

# Survey Of Microwave Components

# Manufacturers You Can Buy From

- Hittite – direct sales (Future Electronics will sell in single lots)
- TriQuint – Sells through Richardson
- M/A-COM – Sells through Richardson and RF Parts
- Mitsubishi – Sells through RF Parts
- CEL (Renasas formerly NEC) – DigiKey
- Omron – DigiKey, Mouser, Newark
- Maxim – DigiKey, Mouser
- Linear Technology – DigiKey, Mouser
- MiniCircuits – direct sales, RF Parts
- RFMD – Direct Sales
- Skyworks
- L-Com



# HMC952LP5GE

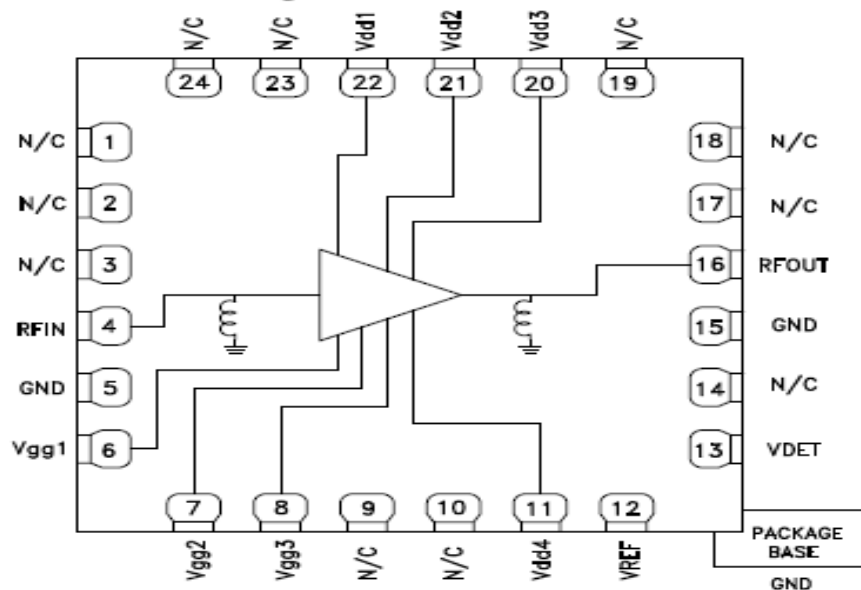
## GaAs pHEMT MMIC 2 Watt POWER AMPLIFIER SMT WITH POWER DETECTOR , 9 - 14 GHz

### Typical Applications

The HMC952LP5GE is ideal for:

- Point-to-Point Radios
- Point-to-Multi-Point Radios
- SATCOM
- Military & Space

### Functional Diagram



### Features

High P1dB Output Power: +34 dBm

High Psat Output Power: +35 dBm

High Gain: 33 dB

High Output IP3: +43 dBm

Supply Voltage: VDD = +6V @ 1400 mA

50 Ohm Matched Input/Output

No external matching required

### General Description

The HMC952LP5GE is a four stage GaAs PHEMT MMIC Medium Power Amplifier with a temperature compensated on chip power detector which operates between 9 and 14 GHz. The amplifier provides 33 dB of gain, +35 dBm of saturated output power, and 27% PAE from a +6V supply. With up to +43 dBm IP3 the HMC952LP5GE is ideal for high linearity applications in military and space as well as point-to-point and point-to-multi-point radios. The HMC952LP5GE amplifier I/Os are internally matched.



## FRACTIONAL-N PLL WITH INTEGRATED VCO 25 - 3000 MHz

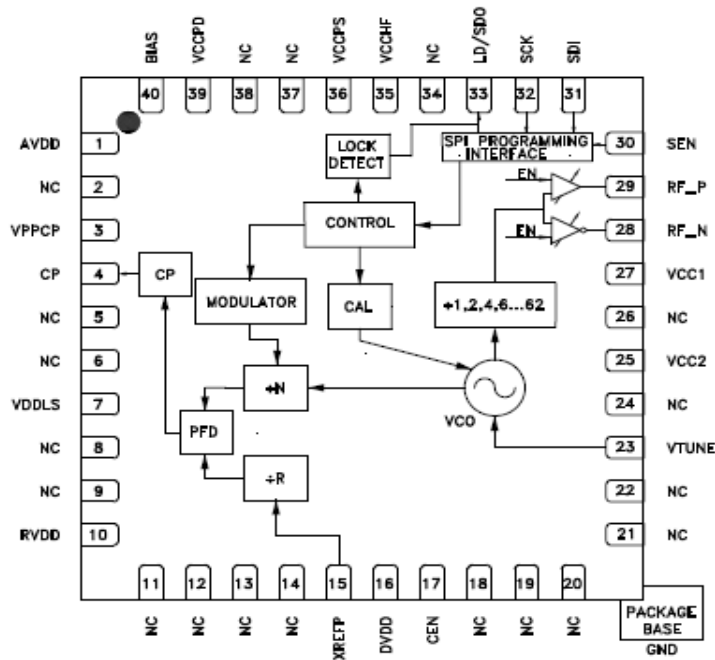
### Features

- RF Bandwidth:  
25 - 3000 MHz
- 3.3 V Supply
- Maximum Phase Detector Rate  
100 MHz
- Ultra Low Phase Noise  
-110 dBc/Hz in Band Typ.
- Fractional Figure of Merit (FOM) -226 dBc/Hz
- 24-bit Step Size, Resolution 3 Hz typical
- Exact Frequency Mode with 0 Hz frequency error
- Fast Frequency Hopping
- 40 Lead 6x6 mm SMT Package: 36 mm<sup>2</sup>

