

Communications & Power Industries - Solid State MPM

The PTS10147 is a compact and light-weight 2-6GHz 100W GaN Solid State Power Amplifier can operate in pulsed or CW mode and runs off a 28v supply with a linear gain of around 60dB.

This 2-6GHz 100W SSPA employs gallium nitride (GaN) high-power transistors in its output and driver stages, giving a compact and lightweight product with state-of-the-art power performance and a power-to-volume ratio we believe to be among the highest in the microwave industry for such products.

This broadband 2-6GHz 100W high-power amplifier (HPA) is well suited to electronic warfare applications, particularly electronic attack (jamming) enabling defence customers to use wideband SSPA technology. Its small size, weight and power (SWAP) of <0.75kg means it is also particularly suited for use in radar or EW applications installed in UAV's, Drones or Man-Portable systems.

All of our high-power microwave amplifiers are continuously being improved, so please contact us for the latest specification as it is subject to change without notice.



The PTS10147 Solid State MPM - 2-6 GHz 100 W

FEATURES:

- This broadband amplifier design can be flexible in its layout, and architecture. Both electrical and mechanical interfaces can be tailored to meet individual specifications if required, so please send us your requirements and we can quickly let you know if they can be met. The amplifier is currently demonstrating success in a man-portable jamming system.

BENEFITS:

- This amplifier is usually supplied without a heatsink or any thermal management assembly. We can however provide tailored heat sinks (and can customise them to suit requirements).

RF Characteristics

Frequency Range	2.0 to 6.0 GHz
RF Output Power (Saturated)	100 W minimum Electrical performance specified at 28V, 20°C and into terminating VSWR <1.3:1 unless otherwise stated
Duty Cycle	Pulsed or CW
RF Input Power	0 dBm typical -5.0 dBm to 0 dBm to achieve compressed Psat.
Saturated Power Gain	55 dB nominal.
Linear (Small Signal) Gain	62 dB nominal for <-10dBm input power.
Pulse Droop	1 dB maximum, up to 100 μ s pulse width
HPA Turn-on Time (from Standby)	150 ns nominal from 50% TX- GATE signal edge to 50% RF out rising edge.
TX Gating Pulse Width	1.0 μ s minimum (shorter time feasible but not specified).
Termination Return Loss	17.7 dB minimum to achieve specified performance
Worst Case Load VSWR	3:1 maximum. Not to be exceeded or damage may occur at high power output. Internal protection against re- verse power is not included
Harmonic / Spurious Measurements	Available on request.

Prime Power Requirements

Prime Power	+28 Vdc.
Power Supply Variation	540 W maximum
Mean DC current	CW 5.0 to 20A typical. Efficiency varies with frequency from nominal 60% to 30% (see plot)

Connectors

Power and Control Input Connector	15 Pin D Type
RF Input Connector	SMA Female (optionally SMA-M)
RF Output Connector	SMA Female (optionally SMA-M)

Control Modes

RF_GATE

Pulsed RF On, will amplify any CW or nested RF signal present at RF Input when RF_GATE signal is control pulse (TTL or 3.3V LVCMOS).

CW RF On, will continuously amplify any RF signal present at RF Input when RF_GATE is high (TTL or 3.3V LVCMOS).

RF-ENABLE

Enable / disable TTL or 3.3V LVCMOS
Signal High = Enabled.

ALARM (Output)

Signal (TTL or 3.3V LVCMOS low) if internal temp exceeds 85°C. Connect to RF_ENABLE to disable the unit.

Mechanical

Mechanical Outline	137 x 120 x 24 mm excluding connectors.
Weight	0.75 kg nominal.
Finish	Chemical Conversion MIL-DTL-5541F Surtec 650 or Iridite NCP
Markings/Labels	Type Number Model Number Serial Number Connector Ident RF Hazard Warning

