

75 Ohm RF Amplifier 50-2600 MHz

TAT7460 Preliminary Product Datasheet

Overview

The TAT7460 is a 75 Ohm RF Amplifier designed for use up to 2600 MHz, addressing the CATV and Satellite bands in a single part. The TAT7460 is fabricated using 6-inch GaAs pHEMT technology to optimize performance and cost.

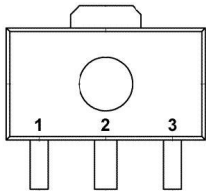
Features

- 75 Ohm, 50-2600 MHz Bandwidth
- Low Noise Figure: 2.4 dB to 1600 MHz
- Extremely flat gain response
- Low Power Consumption: 5.0V, 100mA
- SOT-89 package

Applications

- Distribution Amplifiers
- Multi Dwelling Unit Amplifiers
- Drop Amplifiers
- Single Ended Gain Block
- FTTH Receivers

Pin Configuration



Pin No.	Pin Name	Description
1	RF IN	RF Input
2	GND	Ground
3	RF OUT	RF Output



Electrical Performance Specifications at 25° C and 5V

Table 1. RF Characteristics				
Parameter	Min	Typ	Max	Unit
Bandwidth	50		2600	MHz
RF Gain	15.7	16.5		dB
Gain Flatness		0.5		+/- dB
Noise Figure (50 to 1600MHz)		2.5	3.0	dB
Input Return Loss		18		dB
Output Return Loss		18		dB
CSO (30dBmV/channel output, 80 ch)	-59	-61		dBc
CTB (30 dBmV/channel output, 80 ch)	-65	-72		dBc
XMOD (30 dBmV/channel output, 80 ch)	-57	-71		dBc
Output IP2		58		dBm
Output IP3		36		dBm
I _{dd} , 5V		100	120	mA

Ordering Information

Part Number	Description	Package Description	Component Packaging
TAT7460-EB	Drop Amplifier optimized Evaluation Board	Evaluation board	
TAT7460	RFIC 50-2600MHz, samples	RoHS Compliant SOT-89	Engineering Samples
TAT7460	RFIC 50-2600MHz	RoHS Compliant SOT-89	1,000 piece tape & reel

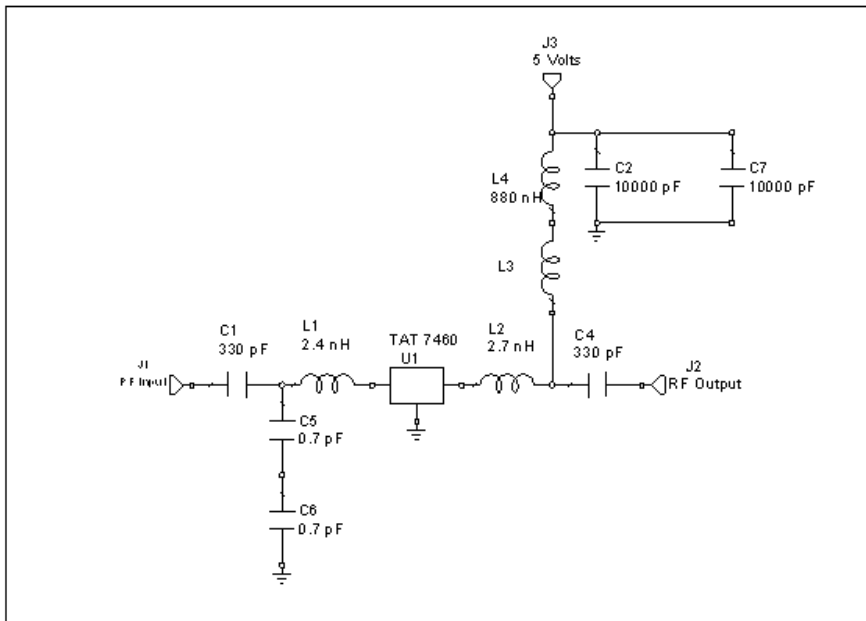
Absolute Max & Temperature Range

Parameter	Absolute Maximum
RF Input Power	TBD
Voltage	10.0 volts
Operating Temperature	-40°C to +85°C
Storage Temperature	-60°C to +150°C

ESD Classification and Moisture Sensitivity Level

Parameter	Level
ESD Classification	
- Human Body Model	Class 1A+
- Charged Device Model	Class IV
Moisture Sensitivity Level	Level 3
RoHS	RoHS compliant per EU directive

