RADITEK INC.

RoHS COMPLIANT

code-e7

High Power Linear Amplifier, Ultra Broadband
20-520MHz, 40dB Gain, SMA Female Connectors, 10 Watts

RAMP-20-520M-40d-Sf-10W-e7

This amplifier module utilizes high power advanced GaN devices that provide excellent power density, high efficiency, wide dynamic range and low distortions. Exceptional performance is achieved by employing advanced broadband RF matching networks and combining techniques, EMI/RFI filters, machined housings and qualified components..

- ►Solid-state Class AB linear design.
- ►Compact and lightweight.
- ►Suitable for most modulation types.
- ►Highly rugged and reliable.
- ►Instantaneous ultra broadband.
- ►M&C Monitor and Control.
- ►50 ohm input and output impedance.

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

Parameter	Symbol	Min	Typ	Max	Units
Operating Frequency	BW	20		520	MHz
Power Output CW	P_{SAT}	10	15		Watt
Power Output @ 1 dB Gain Compression Point	P_{1dB}	8	10		Watt
Power Gain @ 1 dB Gain Compression Point	G_{1dB}	40			dB
Input Power for Rated Output	P_{IN}		0		dBm
Small Signal Gain Flatness	ΔG		±1.0	±1.5	dB
Gain Adjustment Range (Optional)	VVA	25			dB
Input Return Loss	S_{11}			-10	dB
Noise Figure	NF		7	10	dB
2-Tones Third Order Intercept Point P_{OUT} = 37 dBm/Tone, Δ = 100 KHz	IP3		+49		dBm
Harmonics @ 1 dB Gain Compression Point	H		-25		dBc
Spurious Signals	Spur		-70	-60	dBc
Operating Voltage	V_{DC}	24	28	30	Volt
Supply Current @ nominal P_{OUT}	I_{DD}		1.25	1.5	Amp

ENVIRONMENTAL CHARACTERISTICS

Parameter	Symbol	Min	Typ	Max	Units
Operating Case Temperature	Tc	-20		+75	°C
Non-operating Temperature	Tstg	-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 500.4)	SH / VI		Airborne		

MECHANICAL SPECIFICATIONS

Parameter	Value	Units
Dimensions (excluding heatsink)	4.0 x 2.5 x 1.1	Inch
Weight without HS / with HS	1.0	lb.
RF Connectors In/Out	SMA female	
DC Connectors	Dsub, 9 Pins, Male	
Cooling	External Heatsink	

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PROTECTIONS

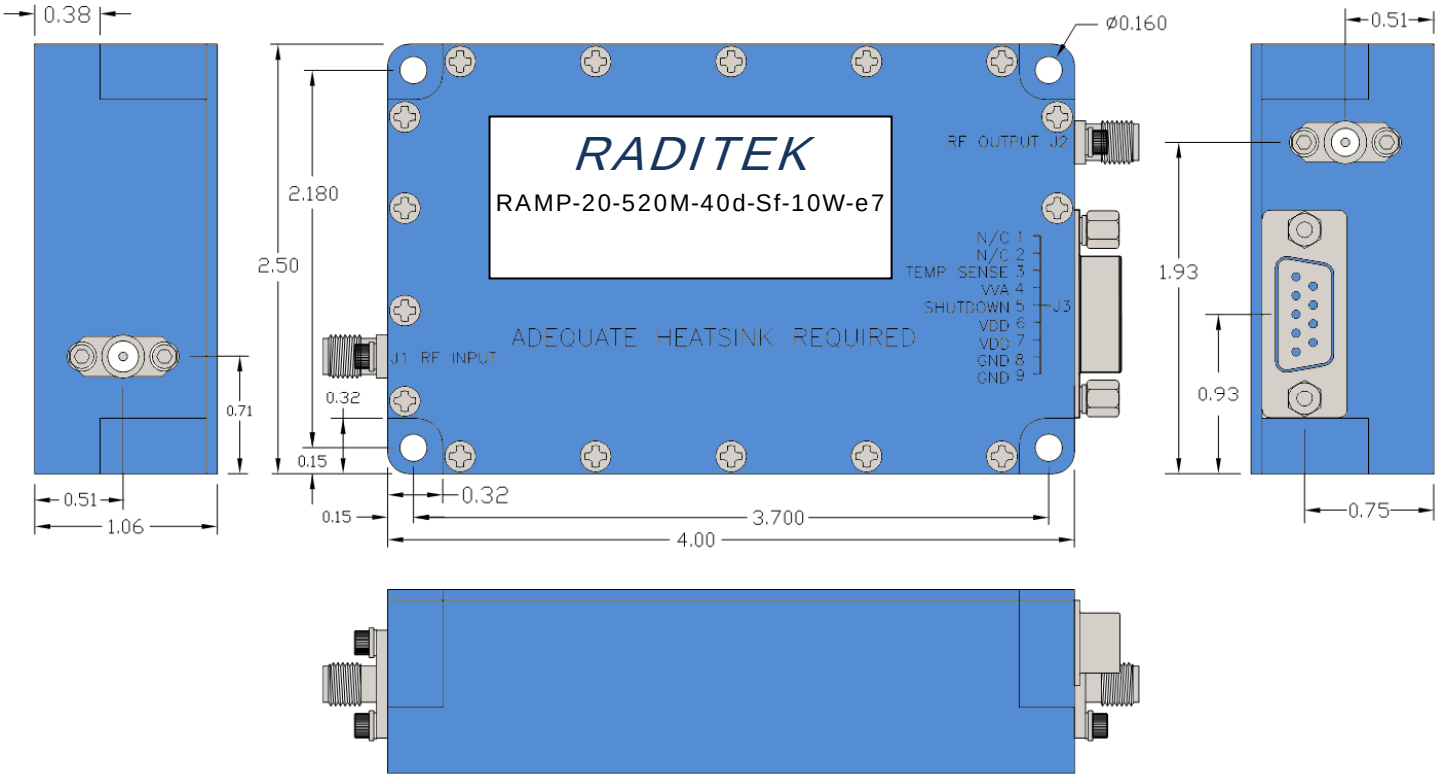
Parameter			Units
Input Overdrive	POD	+10	dBm Max
Load VSWR	Ψ	∞ @ all load phase & amplitude	Nom
Thermal Overload	TOD	85°C shutdown	Max

