

Solid State Personal Communication Power Amplifier

7021 - PCM3Q4AHM
800 - 1000MHz / 50Watts

The PCM3Q4AHM (SKU # 7021) is suitable for broadband Cellular Range linear repeater, base station and counter communication applications. Also suitable for GSM, 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 high efficiency linear design
- Small form factor and lightweight
- Suitable for all modulation standards
- 50 Ohm Input/Output impedance
- High reliability and ruggedness
- Built-in output circulator, control and monitoring functions

ELECTRICAL SPECIFICATIONS @ +28V_{DC}, 25°C, 50Ω System

Parameter	Symbol	Min	Typ	Max	Unit
Operating Frequency	BW	800		1000	MHz
Power Output CW	P _{SAT}	50	80		Watt
Output Power @ 1dB Gain Compression	P _{1dB}	50			Watt
Power Gain @ 1dB Gain Compression	G _{1dB}	46			dB
Input Power for Rated P _{SAT}	P _{IN}		0		dBm
Small Signal Gain Flatness	ΔG		±0.75	±1.0	dB
Input/Output Return Loss	S ₁₁ /S ₂₂			-14	dB
Third Order Intercept Point 2-Tone @ 37dBm/Tone, 100kHz Spacing	IP3		+57		dBm
Harmonics @ P _{OUT} = 50W	H			-45	dBc
Noise Figure	NF			10	dB
Spurious Signals	Spur		-70	-60	dBc
Operating Voltage	V _{DC}	26	28	30	Volt
Current Consumption @ P _{OUT} = 50W CW	I _{DD}			8.0	Amp

MECHANICAL SPECIFICATIONS

Parameter	Value	Units	Limits
Dimensions	6.4 x 3.4 x 1.1	Inch	-
Weight	1.0	lb.	-
RF Connectors Input/Output	Type-SMA, Female		
DC Interface Connector	D-Sub 9-Pin, Male		
Cooling	External Heatsink (not supplied)		

ENVIRONMENTAL CHARACTERISTICS (Design to Meet)

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 (MIL-STD-810F Method 500.4)	ALT			30,000	Feet
Vibration / Shock MIL-STD-810F - Method 514.5/516.5 – Proc I	VI / SH		Airborne		

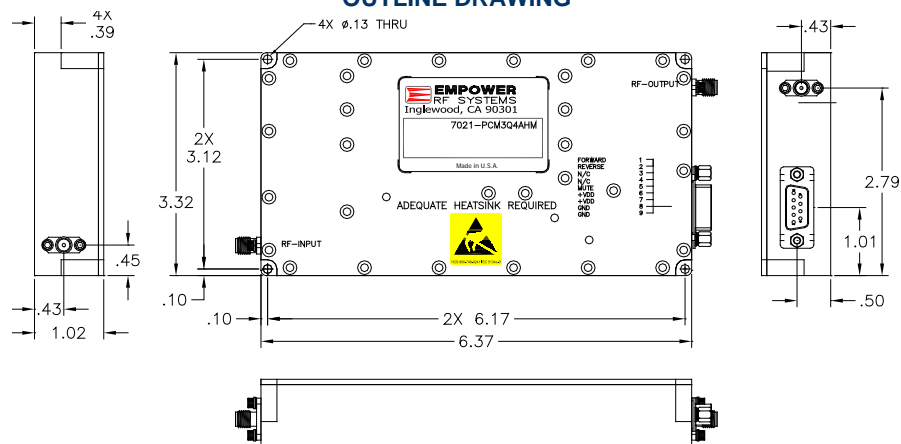
LIMITS

Input RF drive level without damage	+3dBm	Max
Load VSWR @ P _{OUT} = 50W	Built-in Circulator	-
Thermal Overload	85°C shutdown	Max

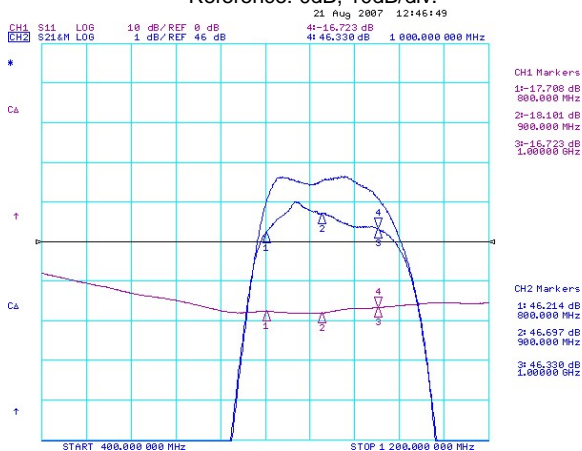
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DC INTERFACE CONNECTOR – D-sub 9-pin, Male

Pin #	Description	Specifications
1	Forward	Continuous Analog voltage relative to forward power level Minimum power: 0V _{DC} , Maximum power: 5V _{DC}
2	Reverse	Continuous Analog voltage relative to reflected power level Minimum power: 0V _{DC} , Maximum power: 5V _{DC} (10dB minimum Directivity)
3&4	N/C	No Connection
5	Mute	Disable: TTL Logic High (5V) (Internally Pulled-low)
6&7	+VDD	+26.0-30.0V _{DC}
8&9	GND	Ground

OUTLINE DRAWING

TYPICAL PERFORMANCE PLOTS
Plot 1 – Small Signal Gain and P_{1dB}

Top Curve: Small Signal Gain @ P_{IN} = -20dBm
 Middle Curve: Power Gain @ P_{1dB}, P_{IN} = +3dBm
 Reference: 46dB, 1dB/div.
 Bottom Curve: Input Return Loss
 Reference: 0dB, 10dB/div.


Plot 2 – Small Signal Gain and P_{SAT}

Top Curve: Small Signal Gain @ P_{IN} = -20dBm
 Middle Curve: Power gain @ P_{SAT}, P_{IN} = +5dBm
 Reference: 45dB, 1dB/div.
 Bottom Curve: Input Return Loss
 Reference: 0dB, 10dB/div.

