

Solid State Broadband High Power Amplifier

1164-002

800 – 2701 MHz / 45 Watts

- Solid-state Class AB design
- Instantaneous ultra broadband
- Small 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 @ +28.0V_{DC}, 25°C, 50Ω System

Parameter	Symbol	Min	Typ	Max	Unit
Operating Frequency	BW	800		2701	MHz
Output Power CW	P _{SAT}	45	50		Watt
Output Power @ 1dB Gain Compression	P _{1dB}		20		Watt
Small Signal Gain	G _{SS}	46	48		dB
Input Power for Rated P _{SAT}	P _{IN}		0	4	dBm
Small Signal Gain Flatness	ΔG _{SS}			±2.0	dB
Input Return Loss	S ₁₁			-10	dB
Noise Figure	NF			10.5	dB
Third Order Intercept Point 2-Tones @ 34dBm/Tone, 1MHz Spacing	IP3		+50		dBm
900MHz Harmonics @ P _{OUT} = 30W	2 ND / 3 RD			-20/-30	dBc
1800MHz Harmonics @ P _{OUT} = 30W	2 ND / 3 RD			-20/-30	dBc
2100MHz Harmonics @ P _{OUT} = 30W	2 ND / 3 RD			-20/-30	dBc
2600MHz Harmonics @ P _{OUT} = 30W	2 ND / 3 RD			-20/-30	dBc
Spurious Signals	Spur		-70	-60	dBc
Operating Voltage	V _{DC}	26	28	30	Volt
Current Consumption @ P _{OUT} = 40W	I _{DD}			6.0	Amp
Quiescent Current	I _{DQ}			1.5	Amp
Switching Time @ 1kHz TTL, P _{IN} = 0 dBm	T _{ON} /T _{OFF}		2	3	uSec

MECHANICAL SPECIFICATIONS

Parameter	Value	Unit
Dimensions	7.09 x 3.6 x 1.0	Inch
Weight	1.5	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	-40		+90	°C
Storage 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		

LIMITS

Input RF drive level without damage	+10 dBm	Max
Load VSWR @ P _{OUT} = 50W	∞ @ All load phase & amplitude for duration of 1 minute 3:1 @ all load phase & amplitude continuous	-
Thermal Degradation	85°C	Max

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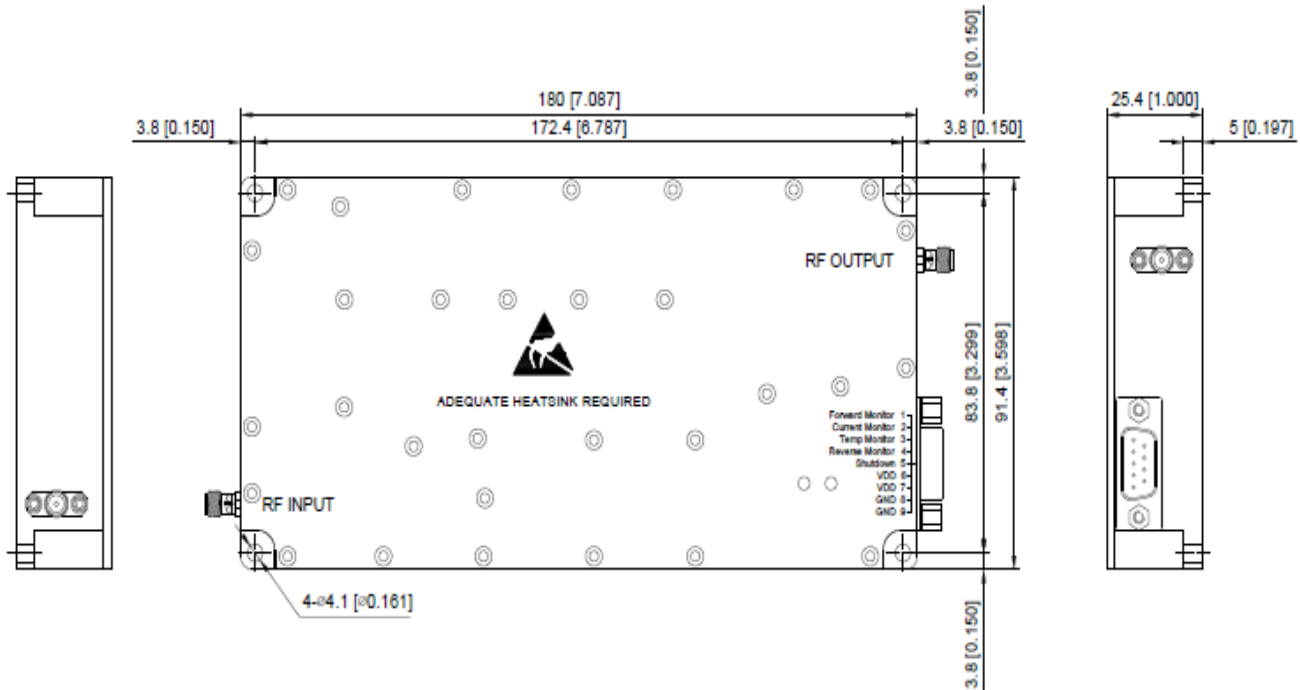
DC INTERFACE CONNECTOR – D-Sub 9-Pin, Male (Note 1)

