HD Communications Corp.

HD31815
SOLID STATE HIGH POWER AMPLIFIER

FEATURES

Class AB linear GaN design
Instantaneous wide bandwidth
2-inputs & 2-outputs - external divider and combiner are required
Suitable for all single channel modulation standards
Built-in protection circuits
High reliability and ruggedness



ELECTRICAL SPECIFICATIONS

Parameter	Specification	Notes
Operating Frequency Range	800 - 2500 MHz	
Power Output	300 Watt Min	CW
Power Output @ P1dB GCP	100 Watt Typ	
Power Gain	20 - 30 dB Nom	
Power Gain Flatness	3.0 dB p-p Max	Constant input power
Input / Output Return Loss	10 dB Min	Relative to 50 Ohm
2-Tone Intermodulation (IMD)	-30 dBc Typ	45 dBm/Tone, Δ = 1MHz
Harmonics 2^{nd} / 3^{rd}	-20 dBc Typ	At rated Pout
Non-Harmonics Spurious	-60 dBc Max	
Operating Voltage	28 VDC Nom	
Current Consumption	42 Amp Max	At rated Pout
Load VSWR Protection	5 : 1	At rated Pout for <1 Min

ENVIRONMENTAL CHARACTERISTICS

Parameter	Specification	Notes
Operating Case Temperature	-20 to +75 °C	
Storage Temperature	-40 to +85 °C	
Relative Humidity	5 to 95 %	Non Condensing

MECHANICAL SPECIFICATIONS

Parameter	Specification	Notes
Dimensions	350 x 250 x 30 mm	Excluding Connectors
Weight	5.55 Kg.	
RF Connectors In/Out	SMA female / Type-N Female	2 inputs & 2 outputs
DC Power / Interface Connector	2 x 9W4 - 9 Pin Hybrid D-Sub	
Cooling	External Heatsink	Forced air required

