

## 75 Ohm RF Amplifier 50-1300 MHz

## TAT7469 Advanced Product Information

### Overview

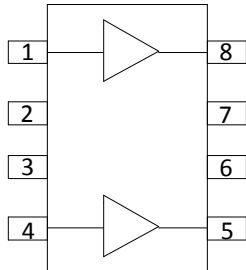
The TAT7469 is a 75 Ohm RF Amplifier designed for use up to 1300 MHz. The TAT7469 contains two separate amplifiers for push pull applications. It is fabricated using 6-inch GaAs pHEMT technology to optimize performance and cost. Each amplifier contains on-chip active biasing. The bias current set point of each amplifier is adjustable with a single resistor from the input to ground.

### Features

- 75 Ohm, 50-1300 MHz Bandwidth
- Low Noise Figure: 3.2 dB to 1000 MHz
- Adjustable Low Power Consumption
- SOIC-8 or QFN package

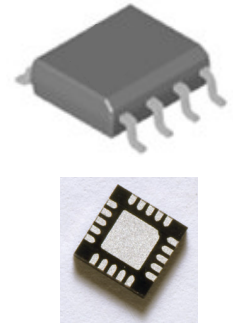
### Applications

- Replacement for 5v SOIC-8 amplifiers
- Edge QAM gain stage
- MDU Output
- Distribution amplifiers



### SOIC8 Pin Configuration

Pin No.	Pin Name	Description
1	RF IN A	RF Input
2,3	GND	Ground
4	RF IN B	RF Input
5	RF OUT B	RF Output
6,7	NC	No Connect
8	RF OUT A	RF Output
Exposed Slug	GND	Ground



## Target Specifications: TAT7469 RF Amplifier

Table 1. RF Characteristics

Characteristic	Notes	Min	Typ	Max	Unit
Bandwidth		50		1002	MHz
RF Gain			17.5		dB
Gain Flatness			0.75		+/- dB
Noise Figure			3.2		dB
Input Return Loss	To 1000 MHz		-18		dB
Output Return Loss	To 1000 MHz		-23		dB
Output IP3 (7 dBm/tone)	6 MHz spacing		38		dBm
Output IP2 (7 dBm/tone, <600MHz)	6 MHz spacing		68		dBm
I <sub>dd</sub>	5V		235		mA

## Ordering Information

Part Number	Description	Package Description	Component Packaging
TAT7469E-EB	Evaluation Board	Eval Board QFN	
TAT7469E	RFIC, 50-1300MHz, push pull amplifier sample	RoHS Compliant SOIC-8	Engineering Samples
TAT7469-SC8	RFIC, 50-1300MHz , push pull amplifier	RoHS Compliant SOIC-8	1,000 pieces Tape and Reel
TAT7469QE	RFIC, 50-1300MHz, push pull amplifier sample	RoHS Compliant QFN 4x4mm	Engineering Samples
TAT7469-QFN	RFIC, 50-1300MHz , push pull amplifier	RoHS Compliant QFN 4x4mm	1,000 pieces Tape and Reel

