

Solid State Broadband High Power Amplifier

1132 - BBM3T6AMQ
960 – 3000 MHz / 160 Watts

The BBM3T6AMQ (SKU 1132) is suitable for multi octave broadband high power RF & MW linear applications. This compact module utilizes state-of-the-art high power GaN technology providing 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 Class AB linear design
- Ultra-wide instantaneous bandwidth
- Suitable for CW, AM and FM (for other modulation types, consult factory).
- 50 ohm input/output impedance
- Built-in control, monitoring and protection circuits
- Compact, lightweight, rugged and reliable

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

Parameter	Symbol	Min	Typ	Max	Unit
Operating Frequency	BW	960		3000	MHz
Power Output CW	P _{SAT}	160	180		Watt
Output Power @ 1 dB Gain Compression Point	P _{1dB}	80			Watt
Small Signal Gain	G _{SS}	54	56		dB
Small Signal Gain Flatness	ΔG _{SS}			±2.0	dB
Input Power for Rated P _{OUT}	P _{IN}		0	+4.0	dBm
Gain Flatness @ rated P _{OUT}	ΔG _P		±1.0	±2.0	dB
Input Return Loss	S ₁₁			-10	dB
Noise Figure	NF			10	dB
Third Order Intercept Point	IP3		+60		dBm
Harmonics @ rated 1dB Gain Compression Point	H		-20		dBc
Spurious Signals	Spur		-70	-60	dBc
Operating Voltage	V _{DD}	26	28	30	Volt
Current Consumption @ rated P _{OUT}	I _{DD}		20	25	Amp
Current Consumption @ Shutdown	P _{DQ}			200	mA
Shutdown Time (Pin 5)	T _{ON/OFF}		<5	10	μSec

MECHANICAL SPECIFICATIONS

Parameter	Value	Units	Limits
Dimensions	12 x 10 x 1.1	Inch	Max
Weight	6.0	lb.	Max
RF Connectors In/Out	SMA female		
DC Connectors	Hybrid Dsub, 17 Pin		
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		

PROTECTIONS

Input Overdrive	P _{OD}		+10 dBm	Max
Load VSWR (5 seconds)	Ψ	∞ @ all load phase & amplitude for duration		

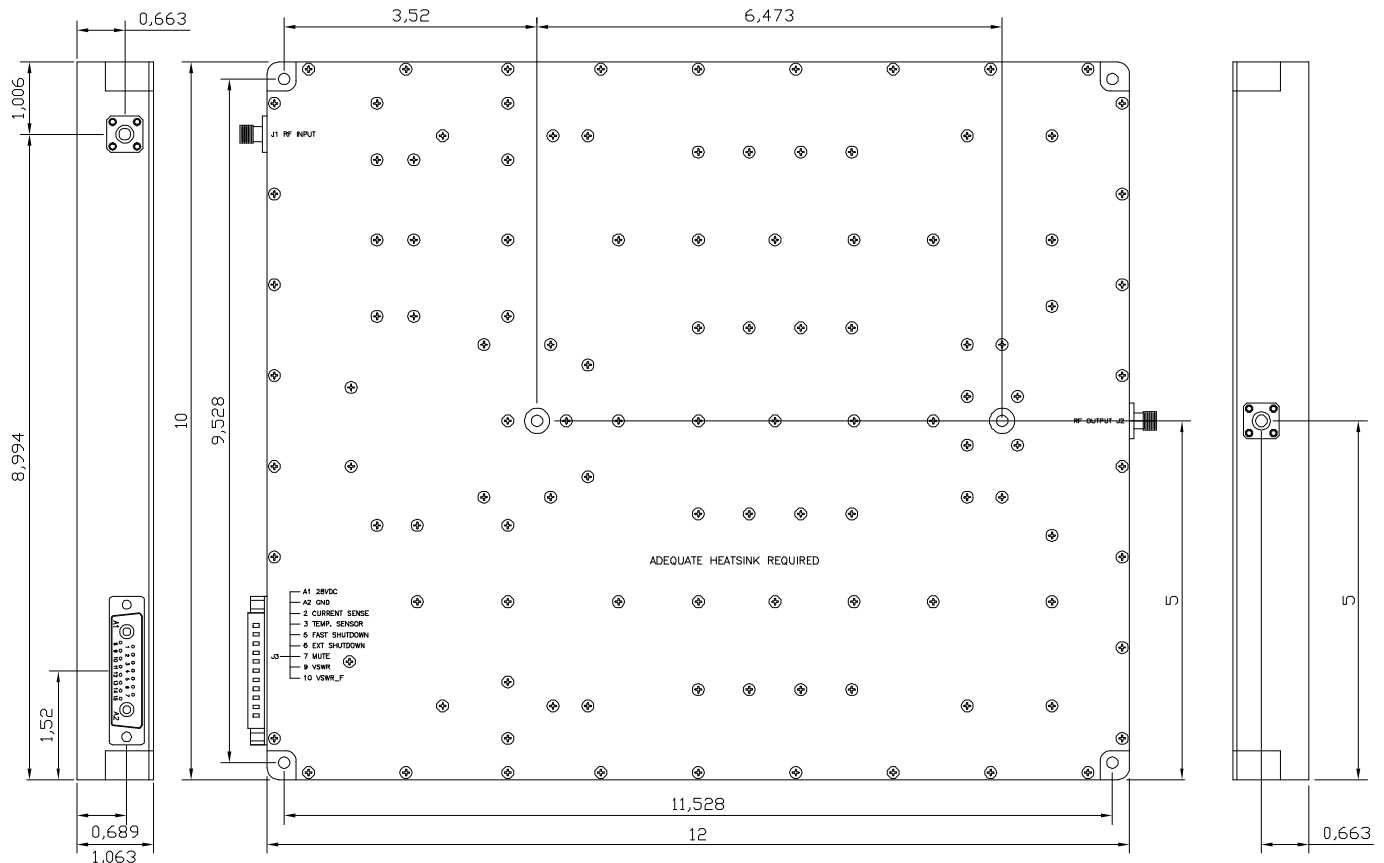
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		of 1 minute 3:1 @ all loads phase & amplitude continuous	
Thermal Overload	T _{OD}	85°C shutdown	

