

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
Optional Heatsink

High Speed On/Off Control
Temperature Compensation

Specifications subject to change without notice. Typical performance at +20VDC at 25°C in a 50Ω system

| Tx SPECIFICATIONS | | | | |
|------------------------|-------|-------|------|------|
| PARAMETER | MIN | TYP. | MAX | UNIT |
| Operating Frequency | 30 | | 3000 | MHz |
| PSat Power Output | +38.0 | +39.0 | | dBm |
| Gain | 34.0 | 35.0 | | dB |
| Gain Flatness | | 3.0 | 4.0 | ± dB |
| Input Return Loss | -12 | -14 | | dB |
| Operating Voltage | +11 | +20 | +28 | VDC |
| Current Draw | | 1.2 | 1.5 | A |
| Tx / Rx Switching Time | | 1.0 | 2.0 | uS |

| Rx SPECIFICATIONS | | | | |
|-------------------|------|-------|-------|------|
| PARAMETER | MIN | TYP. | MAX | UNIT |
| P1dB Power Output | | +5.0 | | dBm |
| Gain | 16.0 | 20.0 | | dB |
| Gain Flatness | | 2.0 | | ± dB |
| Noise Figure | | 2.0 | 3.0 | dB |
| Input Return Loss | -9 | -12 | | dB |
| Current Draw | | 100.0 | 200.0 | mA |

| MECHANICAL | | |
|--------------------------------|--|------|
| PARAMETER | VALUE | UNIT |
| Dimensions (L x W x H) | 3.25 x 2.12 x 0.53 | in |
| RF Connectors (Input / Output) | SMA-F / SMA-F | -- |
| DC / Control Connector | 8 Pin Rectangular Male | -- |
| Cooling | Baseplate Conduction - Optional Heatsink Available | -- |
| Mounting | 4-40 Thru Holes | -- |
| Weight | 4 | oz. |
| Weight With Heatsink | 8 | oz. |

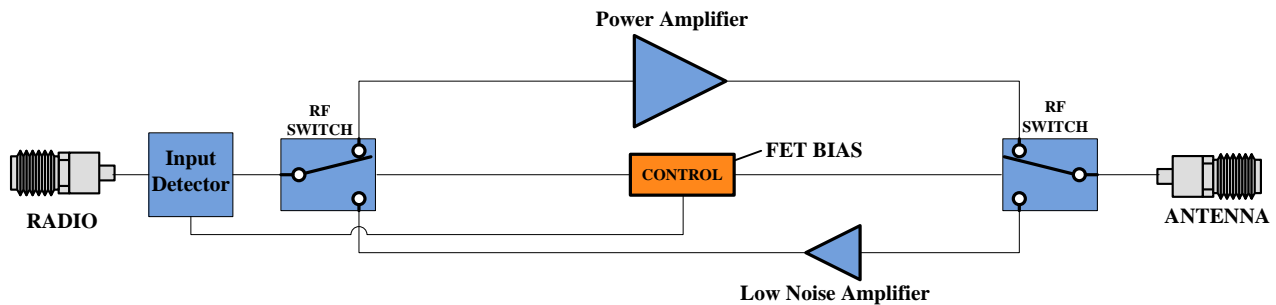
| ENVIRONMENTAL / PROTECTIONS | | | |
|---------------------------------------|--------------------------------|------|------|
| PARAMETER | MIN | MAX | UNIT |
| Operating Temperature (Housing Temp.) | -40 | +80 | °C |
| Storage Temperature | -60 | +150 | °C |
| Humidity Range | 0-100 | | % |
| Altitude | 0-30,000 | | ft. |
| Shock / Vibration | MIL-STD-810 and equivalents | | -- |
| Max RF Input | 9 | | dBm |
| Load VSWR @ P1dB | Open / Short Output Protection | | -- |
| PA Baseplate Shutoff Temperature | +90 | | °C |

| INPUT/OUTPUT PINS | | | | |
|----------------------------------|-------|--|-------|----------|
| AMPLIFIER CONNECTOR TYPE: | | 8 PIN RECTANGULAR MALE | | |
| TRIAD CABLE PART NUMBER: | | CBL50 | | |
| PIN LABEL | NAME | DESCRIPTION | TYPE | LEVEL |
| 1 | TEMP | Analog Temperature Sensor Output | Power | -- |
| 2,4,6 | GND | Ground | Power | -- |
| 3 | Tx/Rx | TTL Hi = Transmit Mode, TTL Lo or No Connection = Receive Mode | Input | 1.8V TTL |
| 5,7 | +VDC | Supply Voltage - Range Specified in Datasheet | Power | -- |
| 8 | SGND | Signal Ground | Input | 5V TTL |

