EMPOWER
RF SYSTEMS, INC.

Solid State Personal Communication Power Amplifier

7073- PCM3H3IEM

390 - 395MHz / 25Watts for TETRA & SMR

PRELIMINARY DATA

The PCM3H3IEM (Stock No. 7073) is suitable for Ultra linear SMR & TETRA repeater and MicroCell applications. Also suitable for other digital modulation applications, this amplifier utilizes proprietary DIP^{TM} (Direct Injection Pre-D) circuit and linear LDMOS power devices that provide ample output power margins, 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. This rugged module is input overdrive and output isolator protected, and proprietary ALC circuits ensure stable, ripple free output power under multi-channel conditions. Empower RF's ISO9001 Quality Assurance Program assures consistent performance and the highest reliability.

- Solid-state linear design
- Small and lightweight
- Suitable for CW, SMR, TETRA
- 50 Ohm Input/Output impedance
- High reliability and ruggedness
- Built in Output Isolator
- Built in monitoring circuit

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

Parameter	Symbol	Min	Typ	Max	Unit
Operating Frequency	BW	390		395	MHz
Output Power CW	P_{CW}		40		Watt
Output Power @ 1dB G.C.P	P_{1dB}	25			Watt
Small Signal Gain	G_{ss}	46	-	48	dB
Small Signal Gain Flatness	ΔG		±0.25	±0.5	dB
Third Order Intercept Point 2-Tones, Pout = 4W Avg., Δ = 25 - 500KHz	IP3	+58			dBm
Input/Output VSWR	S11/S22		1.2:1	1.5:1	-
Noise Figure	NF		7	10	dB
Harmonics @ P1dB G.C.P	H			-45	dBc
Spurious Signals	Spur		-70	-60	dBc
Operating Voltage	VDC	26	28	30	Volt
Supply Current @ Pout = 25W CW	IDD		3.0		Amp
Supply Current @ Pout = 4W Composite	IDD		1.6	2.0	Amp

ENVIRONMENTAL CHARACTERISTICS

Parameter	Symbol	Min	Typ	Max	Unit
Operating Case Temperature	Tc	-10		+50	°C
Storage Temperature	Tstg	-40		+85	°C
Relative humidity w/o condensation	RH	95			%
Altitude	ALT	10,000	30,000		Feet
Shock & Vibration	SH / VI		Airborne		

PROTECTIONS

Input Overdrive	+6dBm	Max
Over Power Shutdown (Optional)	45dBm	Min
Load VSWR @ 25W output power	Infinite @ all load phase & amplitude	Nom
Thermal Overload	85°C shutdown	Max

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MECHANICAL SPECIFICATIONS

Parameter	Value	Units	Limits
Dimensions	5.0 x 3.75 x 1.0	Inch	Max
Weight	1.0	lb.	Max
RF Connectors In/Out	SMA female		
DC Connectors	D-sub, 9 Pins		
Cooling	External Heatsink		

INTERFACE CONNECTORS

D-Sub, 9-Pin

Pin #	Description	Specifications
1	Forward Power Monitor	Continuous Analog voltage relative to forward power via RMS detector FWDM: 28 - 48dBm @ 0 - 5V (100mV/dB min)
2	Reverse Power Monitor	Continuous Analog voltage relative to reflected power via RMS detector REVM (Open/Short): 20 - 43dBm @ 0 - 5V (100mV/dB min) REVM (50 Ohm): REVM (Open/Short) -12dB
3	ALC ON/OFF	ALC ON = TTL “Low” ALC OFF = TTL “High”
4	ALC Level	Continuous adjustable range via analog input levels Setting Point (ASP): 36 - 48dBm @ 0 - 5V (250mV/dB min) Error Range (AER): ±1.5dB Input Impedance: > 50KOhm Response Time (ART): 100mS/dB
5	Mute	TX Enable: TTL “Low” TX Disable: TTL “High”
6	+VDD	+28 ± 2VDC
7	+VDD	+28 ± 2VDC
8	GND	Ground
9	GND	Ground

LED	LED Indicator	Output Power level indicator referenced to ALC setting (Independent of ALC ON or OFF)

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OUTLINE DRAWING