Pin #	Description	Specification
1	Forward Power Monitor	Continuous Analog voltage relative to forward power via RMS detector Detect Range : 27–47dBm, Slope=100mV/dB typical Voltage < 3.1V @Pout: 47dBm, Voltage < 1.1V@Pout: 27dBm
2	Current Monitor	Analog voltage relative to I _{DD} @ 50mV/100mA
3	Temp Monitor	Analog voltage relative to module's temperature @ 10mV/°C (e.g. 0.25V = 25°C)
4	Reverse Power Monitor	Continuous Analog voltage relative to reverse power via RMS detector Detect Range : 27–47dBm, Slope=100mV/dB typical Voltage < 3.1V @Pout: 47dBm, Voltage < 1.1V@Pout: 27dBm
5	Shutdown	Amplifier Disable: TTL Logic High (5V) (Internally Pulled-Low)
6&7	VDD	26.0-30.0V _{DC}
8&9	GND	Ground

Notes:

1: DC mating connector is provided with cable length 366mm (±5mm)

OUTLINE DRAWING



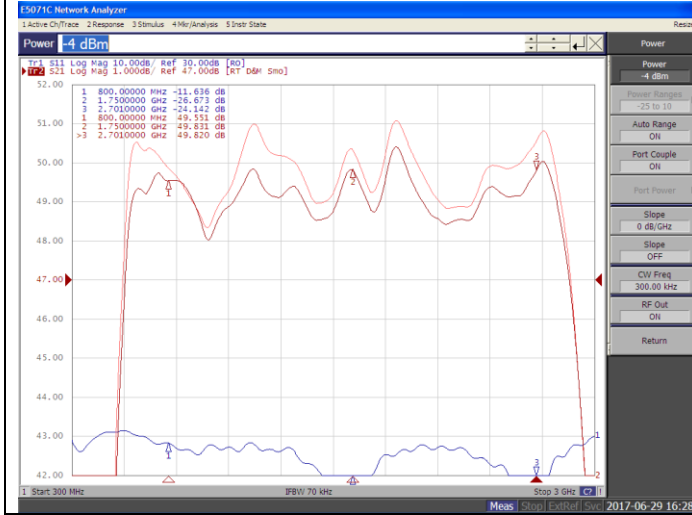
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TYPICAL PERFORMANCE PLOTS

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: 47dB, 1dB/div.
 Bottom Curve: Input Return Loss
 Reference: 30dB, 10dB/div.



Plot 2 – Small Signal Gain and P_{SAT}
 Top Curve: Small Signal Gain @ $P_{IN} = -20dBm$
 Middle Curve: Power Gain @ P_{SAT} , $P_{IN} = +1.0dBm$
 Reference: 47dB, 1dB/div.
 Bottom Curve: Input Return Loss
 Reference: 30dB, 10dB/div.

