

Solid State Personal Communication Power Amplifier

7017 - PCM3Q4AFQ
935 - 960MHz / 30Watts GSM

CELLULAR AMPLIFIER MODULE FOR SMALL BASE STATIONS AND REPEATERS

PRELIMINARY DATA

The PCM3Q4AFQ (SKU # 7017) 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 LDMOS 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 Pre-D linear design
- Small and lightweight
- Suitable for Multi-Carrier GSM, CDMA and TDMA Applications
- Built-in control and monitoring circuits
- 50 Ohm Input/Output impedance
- High reliability and ruggedness

ELECTRICAL SPECIFICATIONS @ +27VDC, 25°C, 50Ω System

Characteristics	Rating	Limit
Frequency Response	935 - 960MHz	Typ
RF Input Power Range	-29dBm to -9dBm GSM Power	Min
Power Output Per GSM standard	30Watts Multi-channel, 40Watts single channel Overall conditions	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	-14dBm with 2 - tones @ 30Watt output	Typ
Harmonics	2 nd : -40dBc, 3 rd : -60dBc	Max
Input/Output VSWR	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	27 ±1.0VDC	Nom
Current Consumption @ Pout = 30Watts GSM	8.0Amp	Typ

MECHANICAL SPECIFICATIONS

Parameter	Value	Units	Limits
Dimensions (including heatsink)	8.1 x 6.7 x 1.1	Inches	Max
Weight	3.5	Lbs	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 + airflow		

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ENVIRONMENTAL CHARACTERISTICS (Design to Meet)

Parameter	Symbol	Min	Typ	Max	Unit
Operating Temperature (Module temperature)			-20°C to +60°C		Min
Relative Humidity			0 to 90% Non-condensing		Min
Altitude			10,000 feet		Min
Shock and Vibration			Normal Truck transportation		Min

PROTECTIONS

Input Overdrive			+6dBm		Max
Load VSWR @ 50W output power			∞ @ all load phase & amplitude for duration of 1 minute 3:1 @ all load phase & amplitude continuous		Nom
Thermal Overload			85°C shutdown		Max

INTERFACE CONNECTORS

D-Sub, 9-Pin - Control

Pin #	Description	Specifications
1	GND	Ground
2	Over Power Alarm	TTL "High": 46dBm±0.5dB
3	VSWR Alarm	TTL "High": 3:1
4	Temperature Monitor	Analog: (10mV/°C x Temp) + 500mV
5	Over Temp Shutdown	TTL: 85/°C shutdown, auto-restart @ 75/°C
6	Shutdown	Enable: TTL "Low" Shutdown: TTL "High" - Pull-up Resistor
7	GND	Ground
8	Forward Power Monitor	Analog: +4V @ 44.8dBm, 0.1V/dB
9	Reverse Power Monitor	Analog: +4V @ 44.8dBm, 0.1V/dB

D-Sub, 3-Pin - DC

Pin #	Description	Specifications
A1	VDD	+27VDC
A2	GND	Ground
A3	N/C	

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OUTLINE DRAWING