INTERFACE CONNECTOR – D-Sub, 9-Pin

Pin #	Description	Specifications
1	Spare	Reserved
2	Spare	Reserved
3	Temperature Sense	Analog voltage relative to Module's Temperature @ 10 mV/°C
4	VVA (Optional)	Continuous Analog 0 – 5 V_{DC} levels Maximum Gain: 0 V_{DC} Minimum Gain: 5 V_{DC}
5	Shutdown	Amplifier Enable: TTL "Low" or Open Amplifier Disable: TTL "High"
6	VDD	+28 +2V_{DC} / -4V_{DC}
7	VDD	+28 +2V_{DC} / -4V_{DC}
8	GND	Ground
9	GND	Ground

Adequate Heat Sink Required

OUTLINE DRAWING



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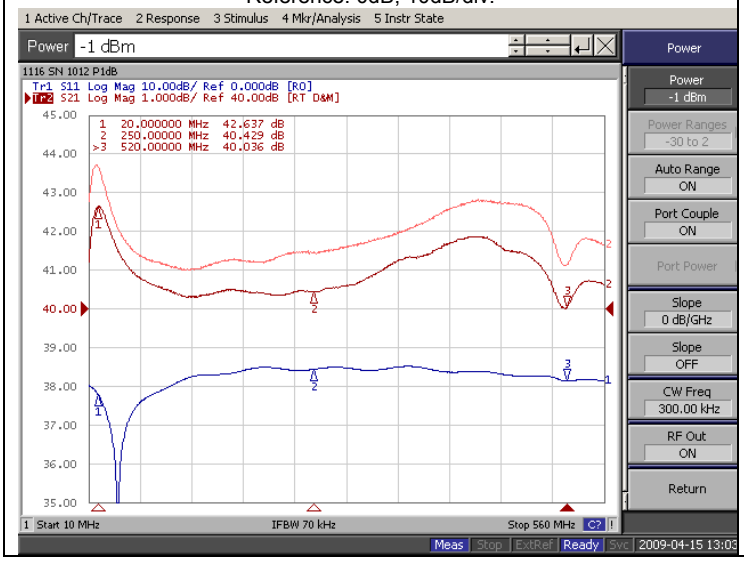
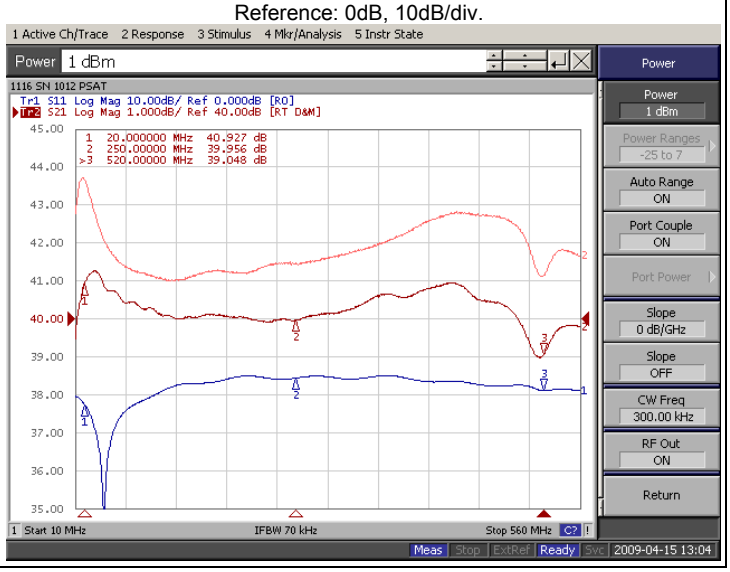
Plots 1 - Small Signal and P_{1dB} Gain
Top Curve: Small Signal Gain @ P_{IN} = -20dBm
Middle Curve: Power Gain @ P_{1dB}, P_{IN} = -1dBm
Reference: 40dB, 1dB/div.
Bottom Curve: Input Return Loss
Reference: 0dB, 10dB/div.



Plot 2 - Small Signal and P_{SAT}
Top Curve: Small Signal Gain @ P_{IN} = -20dBm
Middle Curve: P_{SAT} @ P_{IN} = 1.0dBm
Reference: 40dB, 1dB/div.
Bottom Curve: Input Return Loss
Reference: 0dB, 10dB/div.



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