

TSA-220005-201 2 TO 18 GHz, 20 WATT HIGH POWER GaN AMPLIFIER

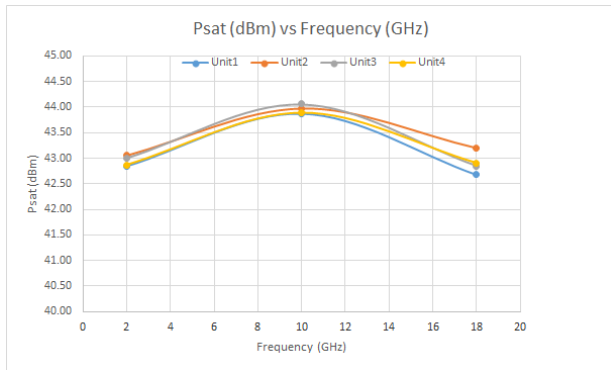
Typical Values **TSA-220005-201**
Broadband 2-18 GHz
High Saturated Power, Psat 20 W, (43dBm)
Small Hermetic Package,
2.9”L x 2”W x 0.41”H

SPECIFICATIONS*

Parameter	Guaranteed -55 to +85 °C
Frequency (Min.)	2-18 GHz
Small Signal Gain (Min.)	55 dB
Gain Flatness (Max.)	±2.5 dB
Noise Figure (Max.)	5.0 dB
SWR (Max.) Input/Output	2.0:1/2.0:1
Power Output (Min.) @ 10 dB comp.	+42 dBm (43 dBm mid-band)
Harmonics (Max.@ Comp.)	-10 dBc
DC Current (Max.)	5.5A (22V), 0.5A (8V) Typ.

* Measured in a 50-ohm system at +22V.
 ^ Faster switching speed option available upon request.

PSAT PERFORMANCE (4 unit comparison)



ABSOLUTE MAXIMUM RATINGS

Storage Temperature -62 to +125 °C
Maximum Case Temperature, +29V +85 °C
Maximum DC Voltage +29 Volts
Maximum RF Input Power +20 dBm
Burn-in Temperature, +29V +85 °C
Thermal Resistance¹ (θjc) +1.52 °C/Watt
Junction Temperature Rise Above Case (Tjc), +29V +112 °C

¹ Thermal resistance is based on total power dissipation.

TSA-220005-201

High Power GaN Amplifier



HEAT SINK WARNING:

This amplifier requires an adequate heat sink to prevent damage. Maximum case temperature must not be exceeded. The package is designed to provide adequate heat transfer to proper aluminum heat sink.

The TSA220005-201 amplifier provides nominal output power of 20 Watts. The amplifier uses control circuitry to ensure safe startup and automatic thermal shutdown and recovery. The amplifiers have an external pin for TTL on/off control. On/Off Low or High can be specified; standard is Off/Low.

Heat sinking is required to keep the case temperatures within a safe operating range. A thin layer of thermal grease or HiTherm (for example the HT-2500 series) helps provide a low resistance thermal path between the case and the mounting surface. The mounting surface should be metal with heat conduction of aluminum or better. Heat sink size depends on whether fan-driven air cooling is used, or if only convection is used.

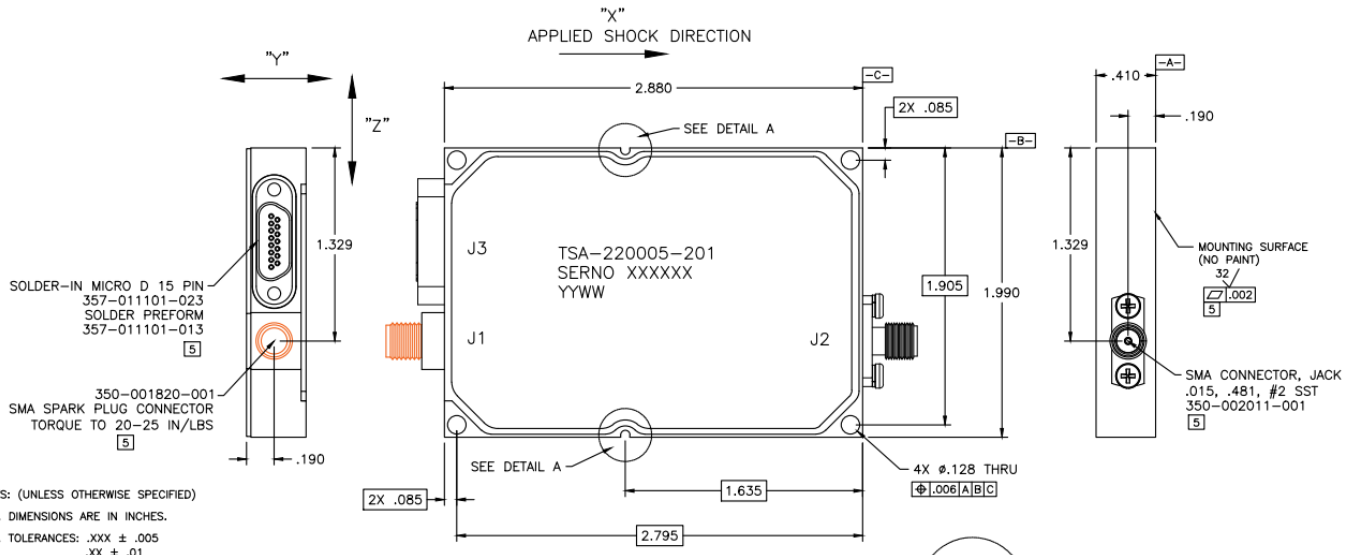
Maximum Tj of amplifier is 225°C.

LOGIC TABLE

TTL	STATE
HIGH	ON
LOW	OFF

DIMENSIONS ARE IN INCHES [MILLIMETERS]

OUTLINE DRAWING - High Power GaN Amplifier



SOLDER-IN MICRO D 15 PIN
357-011101-023
SOLDER PREFORM
357-011101-013 [5]

350-001820-001
SMA SPARK PLUG CONNECTOR
TORQUE TO 20-25 IN/LBS [5]

NOTES: (UNLESS OTHERWISE SPECIFIED)

1. DIMENSIONS ARE IN INCHES.
2. TOLERANCES: .XXX ± .005
.XX ± .01
3. MARKING AS SHOWN SHALL BE PERMANENT AND LEGIBLE PER MIL-STD-130 USING BLACK EPOXY BASE INK.
4. CASE MATERIAL: ALUMINUM.
5. FINISH: ALL SURFACES EXCEPT MOUNTING SURFACE, CONNECTORS & PINS, ALIGNMENT SLOTS AND MICRO-D CONNECTOR, ARE PAINTED WITH EPOXY PAINT PER MIL-C-22750 OVER EPOXY PRIMER PER MIL-P-23377, TYPE I. COLOR IS TELEDYNE STANDARD COLOR CHIP 36231 PER FED-STD-595. MOUNTING SURFACE IS CHEM FILM PER MIL-DTL-5541, CLASS 3, TYPE I.
6. WEIGHT NOT TO EXCEED 0.40 POUNDS.

J3 15 PIN MICRO D

PIN #	SIGNAL	CHARACTERISTICS
1-4	+22V	DC
5-8	+22V RETURN	DC
10	+8V	DC
11	-5V	DC
12	RETURN	+8V, -5V, BIT
13	BIAS_EN	LVC MOS
14	BIAS_EN_RTN	LVC MOS RETURN
9	BIT	DC PULSE
15	SPARE	-

THIRD ANGLE PROJECTION

INCH [MM]

.XX = ±.02 [.5]
.XXX = ±.010 [.25]