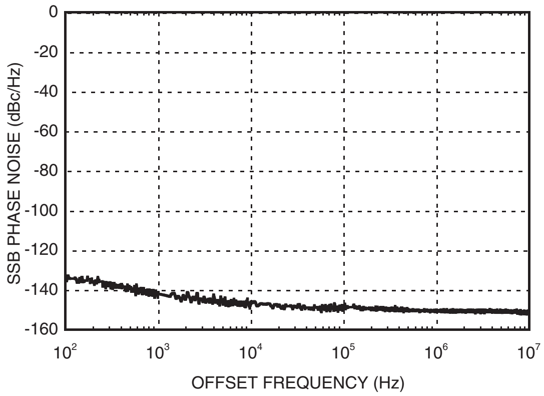
Input Sensitivity Window vs. Temperature



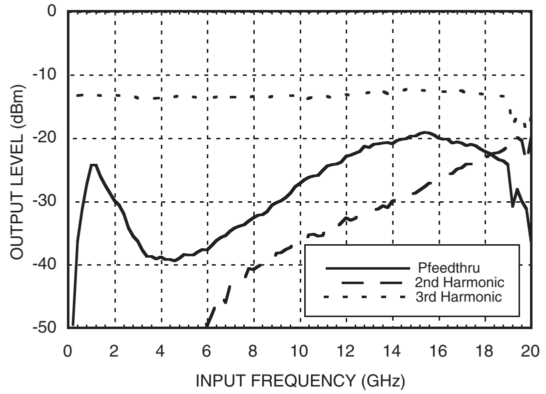
Output Power vs. Temperature



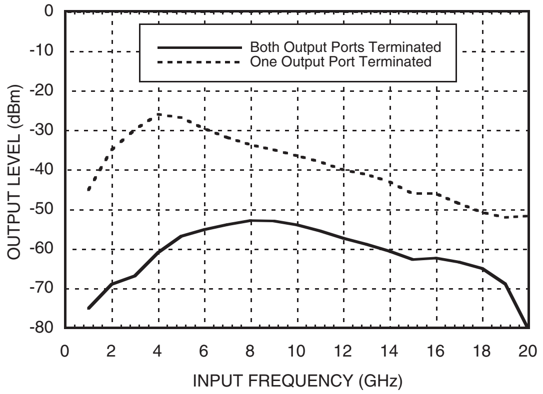
SSB Phase Noise Performance, Pin= 0 dBm, T= 25 °C



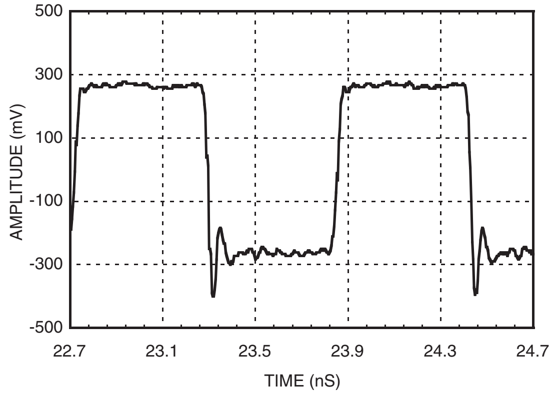
Output Harmonic Content, Pin= 0 dBm, T= 25 °C



Reverse Leakage, Pin= 0 dBm, T= 25 °C



Output Voltage Waveform,
Pin= 0 dBm, Fout= 882 MHz, T= 25 °C



ELECTROSTATIC SENSITIVE DEVICE
OBSERVE HANDLING PRECAUTIONS

Absolute Maximum Ratings

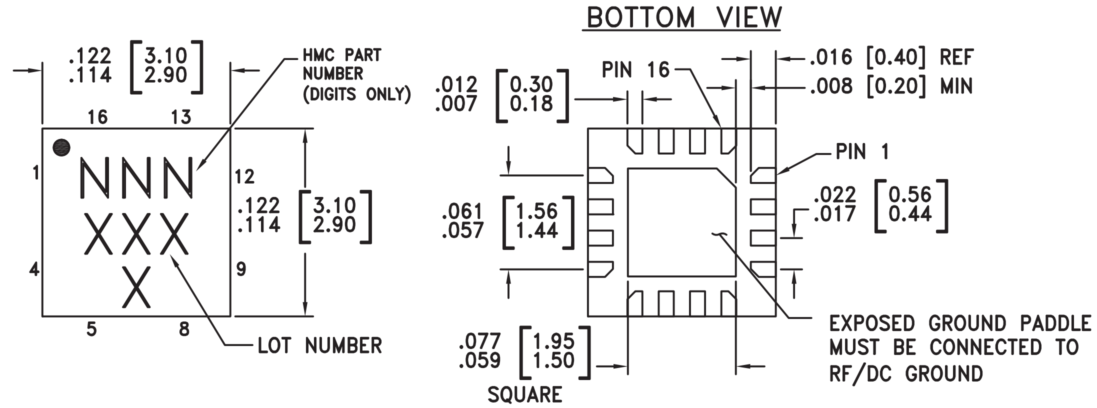
RF Input (Vcc = +5V)	+13 dBm
Supply Voltage (Vcc1, Vcc2)	+5.5V
Channel Temperature (Tc)	135 °C
Continuous Pdiss (T = 85 °C) (derate 11.9 mW/° C above 85 °C)	593 mW
Thermal Resistance (R_{TH}) (junction to ground paddle)	84 °C/W
Storage Temperature	-65 to +150 °C
Operating Temperature	-40 to +85 °C
ESD Sensitivity (HBM)	Class 1A

