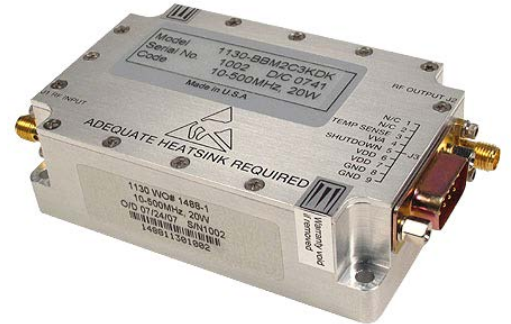


Solid State Broadband High Power Amplifier

1130 - BBM2C3KDK
10 – 500 MHz / 20 Watts

The BBM2C3KDK (SKU 1130) is suitable for multi-octave broadband high power RF, VHF & UHF applications. 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 Class AB design
- Instantaneous ultra broadband
- Small form factor and lightweight
- Suitable for CW, AM, and FM (Contact factory for other modulation types)
- 50 ohm input/output impedance
- High reliability and ruggedness
- Built-in control, monitoring and protection circuits

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

Parameter	Symbol	Min	Typ	Max	Unit
Operating Frequency	BW	10		500	MHz
Output Power CW	P _{SAT}	20			Watt
Power Output @ 1dB Gain Compression	P _{1dB}	10			Watt
Power Gain @ 1dB Gain Compression	G _{1dB}	42			dB
Input Power for Rated P _{SAT}	P _{IN}		0	3	dBm
Small Signal Gain Flatness	ΔG		±1.0	±1.5	dB
Gain Adjustment Range	VVA	25	30		dB
Input Return Loss	S ₁₁			-10	dB
Noise Figure @ max. gain	NF		7	10	dB
Third Order Intercept Point 2-Tone @ 30dBm/Tone, 100kHz Spacing	IP3		+49		dBm
Harmonics @ P _{OUT} = 10W	H		-25		dBc
Spurious Signals	Spur		-70	-60	dBc
Operating Voltage	V _{DC}	26	28	30	Volt
Current Consumption @ P _{OUT} = 20W CW	I _{DD}			2.2	Amp

MECHANICAL SPECIFICATIONS

Parameter	Value	Unit
Dimensions	3.5 x 2.3 x 1.1	Inch
Weight	1.0	Pound
RF Connectors Input/Output	Type-SMA, Female	
DC Interface Connector	D-sub 9-pin, Male	
Cooling	External Heatsink (not supplied)	

ENVIRONMENTAL CHARACTERISTICS (Design to Meet)

Parameter	Symbol	Min	Typ	Max	Unit
Operating Case Temperature	T _C	-30		+85	°C
Non-operating Temperature	T _{STG}	-40		+90	°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		

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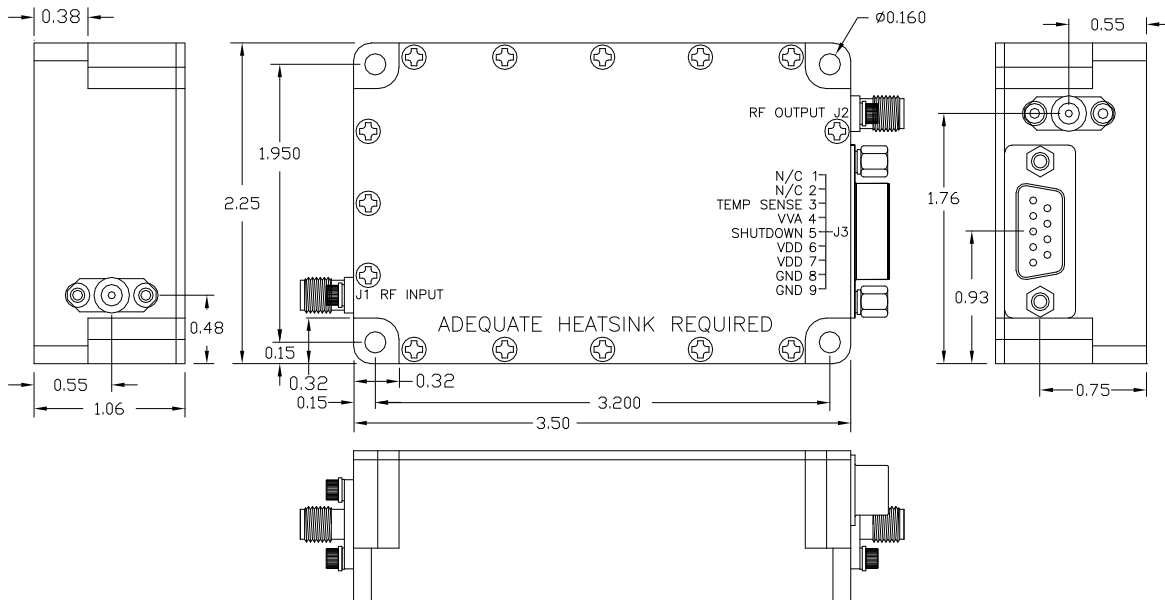
LIMITS

Input RF drive level without damage	+10 dBm	Max
Load VSWR @ P _{OUT} = 10W	∞ @ all load phase & amplitude for duration of 1 minute 3:1 @ all load phase & amplitude continuous	-
Thermal Overload	95°C shutdown	Max

DC INTERFACE CONNECTOR – D-sub 9-pin, Male

Pin #	Description	Specification
1	N/C	No Connection
2	N/C	No Connection
3	Temperature Sense	Analog voltage relative to Module's Temperature @ 10 mV/°C (0.25V = 25°C)
4	VVA	Control voltage range: 0-5V _{DC} Maximum Gain: 0V _{DC} , Minimum Gain: 5V _{DC}
5	Shutdown	Amplifier Disable: TTL Logic High (5V) (Internally Pulled-Low)
6&7	VDD	26.0-30.0V _{DC}
8&9	GND	Ground

OUTLINE DRAWING



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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} , $P_{IN} = -4.0dBm$
 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 @ $P_{IN} = -20dBm$
 Middle Curve: Power Gain @ P_{SAT} , $P_{IN} = -0.5dBm$
 Reference: 43dB, 1dB/div.
 Bottom Curve: Input Return Loss
 Reference: 0dB, 10dB/div.



Plot 3 – Gain Adjustment Range

Top Curve: Maximum Gain @ $V_{VACTRL} = 0V_{DC}$, $P_{IN} = -20dBm$
 Middle Curve: Minimum Gain @ $V_{VACTRL} = 5V_{DC}$, $P_{IN} = -20dBm$
 Reference: 20dB, 10dB/div.
 Bottom Curve: Input Return Loss
 Reference: 0dB, 10dB/div.

