

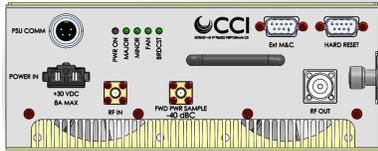


Amplifiers

DATA SHEET

35W SDAR Medium Power Amplifier

MPA-2332-35



- Designed to integrate within the existing SXM DRU Environment
- Fixed 46 dB Gain
- 3.16W to 35W (+35.0 to +45.5 dBm) High Power Output
- High Linearity
- Good Reverse Isolation
- High reliability
- ALC Protection
- Auto-Recovery after removal of fault condition
- Hard Reset function available

Overview

Communication Components Inc. 35W Medium Power Amplifier (MPA) operates in a fixed gain mode capable of providing 2W to 20W RF Output power as measured at the RF Output Coupler. The 10 dB RF output range is controlled by the exciter. The MPA offers a wide Input Dynamic Range. The amplifiers Front Panel LED's provide Broadcast and Alarm status.

Technical Description

The MPA RF output is protected from excessive VSWR conditions such as open and short circuits. The amplifier module automatically recovers upon removal of the fault condition. The MPA's Automatic Level Control (ALC) loop is independent of the exciter. Internal faults cause the MPA to go into "Standby" mode, and alarm status is also provided via RS422 signaling. The MPA has a hard reset function provided.



Amplifiers

SPECIFICATIONS

35W SDAR Medium Power Amplifier

MPA-2332-35

Electrical

| RF Parameters | Ports | Specification |
|-----------------------------|----------------|---------------------------------------------------------------|
| Frequency Range | INPUT, OUTPUT | 2320 MHz Min., 2345 MHz Max. |
| VSWR (Return Loss) | OUTPUT | 1.2:1 max. (20.8 dB min.) |
| | INPUT | 1.2:1 max. (20.8 dB min.) |
| Output VSWR Tolerance | Output | >10:1 |
| Gain | INPUT - OUTPUT | 46 dB |
| Gain Flatness* | | < 0.5 dB (Across Each Operating Band) |
| Gain Slope | | < 0.2 dB/MHz |
| Output Stability | | ±0.3 dB (over temperature range) |
| Output Power Range | | ≥ 35 to 45.5 dBm (3.16W to 35.0W) - Prior to output filtering |
| Output PAR | | 6 dB (@ 0.1 CCDF) |
| Output Saturated Power | | +53 dBm min. (@30.0 VDC) |
| Forward Output Power Sample | | -40 dBc (±0.2 dB) |
| Instantaneous Bandwidth | | ≥ 25 MHz |
| Input Dynamic Range | | -13 dBm through +13 dBm (0 dBm nominal) |
| Output Harmonic Suppression | | ≥ 60 dBc (Before Filtering) |
| Group Delay | | ≤ 60 nanoseconds |
| Noise Figure | | < 10 dB |
| Output RF Emissions | | Complies with SXM SX9845-0218 RD4 |

| General Characteristics | |
|--------------------------------|--------------------------------------------------|
| Impedance | 50 ohms |
| Operating Voltage | 30.0 VDC ±1.0 VDC |
| Nominal Current at Rated Power | 4.0A (TBD) |
| Output Stage Efficiency | ≥ 35% (TBD) (At Rated Power) |
| Monitor & Control Interface | Serial RS422 / D-Sub9-Female |
| Hard RESET Interface | DB9-Male |
| PSU COMM Interface | Amphenol 4 pin C09131G100 Series |
| Monitoring & Control | Complies with TRS-RR-SPEC-02-10-100 Revision 0.8 |

| Front Panel LEDs | |
|------------------|---------------------------------|
| Major Alarm | Green/Red |
| Minor Alarm | Green/Red |
| Fan | Green/Red |
| Broadcast | Green/Amber (Operating/Standby) |

Environmental

| | |
|-----------------------|------------------|
| Operating Temperature | -10 °C to +55 °C |
| Storage Temperature | -20 °C to +65 °C |
| Relative Humidity | 5% to 99% |
| MTBF | >80,000 hours |



