

Solid State Personal Communication Power Amplifier

7085 – PCM5A5EFO
2110 – 2170 MHz / 30 Watts 3GPP W-CDMA

The PCM5A5EFO (SKU 7085) is designed for single and multi-channel 3GPP W-CDMA repeater applications in the UMTS frequency range. This amplifier utilizes linear LDMOS power devices that provide high gain, wide dynamic range, low distortions, and excellent group delay and phase linearity. Exceptional performance, long term reliability, and high efficiency are achieved by employing Direct Injection Pre-D™, advanced matching networks and combining techniques (Doherty Design), EMI/RFI filters, machined housings, and qualified components. Empower RF's ISO9001 Quality Assurance Program assures consistent performance and the highest reliability.

- Solid-state linearized design
- Small form factor and lightweight
- Suitable for single & multi-FA W-CDMA
- 50 ohm input/output impedance
- High reliability and ruggedness
- Built-in Control & Monitoring Circuits
- Built-in Output Isolator
- High efficiency
- Doherty Design

ELECTRICAL SPECIFICATIONS @ +28V_{DC}, 25°C, 50 Ω System, PAR 8 dB @ CCDF0.01%

| Parameter | Symbol | Min | Typ | Max | Unit |
|---|----------------------------------|------|-------|-------|------|
| Operating Frequency | BW | 2110 | | 2170 | MHz |
| Output Power @ W-CDMA per 3GPP Standard | P _{WCDMA} | 30 | | | Watt |
| Input Power Range | P _{IN} | -25 | | -2 | dBm |
| Power Gain Flatness @ 44.8dBm | Δ _{PG} | | | ±0.75 | dB |
| Small Signal Gain | G _{SS} | 49 | 50 | 51 | dB |
| Small Signal Gain Flatness | Δ _G | | ±0.75 | ±1.0 | dB |
| Gain Variation over operating temperature range | ΔG _{TEMP} | | | ±1.5 | dB |
| Input/Output Return Loss | S ₁₁ /S ₂₂ | | | -14 | dB |
| ACLR @ P _{OUT} = 30W 4FA W-CDMA, 64 DPCH BW = 3.84MHz, P _{IN} = -10dBm Spectrum Analyzer Settings: Res BW = 30kHz, Video BW = 100Hz | Δ = 5MHz | | | -45 | dBc |
| | Δ = 10MHz | | | -50 | |
| Harmonics @ 30W 1FA W-CDMA | H | | | -45 | dBc |
| Spurious Signals @ P _{OUT} = 30W | Spur | | | -70 | dBc |
| Operating Voltage | V _{DD} | 27 | 28 | 29 | Volt |
| Current Consumption P _{OUT} = 30W 4FA W-CDMA | I _{DD} | | 5.5 | 6 | Amp |

MECHANICAL SPECIFICATIONS

| Parameter | Value | Unit |
|----------------------------|--|------|
| Dimensions – Metric (Inch) | 130 x 170 x 30 mm (5.1" x 6.7" x 1.2") | Max |
| Weight | TBD | Max |
| RF Connectors Input/Output | Input: Type-SMA, Female Output: Type-N, Female | |
| DC Interface Connectors | DC Power: D-Sub Hybrid 3-Pin, Male I/O Control: D-Sub 9-Pin, Male | |
| Cooling | External Heatsink + Forced air | |

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ENVIRONMENTAL CHARACTERISTICS

| Parameter | Symbol | Min | Typ | Max | Unit |
|---|------------------|-----|----------|--------|------|
| Operating Case Temperature | T _C | -30 | | +85 | °C |
| Storage Temperature | T _{STG} | -40 | | +85 | °C |
| Relative Humidity (non-condensing) | RH | | | 95 | % |
| Altitude (MIL-STD-810F Method 500.4) | ALT | | | 30,000 | Feet |
| Shock / Vibration (MIL-STD-810F Method 500.4) | SH / VI | | Airborne | | |

PROTECTIONS

| | | | | |
|---------------------|--|---------------|--|-----|
| Over Power Shutdown | | +46 dBm | | Typ |
| Load VSWR @ 30W | | ∞:1 VSWR | | - |
| Thermal Overload | | 95°C shutdown | | Max |

I/O CONTROL CONNECTOR – D-Sub 9-Pin, Male

| Pin # | Description | Specifications |
|-------|-----------------------|---|
| 1 | GND | Ground |
| 2 | Over Power Alarm | TTL Logic "High" (5V): 46 dBm±0.5 dB |
| 3 | VSWR Alarm | TTL Logic "High" (5V): 3:1 |
| 4 | Temperature Monitor | Analog: (10mV/°C x Temp) + 500 mV |
| 5 | Over Temp Alarm | TTL Logic "High": (5V): 95°C shutdown, Auto-restart @ 85°C |
| 6 | Shutdown | Amplifier Enable: TTL Logic "Low" (<0.7V) (<i>Internally Pulled-High</i>) |
| 7 | GND | Ground |
| 8 | Forward Power Monitor | Analog: +4V _{DC} @ 44.8dBm, 0.1V/dB, 4FA W-CDMA |
| 9 | N/C | No Connection |