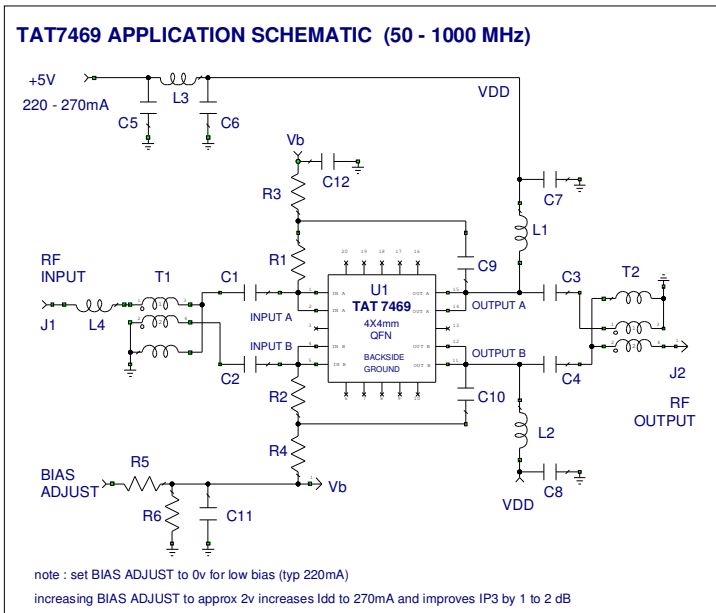
## Absolute Maximum Ratings

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

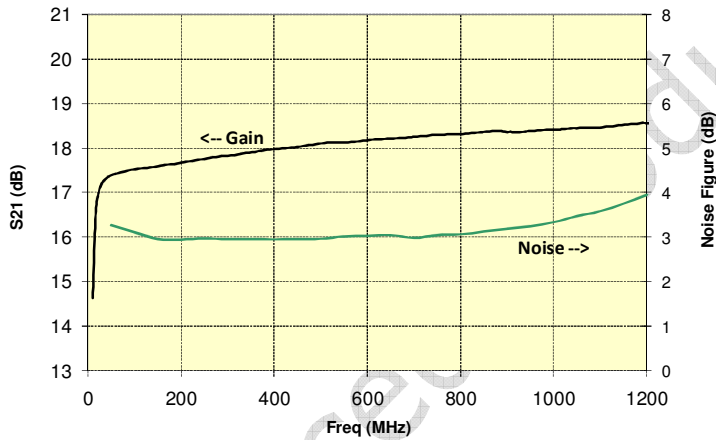
Parameter	Targets
ESD Classification	
- Human Body Model	Class 1B, 500V
- Machine Model	Class IV, 2000V
Moisture Sensitivity Level	Level 3
RoHS	RoHS compliant per EU directive

# Performance Data (5V 235mA, push-pull amplifier, QFN 4x4mm)

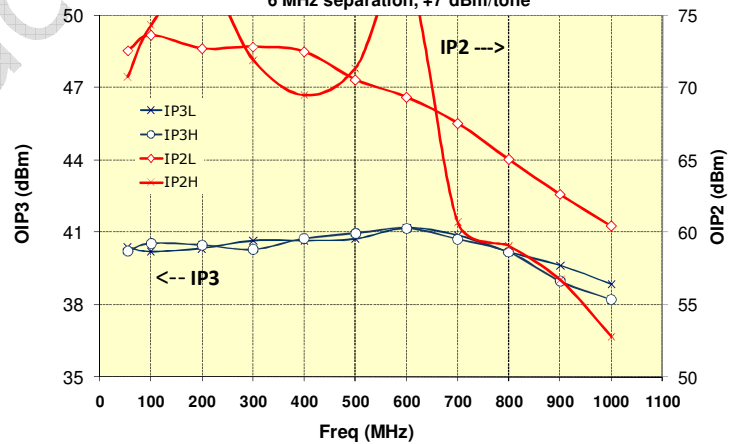


REFERENCE DESIGNATOR	VALUE	MFG	MFG PN
L1,2	500nH	MuRata	LQH31HNR50K
L3	910nH	Coilcraft	1008AF-901XKL
L4	3.6nH	Coilcraft	0402CS-3N6XJLW
T1,2	1:1 Balun	MiniCircuits	TC1-33-75G2+
C1,2,5,6,7,8,9,10,11,12	0.01uF	AVX	0402YC103KAT
C3,4	560pF	AVX	04025C561KAT2A
R1,2	910 ohm	Dale	CRCW0402910RFKED
R3,4	4.3K ohm	Dale	CRCW0402432JRT7
R5	750 ohm	Dale	CRCW0402751JRT7
R6	180 ohm	Dale	CRCW0402181JRT7
J1,2	SMB verticle	Johnson	131-8701-206
U1		TriAccess	TAT 7469E

