EMPOWER
RF SYSTEMS, INC.

Solid State Broadband High Power Amplifier

1105 – BBM3Q5KAM | 800 – 2500 MHz / 10 Watts

The BBM3Q5KAM (SKU 1105) is suitable for broadband or band specific high power linear applications in the L/S frequency bands. This compact module utilizes 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.

- Solid-state Class A linear design
- Instantaneous ultra broadband
- Small and lightweight
- Suitable for most modulation types (contact factory for details)
- 50 ohm input/output impedance
- High reliability and ruggedness
- Built-in control, monitoring and protection circuits

ELECTRICAL SPECIFICATIONS @ +28 V_{DC} or +15 V_{DC}, 25°C, 50Ω System

Parameter	Symbol	Min	Typ	Max	Unit
Operating Frequency	BW	800		2500	MHz
Power Output CW	P_{SAT}	**10**	**12**		Watt
Output Power @ 1 dB Gain Compression Point	P_{1dB}	8	10		Watt
Small Signal Gain @ P_{IN} = -16 dBm	G_{1dB}	46		52	dB
Input Power for Rated P_{OUT}	P_{IN}		-4		dBm
Gain Flatness	ΔG			±1.5	dB
Input Return Loss	S_{11}			-10	dB
Noise Figure	NF			10	dB
Third Order Intercept Point	IP3		+53		dBm
Harmonics @ P1 dB Gain Compression Point	H		-25		dBc
Spurious Signals	Spur		-70	-60	dBc
Operating Voltage (15 V_{DC} Opt 041)	V_{DC}	13	15	15	Volt
Operating Voltage (28 V_{DC} Opt 043)	V_{DC}	26	28	30	Volt
Supply Current	I_{DD}			2.0	Amp
Switching Time, 1 KHz TTL, P_{IN} = 0 dBm	T_{ON}/T_{OFF}		10	20	uSec
Standby Current Consumption	P_{DQ}		50		mA

MECHANICAL SPECIFICATIONS

Parameter	Value	Units	Limits
Dimensions	6.0 x 2.2 x 0.9	Inch	Max
Weight without HS	1.0	lb.	Max
RF Connectors In/Out	SMA female		
DC Connectors	Dsub, 9-Pins, Male		
Cooling	External Heatsink		

ENVIRONMENTAL CHARACTERISTICS

Parameter	Symbol	Min	Typ	Max	Unit
Operating Case Temperature	Tc	-40		+80	°C
Storage Temperature	Tstg	-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 500.4)	SH / VI		Airborne		

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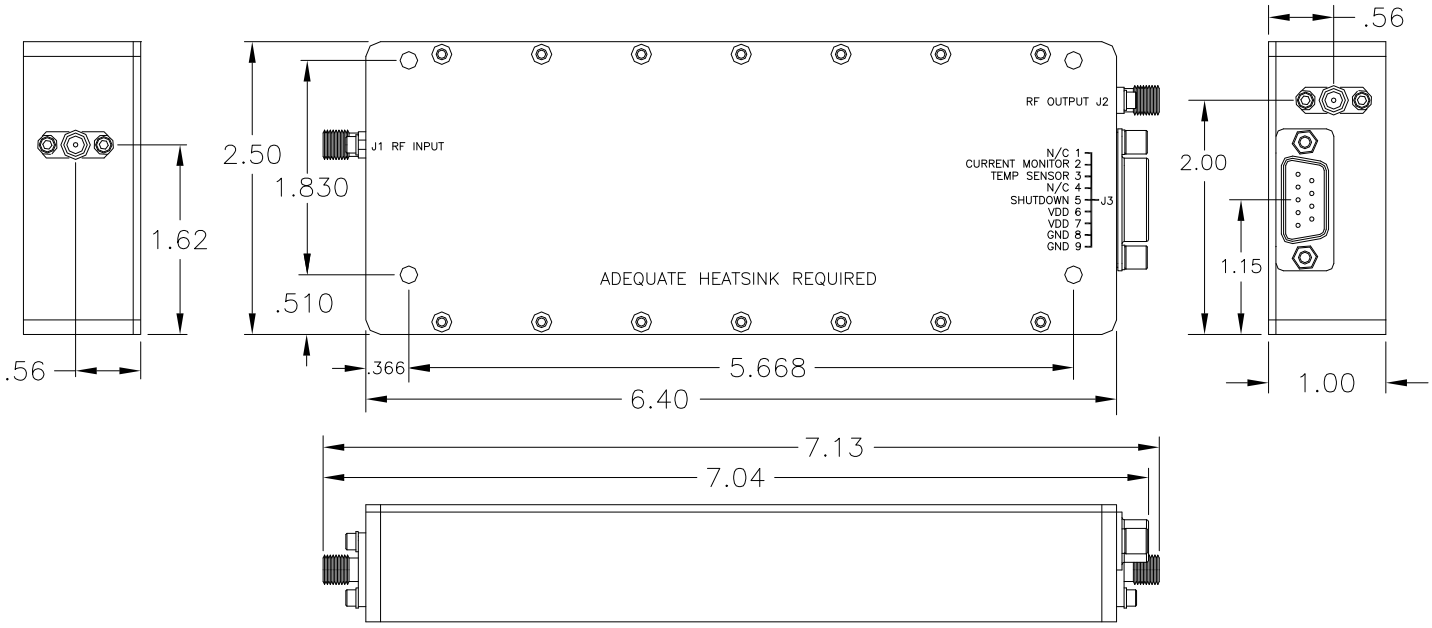
PROTECTIONS

