

Solid State Broadband High Power Amplifier

APCT-0.02-1.25-100-32V
20 – 1250 MHz / 100 Watts

Model APCT-0.02-1.25-100-32V is a gallium-nitride (GaN) solid state broadband high power amplifier designed to provide 100 W output power across its full operating bandwidth and operate from a +32V supply. This compact module utilizes high power advanced GaN on SiC transistors that provide excellent power density, high efficiency and wide dynamic range. Exceptional performance, long term reliability and high efficiency are achieved by employing advanced broadband RF matching networks and combining techniques, machined housings and qualified components. APC Technologies ISO9001 Quality Management System assures consistent performance and the highest reliability.

- Solid-state Class AB linear design
- Instantaneous broadband
- Small form factor and lightweight
- Built-in temperature monitoring
- Built-in high speed switching On/Off
- 50 ohm input/output impedance
- High reliability and ruggedness

Applications

- General Purpose
- Communication System

Electrical Specifications @ $V_{CC} = 32V$; $T_C = 45^\circ C$; $Z_S = Z_L = 50\Omega$

| Parameter | Min | Typ | Max | Unit | Condition |
|--|-----|-----------|-----------|------|-----------------------------------|
| Operating Frequency | 20 | - | 1250 | MHz | - |
| Small Signal Gain | 52 | 55 | - | dB | 20 ~ 1250 MHz |
| Small Signal Gain Flatness | - | ± 2.0 | ± 2.5 | dBpp | 20 ~ 1250 MHz |
| Output Power @ Psat | 48 | 50 | - | dBm | 20 ~ 1250 MHz |
| 2 nd Harmonic @ Pout 40dBm | - | - | -15 | dBc | 20 ~ 1250 MHz |
| Input Return Loss | - | -15 | -8 | dB | - |
| Supply Voltage | 32 | - | - | V | $V_{CC} (=V_{ds})$ |
| Quiescent Current Consumption | - | 1.7 | 2.0 | A | - |
| Current Consumption @ Psat | - | 8.0 | 10.0 | A | CW 1-tone |
| ON/OFF Switching Time ** | - | 2 | 5 | uS | ON : TTL "Low" |
| | | | | | OFF : TTL "High" (50mA @ Disable) |
| Shut Down or Switch ON/OFF TTL Voltage *** | 0 | - | 0.5 | V | ON : TTL "Low" (Enable) |
| | 2.5 | 5 | 5.5 | | OFF : TTL "High" (50mA @ Disable) |

Note

** Gate On/Off : High speed switching

*** Drain On/Off : 500ms delay

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Mechanical Specifications

| Parameter | Value | Unit |
|---------------|---|------|
| Dimension | 115(L) x 59(W) x 21.5(H) | mm |
| RF Connectors | RF Input : SMA Female | - |
| | RF Output : N-Type Female | - |
| DC Connector | SMW420-08 | - |
| Cooling | Adequate Heatsink Required (Not Supplied) | - |

Absolute Maximum Ratings

| Parameter | Parameter | Unit |
|---------------------|------------------------|------|
| Supply Voltage | 35 | V |
| Load Mismatch Value | 3 : 1 @ all load phase | - |

