

DESCRIPTION

This class AB LDMOS 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

Manual Tx/Rx Switching (TTL)

Manual Gain Control

Received Signal Strength Indicator Output

Auto Tx/Rx Switching (RF Detect)

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	2200		2500	MHz
PSat Power Output		+41.0		dBm
Gain		20.0		dB
Gain Flatness		0.5	1.0	± dB
Input Return Loss		-14		dB
Operating Voltage	+11	+12	+14	VDC
Current Draw		1.9	2.3	A
Tx / Rx Switching Time		1.0	2.0	uS

Rx SPECIFICATIONS				
PARAMETER	MIN	TYP.	MAX	UNIT
P1dB Power Output		+15.0		dBm
Gain		11.0		dB
Gain Flatness		0.5	0.8	± dB
Noise Figure		1.8	2.2	dB
OIP3		+33.0		dBm
Input Return Loss	-11			dB
Current Draw		70.0		mA

MECHANICAL		
PARAMETER	VALUE	UNIT
Dimensions (L x W x H)	2.69 x 3.73 x 0.65	in
RF Connectors (Input / Output)	SMA-F / SMA-F	--
DC / Control Connector	15 Pin Micro-D	--
Cooling	Baseplate Conduction - Optional Heatsink Available	--
Mounting	#4 Through-Holes	--
Weight	5	oz.
Weight With Heatsink	10	oz.

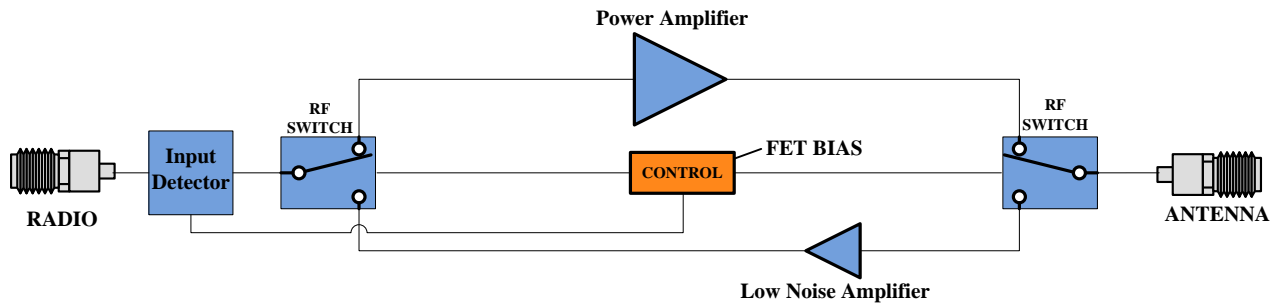
ENVIRONMENTAL / PROTECTIONS			
PARAMETER	MIN	MAX	UNIT
Operating Temperature (Housing Temp.)	-40	+85	°C
Humidity Range	0-100		%
Altitude	0-30,000		ft.
Shock / Vibration	MIL-STD-810 and equivalents		--
Max RF Input	24		dBm
PA Baseplate Shutoff Temperature	+85		°C

INPUT/OUTPUT PINS				
AMPLIFIER CONNECTOR TYPE:		15 PIN MICRO-D FEMALE		
TRIAD CABLE PART NUMBER:		CBL31		
PIN LABEL	NAME	DESCRIPTION	TYPE	LEVEL
1,2,3,9,10	+VDC	Supply Voltage - Range Specified in Datasheet	Power	--
4,5,6,11,12	GND	Ground	Power	--
7	RSSI	RSSI Voltage Output	Output	RS-422
8	SGND	Signal Ground for RSSI Vout	Power	--
13	TX/RX	TTL Control Line for Manual Tx/Rx Control - TTL Lo: Receive Mode, TTL Hi: Transmit Mode	Input	--
14	CTL1	Power Level Control Line 1	Input	5V TTL
15	CTL2	Power Level Control Line 2	Input	5V TTL