DC POWER CONNECTOR – D-Sub Hybrid 3-Pin, Male

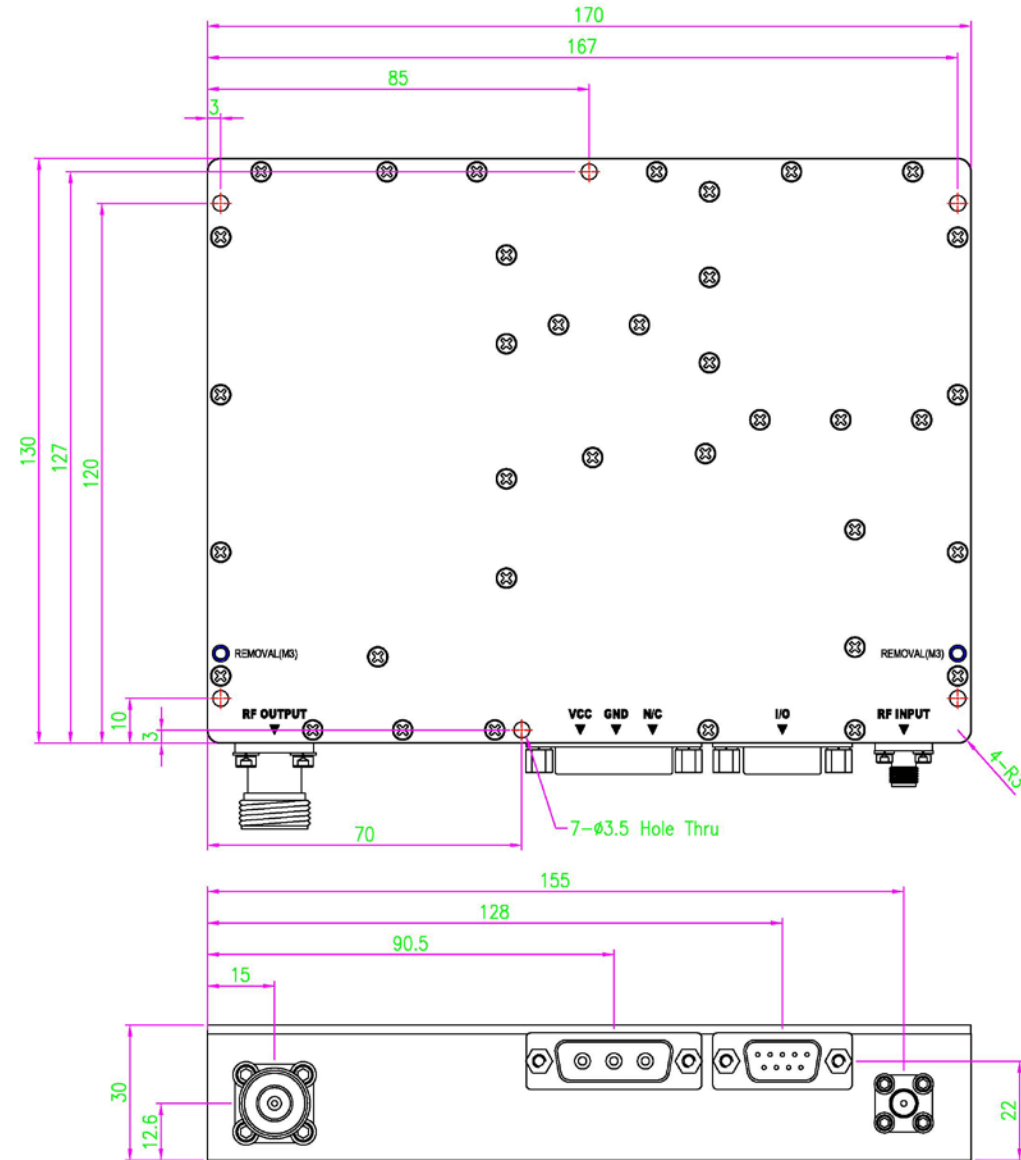
| Pin # | Description | Specifications |
|-------|-------------|----------------------------|
| A1 | VDD | +28.0V _{DC} ±1.0V |
| A2 | GND | Ground |
| A3 | N/C | No Connection |

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OUTLINE DRAWING



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30W, WCDMA 4FA PAR 8dB

