Description

The TTRM1115-D01 SISO Bi-Directional Amplifier is a class AB GaN module with an operating frequency range of 2400 to 2500 MHz. Designed for both military and commercial applications, this amplifier features an input voltage range of +10 to +14 VDC and a saturated RF output power of +43 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.

TTRM1115-D01

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Features

- Automatic Tx/Rx Switching
- Tx Gain Control
- RSSI Indicator
- Amplifier Bypass

Applications

- Unmanned Systems
- Military or Commercial Radio Systems
- Aircraft Systems
- Military MANET
- Long Distance High Data Rate ISR Links

CHARACTERISTICS & SPECIFICATIONS

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

Tx Specifications (Per Channel)

Parameter	Min.	Typ.	Max	Unit
Operating Frequency	2400	—	2500	MHz
64QAM Power Output 20 MHz BW, -27 dB EVM Limit	37	—	—	dBm
BPSK Power Output 20 MHz BW, -7 dB EVM Limit	43	—	—	dBm
Saturated Power Output CW Sweep at Design Limit	—	43	—	dBm
Small Signal Gain	20	23	—	dB
Small Signal Gain Flatness	—	—	1	dB (peak to peak)
Input Return Loss	—	—	-16	dB
Tx / Rx Switching Time	—	1	2	µS

Rx Specifications (Per Channel)

Parameter	Min.	Typ.	Max	Unit
Small Signal Gain	11	13	—	dB
Small Signal Gain Flatness	—	—	1.5	dB (Peak to Peak)
Noise Figure	—	1	1.5	dB
Input Return Loss	—	—	-10	dB

Power Supply Specifications

Parameter	Min.	Typ.	Max	Unit	Notes
Supply Voltage Range	10	12	14	VDC	—
RMS Operating Current Draw (Idle)	—	—	0.45	A	12VDC Supply Voltage, Idle in Receive Mode
RMS Operating Current Draw (64QAM Power Output)	—	—	1.45	A	12VDC Supply Voltage, 802.11 WLAN Signal
RMS Operating Current Draw (BPSK Power Output)	—	—	2.6	A	12VDC Supply Voltage, 802.11 WLAN Signal

CHARACTERISTICS & SPECIFICATIONS (CONT.)

Specifications subject to change without notice.

Mechanical Specifications

Parameter	Value	Unit	Notes
Dimensions (L x W x H)	5.91 x 2.76 x 0.71 (150.1 x 70.1 x 18)	in (mm)	—
Cooling	Baseplate Conduction	—	—
Weight	3.1 (88)	oz (g)	—

Interface Specifications

Parameter	Value	Notes
RF Connectors (Input / Output)	SMA-F / SMA-F	—
Power / Signal Connector	380-015-213L001	Connector appearing on unit (Manufacturer P/N)
Mating Connector	M83513/03-B03C	Mating connector required for interfacing (Manufacturer P/N)
Test Integration Cable	CBL31	Triad P/N available for purchase separately

Environmental Specifications

Parameter	Min.	Max	Unit
Operating Temperature (Housing Temp.)	-40	85	°C
Storage Temperature	-60	100	°C
Altitude	0 (0)	30000 (9144)	ft. (m.)
Ingress Protection Rating	IP50		—
Shock / Vibration	Designed to comply with MIL-STD-810 Shock/Vibration Test Methods		—