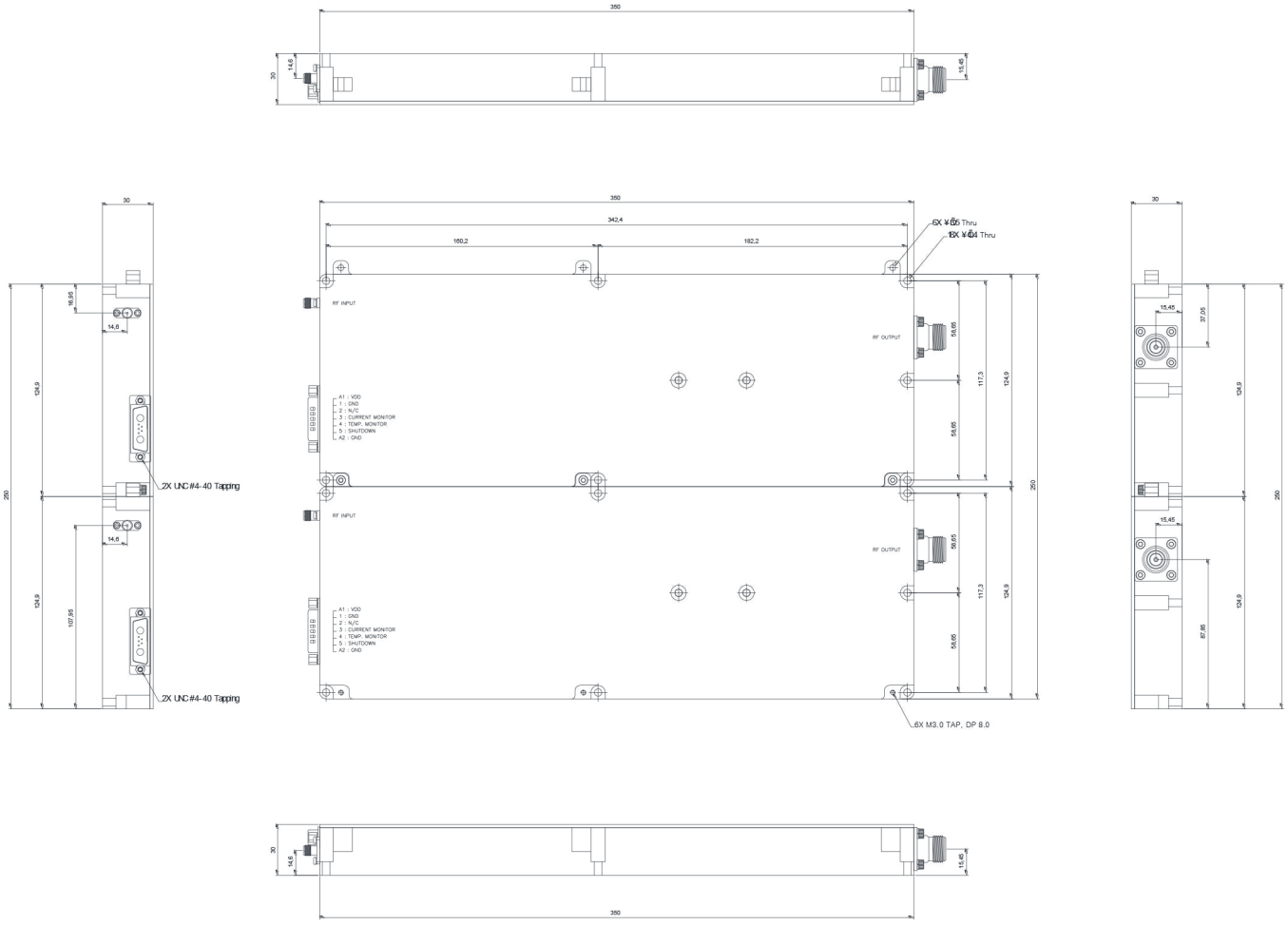
D-SUB CONNECTOR PIN ASSIGNMENT

Pin	Function	Description
1	FWD	N/C
2	VVA	N/C
3	CURRENT SENSOR	I_D@10mV/100mA Typ
4	TEMP SENSOR	V_T@10mV/°C + 500mV Typ
5	SHUTDOWN	TTL
A1, A2	VDD	28VDC
A3, A4	GND	Ground

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www.rfamplifiers.com www.rfcomp.com sales@hdcom.com

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OUTLINE DRAWING



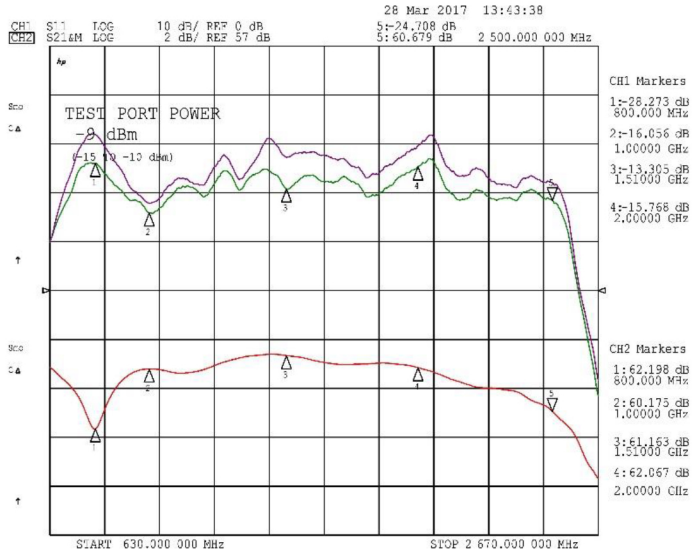
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TYPICAL DATA PLOTS

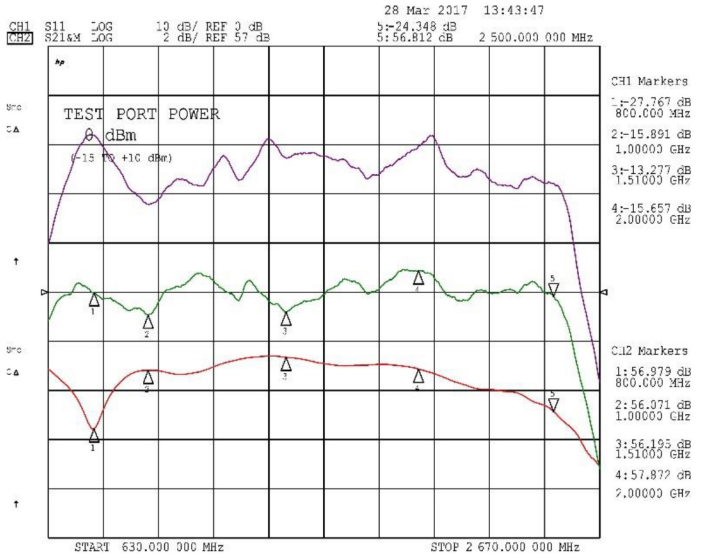
Plots 1 - Small Signal and P1dB Gain

Purple Curve: Small Signal Gain @ Pin = -20dBm
Green Curve: P1dB @ Pin = -9dBm
Reference: 57dB, 2dB/Div.
Orange Curve: Input Return Loss
Reference: 0dB, 10dB/Div.



Plot 2 - Small Signal and PSAT

Purple Curve: Small Signal Gain @ Pin = -20dBm
Green Curve: Psat @ Pin = 0dBm
Reference: 57dB, 2dB/Div.
Orange Curve: Input Return Loss
Reference: 0dB, 10dB/Div.



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