

### Applications

- Distribution Amplifiers
- Multi-Dwelling Units
- Drop Amplifiers
- Single-ended Gain Block
- FTTH Receivers



SOT-89 Package

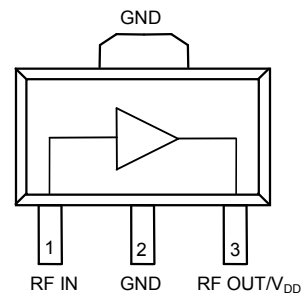
### Product Features

- 50–2600 MHz Bandwidth
- Low Noise Figure: 3.0 dB up to 1600 MHz
- Extremely Flat Gain Response
- Low Power Consumption: 100 mA with 5 V
- SOT-89 package

### General Description

The TAT7460B1A is a 75 Ohm RF Amplifier designed for use up to 2600 MHz, addressing the CATV and Satellite bands in a single part. The TAT7460B1A is fabricated using six inch GaAs pHEMT technology to optimize performance and cost.

### Functional Block Diagram



### Pin Configuration

Pin No.	Label
1	RF IN
2	GND
3	RF OUT / V <sub>DD</sub>
Backside Tab	GND

### Ordering Information

Part No.	Description
TAT7460B1A	75Ω pHEMT Amplifier
TAT7460B1A-EVB	50–2600 MHz Evaluation Board

Standard T/R size = 1000 pieces on a 7" reel.

### Absolute Maximum Ratings

Parameter	Rating
Storage Temperature	-65 to 150 °C
Device Voltage (V <sub>DD</sub> )	+10 V

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

### Recommended Operating Conditions

Parameter	Min	Typ	Max	Units
Device Voltage (V <sub>DD</sub> )	4.5	5.0	6.5	V
Device Voltage (I <sub>DD</sub> )		100	120	mA
Case Temperature	-40		+85	°C
T <sub>j</sub> for >10 <sup>6</sup> hours MTTF			+150	°C

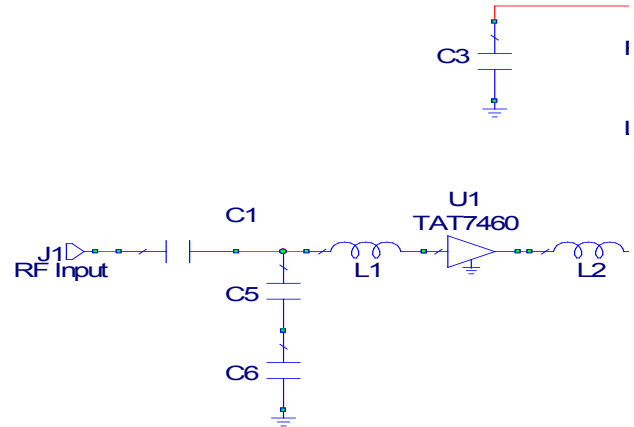
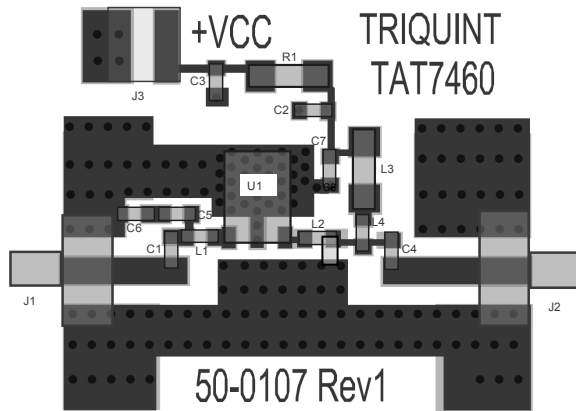
Electrical specifications are measured at specified test conditions. Specifications are not guaranteed over all recommended operating conditions.

### Electrical Specifications

Test conditions unless otherwise noted: V<sub>DD</sub>=+5 V, Temp= +35 °C, Freq.=50–2600 MHz

Parameter	Conditions	Min	Typ	Max	Units
Operational Frequency Range		50		2600	MHz
Gain			17		dB
Gain Flatness	Deviation from sloped response		+/- 0.35		dB
Input Return Loss			14		dB
Output Return Loss			14		dB
CSO	30 dBmV/channel at output 80 channels flat		-60		dBc
CTB			-73		dBc
XMOD			-70		dBc
Output IP2	P <sub>out</sub> = +5 dBm/tone f <sub>1</sub> = 225 MHz, f <sub>2</sub> = 325 MHz	+46	+52		dBm
Output IP3		+31	+38		dBm
Output P1dB			+20		dBm
Noise Figure	50–1600 MHz		3.0		dB
Device Current (I <sub>DD</sub> )		70	90	120	mA
Thermal Resistance, θ <sub>jc</sub>	Junction to case		36		°C/W