Protections & Maximum Ratings

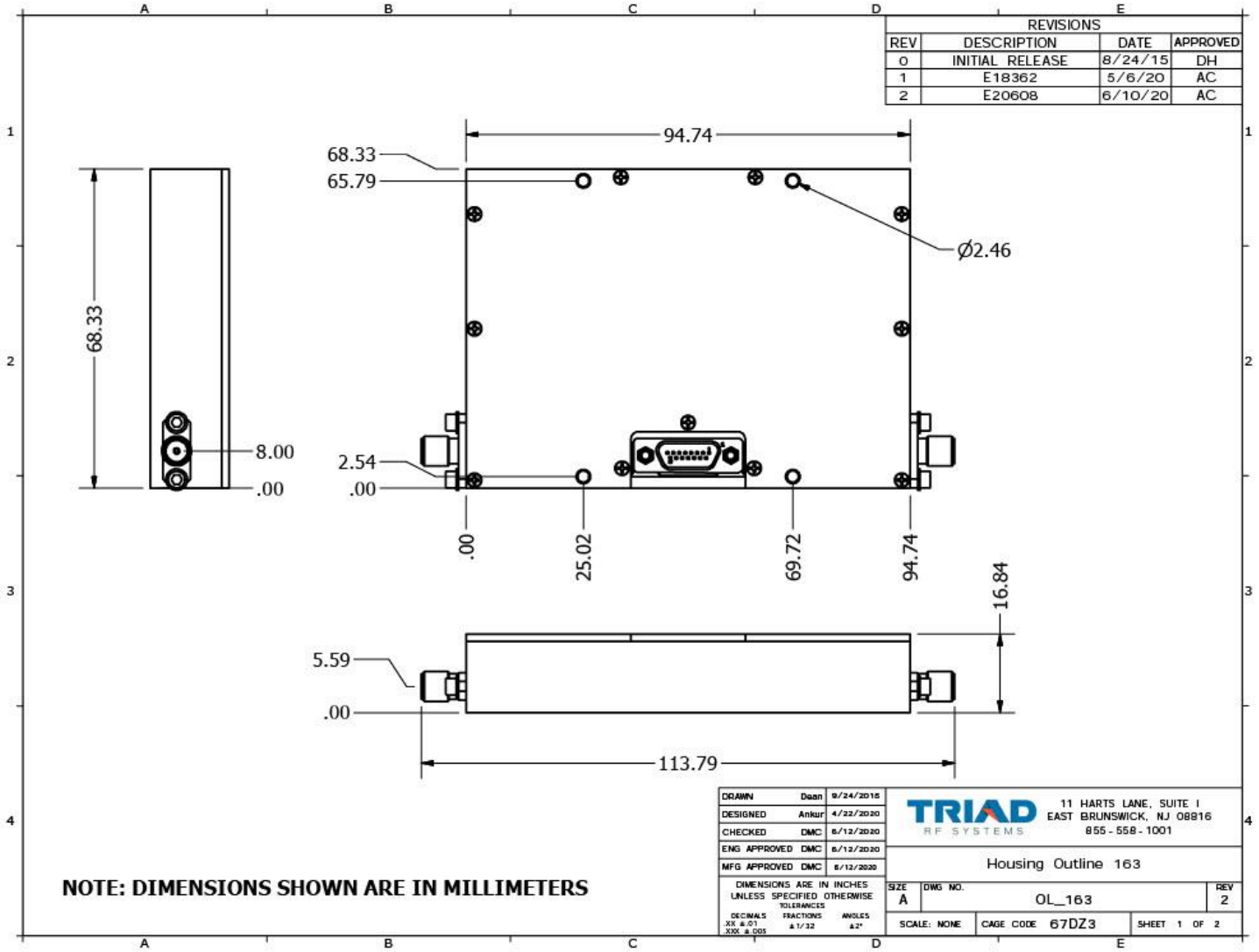
Parameter	Value	Unit	Notes
Maximum RF Input (Per Channel)	20	dBm	CW Power
Over Temp Protection Trip Level	90	°C	Internally Monitored System Temperature
RF Output Open Load Survivability	41	dBm	CW with Open Circuit at Antenna Port

