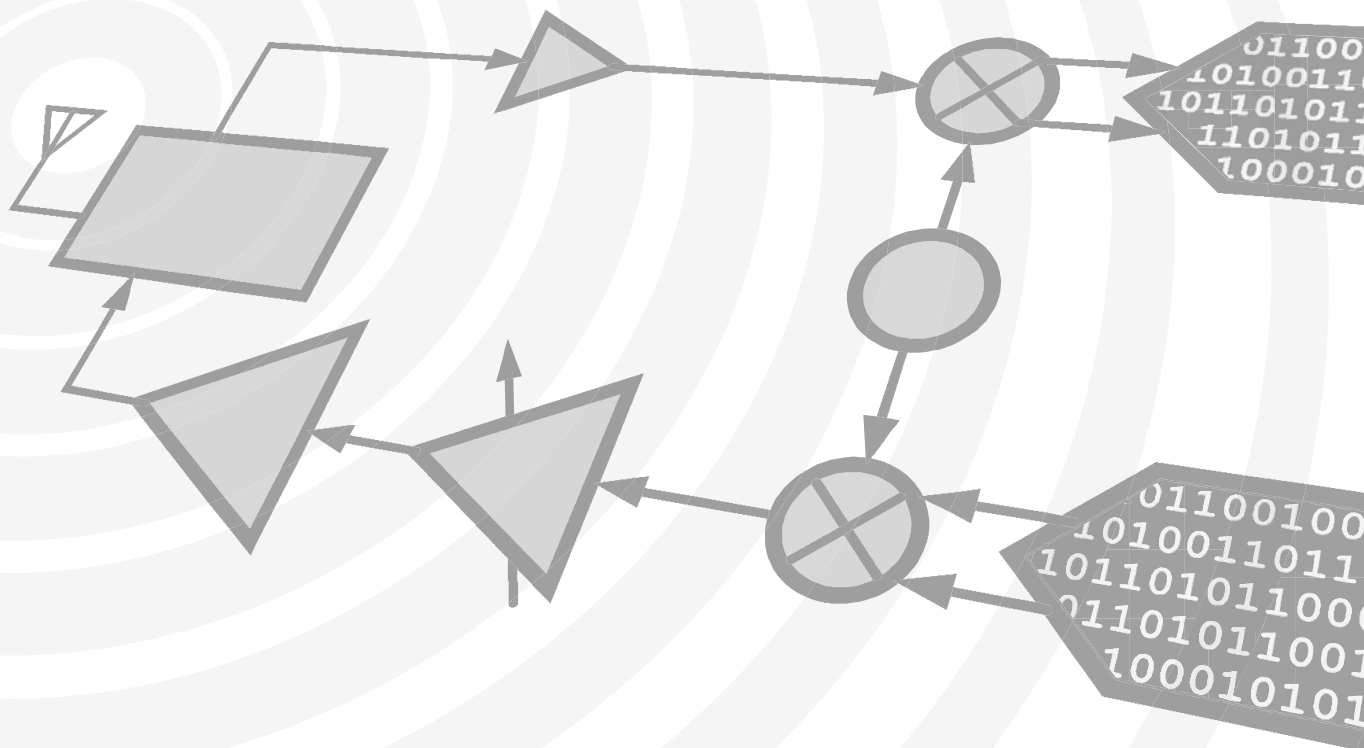




NO CONTENT ON THE ATTACHED DOCUMENT HAS CHANGED



THIS PAGE INTENTIONALLY LEFT BLANK



MICROWAVE CORPORATION v03.0514



HMC519LC4

GaAs PHEMT MMIC LOW NOISE AMPLIFIER, 18 - 31 GHz

Typical Applications

The HMC519LC4 is ideal for:

- Point-to-Point Radios
- Point-to-Multi-Point Radios & VSAT
- Test Equipment & Sensors
- Military & Space