Input Overdrive	+10 dBm	Max
Load VSWR @ 10 W	∞ @ all load phase & amplitude	Nom

INTERFACE CONNECTOR - D-Sub, 9-Pin

Pin #	Description	Specifications
1	N/C	Reserved
2	Current Consumption Monitor	Analog voltage relative to I_D @ 50 mV/100 mA
3	Temperature Monitor	Analog voltage relative to Module's Temperature @ 10 mV/°C
4	N/C	Reserved
5	Shutdown (Impedance 1 HCT gate)	Amplifier Enable: TTL "Low" or Open (Logic 0) within 5uSec Amplifier Disable: TTL "High" (Logic 1) within 10uSec
6	VDD	+15V_{DC}- +15V_{DC} (Opt 041 – DCA) +28V_{DC} ±2.0V_{DC} (Opt 043 – DCC)
7	VDD	+15V_{DC}- +15V_{DC} (Opt 041 – DCA) +28V_{DC} ±2.0V_{DC} (Opt 043 – DCC)
8	GND	Ground
9	GND	Ground

OUTLINE DRAWING



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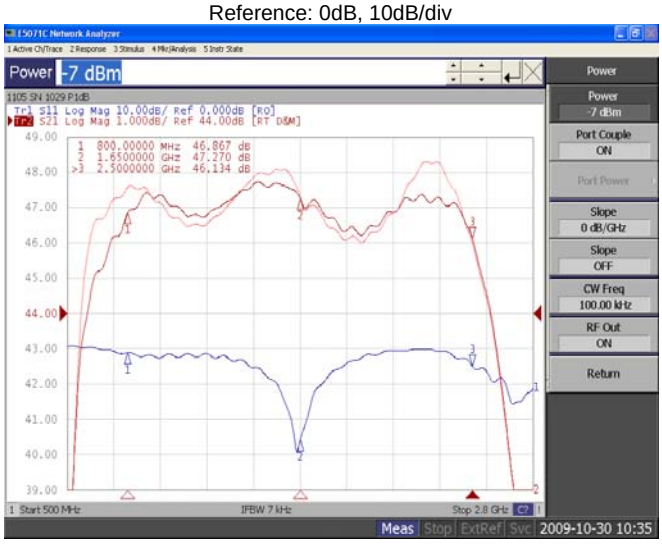
TYPICAL PERFORMANCE PLOTS

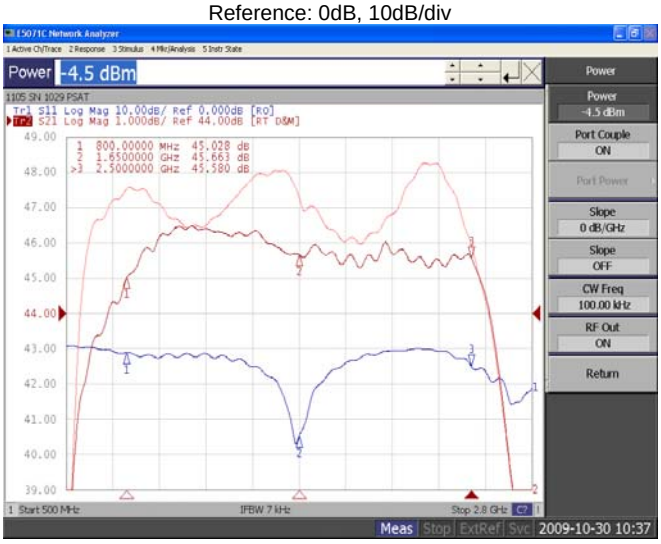
Plot 1

Top Curve: Small signal @ Pin = -20dBm
Middle Curve: P1dB @ Pin = -7.0dBm **(Note 2)**
Reference: 44dB, 1dB/div
Bottom Curve: Input Return Loss
Reference: 0dB, 10dB/div



Plot 2

Top Curve: Small signal @ Pin = -20dBm
Middle Curve: Output Power @ Pin = -4.5dBm **(Note 2)**
Reference: 44dB, 1dB/div
Bottom Curve: Input Return Loss
Reference: 0dB, 10dB/div



Notes:
1. Verify NO change in performance after test.
2. Loss/Source Correction included in P_{IN} Measurement: 0.0dB @ 2500MHz