

Solid State Broadband High Power Amplifier

1117 - BBM3K5KEL
500 – 2500 MHz / 25 Watts

The BBM3K5KEL (SKU 1117) is suitable for broadband mobile Jamming and band specific high power linear applications in the P/L/S frequency bands. This compact module utilizes high power advanced GaN devices that provide excellent power density, high efficiency, wide dynamic range and low distortions. 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.

- Solid-state linear design
- Instantaneous ultra broadband
- Small and lightweight
- Suitable for CW, AM, and FM (for other modulation types, consult factory).
- 50 ohm input/output impedance
- High reliability and ruggedness
- Built-in control, monitoring and protection circuits



RoHS Compliant available
 SKU# 1117-0001

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

Parameter	Symbol	Min	Typ	Max	Unit
Operating Frequency	BW	500		2500	MHz
Power Output CW # 3dB G.C.P	P _{SAT}	25	30		Watt
Output Power @ 1 dB Gain Compression Point	P _{1dB}		20		Watt
Small Signal Gain	G _{SS}	44	46	52	dB
Input Power for Rated Pout	P _{IN}		0		dBm
Gain Flatness @ rated output power	ΔG _P		±1.0	±1.5	dB
Input Return Loss	S11			-10	dB
Noise Figure	NF			10	dB
Third Order Intercept Point 2-Tones @ 30 dBm/Tone, Δ = 100 KHz	IP3	+45			dBm
Harmonics @ rated P1 dB Gain Compression Point	H		-25	-15	dBc
Spurious Signals	Spur		-70	-60	dBc
Operating Voltage	VDC	26	28	30	Volt
Current Consumption @ rated Pout	IDD			3.3	Amp
Standby Current Consumption	IDQ		100		mA
Switching Time, 1 KHz TTL, P _{IN} = 0 dBm	T _{ON} /T _{OFF}		2.0	5.0	uSec

MECHANICAL SPECIFICATIONS

Parameter	Value	Units	Limits
Dimensions	6.0 x 3.0 x 1.0	Inch	Max
Weight	1.0	lb.	Max
RF Connectors In/Out	SMA female		
DC / Control Connector	Dsub, 9-Pins, Male		
Cooling	External Heatsink		

ENVIRONMENTAL CHARACTERISTICS (Design to Meet)

Parameter	Symbol	Min	Typ	Max	Unit
Operating Case Temperature	T _c	-20		+75	°C
Storage Temperature	T _{stg}	-40		+85	°C
Relative humidity (non-condensing)	RH			95	%
Altitude (MIL-STD-810F Method 500.4)	ALT	10,000		30,000	Feet
Shock & Vibration (MIL-STD-810F Method 516.5)	SH / VI		Airborne		

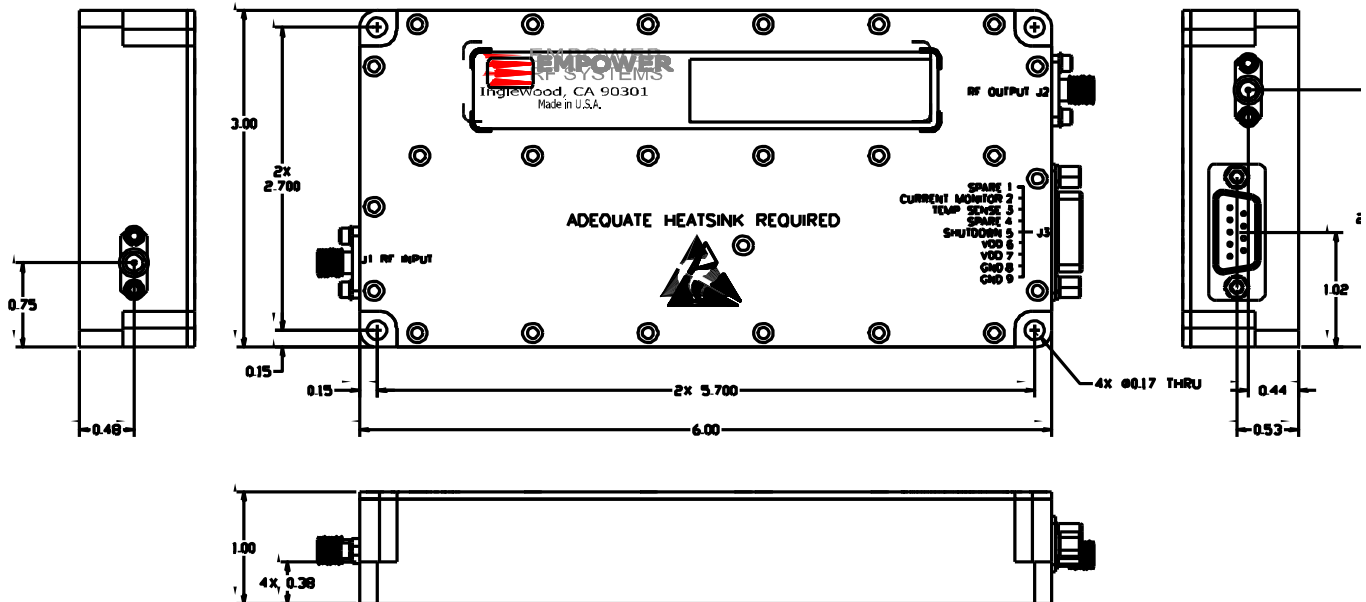
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PROTECTIONS

