

## Solid State Personal Communication Power Amplifier

**7111– PCM3P3QCL**
**791 – 821MHz / 16 Watts LTE**

The PCM3P3QCL (SKU 7111) is suitable for single and LTE repeater applications in cellular 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 Pre-D linear design
- Small form factor and lightweight
- Suitable for single & multi FA LTE
- 50 ohm input/output impedance
- High reliability and ruggedness
- Built-in Control & Monitoring Circuits
- Built-in output isolator
- High efficiency

### ELECTRICAL SPECIFICATIONS @ +28 VDC, 25°C, 50 Ω System, PAR 8.5 dB @ CCDF 0.01%

Parameter	Symbol	Min	Typ	Max	Unit
Operating Frequency	BW	791		821	MHz
Small Signal Gain	G <sub>SS</sub>	43	44	45	dB
Gain Flatness	ΔG		±0.5	±0.75	dB
Gain Variation over operating temperature range	ΔG <sub>TEMP</sub>		±0.5		dB
Input/Output Return Loss	S <sub>11</sub> /S <sub>22</sub>			-14	dB
Power Output		16			W
ACLR @ P <sub>OUT</sub> = 42 dBm, 1-Tone	±5MHz	-45	-50		dBm
64-DPCH W-CDMA HSPA	±10MHz	-50	-55		dBm
Harmonics @ 16W 1-FA W-CDMA	H	-40			dBc
Spurious Signals @ 16W	Spur			-70	dBc
Operating Voltage	V <sub>DD</sub>	27	28	29	Volt
Current Consumption @ P <sub>OUT</sub> = 16W 1FA	I <sub>DD</sub>		2.4	2.8	Amp

### MECHANICAL SPECIFICATIONS

Parameter	Value	Unit
Dimensions	4.4 x 6.7 x 1.1 / 110 x 170 x 28	Inch (mm)
Weight	3.5	Pound
RF Connectors Input / Output	SMA Female	-
Interface Connectors	Control: D-sub, 9-pin, Male DC Power: Hybrid, D-sub 3-pin, Male	-
Cooling	External heatsink (not included)	-

### ENVIRONMENTAL CHARACTERISTICS (Design to Meet)

Parameter	Symbol	Min	Typ	Max	Unit
Operating Case Temperature	T <sub>C</sub>	-20		+70	°C
Storage Temperature	T <sub>STG</sub>	-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 516.5/514.5	SH / VI		Airborne		-

### PROTECTIONS

Over Power Shutdown	+44dBm	Min
Load VSWR @ 16W	∞ @ all load phase & amplitude for duration of 1 minute 3:1 @ all load phase & amplitude continuous	-
Thermal Overload	95°C shutdown	Max

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### INTERFACE CONNECTORS

#### CONTROL – D-sub, 9-pin, Male

Pin #	Description	Specification
1	GND	Ground
2	Over Power Alarm	Alarm: TTL Logic High (5V): 44dBm $\pm$ 0.5dB (Normally Low)
3	VSWR Alarm	Alarm: TTL Logic High (5V): $\geq$ 3:1 VSWR (Normally Low)
4	Temperature Monitor	Analog voltage relative to units temperature @ 10mV/ $^{\circ}$ C with 0.50V <sub>OFFSET</sub> Equation: $(V_{MEASURED} - 0.50) / 0.01 = ^{\circ}$ C, Example; $(0.88V - 0.50) / 0.01 = 38^{\circ}$ C
5	Over Temp Alarm	Alarm: TTL Logic High (5V) @ 95 $^{\circ}$ C (shutdown) – Auto-restart @ 85 $^{\circ}$ C (Normally Low)
6	Shutdown	Amplifier Enable: TTL Logic Low (0V) (Internally Pulled-high)
7	GND	Ground
8	Forward Power Monitor	+4V @ 42dBm, 0.1V/dB with 0.6V <sub>OFFSET</sub> , $[(0.1 \times RF \text{ P}_{OUT}) - 0.6] = V_{FWD}$ or $(V_{MEASURED} + 0.6) / 0.1 = RF \text{ P}_{OUT}$ , Example; $(3.6V + 0.6) / 0.1 = 42\text{dBm}$
9	N/C	No Connection

#### DC POWER – Hybrid, D-sub, 3-pin, Male

Pin #	Description	Specification
A1	VDD	+27.0-29.0V <sub>DC</sub>
A2	GND	Ground
A3	N/C	No Connection

### OUTLINE DRAWING

