

DESCRIPTION

This class A 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

Optional Heatsink

High Speed Tx/Rx Switching Control

Manual or Automatic Tx/Rx Switching Available

Temp. Monitor Output

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	400		450	MHz
PSat Power Output		+46.0		dBm
Gain	27.0	28.0		dB
Gain Flatness		1.0		± dB
Input Return Loss	-16	-18		dB
Operating Voltage	+11	+12	+13	VDC
Current Draw		8.0	10.0	A
Tx / Rx Switching Time		2.0	3.0	uS

Rx SPECIFICATIONS				
PARAMETER	MIN	TYP.	MAX	UNIT
P1dB Power Output		+5.0		dBm
Gain		17.0		dB
Gain Flatness		1.0		± dB
Noise Figure		2.5	4.0	dB
OIP3		+15.0		dBm
Input Return Loss	-12	-14		dB
Current Draw		200.0	450.0	mA

MECHANICAL		
PARAMETER	VALUE	UNIT
Dimensions (L x W x H)	5.3 x 3.25 x 0.8	in
RF Connectors (Input / Output)	SMA-F / SMA-F	--
DC / Control Connector	15 Pin Micro-D	--
Cooling	Baseplate Conduction - Optional Heatsink Available	--
Mounting	M4 x 0.7 -6H (4X)	--
Weight	19	oz.
Weight With Heatsink	41	oz.

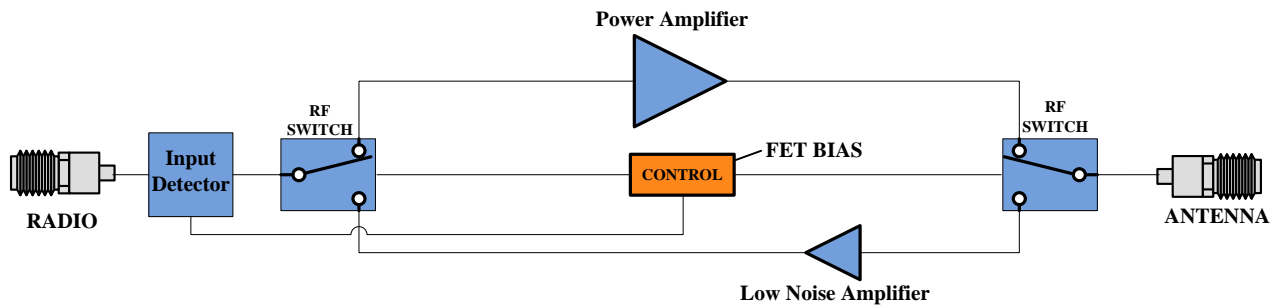
ENVIRONMENTAL / PROTECTIONS			
PARAMETER	MIN	MAX	UNIT
Operating Temperature (Housing Temp.)	-40	+85	°C
Humidity Range	0-100		%
Altitude	0-30,000		ft.
Shock / Vibration	MIL-STD-810 and equivalents		--
Max RF Input	19		dBm
PA Baseplate Shutoff Temperature	+90		°C

INPUT/OUTPUT PINS				
AMPLIFIER CONNECTOR TYPE:		15 PIN MICRO-D FEMALE		
TRIAD CABLE PART NUMBER:		CBL44		
PIN LABEL	NAME	DESCRIPTION	TYPE	LEVEL
1-4	+VDC	Supply Voltage - Range Specified in Datasheet	Power	--
5	Sig. GND	Return for all Signal and CTRL Pins	--	--
7	Status	TTL Lo = Internal Fault	Output	3.3V TTL
8	TEMP	Temp Monitor: Temp in DegC = (Vout - 0.5V) *100	Output	Analog
9-12	GND	+VDC Supply Return	Power	--
6, 13-14	N/C	No Connection	--	--
15	TX/RX CTRL	Hi = TX, Lo = RX	Input	3.3V TTL

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	16	≤ -21 dB
QPSK	12 Mbps	25	≤ -15 dB
BPSK	9 Mbps	40	≤ -7 dB

