

Solid State Broadband High Power Amplifier

1041-BBM4A5K7H
1000 - 2500MHz / 5Watt

The BBM4A5K7H (SKU 1041) is suitable for broadband high power linear applications, this amplifier module utilizes advanced GaAsFET power devices that provide 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, EMI/RFI filters, machined housings and qualified components. Empower RF's ISO9001 Quality Assurance Program assures consistent performance and the highest reliability.



Option 072 Shown

- Solid-state Class A linear design
- Instantaneous ultra broadband
- 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, 50Ω System

Parameter	Symbol	Min	Typ	Max	Unit
Operating Frequency	BW	1000		2500	MHz
Output Power (CW)	P _{SAT}	5	7		Watt
Output Power @ 1dB Gain Compression	P _{1dB}	4	5		Watt
Power Gain @ 1dB Gain Compression	G _{1dB}	36			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
Noise Figure	NF		7	10	dB
Harmonics @ P _{OUT} = 4W	H		-25		dBc
Third Order Intercept Point 2-Tone @ 34dBm/Tone, 100kHz Spacing	IP3		+48		dBm
Spurious Signals	Spur		-70	-60	dBc
Operating Voltage	V _{DC}	12	13	15	Volt
Current Consumption @ P _{OUT} = 5W, CW	I _{DD}			3.0	Amp

MECHANICAL SPECIFICATIONS

Parameter	Value	Unit
Dimension	6.0 x 2.15 x 0.9	Inch
Weight	1.0	Pound
RF Connectors Input/Output	Type-SMA, Female	
DC Interface Connections	Feed Thru and Terminal Post	
Cooling	External Heatsink (not supplied)	

ENVIRONMENTAL CHARACTERISTICS (Design to Meet)

Parameter	Symbol	Min	Typ	Max	Unit
Operating Case Temperature	T _C	0		+50	°C
Non-operating 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		-

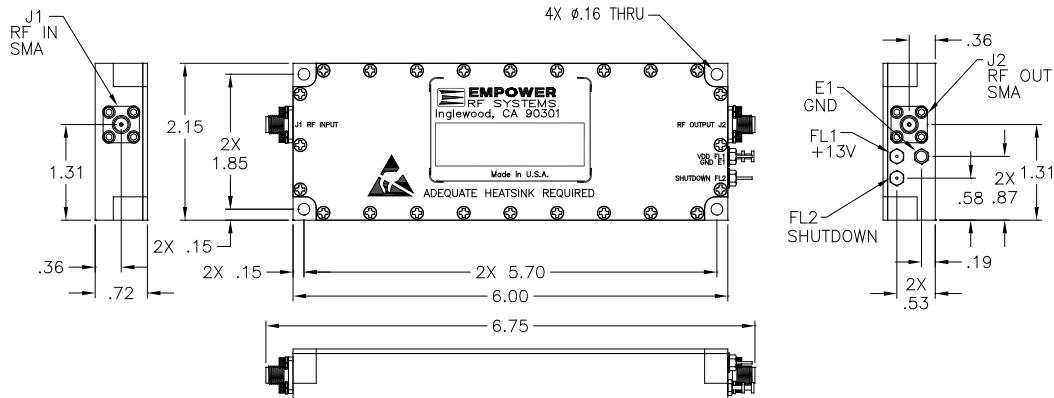
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LIMITS

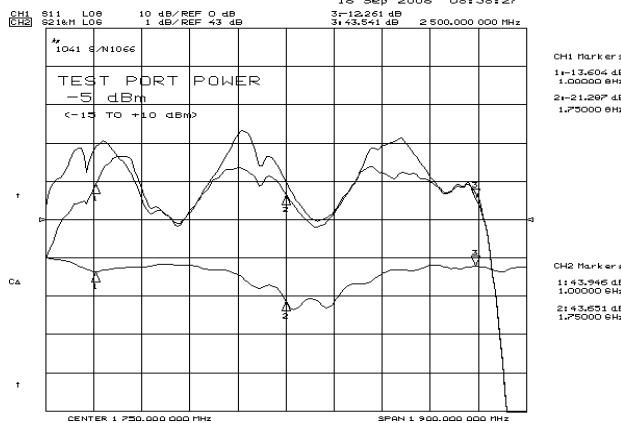
Input RF drive level without damage	+10dBm	Max
Load VSWR @ P _{OUT} = 4W	∞ @ all load phase & amplitude for duration of 1 minute 3:1 @ all load phase & amplitude continuous	-
Thermal Overload	85°C shutdown	Max

DC INTERFACE CONNECTOR - Feed Thru and Terminal Post

Pin #	Description	Specification
FL1	VDD	+12.0-15.0V _{DC}
FL2	Shutdown	Amplifier Disable: TTL Logic High (5V) (Internally Pulled-Low)
E1	GND	Ground

OUTLINE DRAWING

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

Top Curve: Small Signal Gain @ P_{IN} = -15dBm
 Middle Curve: Power Gain @ P_{1dB}, P_{IN} = -5dBm
 Reference: 43dB, 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} = -15dBm
 Middle Curve: Power Gain @ P_{SAT}, P_{IN} = -3dBm
 Reference: 42dB, 1dB/div.
 Bottom Curve: Input Return Loss
 Reference: 0dB, 10dB/div.

