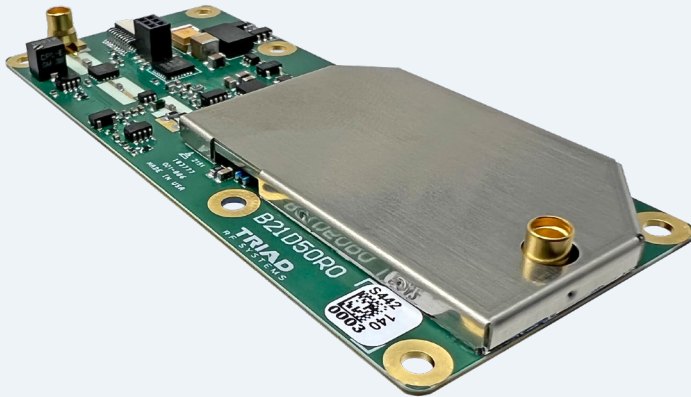




Innovation for Low Earth Orbit

The TA1296 from Triad RF Systems is an S-Band power amplifier circuit card designed for low earth orbit space applications. Built to the stringent requirements of the CubeSat industry, it provides 2.5W of linear output power (3.2W PSat) and is micro-processor controlled. The TA1296 has been engineered to support any signal type, from simple CW/FM signals to complex, highly modulated carriers such as 32APSK.

TA1296

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TA1296 FEATURES

- Forward output power detection
- Phase Noise, Spurious / Harmonic Performance suitable for LEO RF communications links
- Low DC current draw for power sensitive applications
- UART communications for RF output power, DC current draw, and temperature reporting
- UART controllable on/off control and thermal shut-off thresholds



CHARACTERISTICS/SPECIFICATIONS

TX RF Performance Specifications

Parameter	Min.	Typ.	Max	Unit	Notes
Operating Frequency	2000	—	2500	MHz	
P1dB Power Output	—	34	—	dBm	
Psat Power Output	—	35	—	dBm	
Linear Gain	27	—	28.5	dB	
Gain @ Psat	24	—	25.5	dB	
CW Input Power to drive to PSat	—	+12	—	dBm	
Gain Flatness (Peak to Peak)	—	1.5	2	dB	
Temperature dependant gain fluctuation	—	—	1	dB	Gain shall change no more than 1 dB over operating temperature range
Input Return Loss	—	—	-15	dB	
Operating Voltage	4.75	5	5.25	VDC	
Operating Current	—	3.2	4.2	A	@ 5V Input
Quiescent Current (Enabled)	—	1.4	—	A	@ 5V Input
Quiescent Current (Disabled)	—	—	14	mA	@ 5V Input
Maximum Input Power	—	+16	—	dBm	100% Duty Cycle, CW
2nd Harmonic	—	—	-60	dBc	
3rd Harmonic	—	—	-60	dBc	

SSPA On/Off Control

Parameter	Min.	Typ.	Max	Unit	Notes
On/Off Control pin switching PA to Enabled (High)	—	+5	—	VDC	5V TTL Levels
On/Off Control pin switching PA to Disabled (Low)	—	0	—	VDC	5V TTL Levels
Switching Speed	—	—	1	uS	From time of TTL High to RF output

