

13 - 18 GHz 0.5W QFN Plastic Packaged Power Amplifier

Mimix
BROADBAND™

March 2006 - Rev 30-Mar-06

CMQ1631-QH
RoHS

Features

- ✕ 30 dBm Saturated Output Power Between 15.5~17.5 Ghz
- ✕ 21 dB (Typ) Linear Gain
- ✕ Unconditionally Stable
- ✕ Low Cost, Surface Mount Package
- ✕ 4mm x 4mm x 1.4mm
- ✕ RoHS Compliant
- ✕ 7 V, 770 mA



Applications

- ✕ Military Ku Band
- ✕ VSAT
- ✕ Point to Point Radio
- ✕ Ku-Band Space

General Description

The CMQ1631-QH is a pHEMT power amplifier packaged in a 4X4 QFN plastic package. The CMQ1631-QH is self contained with 50 ohm input and output matching. The CMQ1631-QH is unconditionally stable and the internal matching allows for a reduction in external components making this product a simple and low cost solution. RoHS compliance and standard surface mount package make it an ideal solution in all manufacturing environments. The power amplifier is intended for use in the extended Ku-Band satellite applications.

Electrical Characteristics

Parameter	Symbol	Min	Typ	Max	Min	Typ	Max	Min	Typ	Max	Units
Operating Frequency	F	13		14.5	14.5		17.5	17.5		18	GHz
Drain Current	Id		700			700			700		mA
Drain Voltage	Vd	6	7		6	7	8	6	7	8	Volts
Gate Voltage (RF ON)	Vg	-2	-	-0.2	-2	-	-0.2	-2	-	-0.2	Volts
Linear Gain	S21		20			21			21		dB
Input/Output VSWR	VSWR		2.0:1			2.0:1	3:1				dB
Noise Figure	NF		6			6			6		dB
Saturated Output Power	Psat		28			30			29		dBm
Power @ 1dB Compression Gain	P1dB		27.5			29			28		dBm
Gate Current	Igs	-	0.5	5	-	0.5	5	-	0.5	5	mA

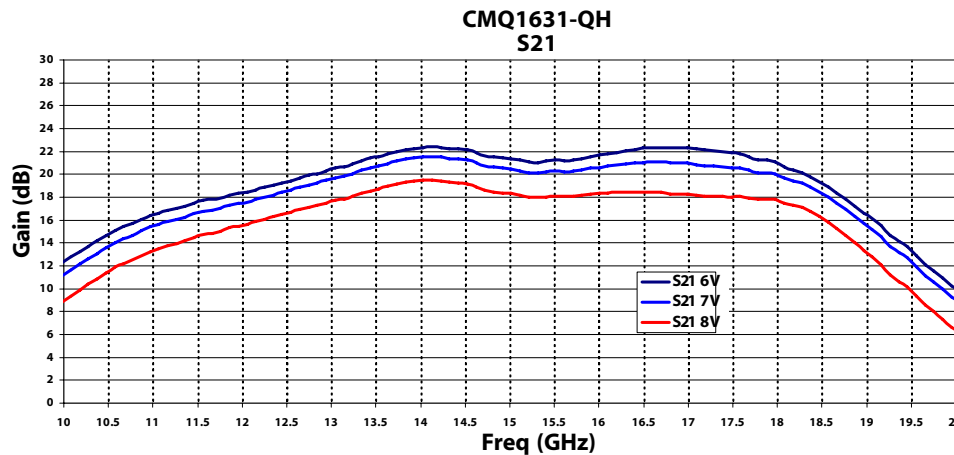
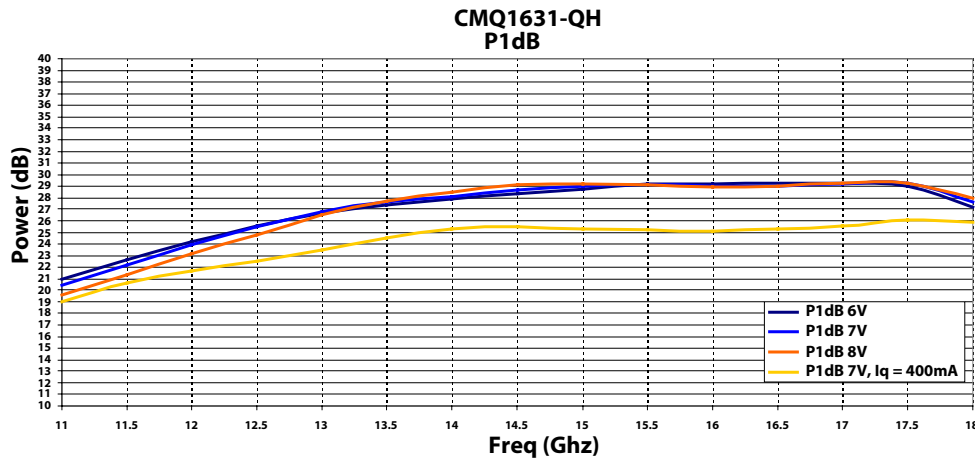
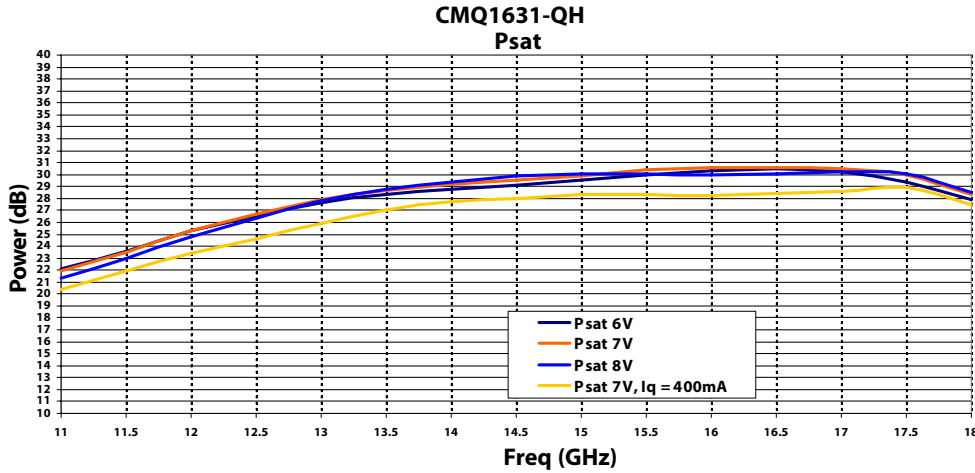
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Typical Performance