* Input Signal Condition : CW 1-tone

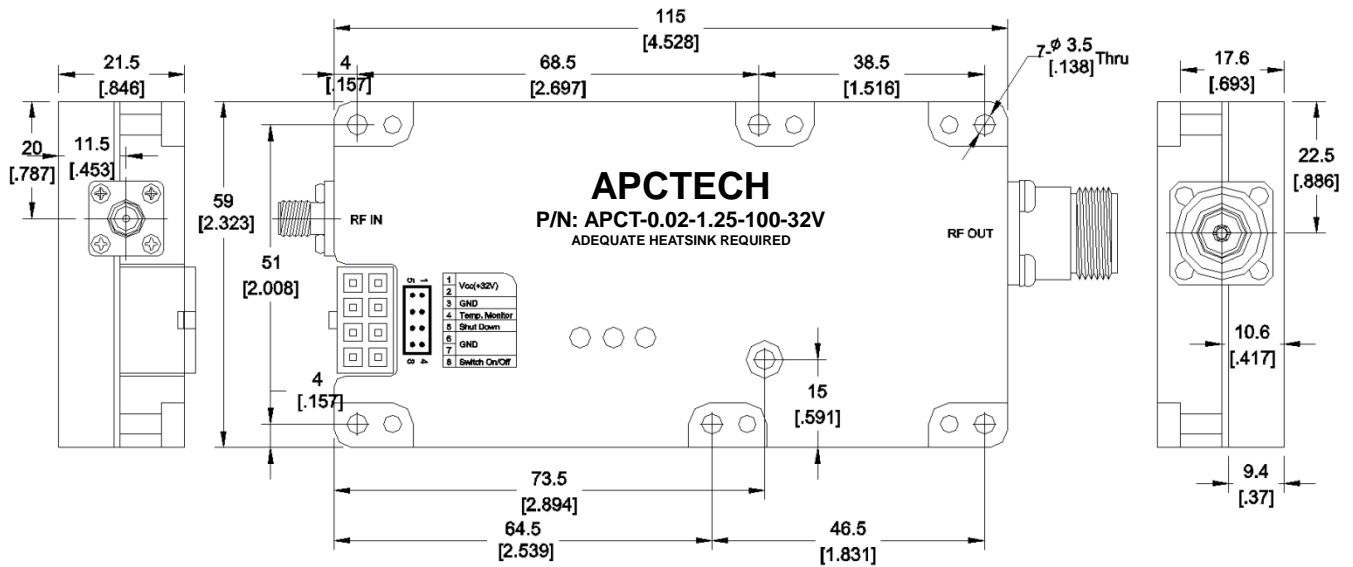
Environmental Characteristics

| Parameter | Symbol | Min | Typ | Max | Unit |
|----------------------------|------------------|-----------------------------------|-----|-----|------|
| Operating Case Temperature | T _c | -10 | - | 80 | °C |
| Storage Temperature | T _{stg} | -40 | - | 105 | °C |
| Vibration | VI | MIL-STD-810G Method 514.6 ANNEX C | | | |

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Outline Drawing

Unit: mm[inch] | Tolerance: ±0.2[.008]



DC Connector Description

| Pin # | Description | Specifications |
|-------|---------------------|--|
| 1 | V _{cc} | +32VDC |
| 2 | V _{cc} | +32VDC |
| 3 | GND | Ground |
| 4 | Temperature Monitor | Reference voltage : 750mV @ 25°C, Scale : 10mV/°C |
| 5 | Shut Down | Enable : TTL "Low", Disable : TTL "High" (Low : 0~0.5V, High : 2.5~5V) Disable Status : 50mA current consumption |
| 6 | GND | Ground |
| 7 | GND | Ground |
| 8 | Switch ON/OFF | Enable : TTL "Low", Disable : TTL "High" (Low : 0~0.5V, High : 2.5~5V) Disable Status : 50mA current consumption |

* Terminal Pin Information SMW420-08(YEONHO Electronic, Wafer), SMH420-08(YEONHO Electronic, Housing)

* Recommended Screw Torque : 8.0kgf.cm±1 using SEMS M3 22mm Bolt



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Product Ordering Information

| Order Number | Description | Unit of Measure |
|------------------------|--|-----------------|
| APCT-0.02-1.25-100-32V | 20-1250MHz 100W GaN Solid State Broadband High Power Amplifier | Each |

Datasheet Revision Information

| Part Number | Version | Release Date | Modification | Status |
|------------------------|---------|------------------|--------------|--------|
| APCT-0.02-1.25-100-32V | 1.0 | 2016.November.10 | - | - |
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