

APCT-0.50-1.00-40-28V
500 – 1000 MHz / 40 Watts

Model APCT-0.50-1.00-40-28V is a gallium-nitride (GaN) solid state broadband high power amplifier designed to provide 40 W output power across its full operating bandwidth and operate from a +28V 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. UWB TECH ISO9001 Quality Management System assures consistent performance and the highest reliability.

FEATURES

- Class AB GaN linear
- Instantaneous wide bandwidth
- Small form factor and lightweight
- Built-in temperature monitoring
- Built-in high speed switching On/Off
- 50Ω input/output impedance
- High reliability and ruggedness

APPLICATIONS

- General Purpose
- Communication Systems
- RF Frequency Jamming Systems
- ISM(Industrial, Scientific and Medical equipment)
- Radar Simulator
- EMC Testing
- Broadcasting

Electrical Specifications

 [Test Condition: $V_{CC} = 28V$; $T_c = 45^\circ C$; $Z_s = Z_L = 50\Omega$]

| Parameter | Unit | Min | Typ | Max | Notes |
|--|------------------|-----|------|------|-----------------------------------|
| Operating Frequency | MHz | 500 | - | 1000 | - |
| Power Gain @ Pin 13dBm | dB | 31 | 34 | - | 500 ~ 1000 MHz |
| Power Gain Flatness @ Pin 13dBm | dB _{pp} | - | ±1.0 | ±2.0 | 500 ~ 1000 MHz |
| Output Power @ Pin 13dBm | dBm | 44 | 47 | - | 500 ~ 1000 MHz |
| Input Return Loss | dB | - | -10 | -5 | - |
| Supply Voltage | V | 28 | - | - | $V_{CC} (=V_{ds})$ |
| Quiescent Current Consumption | A | - | 1.5 | 2.0 | - |
| Current Consumption @ Pin 13dBm | A | - | 4.5 | 5.5 | CW 1-tone |
| On/Off Switching Time ** | uS | - | 2 | 5 | On : TTL "Low" |
| | | | | | Off : TTL "High" (50mA @ Disable) |
| Shut Down or Switch On/Off TTL Voltage *** | V | 0 | - | 0.5 | 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

Absolute Maximum Ratings

| Parameter | Specification | Unit |
|---------------------|------------------------|------|
| Input RF Power | 15 | dBm |
| 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 _{case} | -20 | - | 80 | °C |
| Operating Ambient Temperature | T _{amb} | -40 | - | 60 | °C |
| Storage Temperature | T _{stg} | -50 | - | 110 | °C |
| Vibration | VI | MIL-STD-810G Method 514.6 ANNEX C | | | |

Mechanical Specifications

| Parameter | Specification | Unit |
|---------------------|---|------|
| Dimension | 72 x 50.8 x 16.6 | mm |
| RF Connectors | RF Input : SMA Female | - |
| | RF Output : SMA Female | - |
| Interface Connector | SMW200-08 | - |
| Cooling | Adequate Heatsink Required (Not Supplied) | - |