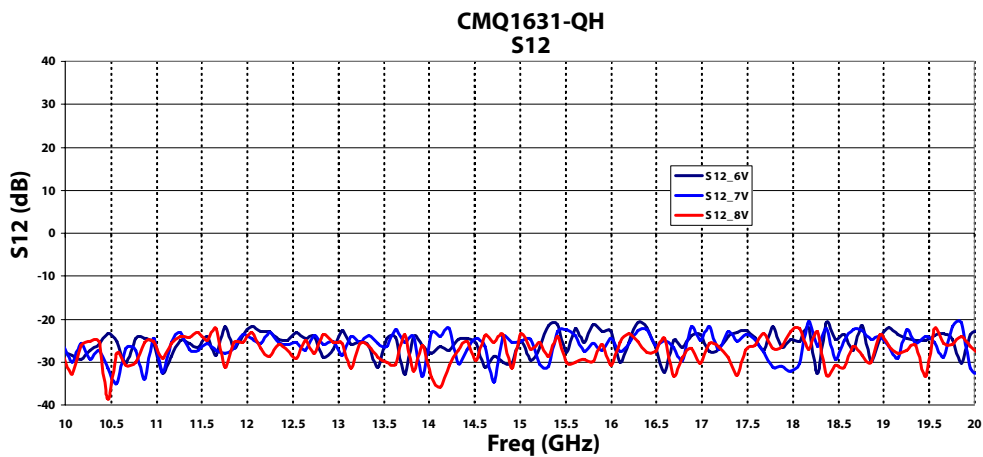
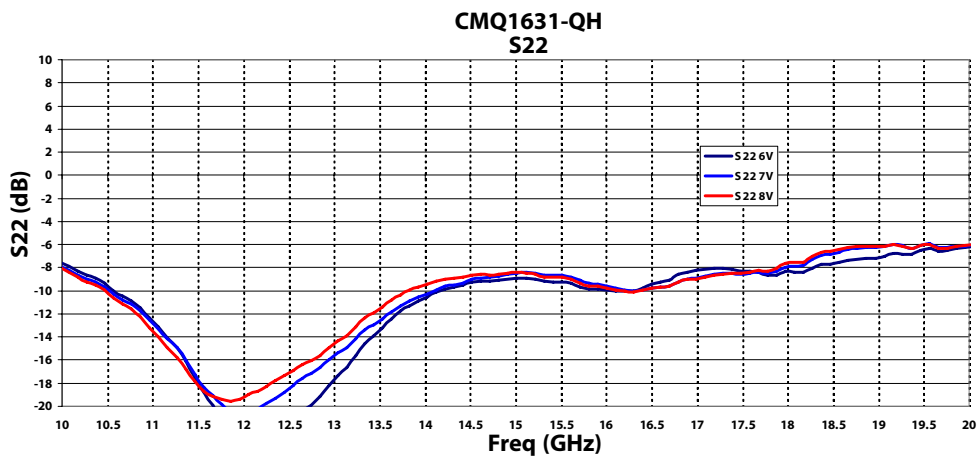
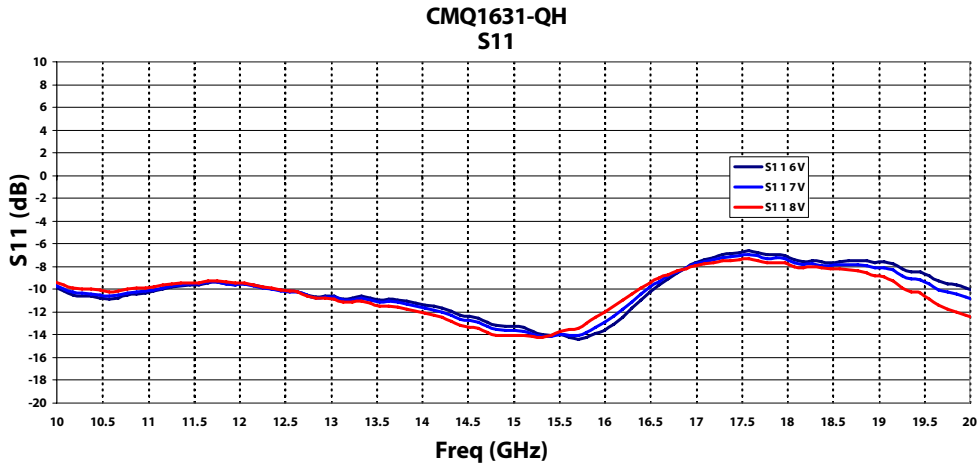
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Typical Performance