Features

Noise Figure: 3.5 dB

Gain: 14 dB

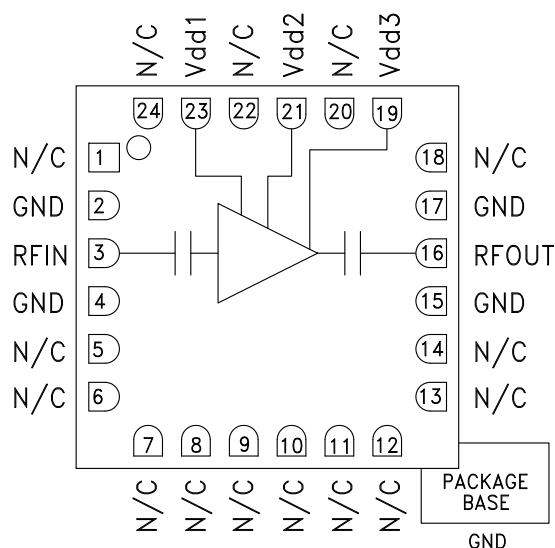
Output IP3: +23 dBm

Single Supply: +3V @ 75 mA

50 Ohm Matched Input/Output

24 Lead Ceramic 4x4mm SMT Package: 16mm²

Functional Diagram



General Description

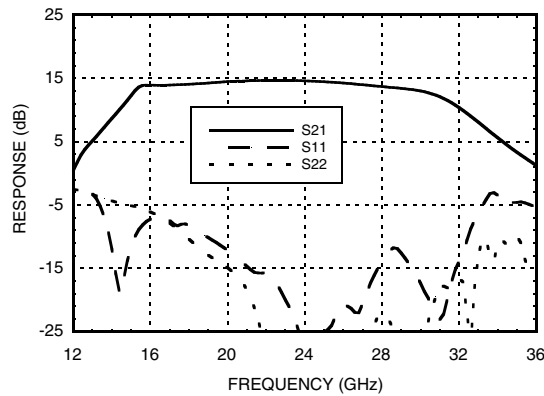
The HMC519LC4 is a high dynamic range GaAs pHEMT MMIC Low Noise Amplifier (LNA) housed in a leadless 4 x 4 mm ceramic surface mount package. The amplifier operates between 18 and 31 GHz, providing 14 dB of small signal gain, 3.5 dB noise figure and output IP3 of +23 dBm, while requiring only 75 mA from a +3V single supply. The P1dB output power of +11 dBm, enables the LNA to function as a LO driver for balanced, I/Q or image reject mixers. The HMC519LC4 also features I/Os that are DC blocked and internally matched to 50 Ohms, making it ideal for microwave radio and VSAT applications.

Electrical Specifications, $T_A = +25^\circ\text{C}$, $V_{dd\ 1, 2, 3} = +3\text{V}$

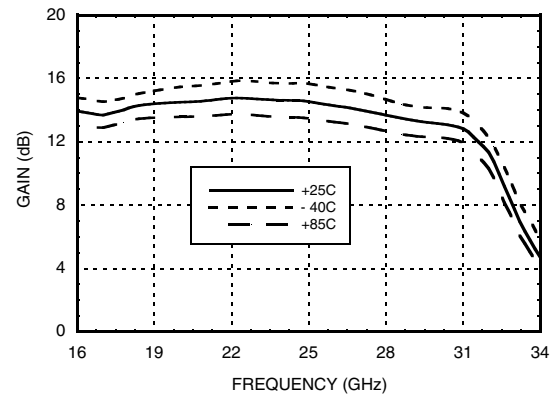
Parameter	Min.	Typ.	Max.	Min.	Typ.	Max.	Units
Frequency Range	18 - 28			28 - 31			GHz
Gain	11.4	14.4		10.2	13.2		dB
Gain Variation Over Temperature		0.016	0.026		0.016	0.026	dB/°C
Noise Figure		3.5	5.5		3	5	dB
Input Return Loss		15			17		dB
Output Return Loss		20			22		dB
Output Power for 1 dB Compression (P1dB)	8	11		9.2	12.2		dBm
Saturated Output Power (Psat)		14			15.4		dBm
Output Third Order Intercept (IP3)		23			24		dBm
Supply Current (Idd)		75	95		75	95	mA

