

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 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 design
- Ultra-wide instantaneous bandwidth
- Suitable for CW, AM and FM (Consult factory for other modulation types)
- 50 ohm input/output impedance
- Built-in control, monitoring and protection circuits
- Compact, lightweight, rugged and reliable

ELECTRICAL SPECIFICATIONS @ +28.0V_{DC}, 25°C, 50Ω System

Parameter	Symbol	Min	Typ	Max	Unit
Operating Frequency	BW	960		3000	MHz
Output Power CW	P _{SAT}	160	180		Watt
Output Power @ 1dB Gain Compression	P _{1dB}		50		Watt
Small Signal Gain	G _{SS}	54	56		dB
Small Signal Gain Flatness	ΔG _{SS}			±2.0	dB
Input Power for Rated P _{SAT}	P _{IN}		0	+4.0	dBm
Input Return Loss	S ₁₁			-10	dB
Noise Figure	NF			10	dB
Third Order Intercept Point 2-Tone @ 39dBm/Tone, 100kHz Spacing	IP3		+56		dBm
Harmonics @ P _{OUT} = 50W	2 nd /3 rd		-20		dBc
Spurious Signals	Spur		-70	-60	dBc
Operating Voltage	V _{DC}	26	28	30	Volt
Current Consumption @ P _{OUT} = 160W CW	I _{DD}		20	25	Amp
Current Consumption @ Shutdown	I _{SD}			200	mA
Switching Time @ 1kHz TTL, P _{IN} = 0dBm	T _{ON/OFF}		5	10	μSec

MECHANICAL SPECIFICATIONS

Parameter	Value	Unit
Dimensions	304.8 x 254.0 x 27.0 (12.00 x 10.00 x 1.1)	mm (Inch)
Weight	6.0	Pound
RF Connectors Input/Output	Type-SMA, Female	
DC Interface Connector	Hybrid, D-sub 17-pin, Male (17W2P)	
Cooling	External Heatsink (Not Supplied)	

ENVIRONMENTAL CHARACTERISTICS (Design to Meet)

Parameter	Symbol	Min	Typ	Max	Unit
Operating Case Temperature	T _C	-20		+75	°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		

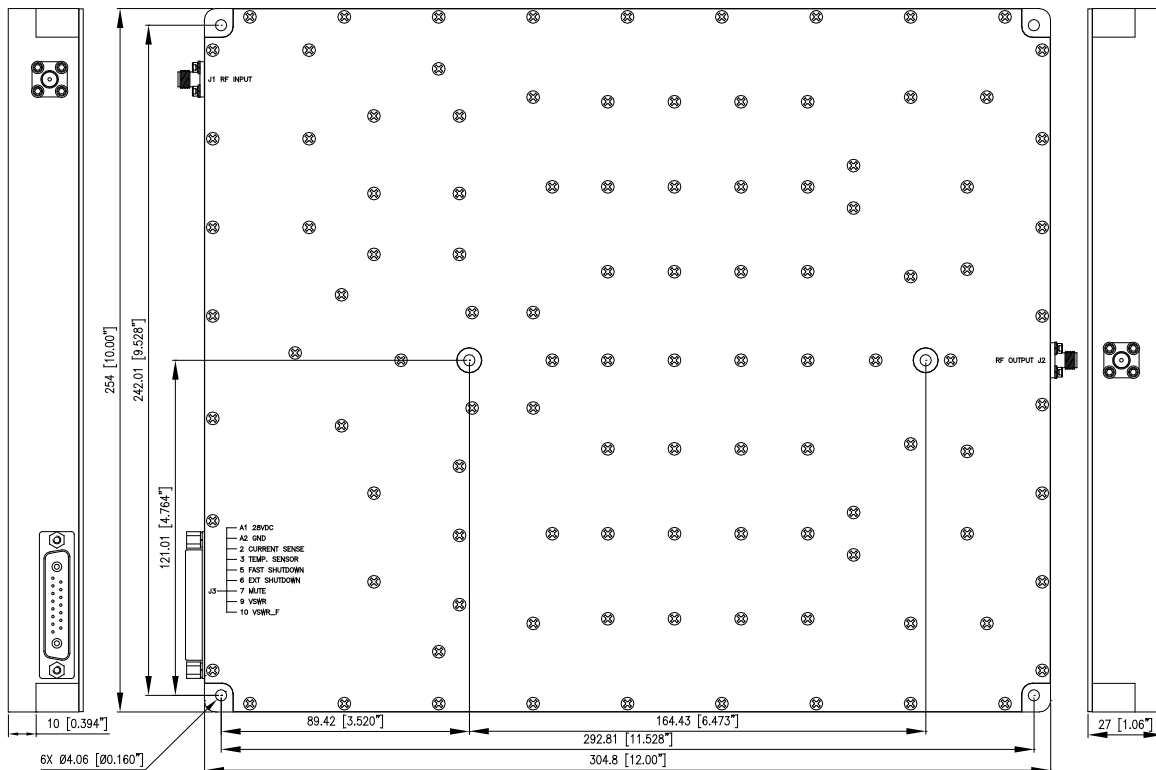
Solid State Broadband High Power Amplifier

1132 - BBM3T6AMQ
960 – 3000 MHz / 160 Watts
LIMITS

Input RF drive level without damage	+10 dBm	Max
Load VSWR @ P _{OUT} = 160W	∞ @ all load phase & amplitude for duration of 1 minute 3:1 @ all loads phase & amplitude continuous	-
Thermal Overload	85°C shutdown	Max

DC INTERFACE CONNECTOR – Hybrid D-Sub 17-Pin, Male (17W2P)

Pin #	Description	Specification
A1	VDD	+26.0-30.0V _{DC}
A2	GND	Ground
1	N/C	No Connection
2	Current Sense	Analog voltage relative to I _{DD} @ 10mV/100mA
3	Temp Sensor	Analog voltage relative to Module's temperature @ 10mV/°C
4	Spare	No Connection
5	Fast Shutdown	Amplifier Disable: TTL Logic High (5V) (Internally Pulled-Low)
6	External Shutdown	Reserved – (factory use)
7	Mute	Reserved – (factory use)
8	N/C	No Connection
9	VSWR	Reserved – (factory use)
10	VSWR_F	Reserved – (factory use)
11-15	N/C	No Connection

OUTLINE DRAWING


Solid State Broadband High Power Amplifier

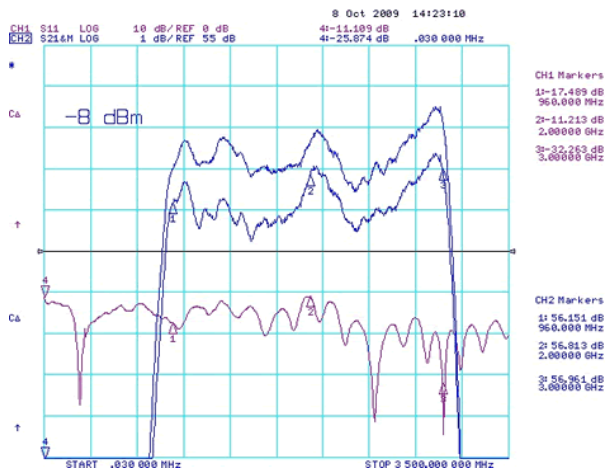
1132 - BBM3T6AMQ

960 – 3000 MHz / 160 Watts

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} , $P_{IN} = -8dBm$
 Reference: 55dB, 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} , $P_{IN} = 0dBm$
 Reference: 54dB, 1dB/div.
 Bottom Curve: Input Return Loss
 Reference: 0dB, 10dB/div.