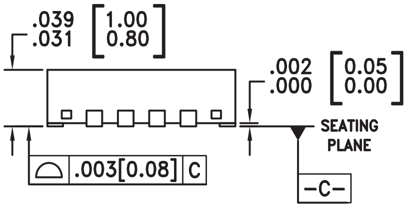
Typical Supply Current vs. Vcc

Vcc1, Vcc2 (V)	Icc (mA)
4.75	84
5.0	96
5.25	108

Note: Divider will operate over full voltage range shown above

Outline Drawing





NOTES:

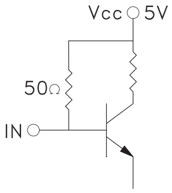
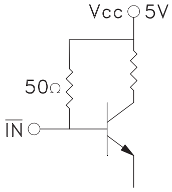
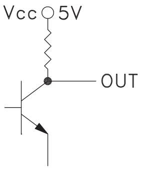
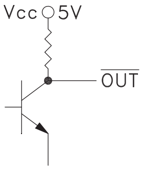
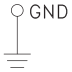
1. LEADFRAME MATERIAL: COPPER ALLOY
2. DIMENSIONS ARE IN INCHES [MILLIMETERS]
3. LEAD SPACING TOLERANCE IS NON-CUMULATIVE
4. PAD BURR LENGTH SHALL BE 0.15mm MAXIMUM. PAD BURR HEIGHT SHALL BE 0.05mm MAXIMUM.
5. PACKAGE WARP SHALL NOT EXCEED 0.05mm.
6. ALL GROUND LEADS AND GROUND PADDLE MUST BE SOLDERED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

Package Information

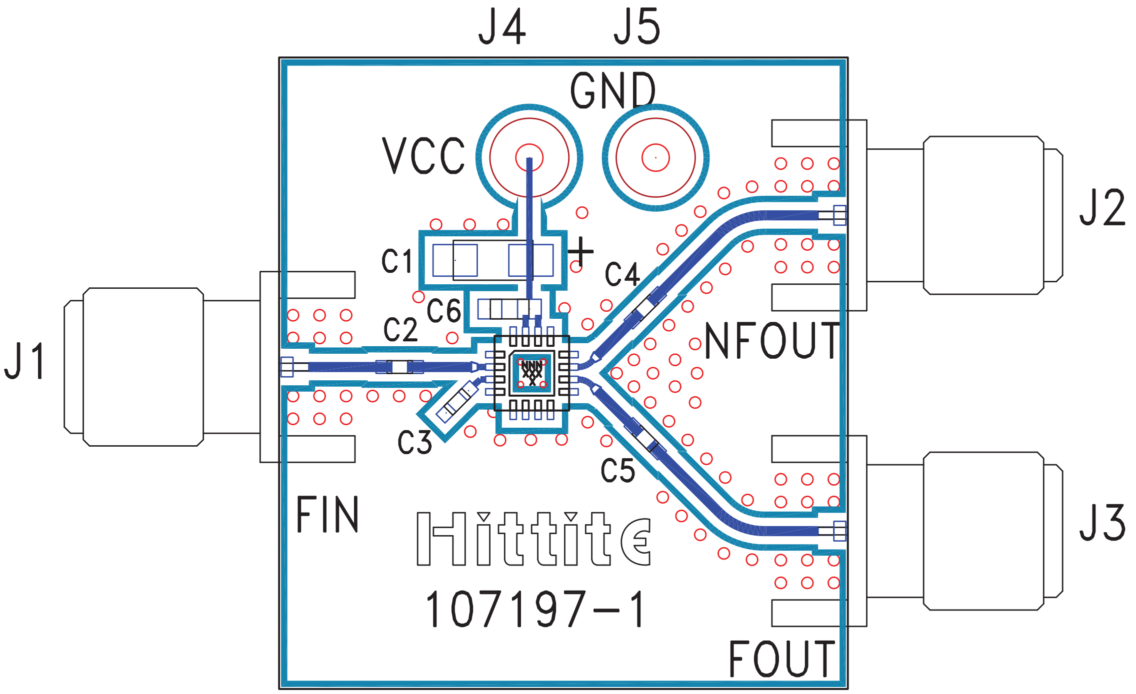
Part Number	Package Body Material	Lead Finish	MSL Rating	Package Marking [3]
HMC493LP3	Low Stress Injection Molded Plastic	Sn/Pb Solder	MSL1 [1]	493 XXXX
HMC493LP3E	RoHS-compliant Low Stress Injection Molded Plastic	100% matte Sn	MSL1 [2]	493 XXXX

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

Pin Description

Pin Number	Function	Description	Interface Schematic
1, 4-9, 12, 13, 16	N/C	No connection.	
2	IN	RF Input must be DC blocked.	
3	$\overline{IN}$	RF Input 180° out of phase with pin 2 for differential operation. AC ground for single ended operation.	
10	OUT	Divided Output.	
11	$\overline{OUT}$	Divided output 180° out of phase with pin 10.	
14, 15	Vcc1, Vcc2	Supply voltage 5V ± 0.25V. Connect both pins to +5V supply.	
	GND	Ground: Backside of package has exposed metal ground slug which must be connected to RF/DC ground.	

Evaluation PCB



List of Materials for Evaluation PCB 107384 [1]

Item	Description
J1 - J3	PCB Mount SMA RF Connector
J4, J5	DC Pin
C2 - C5	100 pF Capacitor, 0402 Pkg.
C6	1000 pF Capacitor, 0603 Pkg.
C1	2.2 uF Tantalum Capacitor
U1	HMC493LP3 / HMC493LP3E Divide-by-2
PCB [2]	107197 Eval Board

[1] Reference this number when ordering complete evaluation PCB

[2] Circuit Board Material: Rogers 4350

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 backside ground slug 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 circuit board shown is available from Hittite upon request. This evaluation board is designed for single ended input testing. J2 and J3 provide differential output signals.

Application Circuit