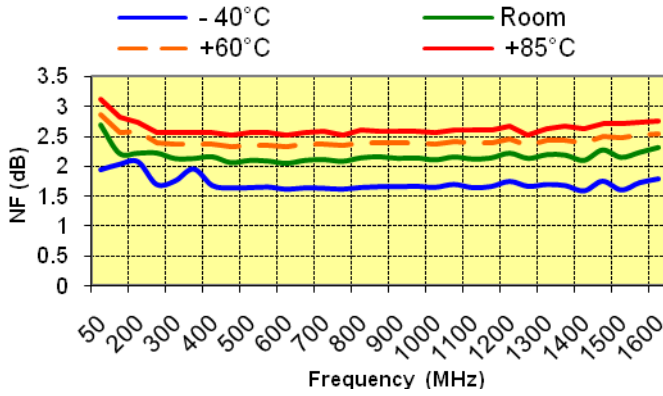
Performance Data



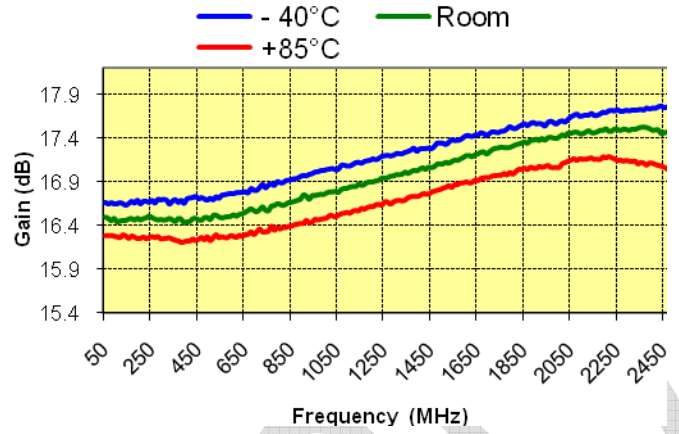
Application Test Circuit

Reference Designator	Part	Footprint	Manufacturer	Manufacturer Part Number
C5, C6	0.7 pF	0402	Taiyo Huden	UVK105CH0R7BW
C1, C4	330 pF	0402	AVX	04025C331JAT
C2, C7	10000 pF	0402	AVX	0402YC103KAT
L1	2.4 nH	0402	Coilcraft	0402CS-2N4XL
L2	2.7 nH	0402	TDK	MLK1005S2N7S
L4	880 nH	1206	Murata	LQH31HNR88K
L3	bead	0402	Murata	BLM15AG102SN1
U1	TAT7460	SOT-89	Tech	TAT7460
J3	Header Pins		Molex	22-28-8021
J1, J2	F connector (3 GHz)		Amphenol	531-40039

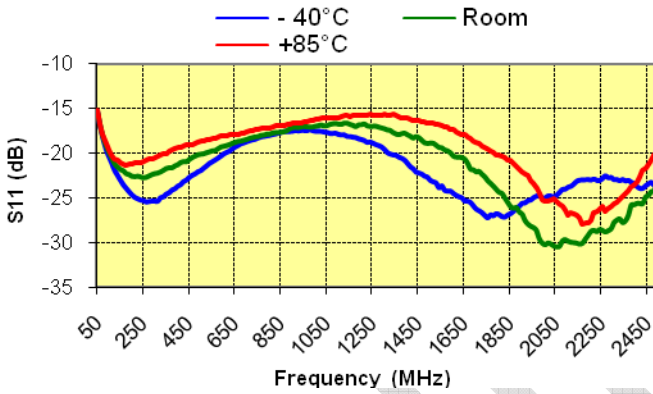
TAT7460: Noise Figure, Over Temperature



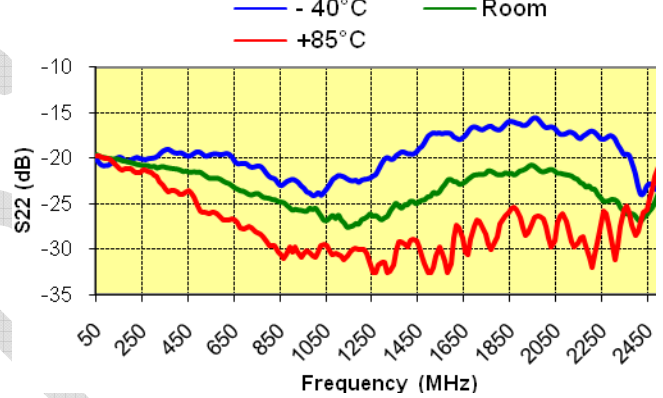
TAT7460: Gain Over Temperature



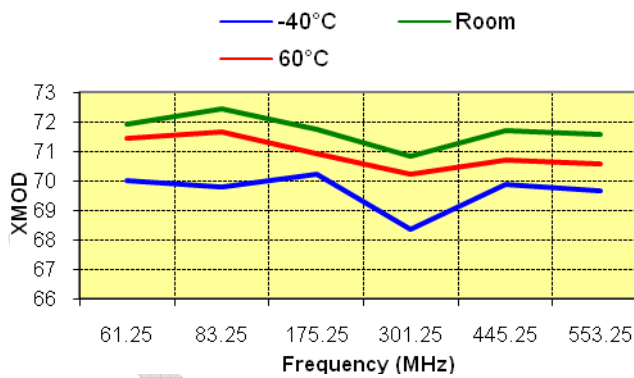
TAT7460: Input Return Loss, Over Temperature



