



Description

The TA4010 Power Amplifier is a class AB GaN module with an operating frequency range of 4400 to 5000 MHz. Designed for both military and commercial applications, this amplifier features an input voltage range of +12 to +32 VDC and a saturated RF output power of +47 dBm. With the capability of supporting any signal type and modulation format, all in a low-SWaP package, this unit is ideal for applications where high power-density, efficiency, and linearity are key.

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Features

- Temperature Monitor Output
- Over-Temperature Protection
- Amplifier Status Output

Applications

- Military or Commercial Radio Systems
- Unmanned Systems
- Vehicle Systems
- Aircraft Systems
- Fixed Site Infrastructure

CHARACTERISTICS & SPECIFICATIONS

Specifications subject to change without notice. Typical performance at 28VDC at 25°C in a 50Ω system.

Tx Specifications (Per Channel)

Parameter	Min.	Typ.	Max	Unit
Operating Frequency	4400	—	5000	MHz
64QAM Power Output 20 MHz BW, -27 dB EVM Limit	40	—	—	dBm
BPSK Power Output 20 MHz BW, -7 dB EVM Limit	46	—	—	dBm
Saturated Power Output CW Sweep at Design Limit	—	47	—	dBm
Small Signal Gain	23	26	—	dB
Small Signal Gain Flatness	—	—	2	dB (peak to peak)
Input Return Loss	—	—	-15	dB
Tx Switching Time	—	1	2	μS

Power Supply Specifications

Parameter	Min.	Typ.	Max	Unit	Notes
Supply Voltage Range	12	28	32	VDC	—
RMS Operating Current Draw (Idle)	—	0.25	—	A	VDC Supply Voltage, Idle in Receive Mode
RMS Operating Current Draw (64QAM Power Output)	—	1.75	—	A	28VDC Supply Voltage, 802.11 WLAN Signal, 50% Duty Cycle
RMS Operating Current Draw (BPSK Power Output)	—	4	—	A	28VDC Supply Voltage, 802.11 WLAN Signal, 50% Duty Cycle

Mechanical Specifications

Parameter	Value	Unit
Dimensions (L x W x H)	5.3 x 3.25 x 0.6 (134.6 x 82.6 x 15.2)	in (mm)
Cooling	Baseplate Conduction	—
Weight	13 (369)	oz (g)

CHARACTERISTICS & SPECIFICATIONS (CONT.)

Specifications subject to change without notice.

Interface Specifications

Parameter	Value	Notes
RF Connectors (Input / Output)	SMA-F / SMA-F	—
Power / Signal Connector	MDM-21SH016P-A174	Connector appearing on unit (Manufacturer P/N)
Mating Connector	M83513/03-C03C	Mating connector required for interfacing (Manufacturer P/N)
Test Integration Cable	CBL58	Triad P/N available for purchase separately

Environmental Specifications

Parameter	Min.	Max	Unit
Operating Temperature (Housing Temp.)	-40	85	°C
Storage Temperature	-55	85	°C
Altitude	0 (0)	30000 (9144)	ft. (m.)
Ingress Protection Rating	IP54		—
Shock / Vibration	Designed to comply with MIL-STD-810 Shock / Vibration Test Methods		—

Protections and Maximum Ratings

Parameter	Value	Unit	Notes
Maximum RF Input (Per Channel)	27	dBm	CW Power
Over Temp Protection Trip Level	85	°C	Internally Monitored System Temperature
RF Output Open Load Survivability	46	dBm	CW with Open Circuit at Antenna Port

DC / CONTROL CONNECTOR

Input and Output Pins

TTRM Connector Part Number			Mating Connector Part Number	
MDM-21SH016P-A174			M83513/03-C03C	
Pin	Label	Type	I/O	Notes
1	Vin	Power	N/A	Supply Voltage
2	Vin	Power	N/A	Supply Voltage
3	Vin	Power	N/A	Supply Voltage
12	Vin	Power	N/A	Supply Voltage
13	Vin	Power	N/A	Supply Voltage
9	GND	Power	N/A	Power Supply Return
10	GND	Power	N/A	Power Supply Return
11	GND	Power	N/A	Power Supply Return
20	GND	Power	N/A	Power Supply Return
21	GND	Power	N/A	Power Supply Return
4	FWD DET	Signal	Output	TX AMP RMS Power Detector
5	TEMP	Signal	Output	Temp Monitor Temp in DegC = (Vout - 0.5V) * 100
6	RAD DET	Signal	Output	Radio Input RMS Power Detector
7	STATUS	Signal	Output	Amplifier Status TTL HIGH = Normal Operation TTL LOW = Error Condition
8	I/O	Signal	Input	TA: TTL High or No Connection = Enable TTL Low = Disable Manual Switching TTRM: TTL High = Tx Amp Enabled TTL Low = Rx Amp Enabled Automatic Switching TTRM: Pin not required. Do not use.
19	SIG GND	Signal	N/A	Signal Ground
14	N/C	N/A	N/A	NO CONNECTION
15	N/C	N/A	N/A	NO CONNECTION
16	N/C	N/A	N/A	NO CONNECTION
17	N/C	N/A	N/A	NO CONNECTION
18	N/C	N/A	N/A	NO CONNECTION

MECHANICAL DRAWING