Input Overdrive	+10 dBm	Max
Load VSWR @ rated output power	∞ @ all load phase & amplitude for duration of 1 minute 3:1 @ all load phase & amplitude continuous	Nom
Thermal Overload	85°C	

INTERFACE CONNECTOR - D-Sub, 9-Pin

Pin #	Description	Specifications
1	N/C	Reserved
2	Current Monitor	Analog voltage relative to I _D @ 100 mV/100 mA
3	Temperature Sense	Analog voltage relative to Module's Temperature @ 10 mV/°C
4	N/C	Reserved
5	Shutdown	Amplifier Enable: TTL "Low" (Logic 0) or "Open" Amplifier Disable: TTL "High" (Logic 1)
6	VDD	+28 VDC ±2 VDC
7	VDD	+28 VDC ±2 VDC
8	GND	Ground
9	GND	Ground

OUTLINE DRAWING


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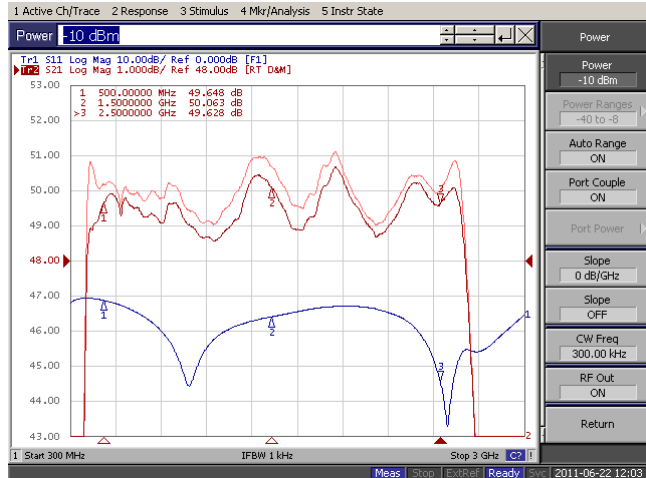
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TYPICAL PERFORMANCE PLOTS

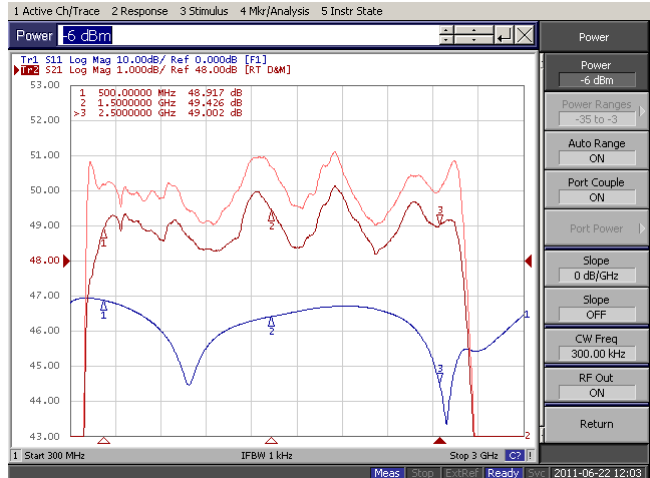
Plots 1 - Small Signals

Top Curve: Small Signal Gain @ $P_{IN} = -20\text{dBm}$
 Middle Curve: Small Signal Gain @ $P_{IN} = -10\text{dBm}$
 Reference: 48dB, 1dB/div.
 Bottom Curve: Input Return Loss
 Reference: 10dB, 10dB/div.



Plot 2 - Small Signal and P_{1dB} Gain

Top Curve: Small Signal Gain @ $P_{IN} = -20\text{dBm}$
 Middle Curve: Power Gain @ P_{1dB} , $P_{IN} = -6.0\text{dBm}$ (Note 2)
 Reference: 48dB, 1dB/div.
 Bottom Curve: Input Return Loss
 Reference: 10dB, 10dB/div.



Plot 3 - Small Signal and P_{SAT}

Top Curve: Small Signal Gain @ $P_{IN} = -20\text{dBm}$
 Middle Curve: P_{SAT} @ $P_{IN} = -1.0\text{dBm}$ (Note 2)
 Reference: 48dB, 1dB/div.
 Bottom Curve: Input Return Loss
 Reference: 10dB, 10dB/div.