GaAs PHEMT MMIC LOW NOISE AMPLIFIER, 18 - 31 GHz

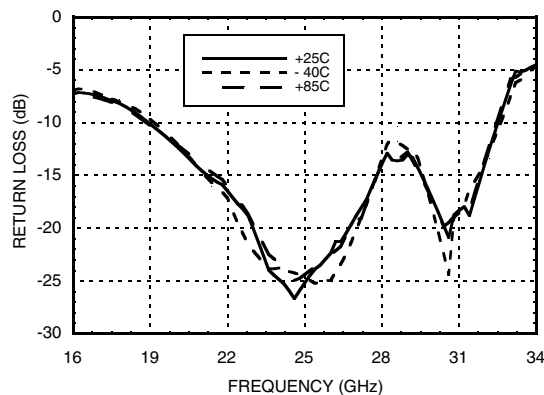
Broadband Gain & Return Loss



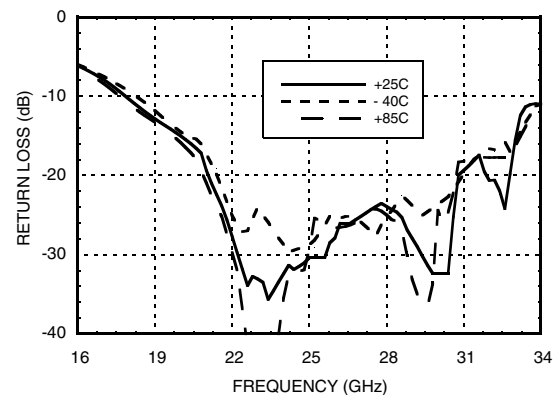
Gain vs. Temperature



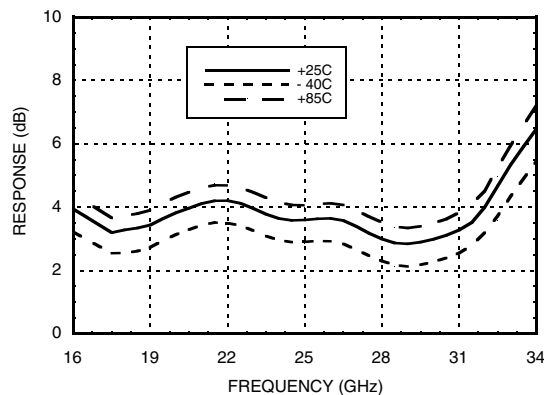
Input Return Loss vs. Temperature



