

## Applications

- HFC Nodes
- CATV Line Amplifiers
- Head End Equipment

## Product Features

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

## 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.

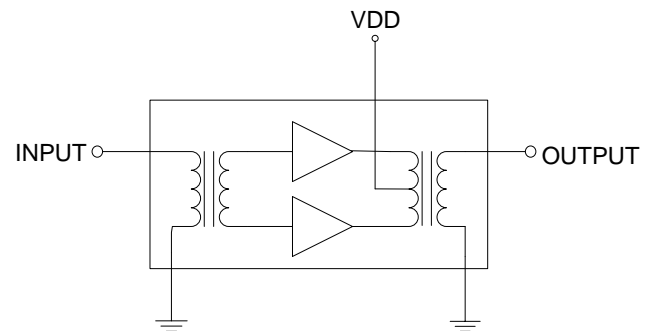
The TAT8888 draws 445 mA from a +24 V supply and exceeds the output linearity performance of traditional GaAs-based amplifiers.

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	GND
5	+24 V Supply
7 – 8	GND
9	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, 75 Ω, T=+25 °C	+70 dBmV
Supply Voltage (V <sub>DD</sub> )	+30 V
Supply Current (I <sub>DD</sub> )	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 <sub>DD</sub> )		24		V
Case Temperature	-30		+100	°C
T <sub>j</sub> for >10 <sup>6</sup> hours MTTF			160	°C

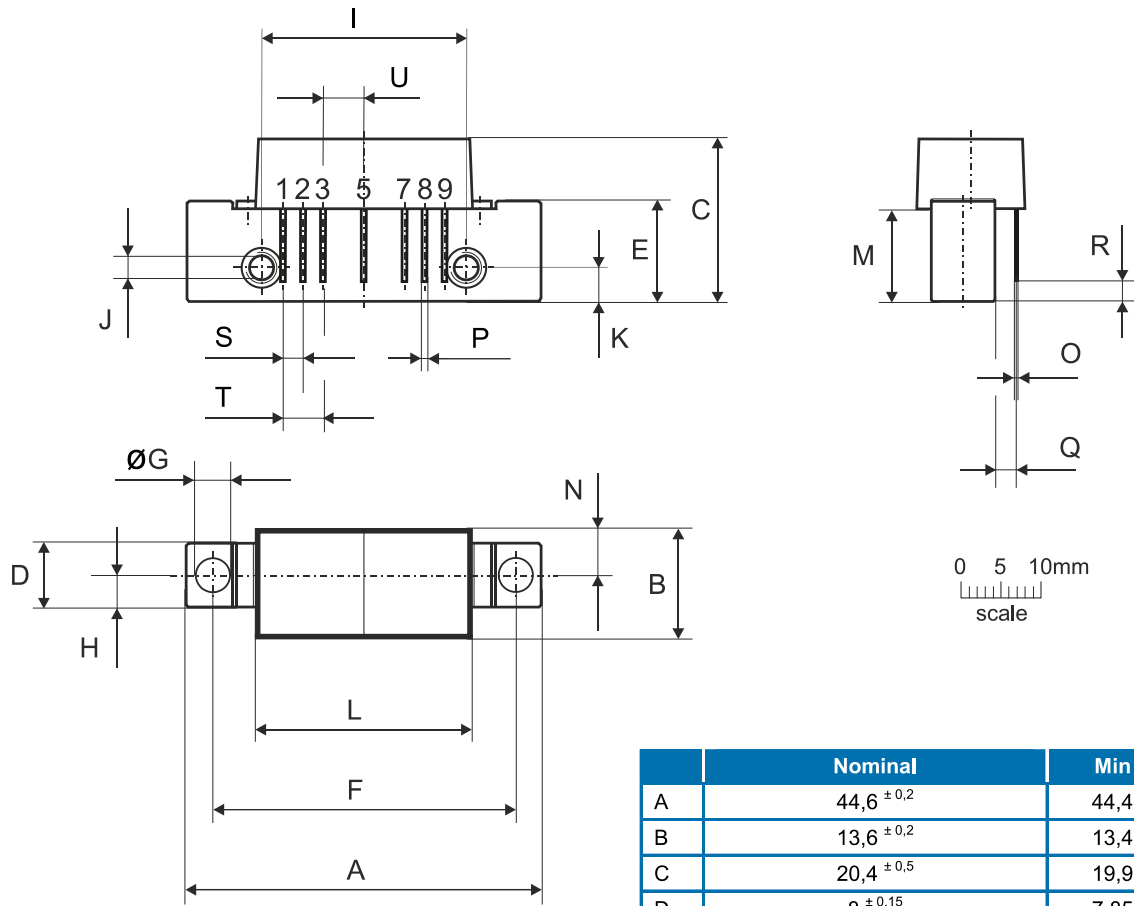
Electrical specifications are measured at specified test conditions. Specifications are not guaranteed over all recommended operating conditions.