## TAT7460-EVB Evaluation Board (50-2600 MHz)

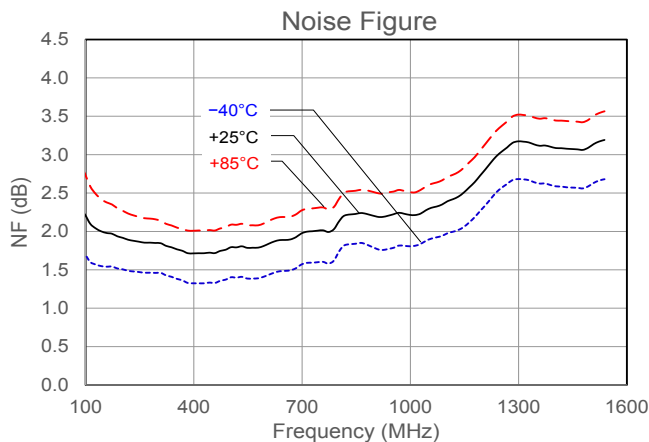
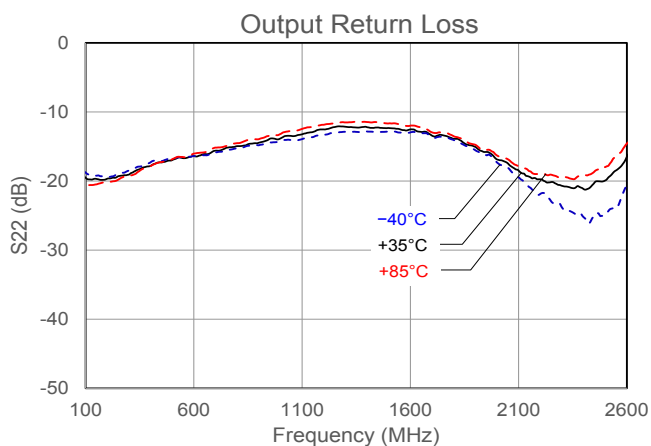
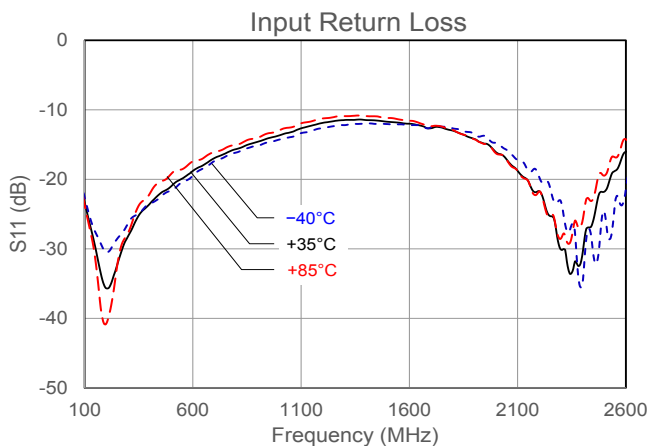
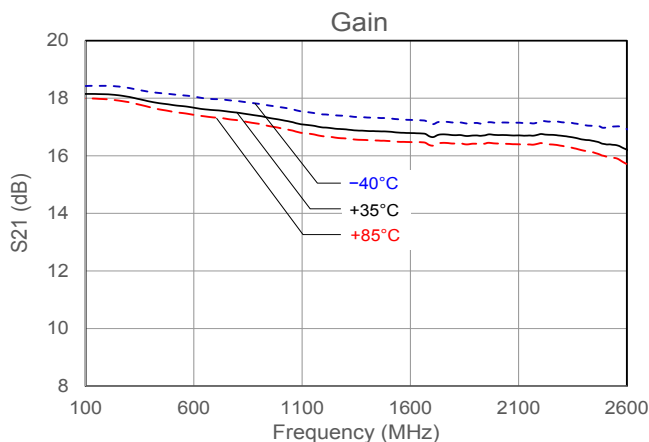