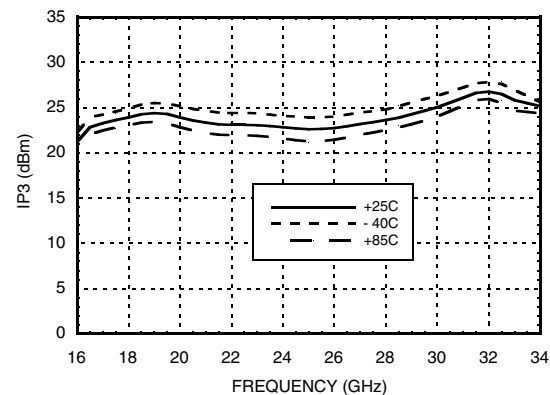
Output Return Loss vs. Temperature

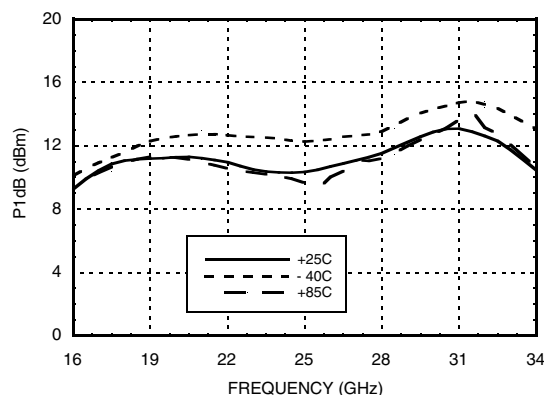
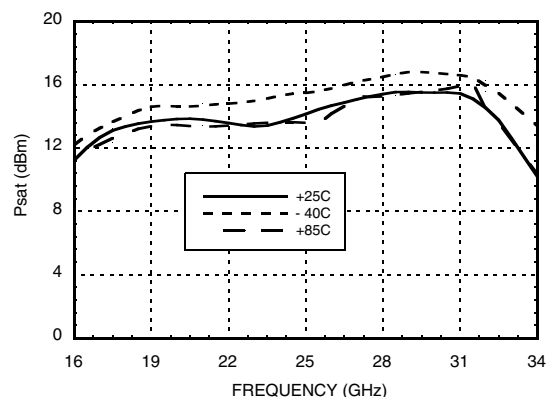
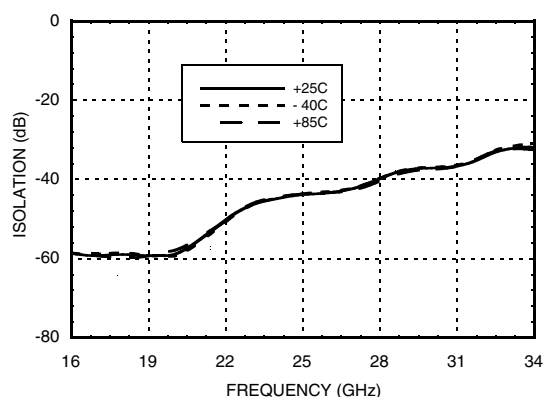
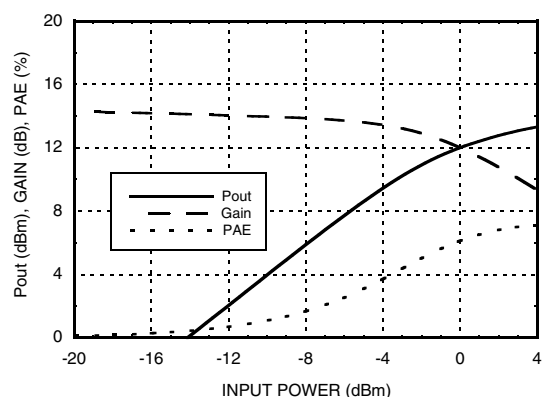
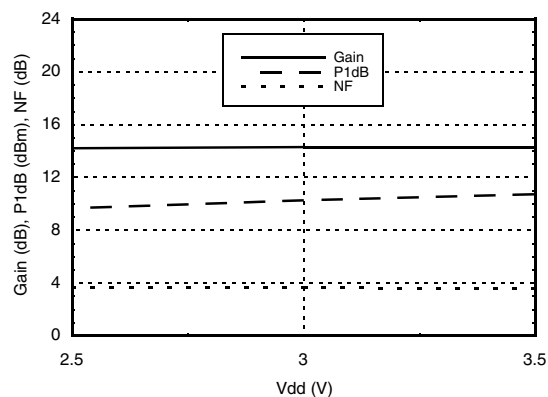