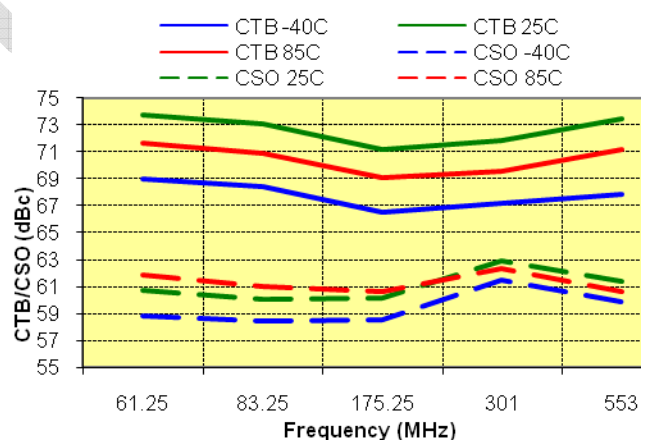
TAT7460: Output Return Loss, Over Temperature



TAT7460: XMOD Over Temperature



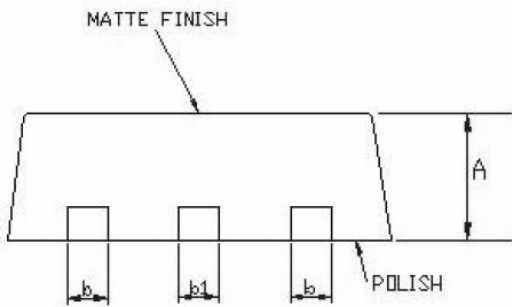
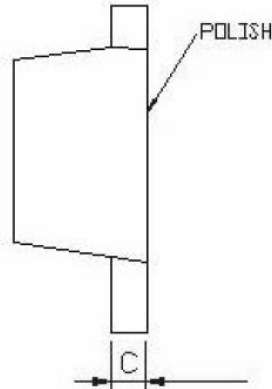
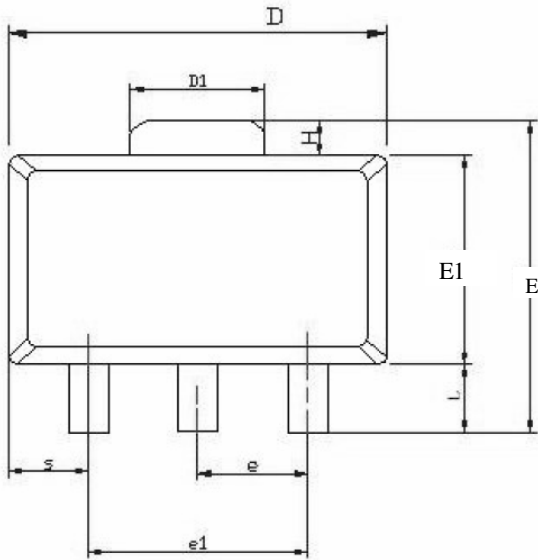
TAT7460: CTB & CSO Over Temperature



30 dBmV/channel output, 80 channels

30 dBmV/channel output, 80 channels

Mechanical Dimensions



Symbols	Dimensions in Millimeters			Dimensions in Inches		
	Min	Nom	Max	Min	Nom	Max
A	1.40	1.50	1.60	0.055	0.059	0.063
L	0.89	1.04	1.20	0.0350	0.041	0.047
b	0.36	0.42	0.48	0.014	0.016	0.018
b1	0.41	0.47	0.53	0.016	0.018	0.020
C	0.38	0.40	0.43	0.014	0.015	0.017
D	4.40	4.50	4.60	0.173	0.177	0.181
D1	1.40	1.60	1.75	0.055	0.062	0.069
E	3.64		4.25	0.143		0.167
E1	2.40	2.50	2.60	0.094	0.098	0.102
e1	2.90	3.00	3.10	0.114	0.118	0.122
H	0.35	0.40	0.45	0.014	0.016	0.018
S	0.65	0.75	0.85	0.026	0.030	0.034
e	1.40	1.50	1.60	0.054	0.059	0.063