

Solid State Broadband High Power Amplifier

1010-BBM5A7A9I
2000 – 4000 MHz / 8 Watts

The BBM5A7A9I (SKU 1010) is suitable for S-Band broadband & band specific linear applications. This amplifier utilizes advanced GaAsFET power devices providing high gain, wide dynamic range, low distortions and excellent linearity. Exceptional performance, long term reliability, and high efficiency are achieved by employing advanced broadband RF matching networks and combining techniques, built in high efficiency sequence regulator, EMI/RFI filters, machined housing, and qualified components. Empower RF's ISO9001 Quality Assurance Program assures consistent performance and the highest reliability.



- Solid-state Class A linear design
- Instantaneous octave broadband
- Excellent Phase Linearity and Group Delay Characteristics
- Small and lightweight
- Suitable for CW, AM, and FM (Consult factory for other modulation types)
- 50 ohm input/output impedance
- High reliability and ruggedness

ELECTRICAL SPECIFICATIONS @ +13.0V_{DC}, 25°C, 50 Ω System

Parameter	Symbol	Min	Typ	Max	Unit
Operating Frequency	BW	2000		4000	MHz
Output Power CW	P _{SAT}	7	8		Watt
Output Power @ 1dB Gain Compression	P _{1dB}	6			Watt
Power Gain @ 1dB Gain Compression	G _{1dB}	38			dB
Input Power for Rated P _{SAT}	P _{IN}		0	3	dBm
Small Signal Gain Flatness	ΔG			±1.5	dB
Input Return Loss	S ₁₁			-10	dB
Third Order Intercept Point 2-Tone @ 30dBm/Tone, 100kHz Spacing	IP3		+48		dBm
Harmonics @ P _{OUT} = 6W	H		-20		dBc
Noise Figure	NF			10	dB
Spurious Signals	Spur			-60	dBc
Operating Voltage	V _{DD}	12	13	15	Volt
Current Consumption @ P _{OUT} = 8W	I _{DD}		3	4	Amp

MECHANICAL SPECIFICATIONS

Parameter	Value	Unit
Dimensions	6.8 x 2.63 x 0.75	Inch
Weight	1.5	Pound
RF Connectors Input/Output	Type-SMA, Female	
DC Interface Connections	Feed Thru	
Cooling	External Heatsink (Not Supplied)	

ENVIRONMENTAL CHARACTERISTICS (Design to Meet)

Parameter	Symbol	Min	Typ	Max	Unit
Operating Temperature	T _C	0		+50	°C
Non-operating Temperature	T _{STG}	-40		+85	°C
Relative Humidity (non-condensing)	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		

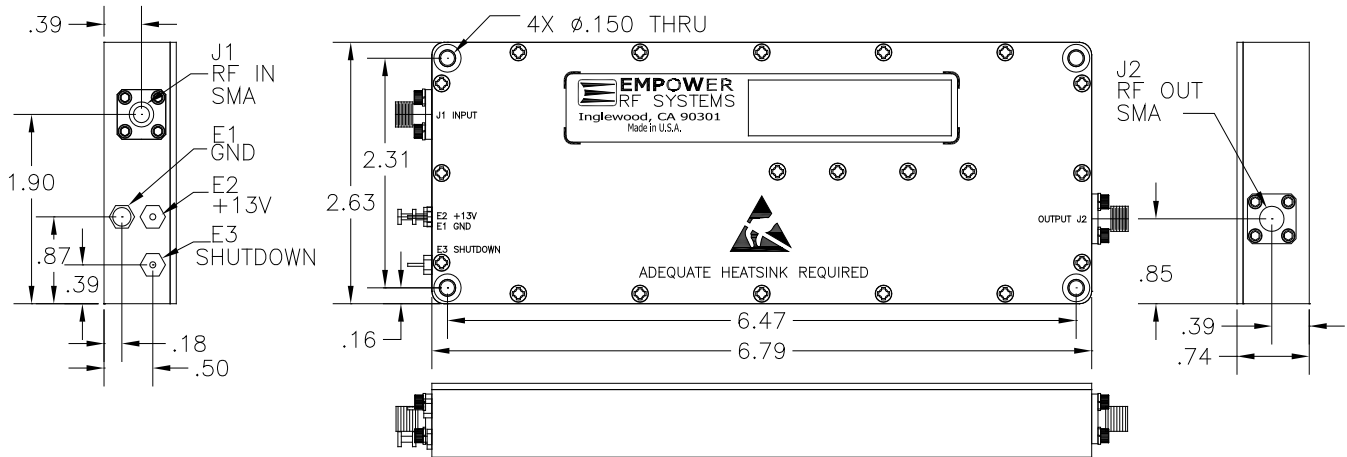
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LIMITS

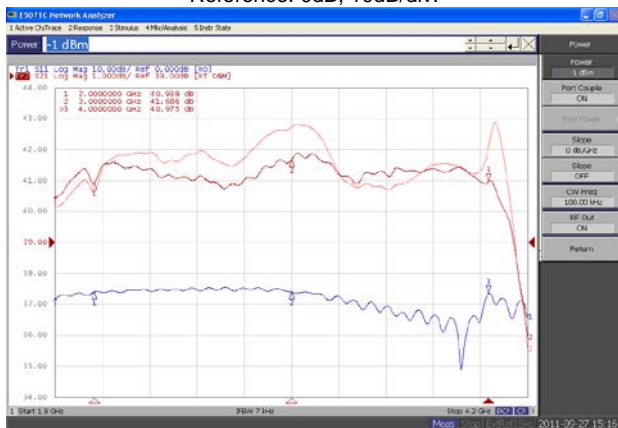
RF Input drive level without damage	+10 dBm	Max
Load VSWR @ P _{OUT} = 6W	∞ @ all load phase & amplitude for duration of 1 minute 3:1 @ all load phase & amplitude continuous	-
Thermal Overload	85°C shutdown	Max

DC INTERFACE CONNECTIONS – Feed Thru

Pin #	Description	Specification
FL1	+13V	+12.0 -15.0V _{DC}
FL2	Shutdown	Amplifier Disable: TTL Logic High (5V) (Internally Pulled-Low)
E1	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} = -1.0dBm
 Reference: 39dB, 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} = 1.0dBm
 Reference: 39dB, 1dB/div.
 Bottom Curve: Input Return Loss
 Reference: 0dB, 10dB/div.