Noise Figure vs. Temperature



Output IP3 vs. Temperature



**GaAs PHEMT MMIC LOW NOISE
 AMPLIFIER, 18 - 31 GHz**
P1dB vs. Temperature

Psat vs. Temperature

Reverse Isolation vs. Temperature

Power Compression @ 24 GHz

**Gain, Noise Figure & Power vs.
 Supply Voltage @ 24 GHz**


GaAs PHEMT MMIC LOW NOISE AMPLIFIER, 18 - 31 GHz

Absolute Maximum Ratings

Drain Bias Voltage (Vdd1, Vdd2, Vdd3)	+3.5 Vdc
RF Input Power (RFIN)(Vdd = +3.0 Vdc)	+8 dBm
Channel Temperature	175 °C
Continuous P _{diss} (T= 85 °C) (derate 12 mW/°C above 85 °C)	1.08 W
Thermal Resistance (channel to package bottom)	83 °C/W
Storage Temperature	-65 to 150 °C
Operating Temperature	-40 to 85 °C
ESD Sensitivity (HBM)	Class 1B

Typical Supply Current vs. Vdd

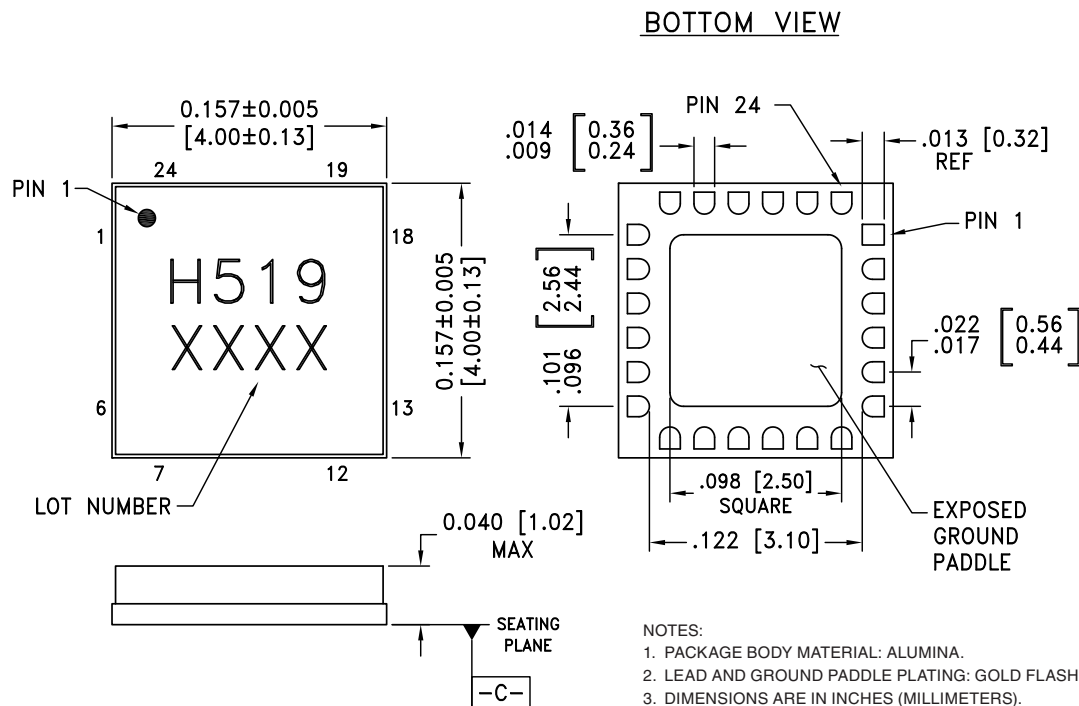
Vdd (V)	I _{dd} (mA)
2.5	72
3.0	75
3.5	78

Note: Amplifier will operate over full voltage ranges shown above.



ELECTROSTATIC SENSITIVE DEVICE
OBSERVE HANDLING PRECAUTIONS

Outline Drawing



Package Information

Part Number	Package Body Material	Lead Finish	MSL Rating	Package Marking ^[2]
HMC519LC4	Alumina, White	Gold over Nickel	MSL3 ^[1]	H519 XXXX