## Bill of Material – TAT7460-EVB

Reference Des.	Value	Description	Manuf.	Part Number
U1	-	75 Ω pHEMT Amplifier	TriQuint	TAT7460B1A
C1, C4	470 pF	Ceramic Cap, 0603, 16 V, 5%	Various	
C2, C3, C7	0.01 uF	Ceramic Cap, 0603, X7R, 16 V, 5 %	Various	
C5, C6	0.5 pF	Ceramic Cap, 0603, 50 V, ±0.1 pF	Various	
C8	0.2 pF	Ceramic Cap, 0402, 50 V, ±0.05 pF	Various	
L1	4.3 nH	Wirewound Ind, 0603, 5%	Various	
L2	2.2 nH	Wirewound Ind, 0603, 5%	Various	
L3	880 nH	Wirewound Ind, 1206, 5%	Various	
L4	-	Ferrite Bead, 0402, 200 mA, 1.0 kΩ	Murata	BLM15AG102SN1
R1	0 Ω	Thick Film Res, 1206	Various	
J1, J2	-	F-Connector	Various	

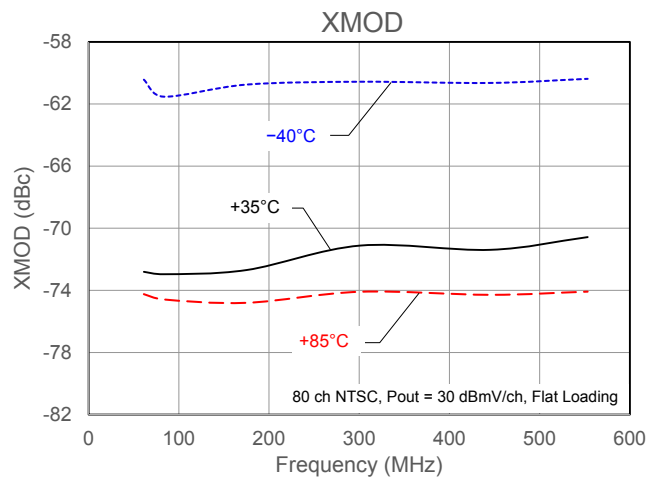
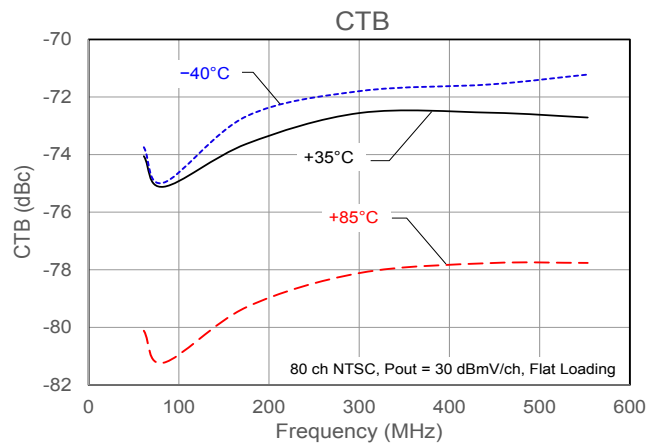
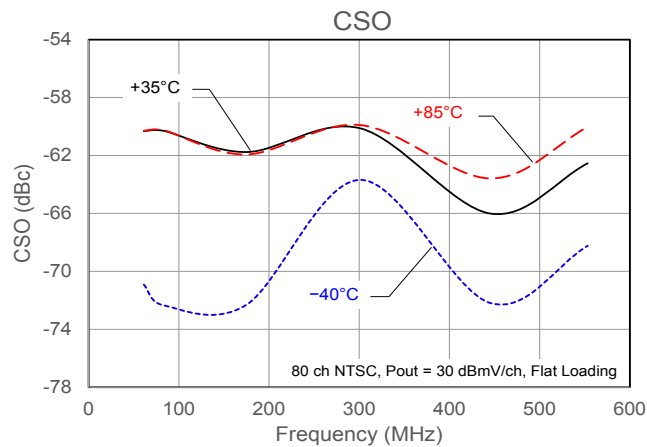
**Performance Plots – TAT7460B1A**

Test conditions unless otherwise noted:  $V_{DD} = +5V$ ,  $I_{DD} = 90\text{ mA}$