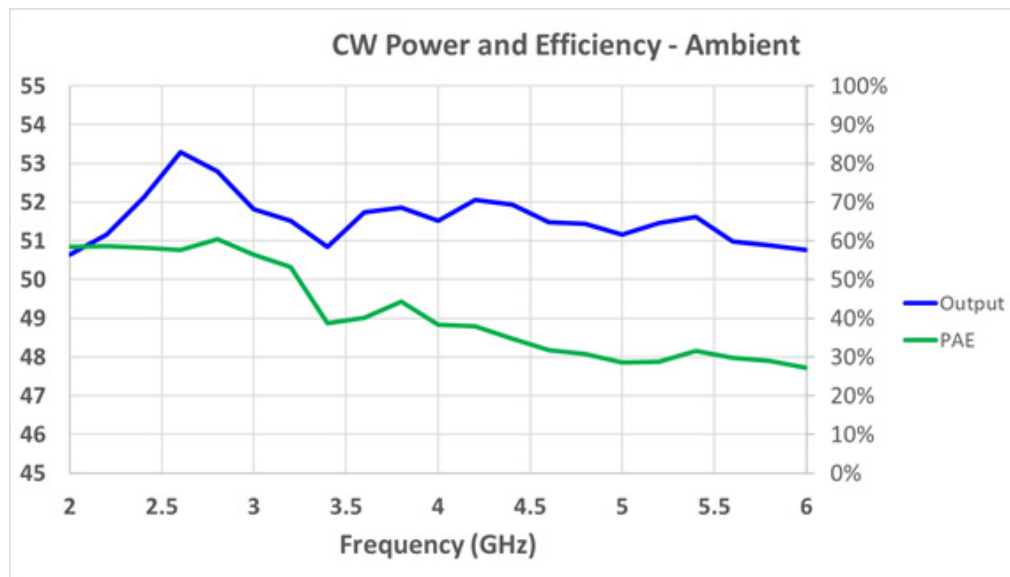
Environmental

Temperature (operating)	-40°C to +60°C
High Temperature Cut Out	Internal over temperature cut out 85°C

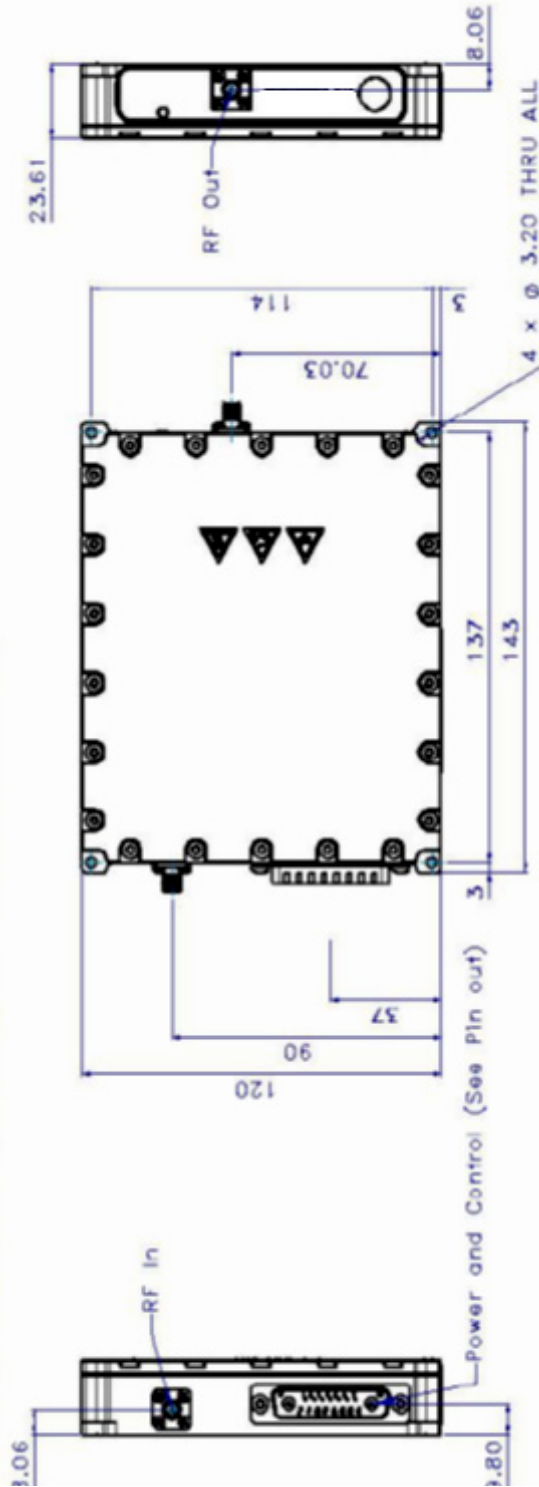
Operating Humidity Level	Non-Condensing atmosphere.
-----------------------------	-------------------------------

EMC Performance

It is expected that the customer using the 2 to 6 GHz SSPA will use an appropriate filtering network placed between this unit's Main RF Output and the antenna used in their system, to ensure compliance with MIL STD-461F



Electrical performance specified at 28V, 20°C and into terminating VSWR <1.3:1 unless otherwise stated



Pin	Description
A1	28v_In
A2	OV
1	RF_Gate
2	RF_Enable
3	OV
4	ALARM
5	TMD USE ONLY
6	TMD USE ONLY
7	OV
8	OV
9	NC
10	NC
11	NC
12	NC
13	NC
14	NC
15	NC