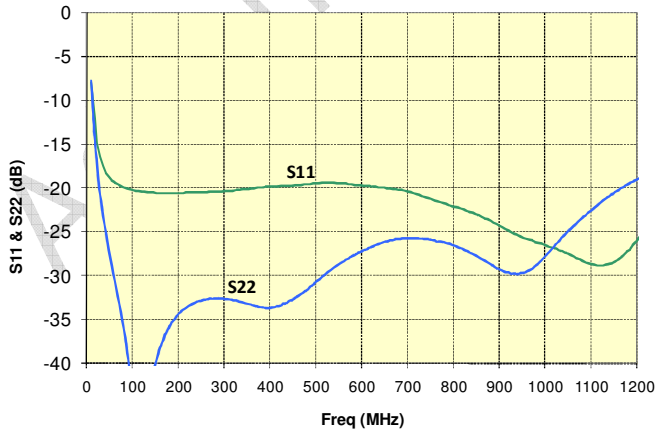
**TAT 7469 Gain & Noise Figure**



**Output IP2 and IP3 versus Freq**  
6 MHz separation, +7 dBm/tone

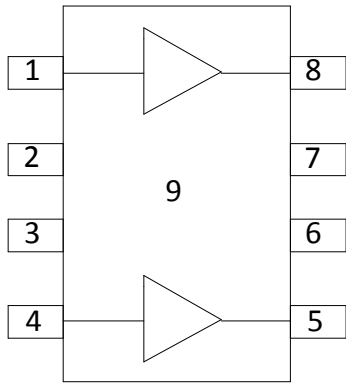


**TAT 7469 Return Losses**

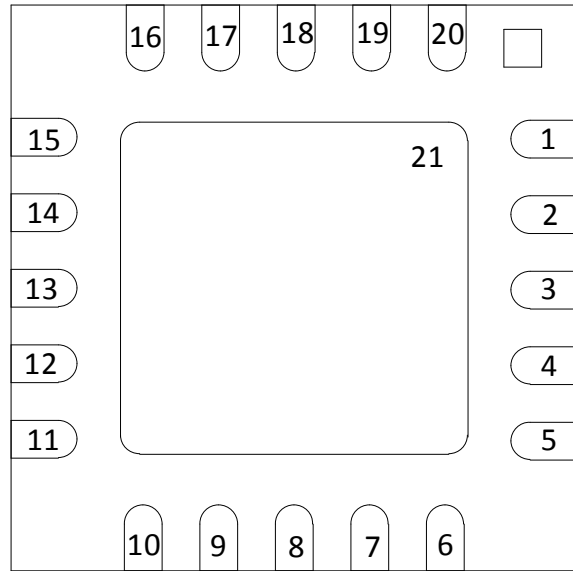


Note: IP2H > 500 MHz falls above 1000 MHz

# Package Pin Outs



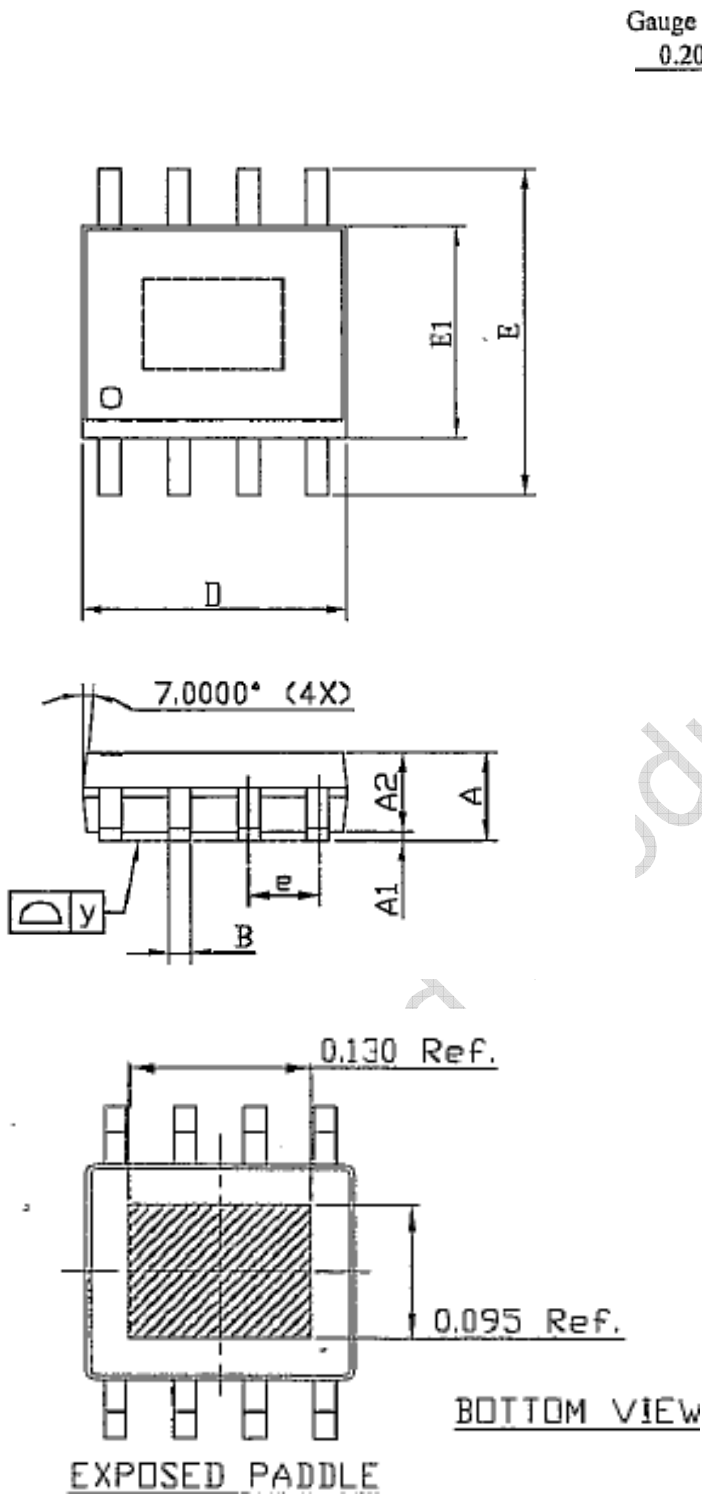
SOIC8  
TOP VIEW



QFN 4x4mm  
BOTTOM VIEW

PIN NUMBER	SOIC8	QFN 4X4mm
1	INPUT A	INPUT A
2	NC	INPUT A
3	NC	NC
4	INPUT B	INPUT B
5	OUTPUT B	INPUT B
6	NC	NC
7	NC	NC
8	OUTPUT A	NC
9	PADDLE GROUND	NC
10		NC
11		OUTPUT B
12		OUTPUT B
13		NC
14		OUTPUT A
15		OUTPUT A
16		NC
17		NC
18		NC
19		NC
20		NC
21		PADDLE GROUND