802-11G (20 MHz BW) DATA RATE VS. OUTPUT POWER			
OFDM MODULATION	DATA RATE	POUT (W) MIN.	EVM
64QAM	54 Mbps	3	≤ -27 dB
16QAM	36 Mbps	6	≤ -21 dB
QPSK	12 Mbps	6	≤ -15 dB
BPSK	9 Mbps	10	≤ -7 dB

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

High-Level Block Diagram

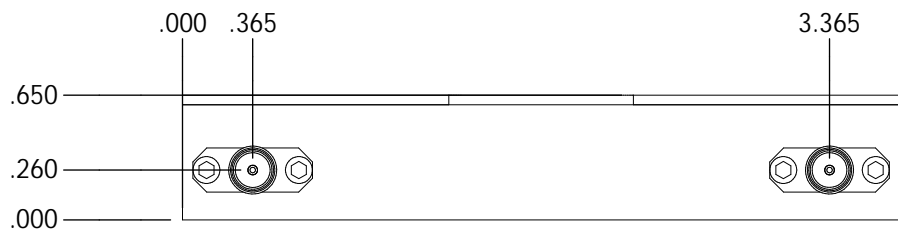
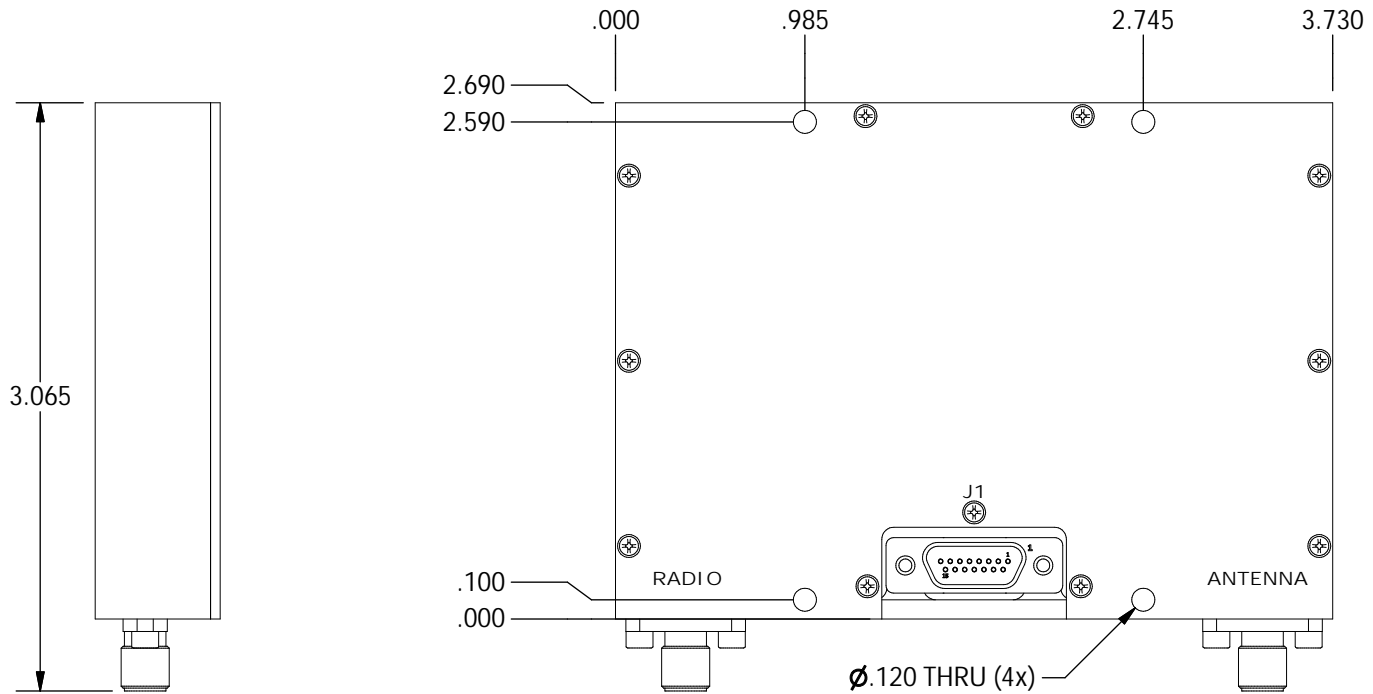


