



# Solid State Broadband High Power Amplifier

**APCT-0.02-1.0-50-32V**

**20 – 1000 MHz / 50 Watts**

Model APCT-0.02-1.0-50-32V is a gallium-nitride (GaN) solid state broadband high power amplifier designed to provide 50 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	-	1000	MHz	-
Power Gain @ Pin 12dBm	46	48	-	dB	20 ~ 1000 MHz
Power Gain Flatness @ Pin 12dBm	-	$\pm 1.0$	$\pm 2.0$	dBpp	20 ~ 1000 MHz
Output Power @ Pin 12dBm	48	50		dBm	20 ~ 1000 MHz
Input Return Loss	-	-10	-5	dB	-
Supply Voltage	31.5	32	-	V	$V_{CC}(=V_{ds})$
Quiescent Current Consumption	-	1.5	2.0	A	-
Current Consumption @ Pin 12dBm	-	6.0	10	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

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### Mechanical Specifications

Parameter	Value	Unit
Dimension	100(L) x 75(W) x 21.6(H)	mm
RF Connectors	RF Input : SMA Female	-
	RF Output : SMA Female	-
DC Connector	SMW420-08P	-
Cooling	Adequate Heatsink Required (Not Supplied)	-

### Absolute Maximum Ratings

Parameter	Specifications	Unit
Input RF Power	13	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>	-10	-	80	°C
Storage Temperature	T <sub>stg</sub>	-40	-	105	°C
Vibration	VI	MIL-STD-810G Method 514.6 ANNEX C			

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## Outline Drawing

Unit: mm[inch] | Tolerance:  $\pm 0.2[.008]$

TBD

## 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

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



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## Product Ordering Information

Order Number	Description	Unit of Measure
APCT-0.02-1.0-50-32V	20-1000MHz 50W GaN-on-SiC Broadband High Power Amplifier	Each

## Datasheet Revision Information

Part Number	Version	Release Date	Modification	Status
APCT-0.02-1.0-50-32V	0.9	2016.Jan.11	-	Preliminary

## Important Notice

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