Interface Connector Pin Description

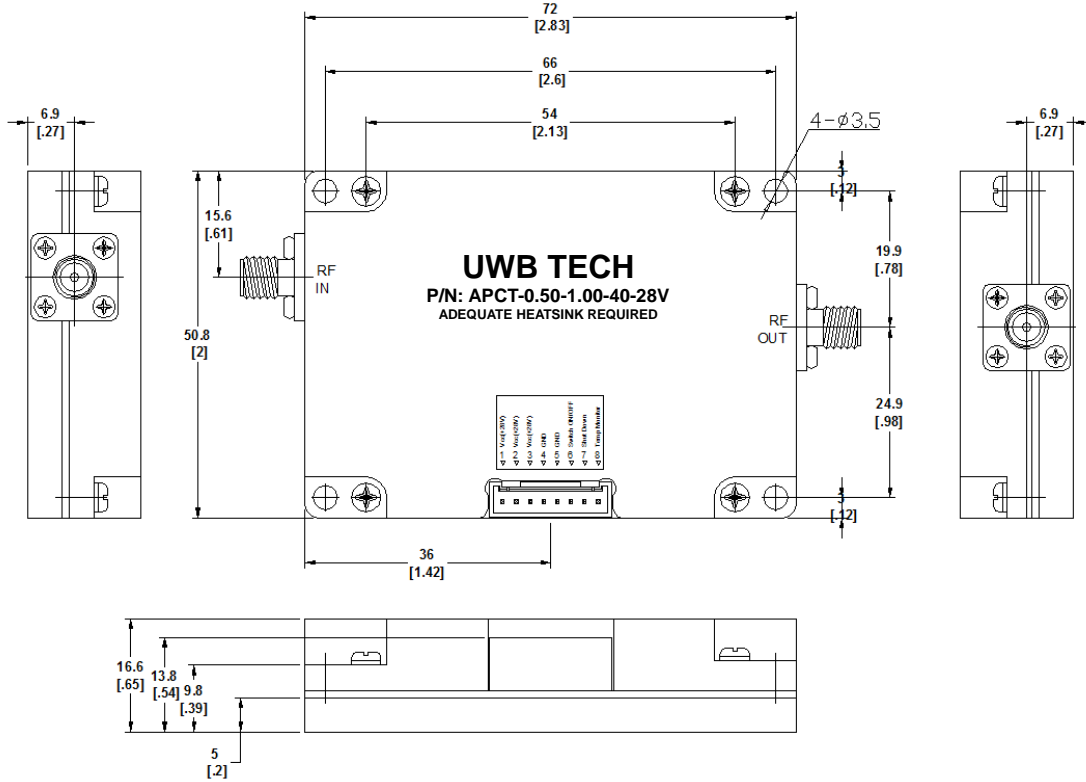
| Pin | Description | Specification |
|-----|-----------------|--|
| 1 | V _{cc} | +28VDC |
| 2 | V _{cc} | +28VDC |
| 3 | V _{cc} | +28VDC |
| 4 | GND | Ground |
| 5 | GND | Ground |
| 6 | Switch ON/OFF | Enable : TTL "Low", Disable : TTL "High" (Low : 0~0.5V, High : 2.5~5V) Disable Status : 50mA current consumption |
| 7 | Shut Down | Enable : TTL "Low", Disable : TTL "High" (Low : 0~0.5V, High : 2.5~5V) Disable Status : 50mA current consumption |
| 8 | Temp Monitor | Reference voltage : 750mV @ 25°C, Scale : 10mV/°C |

* Interface Connector Information SMW200-08(YEONHO Electronic, Wafer), SMH200-08(YEONHO Electronic, Housing)

* Recommended Screw Torque : 8.0kgf.cm±1 using SEMS M3 14mm Bolt

Outline Drawing

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



Product Ordering Information

| Order Number | Description |
|-----------------------|--|
| APCT-0.50-1.00-40-28V | 500-1000MHz 40W 28V SMA Connector type GaN Solid State Broadband High Power Amplifier |
| SMH200-08 | Interface Connector Housing with Cables |

Datasheet Revision Information

| Part Number | Version | Release Date | Modification | Status |
|-----------------------|---------|---------------|--|---------------|
| APCT-0.5-1.0-40-28V | 1.0 | 2016.March.28 | - | - |
| APCT-0.50-1.00-40-28V | 1.1 | 2016.Sept.19 | Modified document form, part number | - |
| - | 1.2 | 2016.Nov.10 | Applications, Product Ordering Information | - |
| - | 1.3 | 2017.March.3 | Environmental Characteristics | In production |

Important Notice

Specifications are subject to change without notice. UWB TECH believes the information contained within this data sheet to be accurate and reliable. However, UWB TECH assumes no responsibility or liability whatsoever for any of the information contained herein. The information contained herein is provided "AS IS, WHERE IS" and with all faults, and the entire risk associated with such information is entirely with the user. Customers should obtain and verify the latest relevant information before placing orders for UWB TECH products. All operating parameters should be validated by customer's technical experts for each application. UWB TECH products are not designed, intended or authorized for use as components or amplifiers in applications intended for surgical implant into the body or to support or sustain life, in applications in which the failure of the UWB TECH product could result in personal injury or death or in applications for planning, construction, maintenance or direct operation of a nuclear facility. Customers shall comply fully with all export administration and control laws and regulations of the Republic of Korea, the U.S. government and/or other national or international (e.g. UN) laws and regulations as may be applicable to the export, re-export, resale or other disposition of any products purchased from UWB TECH.

For more information, please contact:

UWB TECH

sales@uwb-tech.com