



Description

The TTRM1117-D02 SISO Bi-Directional Amplifier is a class AB GaN module with an operating frequency range of 1250 to 1350 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 +42 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 essential.

TTRM1117-D02

TABLE OF CONTENTS

- Product Features and Applications
- Characteristics and Specifications
- Power Supply Specifications
- Mechanical Specifications
- Interface Specifications
- Environmental Specifications
- Protections and Maximum Ratings
- DC/Control Connectors
- Mechanical Drawing

Features

- Under Voltage Protection
- Tx Gain Control
- RSSI Indicator

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	1250	—	1350	MHz
64QAM Power Output 20 MHz BW, -27 dB EVM Limit	37	—	—	dBm
BPSK Power Output 20 MHz BW, -7 dB EVM Limit	42	—	—	dBm
Saturated Power Output CW Sweep at Design Limit	—	42	—	dBm
Small Signal Gain	21	23	—	dB
Small Signal Gain Flatness	—	—	1.5	dB (peak to peak)
Input Return Loss	—	—	-10	dB
Tx / Rx Switching Time	—	1	2	μS

Rx Specifications (Per Channel)

Parameter	Min.	Typ.	Max	Unit
Small Signal Gain	2	4	—	dB
Small Signal Gain Flatness	—	—	1	dB (Peak to Peak)
Noise Figure	—	3.5	5	dB
Input Return Loss	—	—	-8	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)	—	—	1.9	A	12VDC Supply Voltage, 802.11 WLAN Signal
RMS Operating Current Draw (BPSK Power Output)	—	—	3.5	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)	5.61 x 2.53 x 0.7 (142.5 x 64.3 x 17.8)	in (mm)	—
Cooling	Baseplate Conduction	—	—
Weight	4 (113)	oz (g)	—

Interface Specifications

Parameter	Value	Notes
RF Connectors (Input / Output)	SMA-F / SMA-F	—
Power / Signal Connector	MDM-15SH034B	Connector appearing on unit (Manufacturer P/N)
Mating Connector	M83513/03-B03C	Mating connector required for interfacing (Manufacturer P/N)
Test Integration Cable	CBL37	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 & Maximum Ratings

Parameter	Value	Unit	Notes
Maximum RF Input (Per Channel)	26	dBm	CW Power
Over Temp Protection Trip Level	85	°C	Internally Monitored System Temperature
RF Output Open Load Survivability	42	dBm	CW with Open Circuit at Antenna Port

DC / CONTROL CONNECTORS

Input / Output Pins

TTRM Connector Part Number			Mating Connector Part Number	
MDM-15SH034B			M83513/03-B03C	
Pin	Label	Type	I/O	Notes
2	Vin	Power	N/A	Supply Voltage
3	Vin	Power	N/A	Supply Voltage
10	Vin	Power	N/A	Supply Voltage
11	Vin	Power	N/A	Supply Voltage
1	GND	Power	N/A	Power Supply Return
7	GND	Power	N/A	Power Supply Return
9	GND	Power	N/A	Power Supply Return
12	GND	Power	N/A	Power Supply Return
4	CTL1	Signal	Input	TTL High = 7dB GAIN Attenuation TTL Low = No GAIN Attenuation CTL1 + CTL2 TTL High = No Attenuation
6	CTL2	Signal	Input	TTL High = 3dB GAIN Attenuation TTL Low = No GAIN Attenuation CTL1 + CTL2 TTL High = No Attenuation
14	RSSI	Signal	Output	RSSI Voltage Output
13	Tx/Rx	Signal	Input	Manual Switching TTRM: TTL High = Tx Amp Enabled TTL Low = Rx Amp Enabled Automatic Switching TTRM: Pin not required. Do not use.
8	SIG GND	Signal	N/A	Signal Ground
5	N/C	N/A	N/A	NO CONNECTION
15	N/C	N/A	N/A	NO CONNECTION

MECHANICAL DRAWING