Environmental Specifications

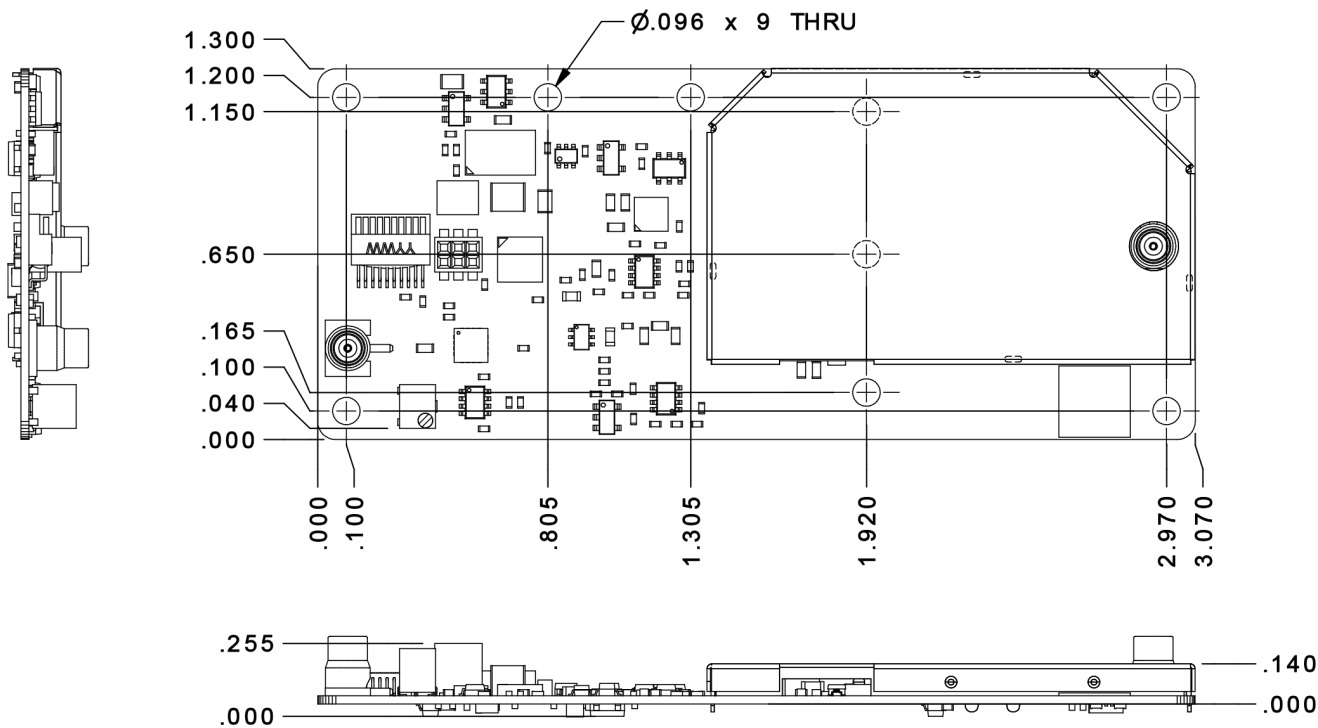
Parameter	Min.	Typ.	Max	Unit	Notes
Operating Temperature	-40	—	+85	°C	
PA Shut-off Temperature	—	+95	—	°C	
Cooling	Baseplate Conduction			—	
Humidity	0	—	95	%	
Shock / Vibration	MIL-STD-810			—	



Mechanical Specifications

Parameter	Value	Unit	Notes
Dimensions	3.075 x 1.305 x 0.15 (78.11 x 33.15 x 3.81)	in (mm)	L x W x H. Height measured from bottom of board to top of shield
RF Connectors - Antenna	MMCX -F	Connector Type	Mating Connector Type: MMCX -M
DC/Control Connector	Omnetics PZN A79643-001	Part Number	Mating Connector PN: Omnetics A79640-001
Mounting	2-56 Through Holes	—	See Mechanical Drawing Below
Weight	0.5 (14.17)	oz (g)	

MECHANICAL DRAWING



DC/CONTROL CONNECTORS

DC Connector
(Omnetics PN: PZN A79643-001)

Pin	Description	Type	I/O	Notes
1	ON/OFF	Input	Input	High = Enabled, Low = Disabled
2	UART	Digital	Output	uP Interface (TX)
3	UART	Digital	Input	uP Interface (RX)
4	GND	Power	Input	Ground
5	GND	Power	Input	Ground
6	GND	Power	Input	Ground
7	GND	Power	Input	Ground
8	GND	Power	Input	Ground
9	GND	Power	Input	Ground
10	GND	Power	Input	Ground
11	+VDC	Power	Input	Supply Voltage
12	+VDC	Power	Input	Supply Voltage
13	+VDC	Power	Input	Supply Voltage
14	+VDC	Power	Input	Supply Voltage
15	+VDC	Power	Input	Supply Voltage
16	+VDC	Power	Input	Supply Voltage
17	+VDC	Power	Input	Supply Voltage
18	+VDC	Power	Input	Supply Voltage
19	GND	Power	Input	Ground
20	GND	Power	Input	Ground

CABLE OPTIONS

For available cable options, please [contact us](#) for inquiries and pricing.

