

High power uplink amplifier

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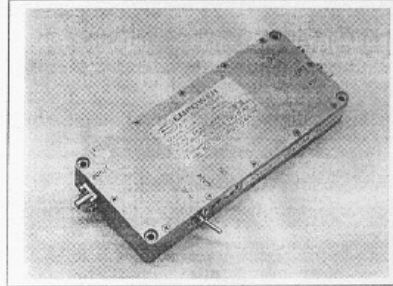

EMPOWER
 RF SYSTEMS, INC.

Solid State Personal Communication Power Amplifier

PCM3Q4ACL-AGC

800 – 960 MHz / 16 Watt

The PCM3Q4ACL (SKU # 7029) was designed for Ultra linear GSM repeater applications in the Cellular frequency range. Also suitable for CDMA and TDMA applications, this amplifier utilizes Class A LDMOS power devices that provide high gain, wide dynamic range, and excellent group delay and phase linearity. Exceptional performance, long term reliability, and high efficiency are achieved by employing advanced broadband RF 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 Class A linear design
- Built in AGC function
- Small and lightweight
- Suitable for GSM, TDMA and Multi-Carrier CDMA Application
- 50 Ohm Input/Output impedance
- High reliability and ruggedness

ELECTRICAL SPECIFICATIONS @ T=25°C, VDD=+28VDC; 50Ω System

Parameter	Symbol	Min	Typ	Max	Unit
Operating Frequency	BW	850		960	MHz
Power Output CW	P _{Sat}	16			Watts
Power Output @ 1dB G.C.P	P _{1dB}	12	14		Watts
Gain @ 1dB G.C.P, minimum attenuation	G _{1dB}	44	45		dB
Gain Adjustment Range via internal Pot.	GA	20	25		dB
Small Signal Gain Flatness	ΔG		±0.5	±0.75	dB
Input/Output VSWR	S11/S22		1.2:1	1.5:1	-
Noise Figure @ minimum attenuation	NF		7	10	dB
Third Order Intercept Point 2 – Tones, Pout=1W Avg., 100KHz spacing	IP3	+50	+52		dBm
Harmonics @ 1dB G.C.P	H			-30	dBc
Spurious Signals	Spur		-70	-60	dBc
Operating Voltage	VDD	26	28	30	VDC
Supply Current	IDD		1.7	1.9	Amp

ENVIRONMENTAL CHARACTERISTICS

Parameter	Symbol	Min	Typ	Max	Unit
Operating Case Temperature	T _c	0		+50	°C
Storage Temperature	T _{stg}	-40		+85	°C
Relative humidity w/o condensation	RH	95			%
Altitude	ALT	10,000			Feet
Shock & Vibration	SH / VI			Air Borne	

MECHANICAL SPECIFICATIONS

Parameter	Value	Units	Limits
Dimensions (L x W x D)	5.67 x 2.42 x 0.87	Inch	Max
Weight	1.0	lb.	Max
RF Connectors In/Out	SMA female		
DC Connectors	Feed Thru		
Cooling	External Heatsink		

PROTECTIONS

Input Overdrive	+10 dBm	Max
Load VSWR programmable response	Infinite @ all load phase and amplitude	Nom
Thermal Overload	85°C shutdown	Max

High power downlink amplifier


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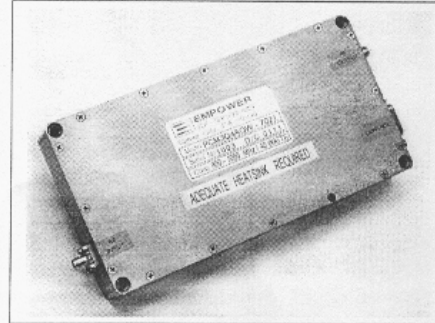
Solid State Personal Communication Power Amplifier

PCM3Q4AHM

800 – 1000 MHz / 50 Watt

The PCM3Q4AHM (SKU # 7021) was designed for Ultra linear GSM repeater and base station applications in the Cellular frequency range. Also suitable for CDMA and TDMA applications, this amplifier utilizes linear LDMOS power devices that provide high gain, wide dynamic range, and excellent group delay and phase linearity. Exceptional performance, long term reliability, and high efficiency are achieved by employing 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 linear design
- Small form factor and lightweight
- Suitable for GSM, TDMA and Multi-Carrier CDMA Application
- 50 Ohm Input/Output impedance
- High reliability and ruggedness
- Built-in Output Circulator



ELECTRICAL SPECIFICATIONS @ T=25°C, VDD=+28VDC; 50Ω System

Parameter	Symbol	Min	Typ	Max	Unit
Operating Frequency	BW	850		960	MHz
Output Power CW	P _{sat}	50	60		Watts
Output Power @ 1dB G.C.P	P _{1dB}		40		Watts
Power Output CDMA per IS-97	PCDMA	10	15		Watts
ACPR @ 10 Watt CDMA Output Port	ACPR				
HP E4433B source @ any input dynamic range					
fc ±885KHz @ 30KHz RBW, 100Hz VBW				-50	dBc
fc ±1.98MHz @ 30KHz RBW, 100Hz VBW				-60	dBc
fc ±3.125MHz @ 100KHz RBW				-13	dBm
Third Order Intercept Point	IP3	+60	+66		dBm
2-Tones, Pout=10W Avg., 500KHz spacing					
Small Signal Gain	SSG	46			dB
Small Signal Gain Flatness	ΔG		±0.5	±0.75	dB
Input/Output VSWR	S11/S22		1.2:1	1.5:1	-
Harmonics @ P1dB G.C.P	H			-45	dBc
Noise Figure	NF		7	10	dB
RF Input Overdrive	OD			+10	dBm
Load VSWR @ Pout = 50W	V _r			Infinite	-
Spurious Signals	Spur		-70	-60	dBc
Operating Voltage	VDD	26	28	30	VDC
Supply Current @ Pout = 50W	IDD		7	10	Amp

ENVIRONMENTAL CHARACTERISTICS

Parameter	Symbol	Min	Typ	Max	Unit
Operating Case Temperature	T _c	0		+50	°C
Storage Temperature	T _{stg}	-40		+85	°C
Relative humidity w/o condensation	RH	95			%
Altitude	ALT	10,000	30,000		Feet
Shock & Vibration	SH / VI		Air-Borne		

MECHANICAL SPECIFICATIONS

Parameter	Value	Units	Limits
Dimensions	6.4 x 3.4 x 1.0	Inch	Max
Weight	1.0	lb.	Max
RF Connectors In/Out	SMA female		
DC / Function Connector	9 Pins, D-sub		
Cooling	External Heatsink		

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Stock No. 7021 Rev. 1.1 / 06-14-2001