

Applications

- HFC Nodes
- CATV Line Amplifiers
- Head End Equipment

Product Features

- Excellent High Output Linearity
- High Gain 24dB @ 1000MHz
- 50MHz – 1000MHz Bandwidth
- Ultra-Low CSO/CTB/XMOD
- Low Noise
- Excellent Input/Output Match
- SOT-115J Packaging
- High Reliability
- 24V, 445mA

General Description

The TAT8888 is an ultra-linear, packaged GaAs/GaN amplifier intended for output stage amplification in CATV infrastructure applications.

The TAT8888 features a push-pull cascode design which provides flat gain along with ultra-low distortion, making it ideal for use in CATV distribution systems requiring high output power capability.

The TAT8888 draws 445mA from a 24V supply and exceeds the output linearity performance of traditional GaAs-based amplifiers.

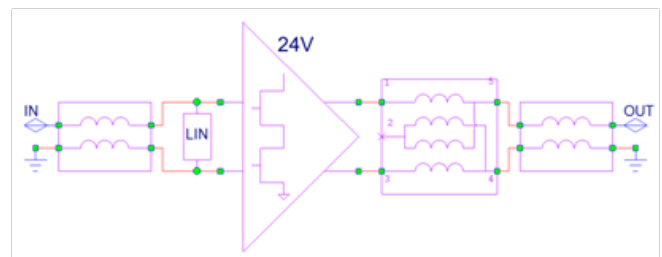
The TAT8888 employs patented linearization circuitry to achieve superior distortion characteristics at high output levels.

The TAT8888 is packaged in an industry standard 7-pin SOT-115J module.



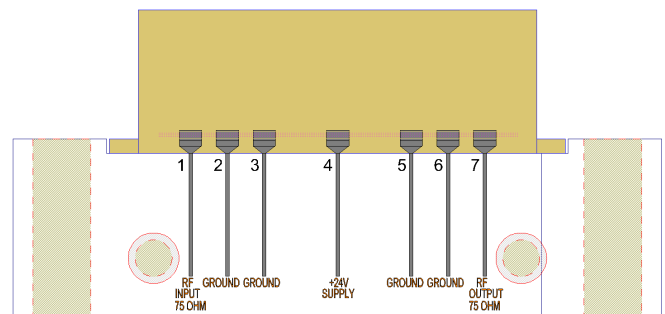
SOT-115 Hybrid Module

Functional Block Diagram



Pin Configuration

Pin No.	Label
1	RF Input 75 Ohm
2-3, 5-6	GND
4	+24 V Supply
7	RF Output 75 Ohm



Ordering Information

Part No.	Description
TAT8888	CATV GaN Power Doubler Hybrid

Absolute Maximum Ratings

Parameter	Rating
Storage Temperature	-40 to +100°C
RF Input Power, CW, 75Ω, T=25°C	70 dBmV
Supply Voltage (V _{DD})	+30 V
Supply Current (I _{DD})	600 mA

Operation of this device outside the parameter ranges given above may cause permanent damage.

Recommended Operating Conditions

Parameter	Min	Typ	Max	Units
Supply Voltage (V _{DD})		24		V
Case Temperature	-30		+100	°C
T _j for >10 ⁶ hours MTTF			160	°C

Electrical specifications are measured at specified test conditions. Specifications are not guaranteed over all recommended operating conditions.

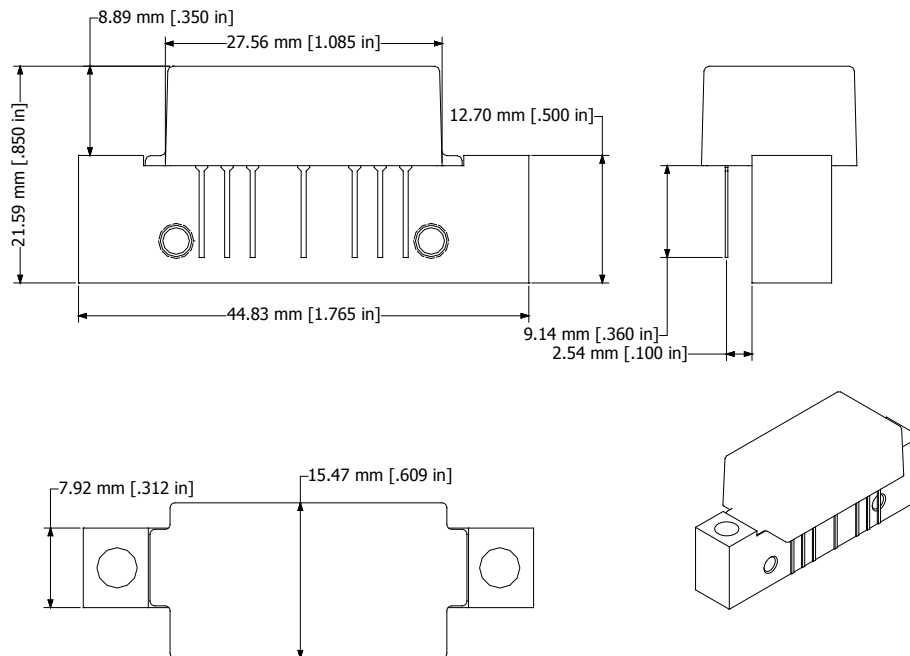
Typical Performance – Push-Pull Configuration ⁽¹⁾

Test conditions unless otherwise noted: V_{DD}=+24 V, 75 Ω System, Base Temp=+35°C.

Parameter	Conditions	Min	Typ	Max	Units
Operating Frequency		50		1000	MHz
Gain	f = 1000 MHz	23		24.5	dB
Gain Slope	50 to 1000 MHz	0.25		1.5	dB
Gain Flatness	Relative to Slope Line		±0.5	±0.8	dB
Input Return Loss	50 to <550 MHz	18			dB
	>550 MHz to 1000 MHz	16			
Output Return Loss		18			dB
CTB	79 channels NTSC 75 channels QAM, -6dB offset, 61 dBmV virtual output, 18dB Tilt		-69	-65	dBc
CSO			-75	-69	dBc
XMOD			-65		dBc
CCN		55	58		dBm
Output IP3	P _{out} = 19 dBm/tone, at 500 MHz Δf = 6 MHz		53		dB
Noise Figure			3.5		dB
Supply Current, I _{DD}			445	460	mA
Thermal Resistance, θ _{jc}	Junction to case		5		°C/W

Notes:

1. Includes balun, board, and connector losses.

Mechanical Specifications**Contact Information**

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