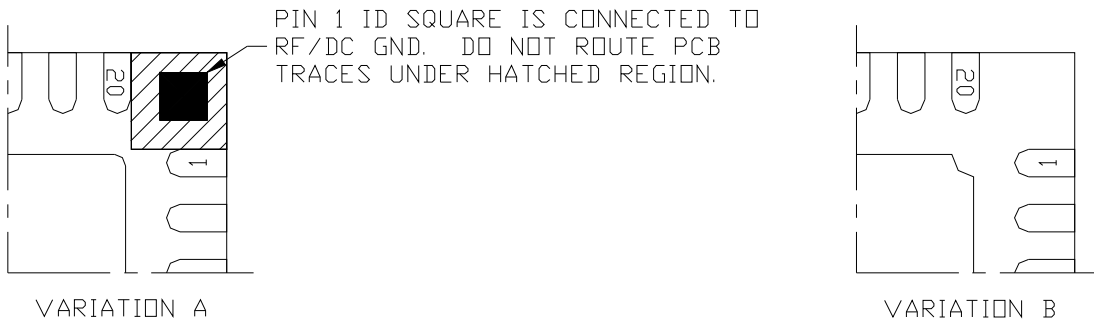
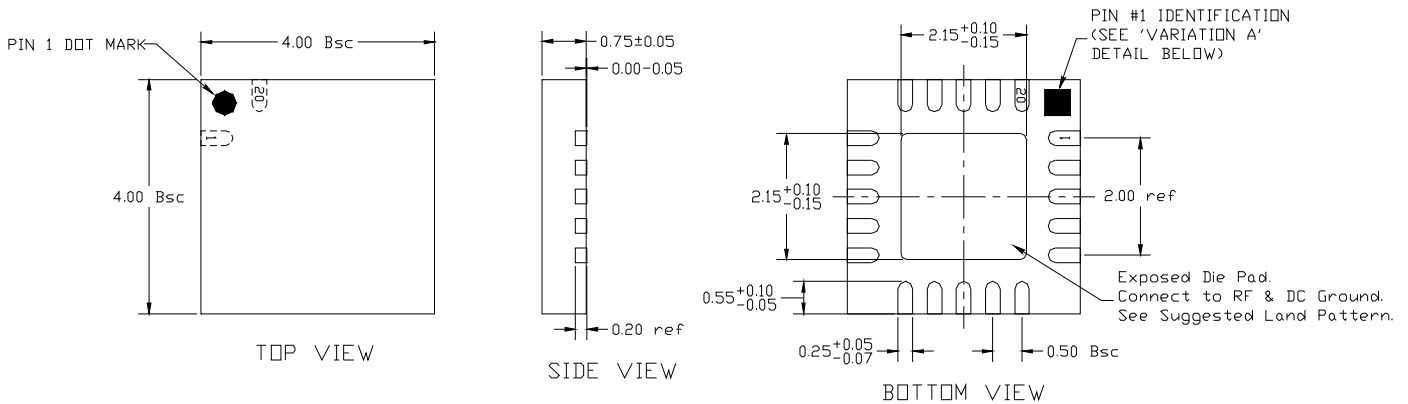
# Mechanical Dimensions (SOIC8, TAT7469-SC8)



Dimensions in Inches

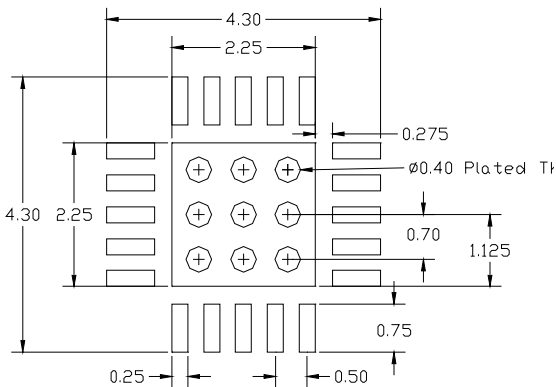
symbol	Min.	nom.	Max.
A	0.054	0.059	0.068
A1	0		0.004
A2		0.057	
B	0.013		0.020
C	0.007		0.010
D	0.189		0.197
E1	0.150	0.153	0.157
e		0.050	
E	0.228	0.236	0.244
L	0.016		0.050
y			0.004
theta	0		8
L1	0.037	0.041	0.045

# Mechanical Specifications (QFN 4x4mm, TAT7469-QFN), Dimensions in mm

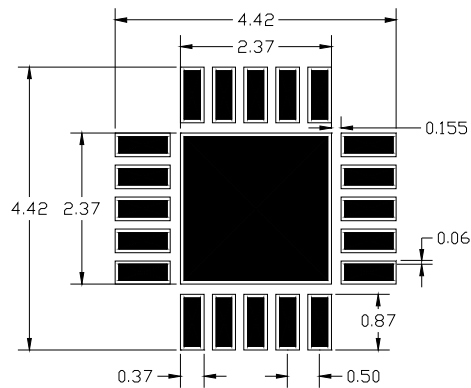


## PIN #1 IDENTIFICATION DETAIL

TriAccess Technologies uses two variations of Pin #1 identification: Variation A and B. Variation A uses a metal square, Variation B uses the notched pad corner. Both variations may be used at any time. Layouts need to plan for both contingencies.



SUGGESTED PCB LAND PATTERN



SUGGESTED PCB SOLDERMASK FOR LAND PATTERN