Ordering Guide – Configuration Information		
Model Number	Amplifier Option	Heat Sink Option
TTRMXXXX	- XXX	- XXX

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

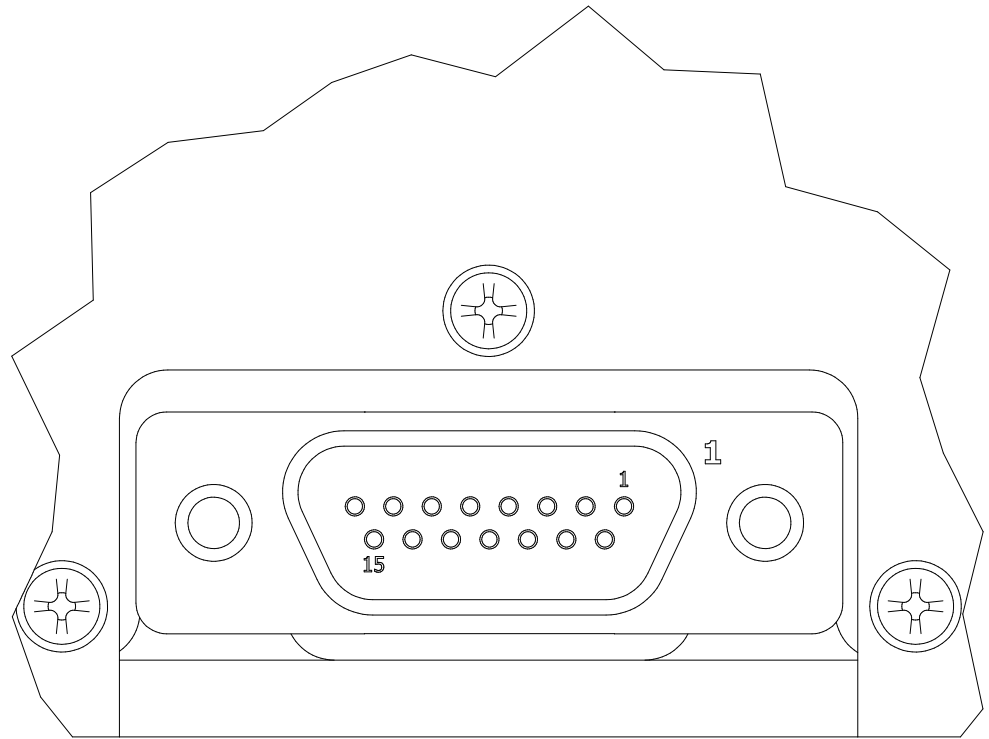
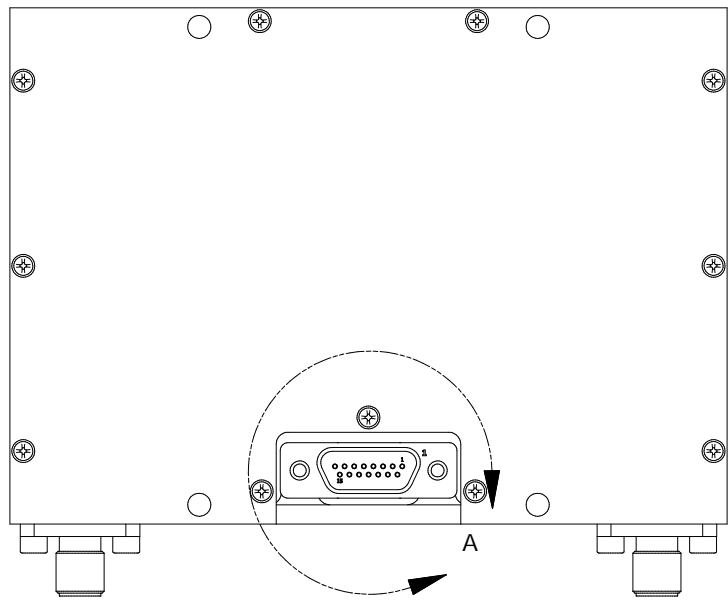