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

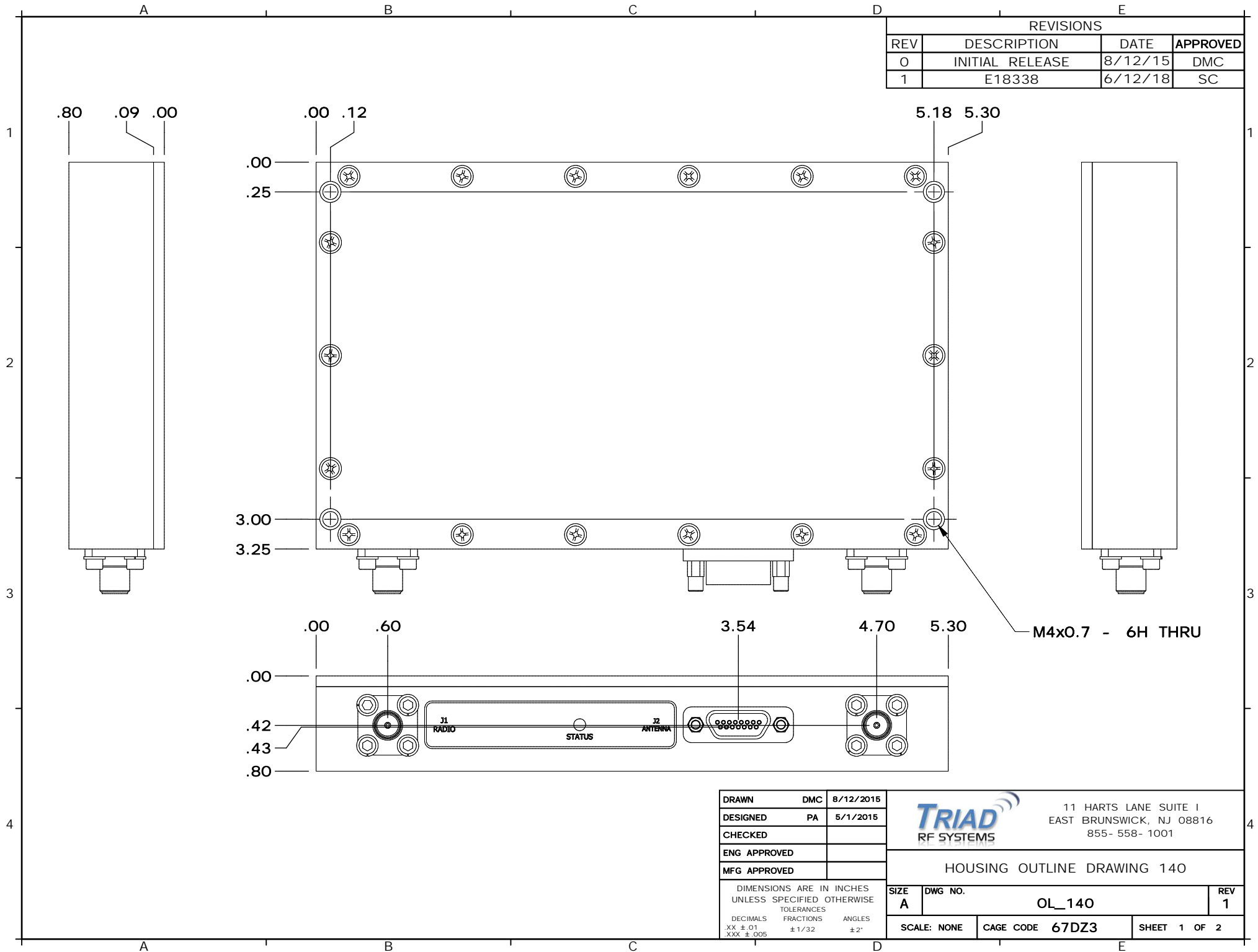
High-Level Block Diagram



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

REVISIONS			
REV	DESCRIPTION	DATE	APPROVED
0	INITIAL RELEASE	8/12/15	DMC
1	E18338	6/12/18	SC



DRAWN	DMC	8/12/2015
DESIGNED	PA	5/1/2015
CHECKED		
ENG APPROVED		
MFG APPROVED		



11 HARTS LANE SUITE 1
EAST BRUNSWICK, NJ 08816
855- 558- 1001

HOUSING OUTLINE DRAWING 140

DIMENSIONS ARE IN INCHES UNLESS SPECIFIED OTHERWISE TOLERANCES			SIZE	DWG NO.	REV
