

DESCRIPTION

This class AB GaN module is designed for both military and commercial applications. It is capable of supporting any signal type and modulation format, including but not limited to 3-4G telecom, WLAN, OFDM, DVB, and CW/AM/FM. The latest device technologies and design methods are employed to offer high power density, efficiency, and linearity in a small, lightweight package.



FEATURES

- Over / Under / Reverse Voltage Protection
- +9V to +36V Input Voltage Range
- Received Signal Strength Indicator Output
- Manual Gain Control
- Internal Bypass Relay

Specifications subject to change without notice. Typical performance at +12VDC at 25°C in a 50Ω system

Tx SPECIFICATIONS				
PARAMETER	MIN	TYP.	MAX	UNIT
Operating Frequency	1200		1400	MHz
PSat Power Output		+46.0		dBm
Gain	19.0	20.0		dB
Gain Flatness		0.5	0.8	± dB
Input Return Loss	-16	-17		dB
Operating Voltage	+9	+12	+36	VDC
Current Draw		2.0	4.0	A
Tx / Rx Switching Time		1.0	2.0	uS

Rx SPECIFICATIONS				
PARAMETER	MIN	TYP.	MAX	UNIT
P1dB Power Output		+6.0		dBm
Gain		12.0		dB
Gain Flatness		0.3	0.5	± dB
Noise Figure		1.0	1.5	dB
Input Return Loss		-10		dB
Current Draw		0.1	0.2	mA

MECHANICAL		
PARAMETER	VALUE	UNIT
Dimensions (L x W x H)	4.93 x 2.53 x 0.7	in
RF Connectors (Input / Output)	SMA-F / SMA-F	--
DC / Control Connector	15 Pin Micro-D	--
Cooling	Baseplate Conduction - Optional Heatsink Available	--
Mounting	4-40 Thru Holes	--
Weight	4	oz.
Weight With Heatsink	0	oz.

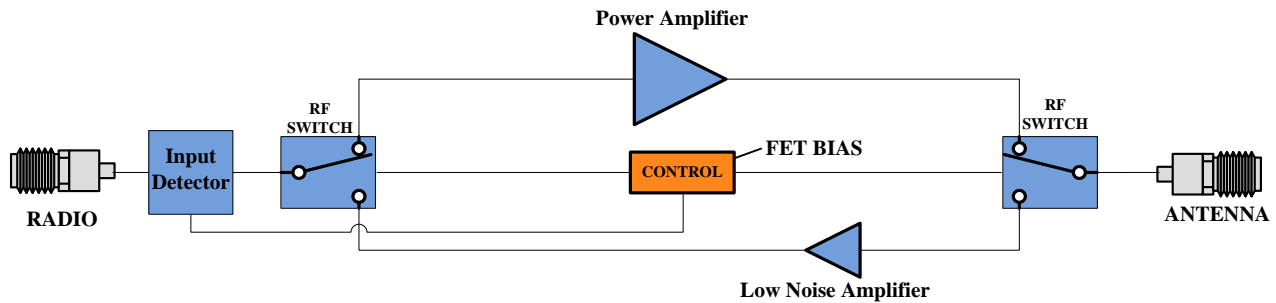
ENVIRONMENTAL / PROTECTIONS			
PARAMETER	MIN	MAX	UNIT
Operating Temp. (Housing Temp.)	-40	+85	°C
Storage Temp Range	-60	+100	°C
Humidity Range	0-100		%
Altitude	0-30,000		ft.
Shock / Vibration	MIL-STD-810 and equivalents		--
Load VSWR @ P1dB	Open / Short Output Protection		--
PA Baseplate Shutoff Temperature	+85		°C

DC / CONTROL PINS		
PIN LABEL	NAME	DESCRIPTION
1,7,9,12	GND	Ground
2,3,10,11	+VDC	Supply Voltage - Range Specified in Datasheet
14	RSSI	Received Signal Strength Indicator
8	SIG GND	RSSI Signal Ground
13	TX/RX	TTL Control Line for Manual TX/RX Control - TTL LOW: RX Mode, TTL HIGH: TX Mode
4	CTL1	Power level control line 1
6	CTL2	Power level control line 2