[1] Max peak reflow temperature of 260 °C

[2] 4-Digit lot number XXXX



MICROWAVE CORPORATION v03.0514



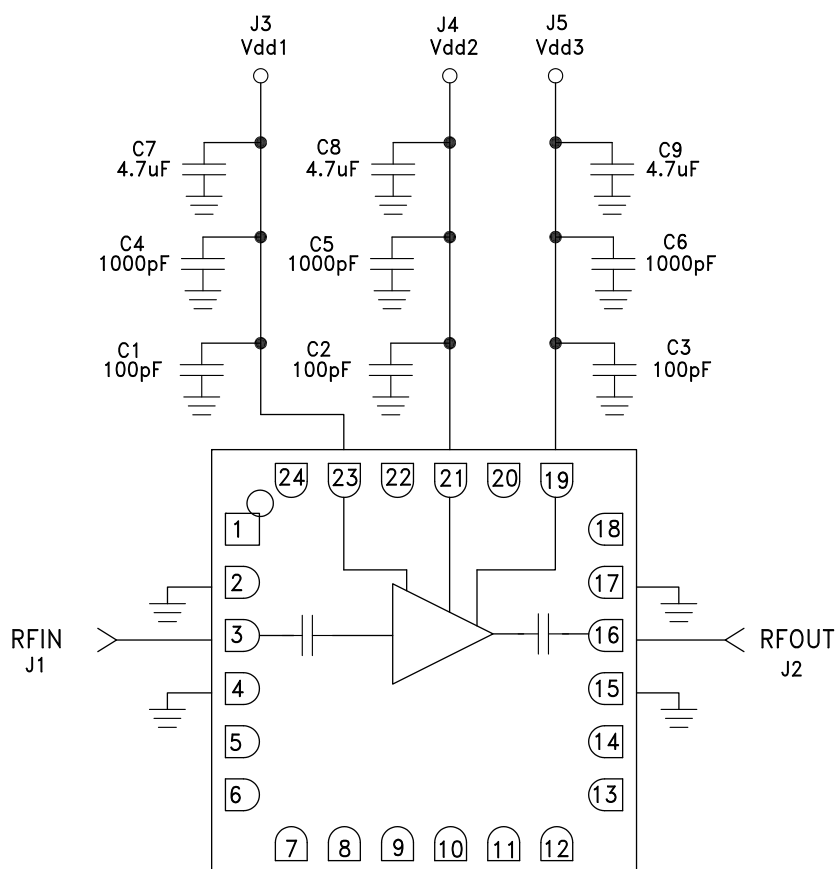
HMC519LC4

GaAs PHEMT MMIC LOW NOISE AMPLIFIER, 18 - 31 GHz

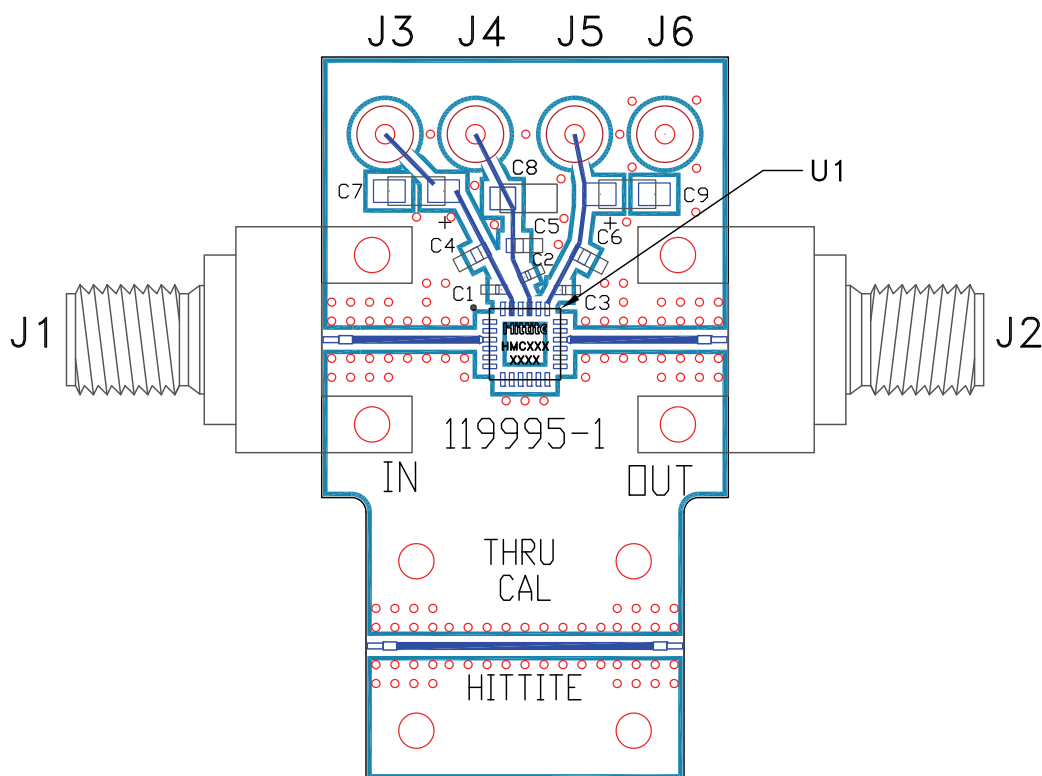
Pad Descriptions

Pad Number	Function	Description	Interface Schematic
1, 5 - 14, 18, 20, 22, 24	N/C	Not Connected	
2, 4, 15, 17	GND	Package bottom has exposed metal paddle that must be connected to RF/DC ground.	
3	RFIN	This pad is AC coupled and matched to 50 Ohms	
16	RFOUT	This pad is AC coupled and matched to 50 Ohms	
19, 21, 23	Vdd3, Vdd2, Vdd1	Power Supply Voltage for the amplifier. See application circuit for required external components.	

Application Circuit



Evaluation PCB



List of Material for Evaluation PCB 119667 ^[1]

Item	Description
J1, J2	2.92mm PCB mount K-Connector
J3 - J6	DC Pin
C1, C2, C3	100pF Capacitor, 0402 Pkg.
C4, C5, C6	1000pF Capacitor, 0603 Pkg.
C7, C8, C9	4.7 μ F Capacitor, Tantalum
U1	HMC519LC4 Amplifier
PCB [2]	11995 Evaluation PCB

[1] Reference this number when ordering complete evaluation PCB

[2] Circuit Board Material: Rogers 4350.

The circuit board used in this 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.

Данный компонент на территории Российской Федерации

Вы можете приобрести в компании MosChip.