DECIMALS	FRACTIONS	ANGLES	A	OL_140	1
XX ±.01	± 1/32	± 2°	SCALE: NONE	CAGE CODE 67DZ3	SHEET 1 OF 2
.XXX ±.005					

A

B

C

D

E

HEATSINK

3.39

.89

.09

.00

.00 .20

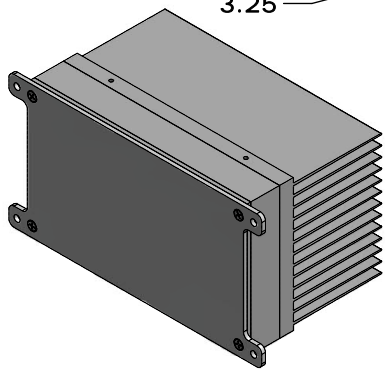
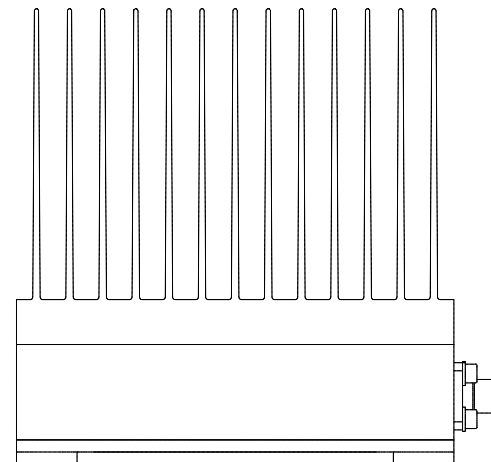
.00

.23

6.00 6.20

3.03

3.25



DRAWN	DMC	8/12/2015	HOUSING OUTLINE DRAWING 140		
DESIGNED	PA	5/1/2015	SIZE	DWG NO.	REV
CHECKED			A	OL_140	1
ENG APPROVED			SCALE: NONE	CAGE CODE 67DZ3	SHEET 2 OF 2
MFG APPROVED					

