

Solid State Personal Communication Power Amplifier

7110 – PCM4Q5AAL
1805 – 1880MHz / 16 Watts LTE

The PCM4Q5AAL (SKU 7110) 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-DTM, advanced matching networks and combining techniques, 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
- Doherty Design

ELECTRICAL SPECIFICATIONS @ +28 VDC, 25°C, 50 Ω System, PAR 8 dB @ CCDF 0.01%

Parameter	Symbol	Min	Typ	Max	Unit
Operating Frequency	BW	1805		1880	MHz
Small Signal Gain	G _{SS}	44	45	46	dB
Gain Flatness	ΔG		±0.5		dB
Gain Variation over operating temperature range	ΔG _{TEMP}			±1.0	dB
Input/Output Return Loss	S ₁₁ /S ₂₂			-14	dB
Power Output LTE 10MHz/FA		16			W
ACLR @ P _{OUT} = 42 dBm 1-Tone, B=10MHz, 100kHz RBW	F _{o±7.5MHz}	-45			dBc
	F _{o±12.5MHz}	-50			
ACP @ 10MHz 1-Tone, B=10MHz, 100kHz RBW	F _{o±5.05MHz}	-15			dBm
	F _{o±10.05MHz}	-15			
Spurious Signals @ 16 Watts	Spur			-70	dBc
Operating Voltage	V _{DD}	27	28	29	Volt
Supply Current @ P _{OUT} = 16 W 1FA	I _{DD}		2.5	3.0	Amp

MECHANICAL SPECIFICATIONS

Parameter	Value	Unit	Limit
Dimensions	4.4 x 6.7 x 1.1	inch	Max
Weight	3.5	lbs.	Max
RF Connectors Input / Output	SMA Female	-	-
Interface and Alarms / DC	9-Pin D-Sub Male / 3-Pin Hybrid D-Sub Male	-	-
Cooling	External heatsink + forced air	-	-

ENVIRONMENTAL CHARACTERISTICS (Design to Meet)

Parameter	Symbol	Min	Typ	Max	Unit
Operating Case Temperature	T _c	-20		+70	°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 516.5)	SH / VI		Airborne		

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PROTECTIONS

Load VSWR @ 16 W	∞ @ all load phase & amplitude for duration of 1 minute 3:1 @ all load phase & amplitude continuous	Nom
Thermal Overload	95°C shutdown	Max

INTERFACE CONNECTORS

D-Sub, 9-Pin - Control

Pin #	Description	Specifications
1	GND	Ground
2	Over Power Alarm	5 V TTL "High": 44 dBm±0.5 dB
3	VSWR Alarm	5 V TTL "High": Open @ 3:1 VSWR
4	Temperature Monitor	Analog: (10 mV/°C x Temp) + 500 mV
5	Over Temp Alarm	5 V TTL High: 95/°C shutdown, auto-restart @ 85/°C
6	Shutdown	Amplifier Enable: 5 V TTL "Low" Amplifier Disable: 5 V TTL "High" or Open - Pull-up Resistor
7	GND	Ground
8	Forward Power Monitor	Analog: +4 V @ 42 dBm, 0.1 V/dB
9	N/C	Reserved

D-Sub, 3-Pin - DC

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

OUTLINE DRAWING