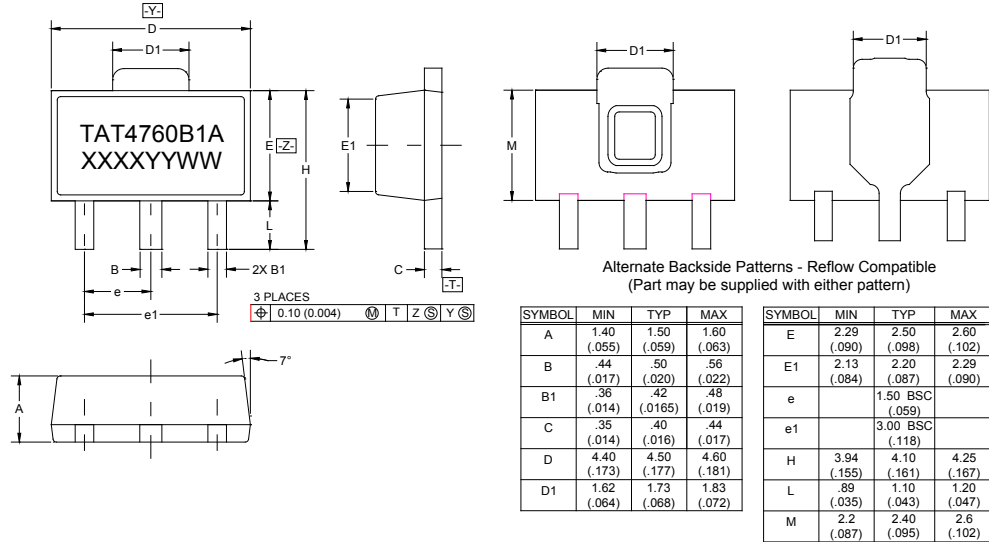
**Performance Plots – TAT7460B1A**

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### Package Marking and Dimensions

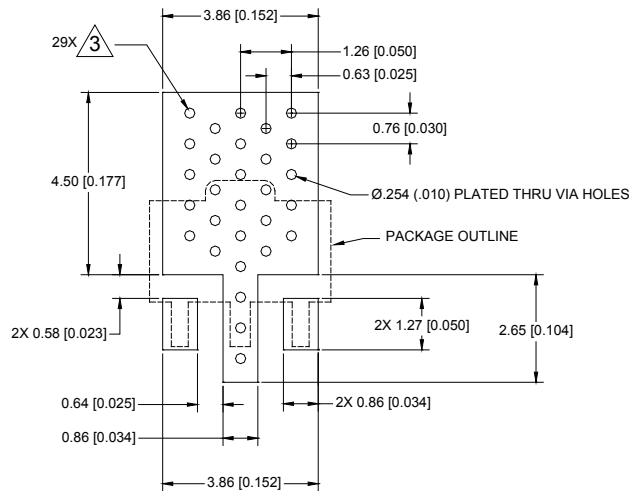
Marking: Part Number – TAT4760B1A  
 Lot code – XXXXYWW



**Notes:**

1. All dimensions are in millimeters (inches). Angles are in degrees.
2. Dimension and tolerance formats conform to ASME Y14.4M-1994.
3. The terminal #1 identifier and terminal numbering conform to JESD 95-1 SPP-012.
4. Contact plating: NiPdAu

### PCB Mounting Pattern



**Notes:**

1. All dimensions are in millimeters [inches]. Angles are in degrees.
2. Use 1 oz. copper minimum for top and bottom layer metal.
3. Vias are required under the backside paddle of this device for proper RF/DC grounding and thermal dissipation.  
 We recommend a 0.35mm (#80/.0135") diameter bit for drilling via holes and a final plated thru diameter of 0.25 mm (0.10").
4. Ensure good package backside paddle solder attach for reliable operation and best electrical performance.

## Product Compliance Information

### ESD Sensitivity Ratings



Caution! ESD-Sensitive Device

ESD Rating: Class 1A  
Value: Passes 250 V to <500 V  
Test: Human Body Model (HBM)  
Standard: JEDEC Standard JESD22-A114

ESD Rating: Class IV  
Value: Passes > 1000 V  
Test: Charged Device Model (CDM)  
Standard: JEDEC Standard JESD22-C101

### MSL Rating

MSL Rating: Level 3  
Test: 260°C convection reflow  
Standard: JEDEC Standard IPC/JEDEC J-STD-020

### Solderability

Compatible with both lead-free (260 °C maximum reflow temperature) and tin/lead (245 °C maximum reflow temperature) soldering processes.

Contact plating: NiPdAu

### RoHS Compliance

This part is compliant with EU 2002/95/EC RoHS directive (Restrictions on the Use of Certain Hazardous Substances in Electrical and Electronic Equipment).

This product also has the following attributes:

- Lead Free
- Halogen Free (Chlorine, Bromine)
- Antimony Free
- TBBP-A (C<sub>15</sub>H<sub>12</sub>Br<sub>4</sub>O<sub>2</sub>) Free
- PFOS Free
- SVHC Free

## Contact Information

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

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