802-11G (20 MHz BW) DATA RATE VS. OUTPUT POWER			
OFDM MODULATION	DATA RATE	POUT (W) MIN.	EVM
64QAM	54 Mbps	10	≤ -27 dB
16QAM	36 Mbps	17	≤ -21 dB
QPSK	12 Mbps	20	≤ -15 dB
BPSK	9 Mbps	32	≤ -7 dB

See our [application note](#) that describes how this table was calculated and provides notes on in-system performance

High-Level Block Diagram



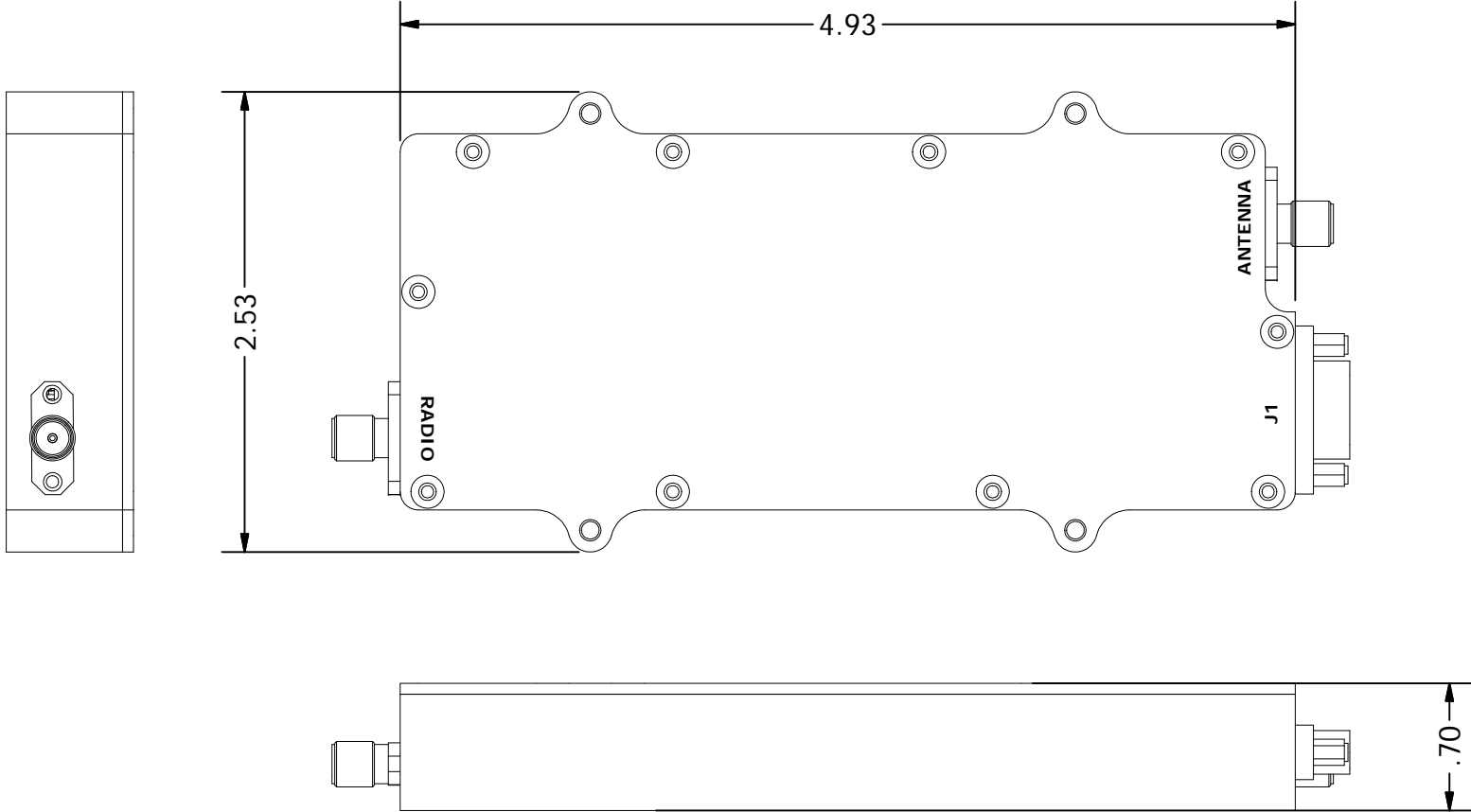
Ordering Guide – Configuration Information		
Model Number	Amplifier Option	Heat Sink Option
TTRMXXXX	- XXX	- XXX