| 802-11G (20 MHz BW) DATA RATE VS. OUTPUT POWER | | | |
|--|-----------|---------------|----------|
| OFDM MODULATION | DATA RATE | POUT (W) MIN. | EVM |
| 64QAM | 54 Mbps | 1 | ≤ -27 dB |
| 16QAM | 36 Mbps | 2 | ≤ -21 dB |
| QPSK | 12 Mbps | 5 | ≤ -15 dB |
| BPSK | 9 Mbps | 8 | ≤ -7 dB |

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

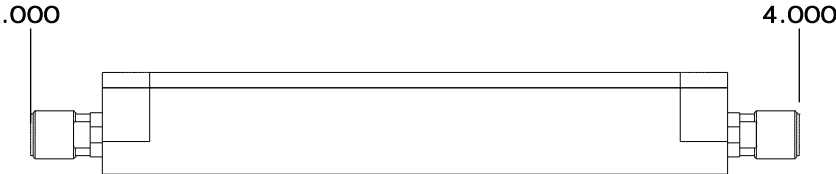
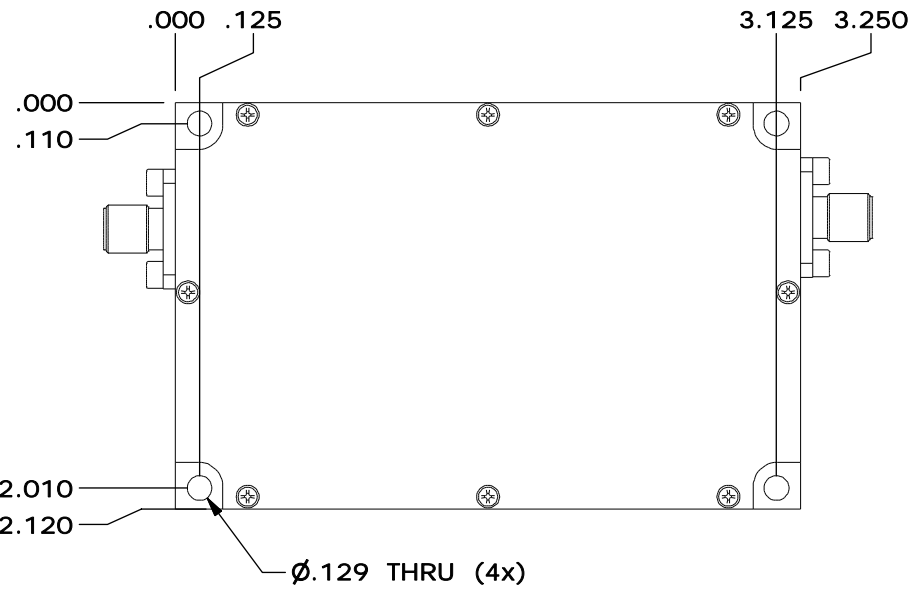
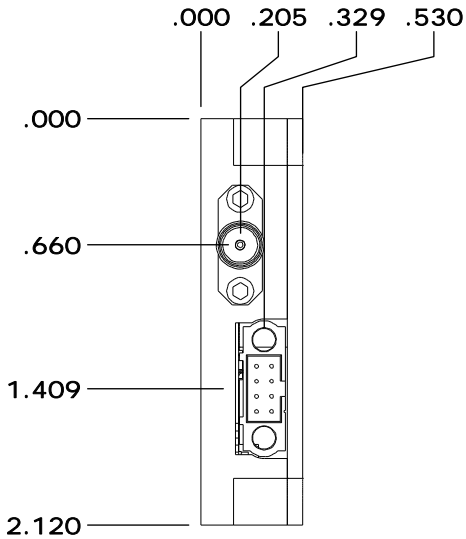
High-Level Block Diagram



| 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 |
| O | INITIAL RELEASE | 9/12/17 | AC |



