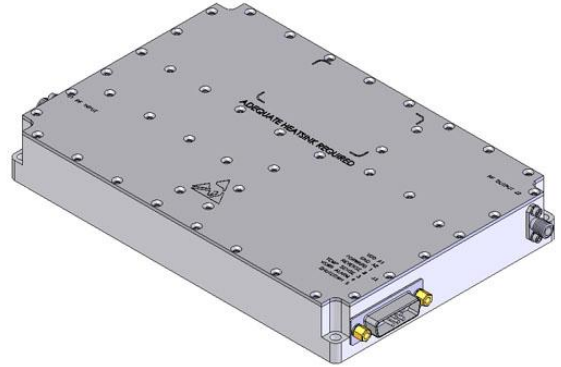


Solid State Matched Band High Power Amplifier

5014 - MBM2227HM
2.2 - 2.7GHz / 50Watts

PRELIMINARY INFORMATION

The MBM2227HM (SKU No. 5014) is suitable for S-Band linear and pulse applications. Also suitable for all digital modulations applications, this amplifier utilizes high power GaAsFET devices that provide high gain, wide dynamic range, 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, built in sequence regulator, EMI/RFI filters, machined housings, and all qualified components. Empower RF's ISO9001 Quality Assurance Program assures consistent performance and the highest reliability.



- Solid-state linear design
- Small and lightweight
- Suitable for all modulation types
- 50 Ohm Input/Output impedance
- High reliability and ruggedness
- Built in Control, Monitoring & Protection Circuits

ELECTRICAL SPECIFICATIONS @ VDD=+13VDC, T=25°C, 50Ω System

Parameter	Symbol	Min	Typ	Max	Unit
Operating Frequency	BW	2.2	-	2.7	GHz
Power Output CW	P _{SAT}	50	60		Watt
Power Output @ 1dB G.C.P	P _{1dB}	40	50		Watt
Gain @ P1dB G.C.P.	G _P	46			dB
Input Power for Rated Output	P _{IN}		0		dBm
Gain Flatness	ΔG			±1.5	dB
Input Return Loss	S11			-10	dB
Noise Figure	NF		7	10	dB
Harmonics @ 1dB G.C.P	H			-50	dBc
Third Order Intercept Point 2-Tone, 37dBm/Tone, Δ = 100KHz	IP3		+56		dBm
Spurious Signals	Spur		-70	-60	Volt
Operating Voltage	VDD	12	13	14	VDC
Supply Current @ 50W	IDD			18	Amp

MECHANICAL SPECIFICATIONS

Dimensions	7.0" x 6.3" x 1.1"	Max
Weight	3.0lb.	Max
RF Connectors Input / Output	SMA F / SMA-F	
DC and Alarms / Interface	7W2 D-sub hybrid male	
Cooling	External Heatsink + airflow	

ENVIRONMENTAL CHARACTERISTICS (Design to Meet)

Parameter	Symbol	Min	Typ	Max	Unit
Operating Case Temperature	T _c	-20		+60	°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		Airborne		