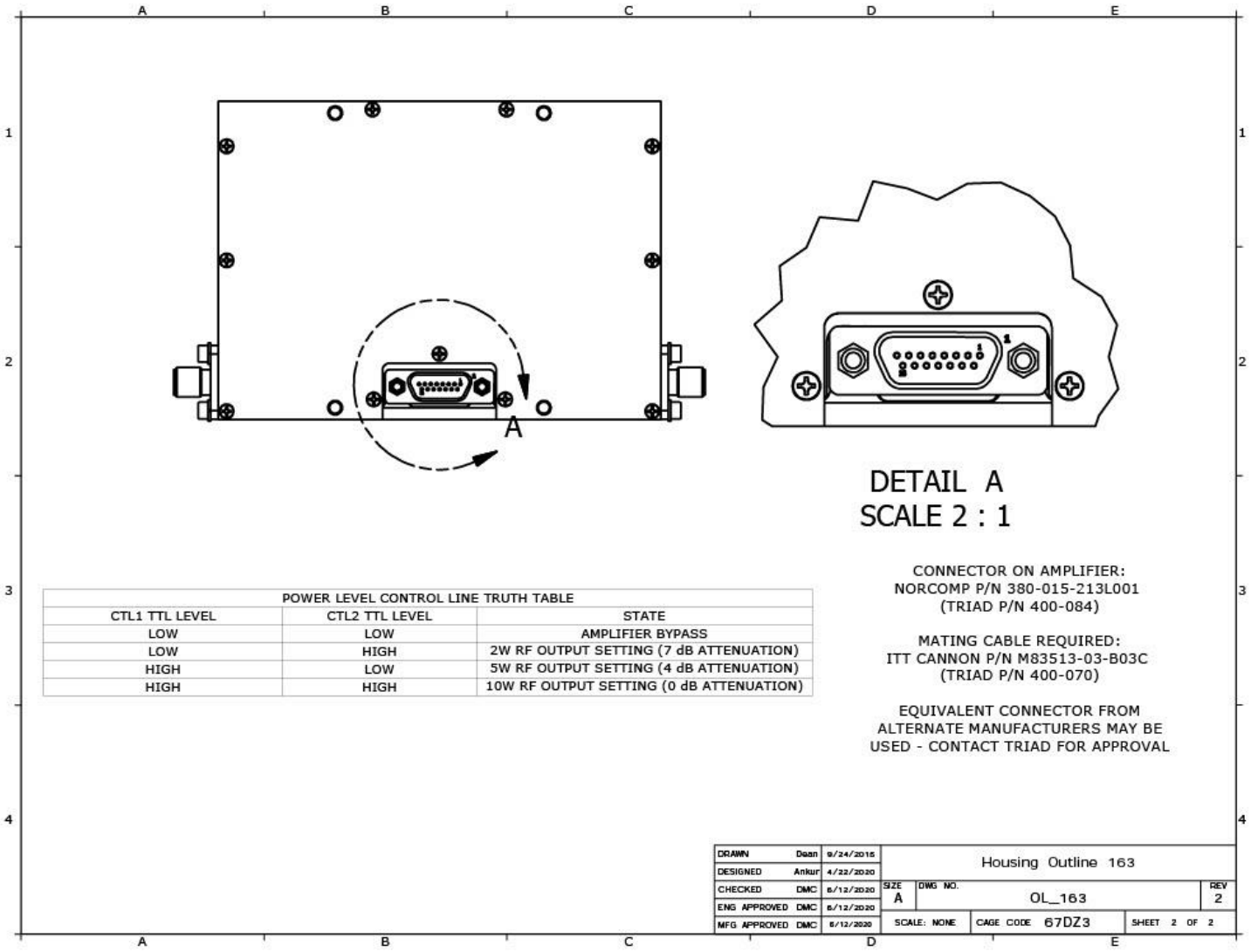
DC / CONTROL CONNECTORS

Input / Output Pins

TTRM Connector Part Number			Mating Connector Part Number	
380-015-213L001			M83513/03-B03C	
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
9	Vin	Power	N/A	Supply Voltage
10	Vin	Power	N/A	Supply Voltage
4	GND	Power	N/A	Power Supply Return
5	GND	Power	N/A	Power Supply Return
6	GND	Power	N/A	Power Supply Return
11	GND	Power	N/A	Power Supply Return
12	GND	Power	N/A	Power Supply Return
7	REV	Signal	Output	RSSI Voltage Output
8	SGND	Signal	N/A	Signal Ground for RSSI Vout
13	Tx/Rx	Signal	Input	**Manual Switching TTRM:** TTL High = Tx Amp Enabled TTL Low = Rx Amp Enabled **Auto Switching TTRM:** Pin not required. Do not use.
14	CTL1	Signal	Input	TTL High = 7dB GAIN Attenuation TTL Low = No GAIN Attenuation CTL1 + CTL2 TTL High = No Attenuation
15	CTL2	Signal	Input	TTL High = 3dB GAIN Attenuation TTL Low = No GAIN Attenuation CTL1 + CTL2 TTL High = No Attenuation

MECHANICAL DRAWING





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	Ankur	4/22/2020
CHECKED	DMC	5/12/2020
ENG APPROVED	DMC	5/12/2020
MFG APPROVED	DMC	5/12/2020

Housing Outline 163

SIZE	DWG NO.	REV
A	OL_163	2

SCALE: NONE | CAGE CODE 67DZ3 | SHEET 2 OF 2