DRAWN	Dean	9/24/2015
DESIGNED	Dean	8/14/2015
CHECKED		
ENG APPROVED		
MFG APPROVED		

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	DWG NO.	REV
DECIMALS	FRACTIONS	ANGLES	A	TTRM1104
XX ± .01	± 1/32	± 2°	SCALE: NONE	CAGE CODE 67DZ3
XXX ± .005			SHEET 1 OF 3	



DETAIL A
SCALE 4 : 1

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)

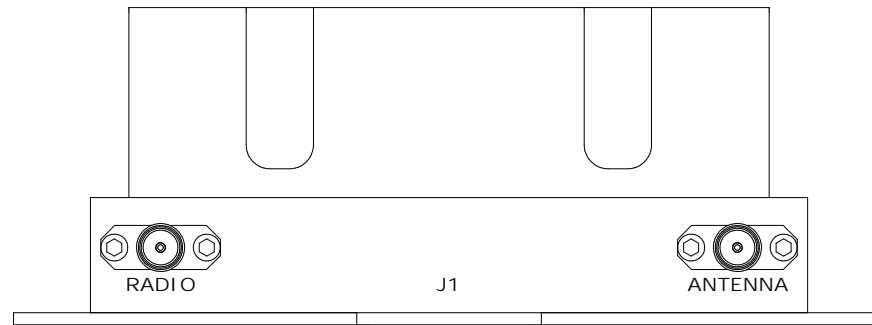
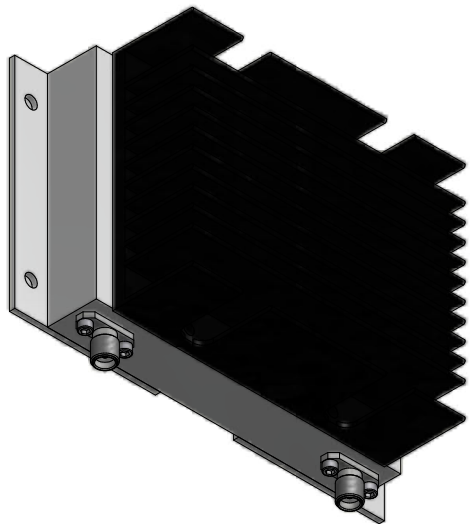
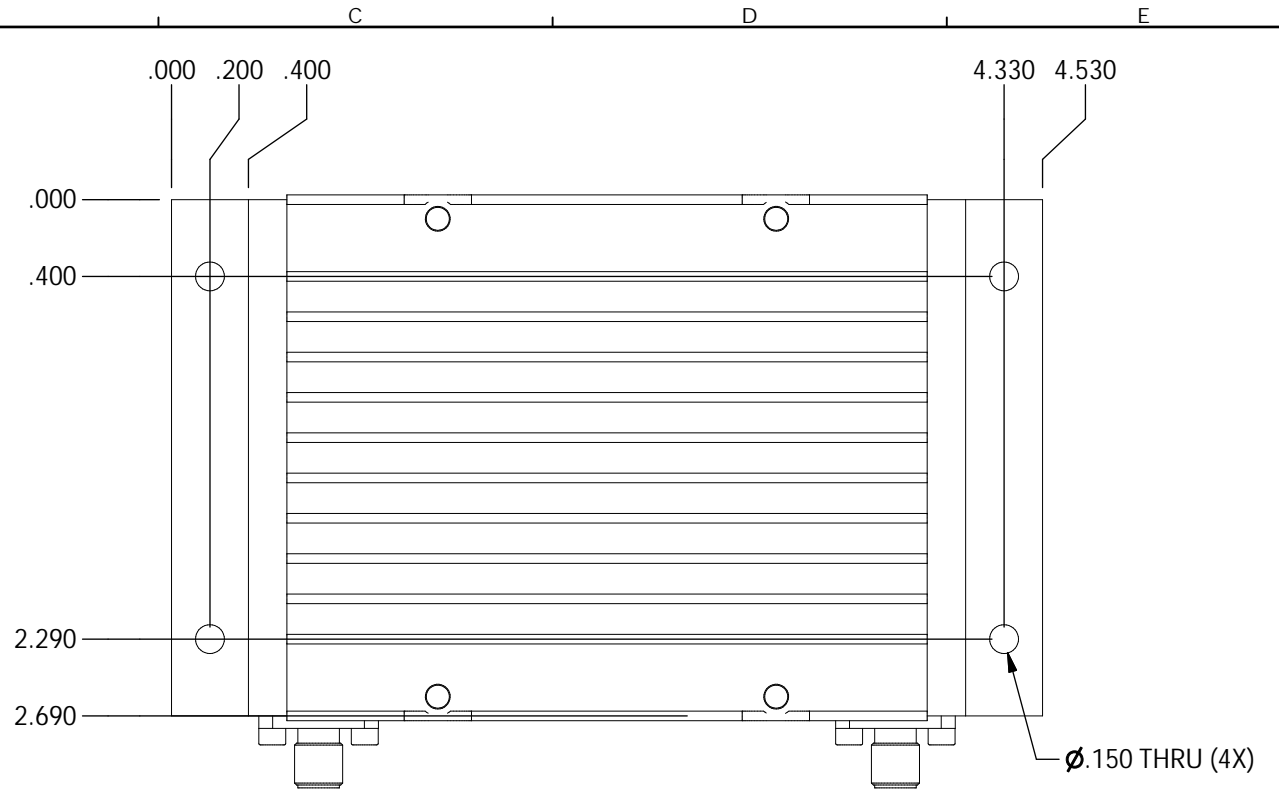
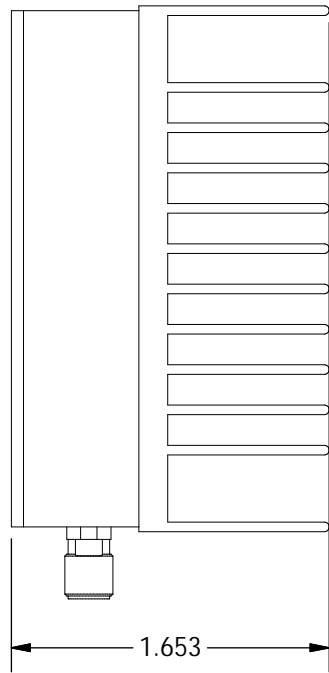
EQUIVALENT CONNECTOR FROM
ALTERNATE MANUFACTURERS MAY BE
USED - CONTACT TRIAD FOR APPROVAL

TTRM1104 PINOUT		
PIN #	LABEL	FUNCTION
1,2,3,9,10	+VDC	SUPPLY VOLTAGE
4,5,6,11,12	GND	GROUND
7	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
14	CTL1	POWER LEVEL CONTROL LINE 1
15	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	1W RF OUTPUT SETTING (7 dB ATTENUATION)
HIGH	LOW	2W RF OUTPUT SETTING (4 dB ATTENUATION)
HIGH	HIGH	5W RF OUTPUT SETTING (0 dB ATTENUATION)

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CHECKED			SIZE	DWG NO.	REV
ENG APPROVED			A	TTRM1104	
MFG APPROVED			SCALE: NONE	CAGE CODE 67DZ3	SHEET 2 OF 3

OPTIONAL HEATSINK



DRAWN	Dean	9/24/2015			
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CHECKED			SIZE	DWG NO.	REV
ENG APPROVED			A	TTRM1104	
MFG APPROVED			SCALE: NONE	CAGE CODE 67DZ3	SHEET 3 OF 3