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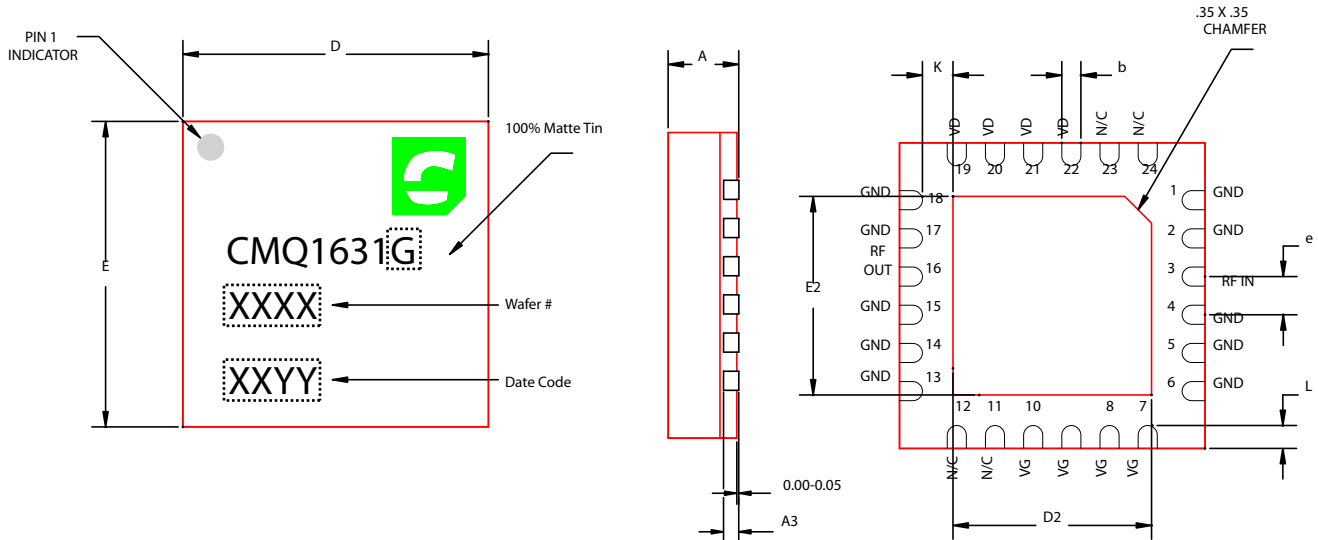
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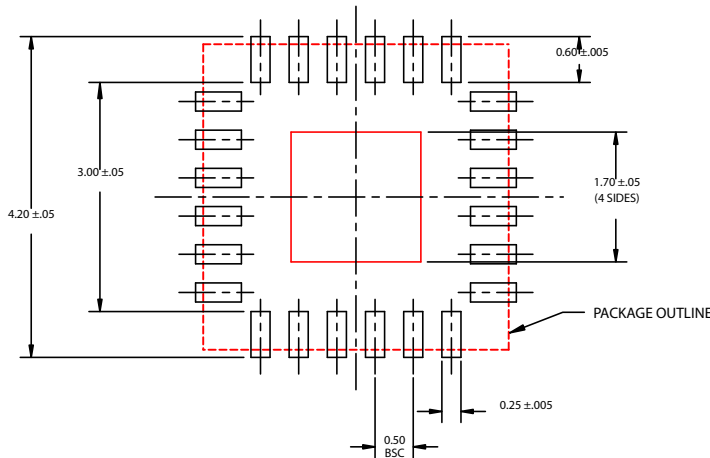
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CMQ1631-QH
RoHS