### Typical Applications

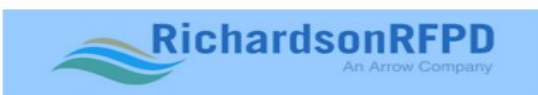
- Cellular Infrastructure
- Microwave Radio
- WiMax, WiFi
- Communications Test Equipment
- CATV Equipment
- DDS Replacement
- Military
- Tunable Reference Source for Spurious-Free Performance

### Functional Diagram



# Hittite Prices

- HMC952 -- \$31.54 ea (qty 10)
- HMC832 -- \$12.18 (qty 10)



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TriQuint is leading the way in GaN product innovation from DC to 18 GHz including discrete transistors, amplifiers and switches, supported by its unique ability to integrate and package single and multiple die in secure, US facilities. Demand for GaN technology is growing worldwide – the solution is RF innovation from TriQuint.

### GaN Switches

Part Number	Frequency Range (MHz)	Configuration	Insertion Loss (dB)	Isolation (dB)	Max Input Power (dBm)	Switching Time (ns)	Package Type
TGS2351-SM	0-6000	SPDT	0.8	-40	46	50	4.0 x 4.0 x 1.43 mm
TGS2352	0-12000	SPDT	1.0	-35	43	31	1.15 x 1.65 x 0.1 mm
TGS2353	0-18000	SPDT	1.5	-30	40	31	1.15 x 1.65 x 0.1 mm

### GaN FETs

Part Number	Frequency Range (MHz)	P1dB (W)	Gain (dB)	Power Added Efficiency (%)	Supply Voltage (V)	Package Type
T1G4005528-FS	0-3500	55	17.6	60.7	28	Ceramic
T1G6003028-FS	0-6000	33.5	15.2	64.1	28	Ceramic

### GaN Power Amplifier IC

Part Number	Frequency Range (MHz)	P1dB (dBm)	Gain (dB)	Power Added Efficiency (%)	Supply Voltage (V)	Package Type
TGA2576-FL	2500-6000	45.5	26	35	30	11.4 x 17.3 x 3.0 mm





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- RF Power Transistor LDMOS
- RF Power Transistor MOSFET
- RF Power Transistor pHEMT
- RF Power Transistor Silicon Carbide

### T1G6003028-FS TriQuint Semiconductor RF Power Transistor GaN

How to Buy

Product Specification Technical Resources Pricing & Availability

RoHS New Featured

The TriQuint T1G6003028-FS is a 30 W (P3dB) discrete GaN on SiC HEMT which operates from DC to 6 GHz. The device is constructed with TriQuint's proven 0.25 μm process, which features advanced field plate techniques to optimize power and efficiency at high drain bias operating conditions. This optimization can potentially lower system costs in terms of fewer amplifier line-ups and lower thermal management costs.

▶ Download Specification Sheet (PDF)

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Key Attributes	Value
Frequency Range : Minimum Frequency	0 MHz
Frequency Range : Maximum Frequency	6000 MHz
P1dB	33.5 W
Gain (@Freq)	15.2 @ 5600 MHz
Pout (W, test condition)	33.5 W, 3GHz, 20% pulse W
Test signal	6.0 GHz (VDS = 28 V, IDQ = 200 mA; Pulse: 100μs)
Power Added Efficiency	64.1 %
Supply Voltage	28 VDC
Thermal Resistance	4 °C/W
Package Type	Ceramic Flat Lead

Availability	
36	
Quantity	Unit Price
1 - 24	\$141.00
25 - 99	\$121.95
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Quantity:   
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This product is available in the following countries:  
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# HETERO JUNCTION FIELD EFFECT TRANSISTOR

## NE3511S02

### X TO Ku BAND SUPER LOW NOISE AMPLIFIER N-CHANNEL HJ-FET

#### FEATURES

- Super low noise figure and high associated gain  
NF = 0.30 dB TYP.,  $G_a = 13.5$  dB TYP. @  $f = 12$  GHz
- Micro-X plastic (S02) package

#### APPLICATIONS

- X to Ku-band DBS LNB
- Other X to Ku-band communication systems

#### ORDERING INFORMATION

Part Number	Order Number	Package	Quantity	Marking	Supplying Form
NE3511S02-T1C	NE3511S02-T1C-A	S02 (Pb-Free)	2 kpcs/reel	B	• 8 mm wide embossed taping • Pin 4 (Gate) faces the perforation side of the tape
NE3511S02-T1D	NE3511S02-T1D-A		10 kpcs/reel		



# NE3511

- Available at DigiKey
- \$3.14 qty 1
- 0.3 dB Noise Figure @ 10 GHz!!

# Miscellaneous Suppliers

- Skyworks – WiFi and cell phone band parts
  - Sells through Richardson
- RFMD – WiFi and cell phone band parts
  - Direct Sales
- Minicircuits – DC to 24 GHz
  - USB connected power meter
- Linear Technology – General RF, DC to WiFi
- L-Com – WiFi parts

# Omron Relays

- (G6Z series relays to 3 GHz @10W \$5, G6K 3GHz @ 3W so-so isolation \$3 -- \$25)