

Solid State Broadband High Power Amplifier

APCT-0.02-0.52-20-28V
20 – 520 MHz / 20 Watts

Model APCT-0.02-0.52-20-28V is a gallium-nitride (GaN) solid state broadband high power amplifier designed to provide 20 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. 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 @ $V_{CC} = 28V$; $T_C = 45^\circ C$; $Z_S = Z_L = 50\Omega$

Parameter	Min	Typ	Max	Unit	Condition
Operating Frequency	20	-	520	MHz	-
Small Signal Gain	40	43	-	dB	20 ~ 520 MHz
Small Signal Gain Flatness	-	± 1.0	± 1.5	dB _{pp}	20 ~ 520 MHz
P3dB	42	44	-	dBm	20 ~ 520 MHz
OIP3	48	52		dBm	Po=33dBm, Tone Spacing 1MHz
Input Return Loss	-	-15	-10	dB	-
2 nd Harmonic suppression	-	-28	-25	dBc	Po=40dBm, CW 1-tone
Supply Voltage	28	-	-	V	$V_{CC} (=V_{ds})$
	7				V_{DC}
Quiescent Current Consumption	-	1.5	1.7	A mA	$V_{CC}=32V$
	-	20	60		$V_{DC}=7V$
Current Consumption @ P3dB	-	2.0	3.0	A	$V_{CC}=32V$, CW 1-tone
	-	20	60	mA	$V_{DC}=7V$, CW 1-tone
On/Off Switching Time **	-	2	5	uS	On : TTL "Low" (Enable)
					Off : TTL "High" (50mA @ Disable)
Shut Down or Switch On/Off TTL Voltage ***	0	-	0.5	V	Off : TTL "Low" (50mA @ Disable)
					2.5

Note

** Gate On/Off : High speed switching

*** Drain On/Off : 500ms delay

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Mechanical Specifications

Parameter	Value	Unit
Dimension	63(L) x 38(W) x 15.4(H)	mm
RF Connectors	RF Input : SMA Female	-
	RF Output : SMA Female	-
DC Connector	SMW200-08	-
Cooling	Adequate Heatsink Required (Not Supplied)	-

Absolute Maximum Ratings

Parameter	Parameter	Unit
Input RF Power	5	dBm
Supply Voltage	33	V
Load Mismatch Value	3 : 1 @ all load phase	-

* Input Signal Condition : CW 1-tone

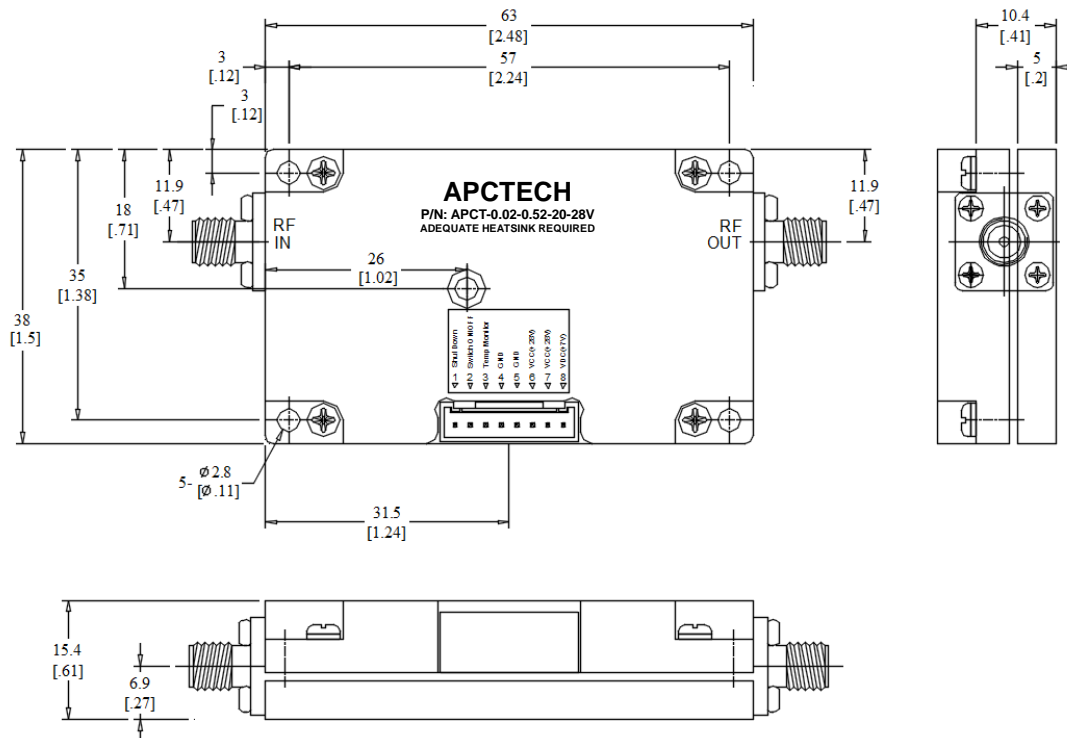
Environmental Characteristics

Parameter	Symbol	Min	Typ	Max	Unit
Operating Case Temperature	T _c	-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			

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Outline Drawing

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



DC Connector Description

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

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

* Recommended Screw Torque : 6.0kgf.cm ± 1 using SEMS M2.6 14mm Bolt



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Product Ordering Information

Order Number	Description	Unit of Measure
APCT-0.02-0.52-20-28V	20-520MHz 20W GaN Solid State Broadband High Power Amplifier	Each
SMH200-08	Interface Connector Housing with Cables	Each

Datasheet Revision Information

Part Number	Version	Release Date	Modification	Status
APCT-0.02-0.52-20-28V	1.0	2017.May.6		-

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