

Solid State Personal Communication Power Amplifier

7067 - PCM4Q4RFQ
1830 - 1860MHz / 30Watts GSM

CELLULAR AMPLIFIER FOR SMALL BASE STATIONS AND REPEATERS

The PCM4Q4RFQ (SKU # 7067) is suitable for single and Multi-Channel GSM base station and repeaters applications in the Cellular frequency range. Also suitable for CDMA and TDMA applications, this amplifier utilizes linear LD MOS power devices that provide excellent linearity and low distortions, high gain, and wide dynamic range. Exceptional performance, long term reliability, and high efficiency are achieved by employing advanced matching networks and combining techniques, EMI/RFI filters, machined housing, and qualified components. Empower RF's ISO9001 Quality Assurance Program assures consistent performance and the highest reliability.



- Solid-state linear design
- Small and lightweight
- Suitable for GSM, TDMA and CDMA Applications
- 50 Ohm Input/Output impedance
- High reliability and ruggedness
- Built in Control, Monitoring and Protection circuits

ELECTRICAL SPECIFICATIONS @ +28VDC, 25°C, 50Ω System

| Characteristics | Rating | Limit |
|---|---|-------|
| Operating bandwidth | 1830 - 1860MHz | Min |
| RF Input Range | -29dBm to -9dBm GSM Power | Min |
| Power Output Per GSM standard | 30Watts Multi channel, 40Watts Single channel Overall conditions | Min |
| ACPR 4FA @ 30Watt Output | [fc ±885KHz @ 30KHz RBW, 100Hz VBW]; -50dBc [fc ±1.98MHz @ 30KHz RBW, 100Hz VBW]; -52dBc | Min |
| ACPR 1FA @ 40Watt Composite Output | [fc ±885KHz @ 30KHz RBW, 100Hz VBW]; -45dBc [fc ±1.98MHz @ 30KHz RBW, 100Hz VBW]; -55dBc | Min |
| Gain Window (Overall conditions) | 54dB ±0.75dB within input dynamic range | Min |
| Gain Variation vs. Frequency | ±0.5dB overall Frequency | Max |
| Gain Flatness over operating frequency range | ±0.2dB over any 5MHz | Max |
| Gain variation over operating temperature range | ±0.75dB | Max |
| Intermodulation Distortions | -12dBm with 2 - tones @ 30Watt output | Typ |
| Harmonics | 2 nd : -40dBc, 3 rd : -60dBc | Max |
| Input/Output VSWR @ 50 ohm | 1.5:1 (50 ohm reference) | Max |
| Noise Receive Band (30W output) | -34dBm (30KHz RBW) @ receive band | Max |
| Reverse IMD and Load VSWR | Output Isolator | |
| Conducted Emission | DC Power and Control line include RFI filters | |
| Output Protection | Infinite VSWR, all phases with forward output power up to 50Watts | Min |
| Load Stability | VSWR ∞ : 1, all phases | Nom |
| Supply Voltage | 28 ±1.0VDC | Nom |
| Current Consumption @ Pout = 30Watts | 12.0Amp | Typ |

MECHANICAL SPECIFICATIONS

| | | |
|------------------------------|---|-----|
| Dimensions | 9.1" x 7.7" x 1.1" | Max |
| Weight | 3.5 lb. | Max |
| RF Connectors Input / Output | SMA F / Type-N female | |
| DC and Alarms / Interface | 3 PIN D-sub hybrid male, 9 pin D-sub male | |
| Cooling | External Heatsink + Forced air | |

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ENVIRONMENTAL CHARACTERISTICS (Design to Meet)

| Parameter | Typ | Unit |
|-----------------------|-------------------------|------|
| Operating Temperature | -20°C to +60°C | Min |
| Relative Humidity | 0 to 90% Non-condensing | Min |
| Altitude | 10,000 feet | Min |
| Shock and Vibration | Airborne | Min |

PROTECTIONS

| | | |
|------------------------------|--|-----|
| Load VSWR @ 50W output power | ∞ @ all load phase & amplitude duration of 1 minute 3:1 @ all load phase & amplitude continuous | Nom |
| Thermal Overload | 85°C shutdown | Max |

INTERFACE CONNECTOR - D-Sub, 9-Pin

| Pin # | Description | Specifications |
|-------|--------------------------|--|
| 1 | GND | Ground |
| 2 | Over Power Alarm | TTL "High": 48dBm±0.5dB |
| 3 | VSWR Alarm | TTL "High": 3:1 |
| 4 | Temperature Monitor | Analog: (10mV/°C x Temp) + 500mV |
| 5 | Over Temp Shutdown Alarm | TTL "HIGH ": 85°C shutdown, auto-restart @ 65°C |
| 6 | Shutdown | OPEN = Disable CLOSE = Enable |
| 7 | ALC ON/OFF (Option 067) | ALC ON = TTL "Low" ALC OFF = TTL "High" |
| 8 | Forward Power Monitor | Analog: +4V @ 46dBm, 0.1V/dB |
| 9 | ALC Level (Option 067) | Continuous adjustable range via analog input levels Setting Point (ASP): 34 - 46dBm @ 0 - 5V (250mV/dB) Error Range (AER): ±1.5dB Response Time (ART): 100mS/dB |

