HMC863ALP4E

v00.1115

GaAs pHEMT MMIC ½ WATT POWER AMPLIFIER, 22 - 26.5 GHz

Typical Applications

The HMC863ALP4E is ideal for:

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

Features

Saturated Output Power:
up to +27.5 dBm @ 15% PAE

High Output IP3: +33 dBm

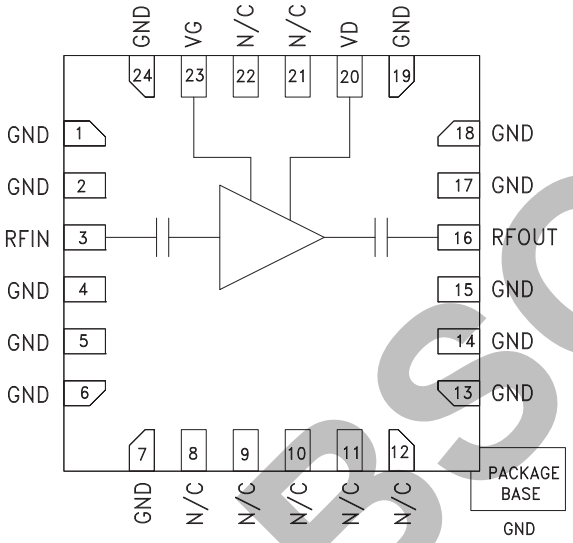
High Gain: 21.5 dB

DC Supply: +6V @ 350mA

No External Matching Required

24 Lead 4x4 mm SMT Package: 16 mm²

Functional Diagram



General Description

The HMC863ALP4E is a three stage GaAs pHEMT MMIC ½ Watt Power Amplifier which operates between 22 and 26.5 GHz. The HMC863ALP4E provides 21.5 dB of gain, +27.5 dBm of saturated output power and 15% PAE from a +6V supply. High output IP3 makes the HMC863ALP4E ideal for point-to-point and point-to-multi-point radio systems as well as VSAT applications. The RF I/Os are DC blocked and matched to 50 Ohms for ease of integration into higher level assemblies. The HMC863ALP4E can also be operated from a 5V supply with only a slight decrease in output power & IP3.

Electrical Specifications, T_A = +25° C, Vdd = Vdd1 = Vdd2 = +6V, Idd = 350mA [1]

Parameter	Min.	Typ.	Max.	Units
Frequency Range		22 - 26.5		GHz
Gain	19	21.5		dB
Gain Variation Over Temperature		0.032		dB/ °C
Input Return Loss		11		dB
Output Return Loss		15		dB
Output Power for 1 dB Compression (P1dB)	22	24.5		dBm
Saturated Output Power (Psat)		27		dBm
Output Third Order Intercept (IP3)[2]		33		dBm
Total Supply Current (Idd)		350	380	mA

[1] Adjust Vgg between -2 to 0V to achieve Idd = 350mA typical.

[2] Measurement taken at +6V @ 350mA, Pout / Tone = +14 dBm

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

GaAs pHEMT MMIC ½ WATT POWER AMPLIFIER, 22 - 26.5 GHz

Absolute Maximum Ratings

Drain Bias Voltage (Vd)	6.3V
RF Input Power (RFIN)	+26 dBm
Channel Temperature	150 °C
Continuous Pdiss (T= 85 °C) (derate 37 mW/°C above 85 °C)	2.52 W
Thermal Resistance (channel to ground paddle)	26.9 C/W
Storage Temperature	-65 to +150 °C
Operating Temperature	-55 to +85 °C
ESD Sensitivity (HBM)	Class 0, 150V

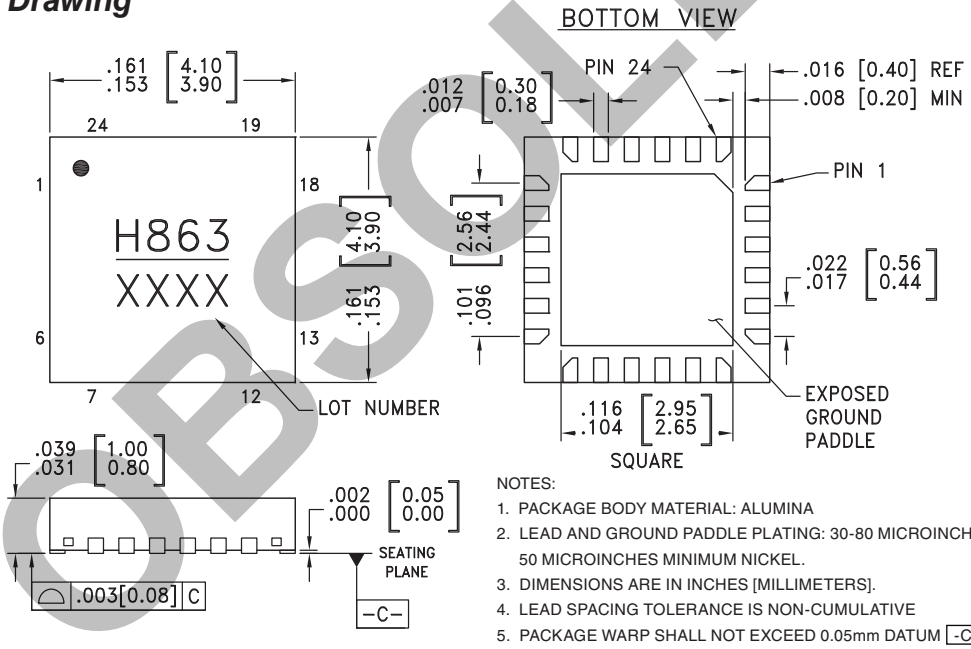
Typical Supply Current vs. Vdd

Vdd (V)	Idd (mA)
+5.0	350
+5.5	350
+6.0	350

Note: Amplifier will operate over full voltage ranges shown above Vgg adjusted to achieve Idd = 350mA at +5.5V

ELECTROSTATIC SENSITIVE DEVICE
OBSERVE HANDLING PRECAUTIONS

Outline Drawing



NOTES:

1. PACKAGE BODY MATERIAL: ALUMINA
2. LEAD AND GROUND PADDLE PLATING: 30-80 MICROINCHES GOLD OVER 50 MICROINCHES MINIMUM NICKEL.
3. DIMENSIONS ARE IN INCHES [MILLIMETERS].
4. LEAD SPACING TOLERANCE IS NON-CUMULATIVE
5. PACKAGE WARP SHALL NOT EXCEED 0.05mm DATUM -C-
6. ALL GROUND LEADS AND GROUND PADDLE MUST BE SOLDERED TO PCB RF GROUND.
7. CLASSIFIED AS MOISTURE SENSITIVITY LEVEL (MSL) 1.