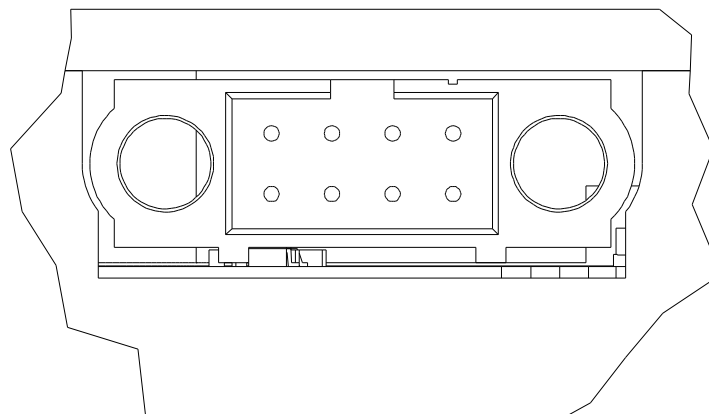
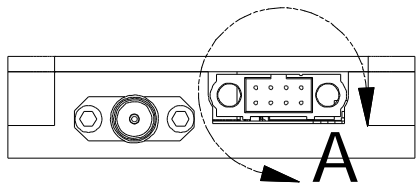
| | | |
|--------------|------|-----------|
| DRAWN | AC | 9/12/17 |
| DESIGNED | DEAN | 6/22/2017 |
| CHECKED | | |
| ENG APPROVED | | |
| MFG APPROVED | | |

TRIAD
RF SYSTEMS

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

Housing Outline 179

| | | | | |
|--|-----------|-------------|-----------------|--------------|
| DIMENSIONS ARE IN INCHES UNLESS SPECIFIED OTHERWISE | | SIZE | DWG NO. | REV |
| DECIMALS | FRACTIONS | A | OL_179 | O |
| XX ±.01 | ± 1/32 | SCALE: NONE | CAGE CODE 67DZ3 | SHEET 1 OF 4 |
| .XXX ±.005 | ± 2° | | | |



DETAIL A
SCALE 4 : 1

NOTES:

VIEW FACING CONNECTOR INTERFACE (AMP SIDE)

CONNECTOR ON AMPLIFIER:
HARWIN M80-5400842
(TRIAD P/N 400-176)

