



# Solid State Broadband High Power Amplifier

**APCT-0.02-0.50-100-32V**

**20 – 500 MHz / 100 Watts**

Model APCT-0.02-0.50-100-32V 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.

## Features

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

## 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	-	500	MHz	-
Power Gain @ Pin 0dBm	48	50	-	dB	20 ~ 500 MHz
Power Gain Flatness @ Pin 0dBm	-	±1.0	±2.5	dBpp	20 ~ 500 MHz
Output Power @ Pin 0dBm	48	50	-	dBm	20 ~ 500 MHz
2 <sup>nd</sup> Harmonic @ Pout 40dBm	-	-	-20	dBc	20 ~ 500 MHz
Spurious Signals @ Pin 0dBm	-	-	-60	dBc	20 ~ 500 MHz
Input Return Loss	-	-20	-10	dB	-
Supply Voltage	32	-	-	V	$V_{CC} (=V_{ds})$
Quiescent Current Consumption	-	1.9	2.2	A	-
Current Consumption @ Pin 0dBm	-	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 : 300ms delay

## Solid State Broadband High Power Amplifier

### 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
Input RF Power	3	dBm
Supply Voltage	35	V
Load Mismatch Value	3 : 1 @ all load phase	-

\* Input Signal Condition : CW 1-tone

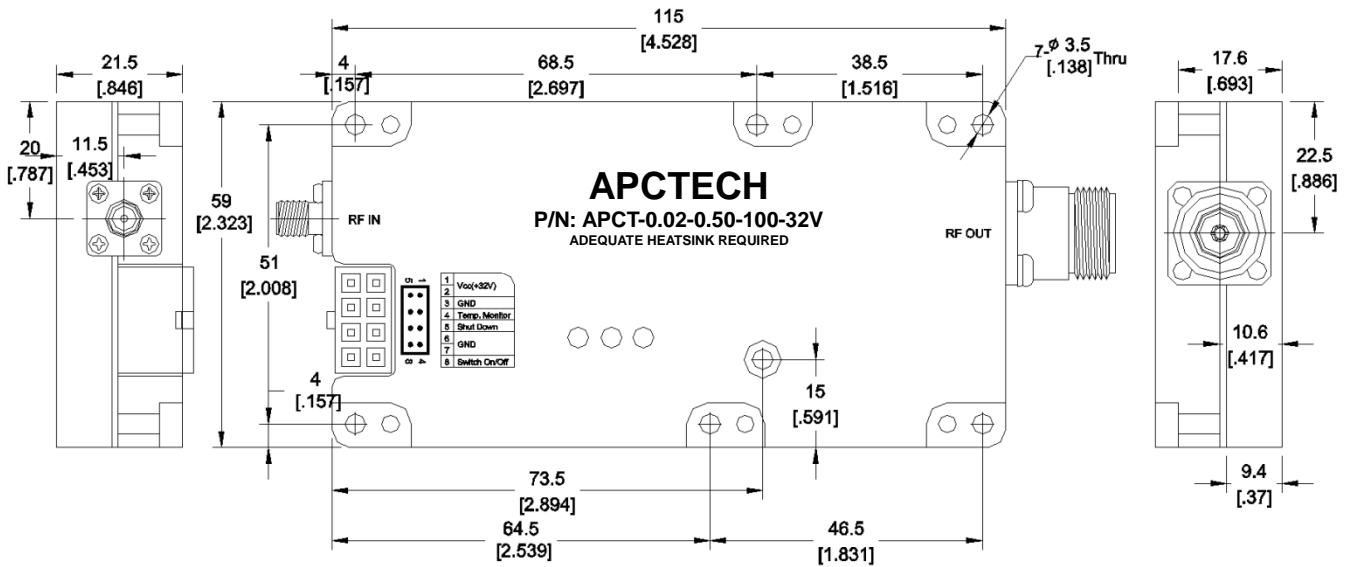
### Environmental Characteristics

Parameter	Symbol	Min	Typ	Max	Unit
Operating Case Temperature	T <sub>c</sub>	-20	-	80	°C
Operating Ambient Temperature	T <sub>amb</sub>	-40	-	60	°C
Storage Temperature	T <sub>stg</sub>	-50	-	110	°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 <sub>cc</sub>	+32VDC
2	V <sub>cc</sub>	+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-0.02-0.50-100-32V	20-500MHz 100W GaN Solid State Broadband High Power Amplifier	Each
SMH420-08	Interface Connector Housing with Cables	Each

## Datasheet Revision Information

Part Number	Version	Release Date	Modification	Status
APCT-0.02-0.50-100-32V	0.9	2016.May.3		Preliminary
-	0.91	2016.May.18	Modified Outline Drawing	-
-	1.0	2016.August.8	Modified Harmonic	-
-	1.1	2017.March.2	Environmental Characteristics, Product Ordering Information	In production

## Important Notice

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