Amplifier Options		Heat Sink Options	
Suffix	Description	Suffix	Description
D01	Automatic Tx/Rx Switching	(none)	No Heat Sink Included
D02	Manual Tx/Rx Switching	HS	Standard Heat Sink
DXX	Custom Amplifier Configuration (issued by Triad upon customer request)	HSF	Heat Sink with Integrated Cooling Fan
		HSX	Custom Heat Sink Configuration

MATERIAL: ALLOY 6061

FINISH: NONE

REVISIONS			
REV	DESCRIPTION	DATE	APPROVED
0	INITIAL RELEASE	8/24/15	DH

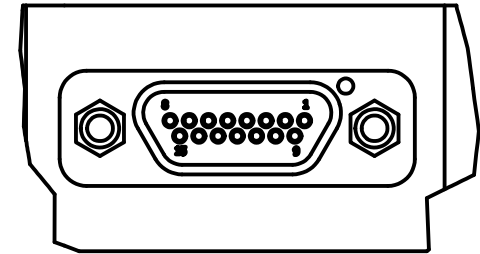
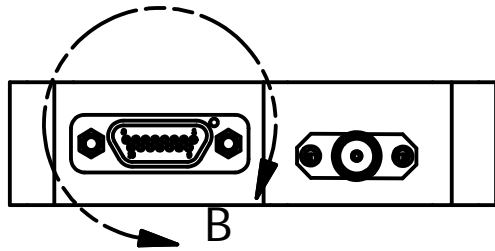


DRAWN	Dean	9/24/2015
DESIGNED	DMC	8/2/2016
CHECKED		
ENG APPROVED		
MFG APPROVED		

TRIAD
RF SYSTEMS

180 TICES LANE
BUILDING A, SUITE 107
EAST BRUNSWICK, NJ 08816
855-558-1001

DIMENSIONS ARE IN INCHES UNLESS SPECIFIED OTHERWISE		SIZE A	DWG NO. TTRM1116	REV
DECIMALS .XX ± .01 .XXX ± .005	FRACTIONS ± 1/32	ANGLES ± 2°	SCALE: NONE	CAGE CODE 67DZ3
			SHEET 1 OF 2	



DETAIL B
SCALE 2 : 1

TTRM1104 PINOUT		
PIN #	LABEL	FUNCTION
2,3,10,11	+VDC	SUPPLY VOLTAGE
1,7,9,12	GND	GROUND
14	RSSI	RSSI VOLTAGE OUTPUT
8	SIG GND	RSSI VOLTAGE GROUND
13	TX/RX	TTL CONTROL LINE FOR MANUAL TX/RX CONTROL TTL LO - RECIEVE MODE / TTL HI - TRANSMIT MODE
4	CTL1	POWER LEVEL CONTROL LINE 1
6	CTL2	POWER LEVEL CONTROL LINE 2

POWER LEVEL CONTROL LINE TRUTH TABLE		
CTL1 TTL LEVEL	CTL2 TTL LEVEL	STATE
LOW	LOW	AMPLIFIER BYPASS
LOW	HIGH	2W RF OUTPUT SETTING (7 dB ATTENUATION)
HIGH	LOW	5W RF OUTPUT SETTING (4 dB ATTENUATION)
HIGH	HIGH	10W RF OUTPUT SETTING (0 dB ATTENUATION)

CONNECTOR ON AMPLIFIER:
NORCOMP P/N 380-015-213L001
(TRIAD P/N 400-084)

MATING CABLE REQUIRED:
ITT CANNON P/N M83513-03-B03C
(TRIAD P/N 400-070)

EQUIVALENT CONNECTOR FROM
ALTERNATE MANUFACTURERS MAY BE
USED - CONTACT TRIAD FOR APPROVAL

DRAWN	Dean	9/24/2015			
DESIGNED	DMC	8/2/2016			
CHECKED			SIZE	DWG NO.	REV
ENG APPROVED			A	TTRM1116	
MFG APPROVED			SCALE: NONE	CAGE CODE 67DZ3	SHEET 2 OF 2