Amplifiers

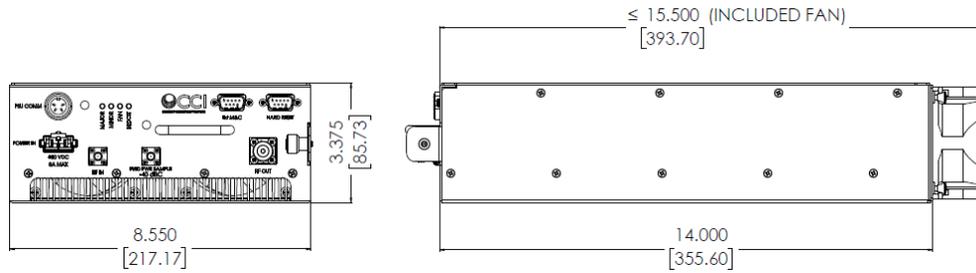
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Mechanical

| | |
|------------------------------------------------------|---------------------------------------------------|
| Output Connector | 1 x N (Female) |
| Input connector | 1 x SMA (Female) |
| Output Sample connector | 1 x SMA (Female) |
| Power Connector | Molex #42818-0212 (2 position) |
| Control Interface Connector | DB-9 Female |
| Control Interface | Serial RS-422, 38.4 Kbaud |
| Reset Connector | DB-9 Male |
| Reset Interface | Discrete & 3.3V Logic |
| PSU COMM Connector | Amphenol 4 pin C09131G100 Series |
| Dimensions (w/o fans or mtg. tab) - (HxWxD) | 14.0 x 8.55 x 3.375 in. (355.6 x 217.2 x 85.7 mm) |
| Dimensions (with fans, including mtg. tab) - (HxWxD) | 15.5 x 8.55 x 3.375 in. (393.7 x 217.2 x 85.7 mm) |
| Weight | TBD Lbs (TBD kg) |
| Mounting | 19 in. rack mountable (using a 2U shelf) |



MPA-2332-AWS Outline Drawing, Place Holder for MPA-2332-35 Outline Drawing

| Pin Number | Description |
|------------|---------------------|
| 1 | GND |
| 2 | TX- |
| 3 | RX- |
| 4 | N/C (Not Connected) |
| 5 | GND |
| 6 | Reset+ |
| 7 | RX+ |
| 8 | TX+ |
| 9 | Reset- |

MPA-2332-35 35W SDAR Medium Power Amplifier Master & Control Interface Connector Pinout



Amplifiers

SPECIFICATIONS

35W SDAR Medium Power Amplifier

MPA-2332-35

| Pin Number | Description |
|------------|-----------------|
| 1 | N/C |
| 2 | N/C |
| 3 | N/C |
| 4 | N/C |
| 5 | MPA_EN/RESET# + |
| 6 | N/C |
| 7 | N/C |
| 8 | N/C |
| 9 | MPA_EN/RESET# - |

MPA-2332-35 35W SDAR Medium Power Amplifier Hard Reset Connector Pinout

| Pin Number | Description |
|------------|-------------|
| 1 | SDA1 |
| 2 | SCL1 |
| 3 | NC |
| 4 | GND |

MPA-2332-35 35W SDAR Medium Power Amplifier PSU COMM Connector Pinout

| Monitor Point | Condition | LED Status | Alarm Reported | MPA Condition |
|------------------------|--------------------------------|-----------------|----------------------|---------------|
| RF Input Power | RF IN > +3.0 dBm | Minor Alarm LED | Minor Alarm Reported | ALC Engages |
| | RF IN > +8.0 dBm | Major Alarm LED | Major Alarm Reported | MPA Disabled |
| RF Output Power | RF OUT ≥ +46.5 dBm | Minor Alarm LED | Minor Alarm Reported | N/A |
| | RF OUT ≥ +47.5 dBm | Major Alarm LED | Major Alarm Reported | MPA Disabled |
| Gain | Gain ≤ 44.0 dB | Minor Alarm LED | Minor Alarm Reported | N/A |
| | Gain ≤ 43.0 dB | Major Alarm LED | Minor Alarm Reported | MPA Disabled |
| RF Reflected | R _L < -10.0 dB | Minor Alarm LED | Minor Alarm Reported | N/A |
| | R _L < -7.0 dB | Major Alarm LED | Major Alarm Reported | MPA Disabled |
| Temperature | T _{Baseplate} > +80°C | Minor Alarm LED | Minor Alarm Reported | N/A |
| | T _{Baseplate} > +90°C | Major Alarm LED | Major Alarm Reported | MPA Disabled |
| | T _{Baseplate} ≤ -25°C | Major Alarm LED | Major Alarm Reported | MPA Disabled |
| Fans | Single Fan Fails | Minor Alarm LED | Minor Alarm Reported | N/A |
| | Both Fans Fail | Major Alarm LED | Major Alarm Reported | MPA Disabled |