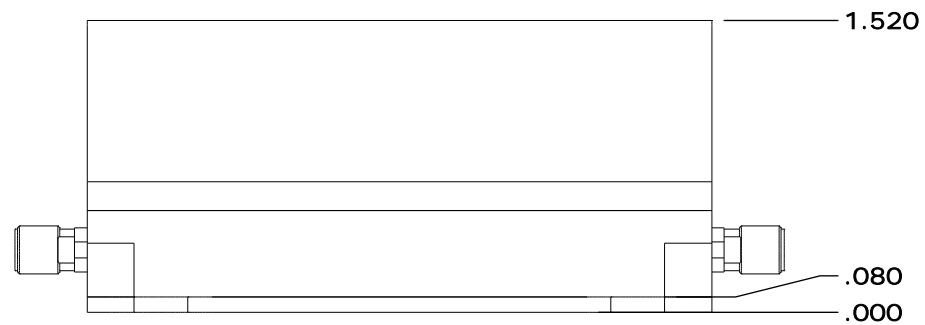
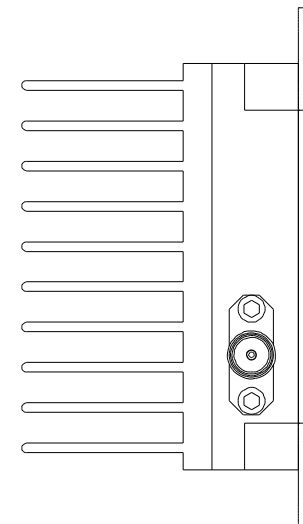
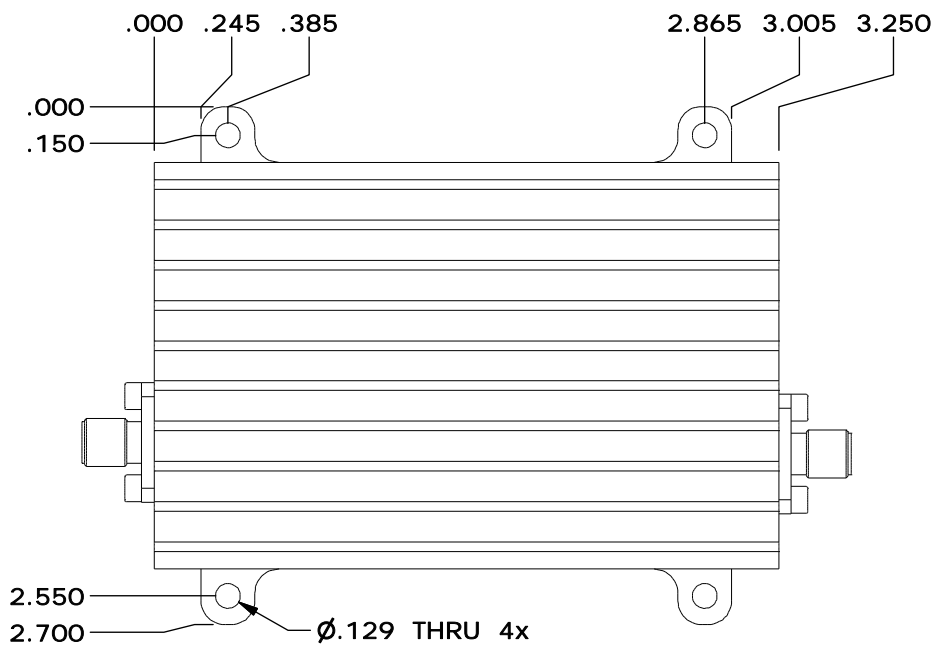
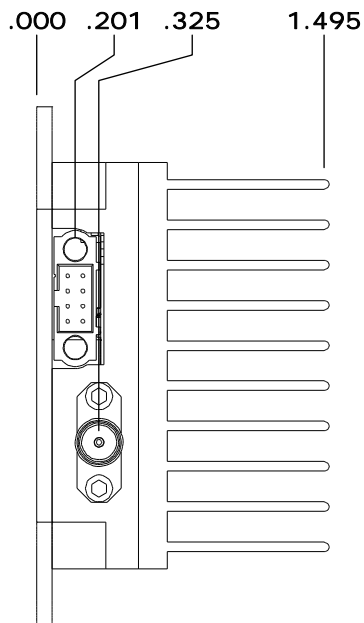
MATING CABLE REQUIRED:
HARWIN M80-4610842
(TRIAD P/N CBL50)

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

| PINOUT | | |
|---------|-------|--|
| PIN # | LABEL | FUNCTION |
| 5,7 | +VDC | SUPPLY VOLTAGE |
| 2,4,6,8 | GND | GROUND |
| 3 | TX/RX | TTL CONTROL LINE FOR TX/RX CONTROL TTL LO - RECIEVE MODE / TTL HI - TRANSMIT MODE |
| 1 | TEMP | TEMP MONITOR OUT: TEMP IN DEG C = ((VOLTAGE MEASURED AT PIN - .5) * 100) |