**Typical Performance**

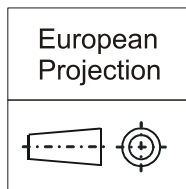
Test conditions unless otherwise noted: V<sub>DD</sub>=+24 V, 75 Ω System, Base Temp.=+35 °C.

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 MHz to <550 MHz	18			dB
	>550 MHz to 1000 MHz	16			dB
Output Return Loss	50 MHz to 1000 MHz	18			dB
CSO	79 channels NTSC 75 channels QAM, -6 dB offset, +61 dBmV virtual output, 18 dB Tilt		-69	-65	dBc
CTB			-75	-69	dBc
XMOD			-65		dBc
CCN		55	58		dB
Output IP3	P <sub>out</sub> = +19 dBm/tone, at 500 MHz Δf = 6 MHz		+53		dBm
Noise Figure			3.5		dB
Supply Current, I <sub>DD</sub>			445	460	mA
Thermal Resistance, θ <sub>jc</sub>	Junction to case		5		°C/W

**Mechanical Specifications**



**Notes:**



**Pinning:**

Pin	Name
1	Input
2-3	GND
4	
5	VDD
6	
7-8	GND
9	Output

	Nominal	Min	Max
A	44,6 <sup>±0,2</sup>	44,4	44,8
B	13,6 <sup>±0,2</sup>	13,4	13,8
C	20,4 <sup>±0,5</sup>	19,9	20,9
D	8 <sup>±0,15</sup>	7,85	8,15
E	12,6 <sup>±0,15</sup>	12,45	12,75
F	38,1 <sup>±0,2</sup>	37,9	38,3
G	4 <sup>+0,2 / -0,05</sup>	3,95	4,2
H	4 <sup>±0,2</sup>	3,8	4,2
I	25,4 <sup>±0,2</sup>	25,2	25,6
J	UNC 6-32	-	-
K	4,2 <sup>±0,2</sup>	4,0	4,4
L	27,2 <sup>±0,2</sup>	27,0	27,4
M	11,6 <sup>±0,5</sup>	11,1	12,1
N	5,8 <sup>±0,4</sup>	5,4	6,2
O	0,25 <sup>±0,02</sup>	0,23	0,27
P	0,45 <sup>±0,03</sup>	0,42	0,48
Q	2,54 <sup>±0,3</sup>	2,24	2,84
R	2,54 <sup>±0,5</sup>	2,04	3,04
S	2,54 <sup>±0,25</sup>	2,29	2,79
T	5,08 <sup>±0,25</sup>	4,83	5,33
U	5,08 <sup>±0,25</sup>	4,83	5,33

## Contact Information

For the latest specifications, additional product information, worldwide sales and distribution locations:

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**Tel:** 877-800-8584

**Email:** [customer.support@qorvo.com](mailto:customer.support@qorvo.com)

For information about the merger of RFMD and TriQuint as Qorvo:

**Web:** [www.qorvo.com](http://www.qorvo.com)

For technical questions and application information:

**Email:** [sicapplications.engineering@qorvo.com](mailto:sicapplications.engineering@qorvo.com)

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