INTERFACE CONNECTOR, Hybrid D-Sub, 17-Pin

Pin #	Description	Specifications
A1	VDD	+28 ±2 V _{DC}
A2	GND	Ground
1	N/C	Reserved
2	Current Sensor	Analog voltage relative to I _D @ 10 mV/100mA
3	Temp Sensor	Analog voltage relative to Module's Temperature @ 10 mV/°C
4	N/C	Reserved
5	Fast Shutdown	Amplifier Enable: TTL "Low" (Logic 0) or Open Amplifier Disable: TTL "High" (Logic 1)
6	External Shutdown	Not Connected
7	Mute	Not Connected
8	N/C	Reserved
9	VSWR	Not Connected
10	VSWR_F	Not Connected
11-15	N/C	Reserved

OUTLINE DRAWING


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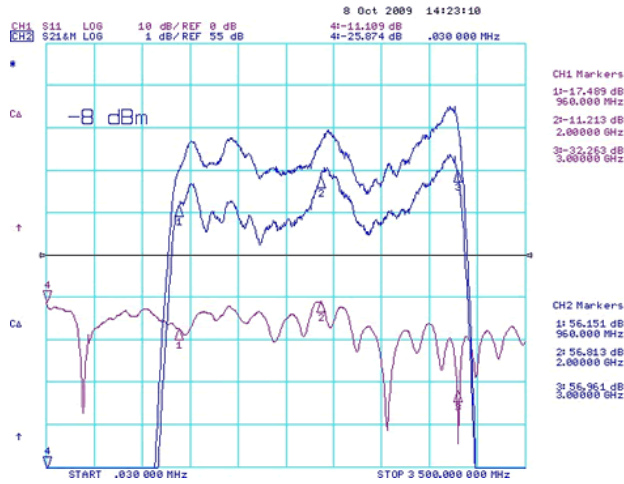
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TYPICAL PERFORMANCE PLOTS

Plot 1

Top Curve: Small Signal Gain @ Pin = -20dBm
 Middle Curve: P_{1dB} @ Pin = -8dBm
 Reference: 55dB, 1dB/Div
 Bottom Curve: Input Return Loss
 Reference: 0dB, 10dB/Div



Plot 2

Top Curve: Small Signal Gain @ Pin = -20dBm
 Middle Curve: P_{SAT} @ Pin = 0dBm
 Reference: 54dB, 1dB/Div
 Bottom Curve: Input Return Loss
 Reference: 0dB, 10dB/Div