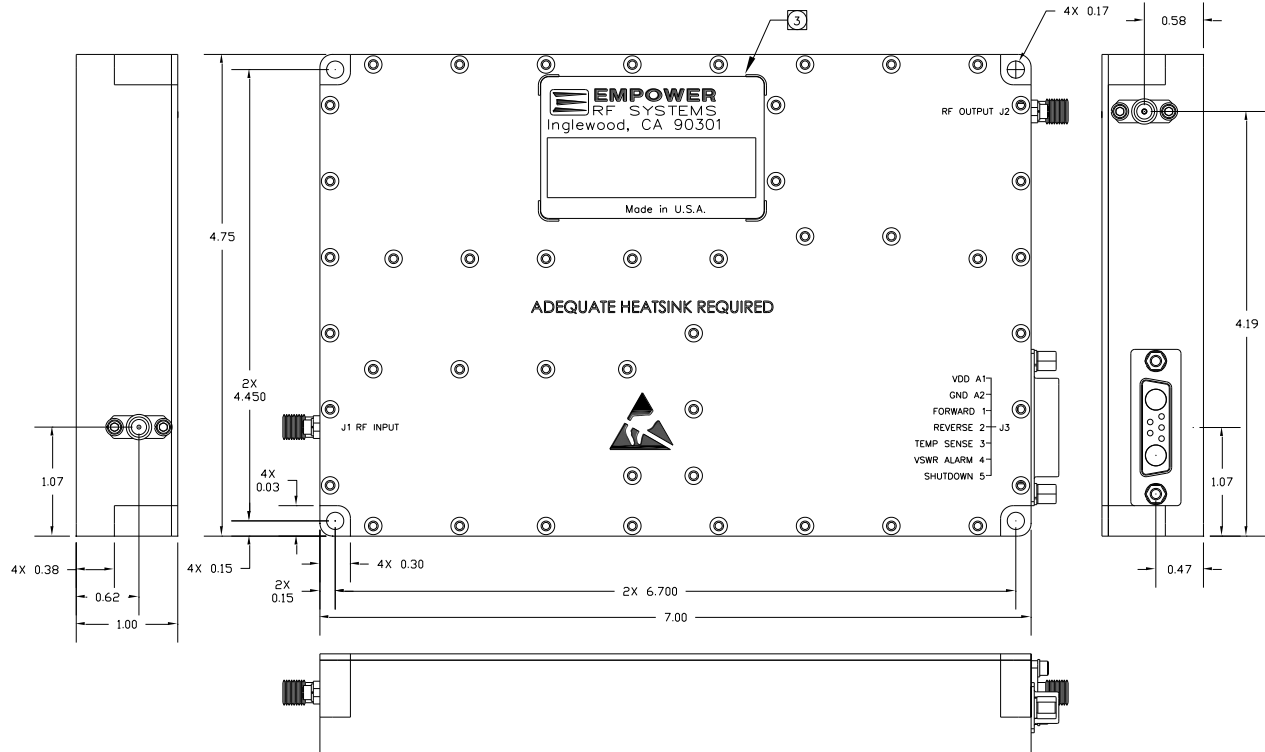
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PROTECTIONS

Input Overdrive	+6dBm	Max
Load VSWR @ rated P1dB	∞ @ all load phase & amplitude for duration of 1 minute 3:1 @ all load phase & amplitude continuous	Nom
Thermal Overload	85°C shutdown	Max

INTERFACE CONNECTOR
 D-Sub, 7W2 Hybrid D-sub

Pin No.	Description	Specifications
A1	VDD	+13VDC
A2	GND	
1	Forward Power Monitor	Continuous Analog voltage relative to forward power via RMS detector FWDM: 28 - 48dBm @ 0 - 5V (150mV/dB min)
2	Reverse Power Monitor	Continuous Analog voltage relative to reflected power via RMS detector REVM: 26 - 46dBm @ 0 - 5V (150mV/dB min) REVM (50Ohm): REVM (Open/Short) -12dB
3	Temp Sense	Analog 10mv/°C
4	Current Monitor	50mv/100mA
5	Shutdown (Mute)	Enable: TTL "Low" - Pull Down Resistor 10KOhm

OUTLINE DRAWING


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Performance Plots

Plots 1 - Small Signal and P_{1dB} Gain

Top Curve: Small Signal Gain @ $P_{IN} = -20dBm$
 Middle Curve: Power Gain @ P_{1dB} , $P_{IN} = -2.5dBm$ (Note 2, 3)
 Reference: 47dB, 1dB/div.
 Bottom Curve: Input Return Loss
 Reference: 0dB, 10dB/div.



Plot 2 - Small Signal and P_{SAT}

Top Curve: Small Signal Gain @ $P_{IN} = -20dBm$
 Middle Curve: P_{SAT} @ $P_{IN} = -1.0dBm$ (Note 2, 3)
 Reference: 47dB, 1dB/div.
 Bottom Curve: Input Return Loss
 Reference: 0dB, 10dB/div.