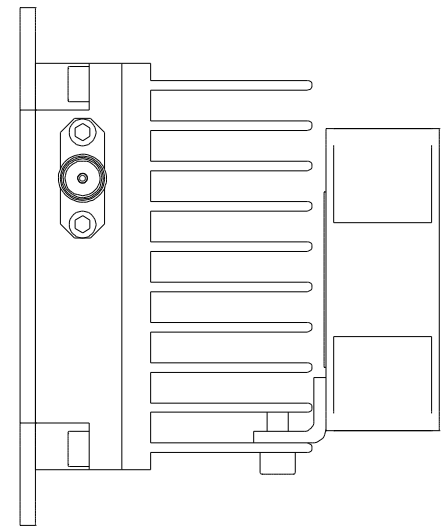
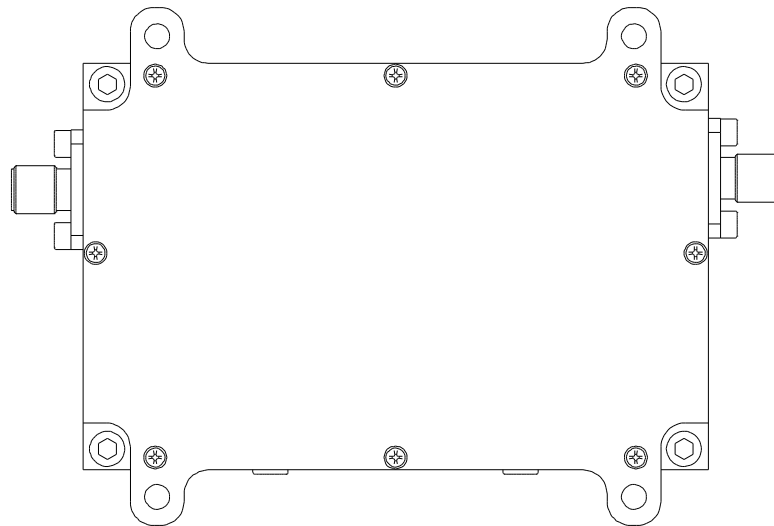
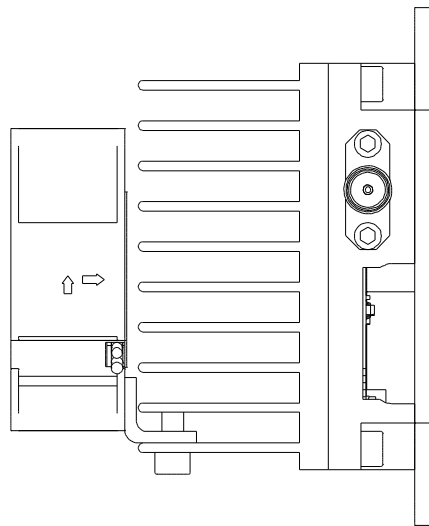
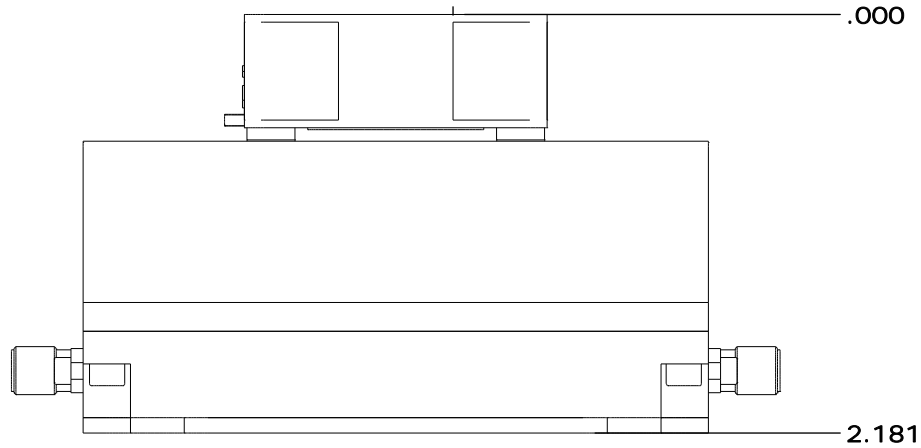
| | | | | | |
|--------------|------|-----------|---------------------|-----------------|--------------|
| DRAWN | AC | 9/12/17 | Housing Outline 179 | | |
| DESIGNED | DEAN | 6/22/2017 | | | |
| CHECKED | | | SIZE | DWG NO. | REV |
| ENG APPROVED | | | A | OL_179 | 0 |
| MFG APPROVED | | | SCALE: NONE | CAGE CODE 67DZ3 | SHEET 2 OF 4 |

OPTIONAL HEATSINK



| | | | | | |
|--------------|------|-----------|---------------------|-----------------|--------------|
| DRAWN | AC | 9/12/17 | Housing Outline 179 | | |
| DESIGNED | DEAN | 6/22/2017 | | | |
| CHECKED | | | SIZE | DWG NO. | REV |
| ENG APPROVED | | | A | OL_179 | O |
| MFG APPROVED | | | SCALE: NONE | CAGE CODE 67DZ3 | SHEET 3 OF 4 |

OPTIONAL HEATSINK AND COOLING FAN



| | | | | | |
|--------------|------|-----------|---------------------|-----------------|--------------|
| DRAWN | AC | 9/12/17 | Housing Outline 179 | | |
| DESIGNED | DEAN | 6/22/2017 | | | |
| CHECKED | | | SIZE | DWG NO. | REV |
| ENG APPROVED | | | A | OL_179 | O |
| MFG APPROVED | | | SCALE: NONE | CAGE CODE 67DZ3 | SHEET 4 OF 4 |