Physical Dimensions



RECOMMENDED SOLDER PAD PITCH AND DIMENSIONS



NOTE:

1. ALL DIMENSIONS ARE IN mm

	MIN	NOM	MAX
A	0.80	0.90	1.00
A3	0.20 REF		
b	0.20	0.25	0.30
K	0.20	-	-
D	4.00 BSC		
E	4.00 BSC		
e	0.50		
D2	2.45	2.60	2.75
E2	2.45	2.60	2.75
L	0.20	0.30	0.40



Caution: ESD Sensitive

Appropriate precautions in handling, packaging and testing devices must be observed.

Ordering Information

Part Number for Ordering

CMQ1631-QH-0G00
CMQ1631-QH-0G0T
PB-CMQ1631-QH-0000

Description

Matte Tin plated RoHS compliant QFN4X4 24L surface mount package in bulk quantity
Matte Tin plated RoHS compliant QFN4X4 24L Surface mount package in tape and reel
CMQ1631-QH Evaluation Board

We also offer this part with SnPb (Tin-Lead) or NiPdAu plating. Please contact your regional sales manager for more information regarding different plating types

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XRoHS

Handling and Assembly Information

CAUTION! - Mimix Broadband MMIC Products contain gallium arsenide (GaAs) which can be hazardous to the human body and the environment. For safety, observe the following procedures:

- Do not ingest.
- Do not alter the form of this product into a gas, powder, or liquid through burning, crushing, or chemical processing as these by-products are dangerous to the human body if inhaled, ingested, or swallowed.
- Observe government laws and company regulations when discarding this product. This product must be discarded in accordance with methods specified by applicable hazardous waste procedures.

Life Support Policy - Mimix Broadband's products are not authorized for use as critical components in life support devices or systems without the express written approval of the President and General Counsel of Mimix Broadband. As used herein: (1) Life support devices or systems are devices or systems which, (a) are intended for surgical implant into the body, or (b) support or sustain life, and whose failure to perform when properly used in accordance with instructions for use provided in the labeling, can be reasonably expected to result in a significant injury to the user. (2) A critical component is any component of a life support device or system whose failure to perform can be reasonably expected to cause the failure of the life support device or system, or to affect its safety or effectiveness.

Package Attachment - This packaged product from Mimix Broadband is provided as a rugged surface mount package compatible with high volume solder installation. Care should be taken not to apply heavy pressure to the top or base material to avoid package damage. Vacuum tools or other suitable pick and place equipment may be used to pick and place this part. Care should be taken to ensure that there are no voids or gaps in the solder connection so that good RF, DC and ground connections are maintained. Voids or gaps can eventually lead not only to RF performance degradation, but reduced reliability and life of the product due to thermal stress.

Mimix Lead-Free RoHS Compliant Program - Mimix has an active program in place to meet customer and governmental requirements for eliminating lead (Pb) and other environmentally hazardous materials from our products. All Mimix RoHS compliant components are form, fit and functional replacements for their non-RoHS equivalents. Lead plating of our RoHS compliant parts is 100% matt tin (Sn) over copper alloy and is backwards compatible with current standard SnPb low-temperature reflow processes as well as higher temperature (260°C reflow) "Pb Free" processes.

Part Numbering Designator - For Mimix/Celeritek lead-free products, the letter "G" will be used in the part number for Matte Tin finished RoHS compliant components and "L" will be used in the part number of NiPdAu finished RoHS Compliant components in the second position of the part number suffix, as shown below:

Example A: CXX1234-XX-0G00 = component bulk quantity Matte Tin finished RoHS compliant parts

Example B: CXX1234-XX-0L0T = component in tape and reel NiPdAu finished RoHS parts

For those customers not making the change at this time, Mimix/Celeritek will maintain production of current configurations. For questions and comments e-mail: ouearth@mimixbroadband.com.