A

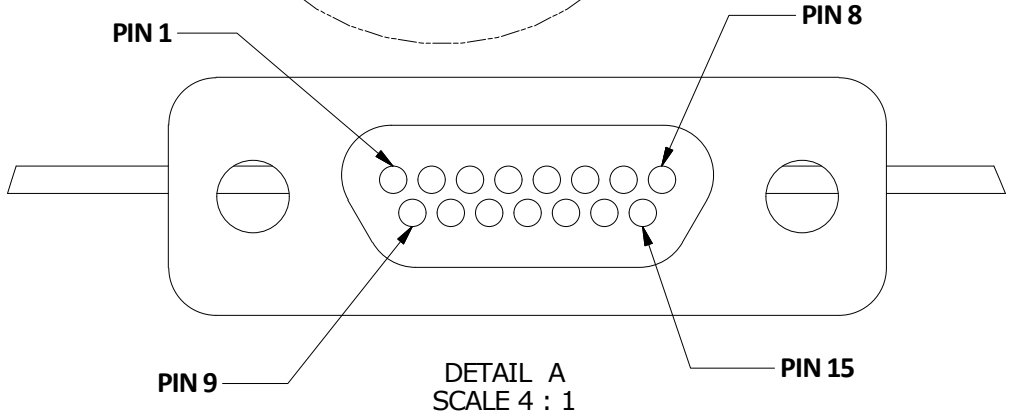
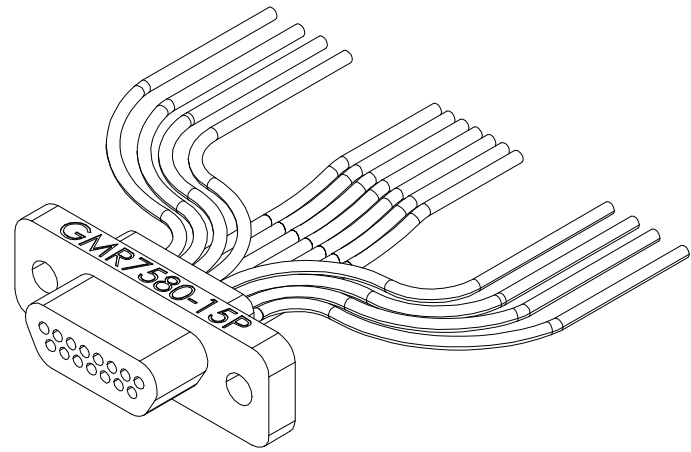
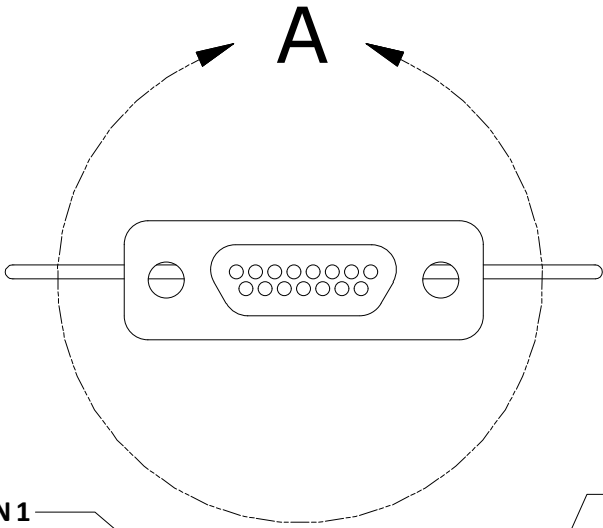
B

C

D

E

REVISIONS			
REV	DESCRIPTION	DATE	APPROVED



CONNECTOR PINOUT				
PIN	FUNCTION	LENGTH	AWG	COLOR
1	+VDC	24"	24	BLACK
2	+VDC	24"	24	BROWN
3	+VDC	24"	24	RED
4	+VDC	24"	24	ORANGE
5	SIG. GND	24"	24	YELLOW
6	N/C	24"	24	N/A
7	STATUS	24"	24	BLUE
8	TEMP	24"	24	PURPLE
9	GND	24"	24	GRAY
10	GND	24"	24	WHITE
11	GND	24"	24	WHITE/ BLACK
12	GND	24"	24	WHITE/ BROWN
13	N/C	24"	24	N/A
14	N/C	24"	24	N/A
15	Tx/Rx	24"	24	WHITE/ YELLOW

PARTS LIST					
PART	DESCRIPTION	MANUFACTURER	MANU. PART NO	DISTRIBUTOR	DIST. PART NO.
1	15 Pin Micro D Sub Male	ITT Cannon	MDM-15PH006B-F222	Digi- Key	1003-2406-ND

DRAWN	Stephen	1/15/2015
DESIGNED	scoppi	1/15/2015
CHECKED		
ENG. APPROVED		
MFG. APPROVED		

TRIAD RF SYSTEMS
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 855-558-1001

DIMENSIONS ARE IN INCHES UNLESS SPECIFIED OTHERWISE		Cable Mate, 15 Pin Micro D Sub	
SIZE	DWG NO.	REV	
A	CBL44		
SCALE: NONE	CAGE CODE 67DZ3	SHEET 1 OF 2	

DECIMALS .XX ± .01
 FRACTIONS ± 1/32
 ANGLES ± 2°