MPA-2332-35 35W SDAR Medium Power Amplifier Status



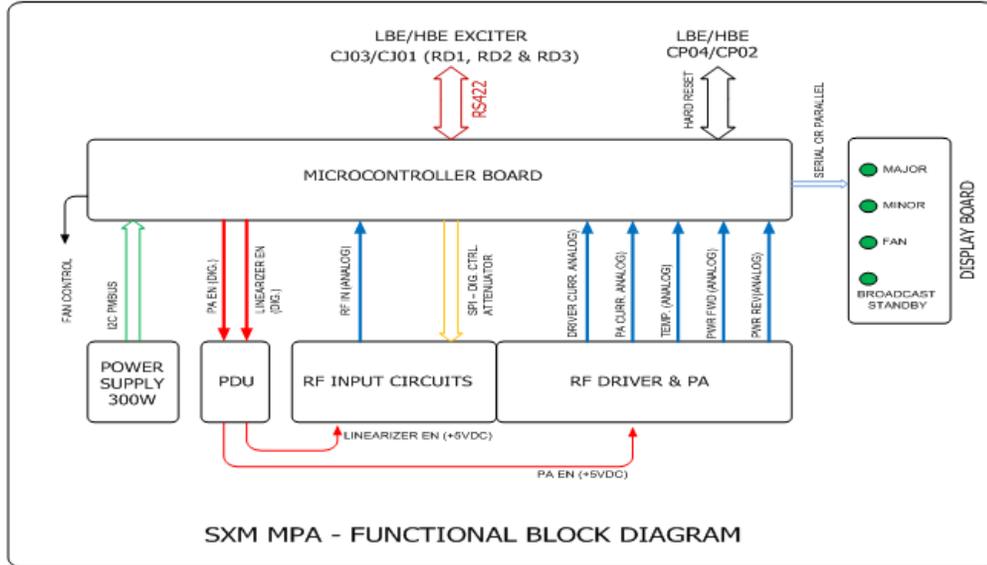
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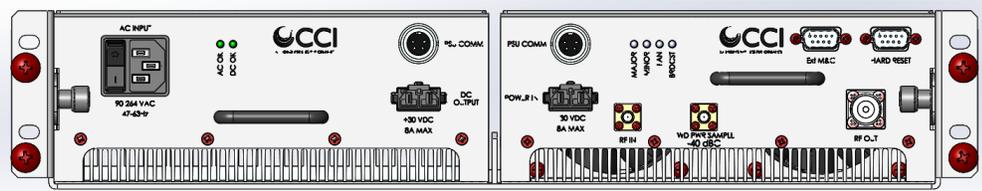
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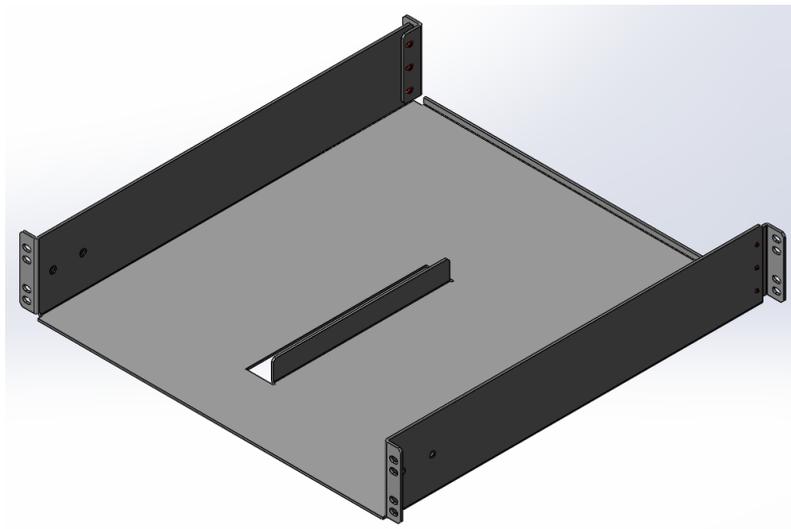
Block Diagram



MPA-2332-35 Block Diagram



SXM-35W-MPA-SYS-1 System Level Model Number for the WCS 20W Repeater System (includes 35W SDAR Medium Power Amplifier and +29.0 VDC Power Supply and 2U Tray)



TRA-19-2U (3D Render of 2U Tray)



Amplifiers

STANDARDS & CERTIFICATIONS

35W SDAR Medium Power Amplifier

MPA-2332-35

Parts & Accessories

MPA-2332-35 35W SDAR Medium Power Amplifier

TRA-19-2U 2U (3.5") Shelf

PSU-300-30 AC/DC Power Supply (300W, +30.0 VDC)

Standards & Compliance

Safety UL 60950-1

FCC TBD

Certifications

ISO 9001