DC CONNECTOR, D-Sub, 3-Pin Hybrid

| Pin # | Description | Specifications |
|-------|-------------|----------------|
| A1 | VDD | +28VDC ±1.0VDC |
| A2 | GND | Ground |
| A3 | N/C | |

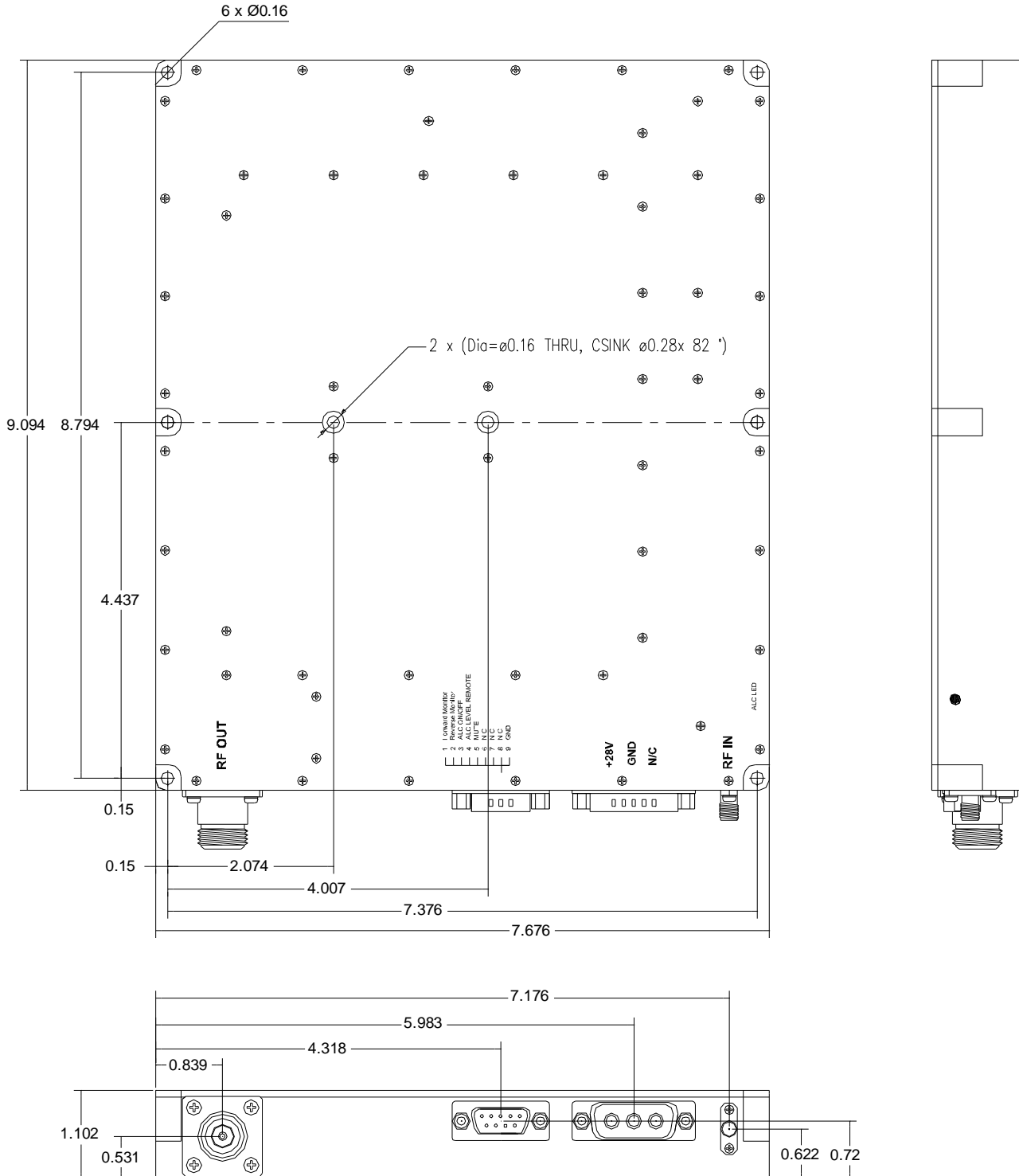
| | | |
|-----|---------------|---|
| LED | LED Indicator | Output Power level indicator referenced to ALC setting (Independent of ALC ON or OFF) |
|-----|---------------|---|

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OUTLINE DRAWING



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Performance Plot