Для оперативного оформления запроса Вам необходимо перейти по данной ссылке:

<http://moschip.ru/get-element>

Вы можете разместить у нас заказ для любого Вашего проекта, будь то серийное производство или разработка единичного прибора.

В нашем ассортименте представлены ведущие мировые производители активных и пассивных электронных компонентов.

Нашей специализацией является поставка электронной компонентной базы двойного назначения, продукции таких производителей как XILINX, Intel (ex.ALTERA), Vicor, Microchip, Texas Instruments, Analog Devices, Mini-Circuits, Amphenol, Glenair.

Сотрудничество с глобальными дистрибьюторами электронных компонентов, предоставляет возможность заказывать и получать с международных складов практически любой перечень компонентов в оптимальные для Вас сроки.

На всех этапах разработки и производства наши партнеры могут получить квалифицированную поддержку опытных инженеров.

Система менеджмента качества компании отвечает требованиям в соответствии с ГОСТ Р ИСО 9001, ГОСТ РВ 0015-002 и ЭС РД 009

Офис по работе с юридическими лицами:

105318, г.Москва, ул.Щербаковская д.3, офис 1107, 1118, ДЦ «Щербаковский»

Телефон: +7 495 668-12-70 (многоканальный)

Факс: +7 495 668-12-70 (доб.304)

E-mail: info@moschip.ru

Skype отдела продаж:

moschip.ru

moschip.ru_4

moschip.ru_6

moschip.ru_9