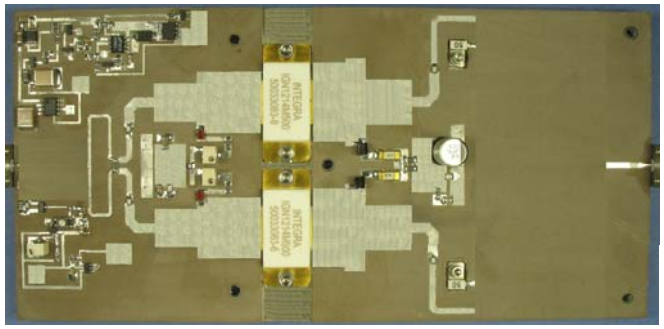
Part Number: IGNP1214M1KW-GPS

Integra
TECHNOLOGIES, INC.

L-Band Radar Pallet Amplifier

IGNP1214M1KW-GPS is a single-supply 50 Ω matched GaN-based pulsed power pallet amplifier for L-Band radar systems operating in the 1.20-1.40 GHz instantaneous frequency band. The pallet amplifier supplies a minimum of 1000 watts of peak pulsed output power under the conditions of 300μs pulse width and 10% duty cycle. The pallet contains bias sequencing and RF-activated gate biasing circuitry to simplify system integration. All units are 100% screened for large signal RF parameters.



GaN on Silicon Carbide HEMT
- High Power Gain

Class AB Operation
- High Efficiency

Balanced Amplifier Configuration
- Low Input/Output VSWR

On-Board Power Management
- Bias Sequencing
- RF-Activated Gate Bias
- Single Supply Operation

Gold Metal System
- Maximum Reliability

Pallet Carrier
- Nickel-Plated Aluminum

RF Test Fixture
- 100% RF Screening
- No External Tuning Allowed

TYPICAL DATA *TYPICAL DATA* *TYPICAL DATA*

Pallet	Feq (GHz)	Vcc (V)	Pin (W)	IRL (dB)	Pout (W)	Gp (dB)	Id (A)	Nd (%)	Droop (dB)
	1.20	50	56	18	1042	12.70	12.86	63.59	-0.13
D5457-1	1.30	50	56	20	1046	12.72	12.72	65.41	-0.13
	1.40	50	56	20	1040	12.69	12.69	57.30	-0.22

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RF ELECTRICAL CHARACTERISTICS

Screen	Parameter	Symbol	Min	Max	Units	Test Conditions
100%	Input Return Loss	IRL	10	--	dB	V_{DD}=V1, I_{DQ}=$I_{DQ1,}$ PW=PW1, DF=DF1, T_F=25±5°C, P_{IN}= P_{IN1}, F=F1, F2, F3.
100%	Output Power	P_{out}	1000	--	W	V_{DD}=V1, I_{DQ}=$I_{DQ1,}$ PW=PW1, DF=DF1, T_F=25±5°C, P_{IN}= P_{IN1}, F=F1, F2, F3.
100%	Power Gain	G_P	12.51	--	dB	V_{DD}=V1, I_{DQ}=$I_{DQ1,}$ PW=PW1, DF=DF1, T_F=25±5°C, P_{IN}= P_{IN1}, F=F1, F2, F3.
100%	Output Power Flatness 10*(Pout Max /Pout Min)	OPF	--	1.5	dB	V_{DD}=V1, I_{DQ}=$I_{DQ1,}$ PW=PW1, DF=DF1, T_F=25±5°C P_{IN}= P_{IN1}, F=F1, F2, F3.
100%	Efficiency (P_O/I_C/V_{CC})	N_C	50	--	%	V_{DD}=V1, I_{DQ}=$I_{DQ1,}$ PW=PW1, DF=DF1, T_F=25±5°C, P_{IN}= P_{IN1}, F=F1, F2, F3.
100%	Pulse Amplitude Droop	Droop	-0.6	--	%	V_{DD}=V1, I_{DQ}=$I_{DQ1,}$ PW=PW1, DF=DF1, T_F=25±5°C P_{IN}= P_{IN1}, F=F1, F2, F3.
100%	Delta Insertion Phase Variation	d-IP	-20	+20	deg	V_{DD}=V1, I_{DQ}=$I_{DQ1,}$ PW=PW1, DF=DF1, T_F=25±5°C P_{IN}= P_{IN1}, F=F1, F2, F3.
100%	2:1 Load Mismatch Stability	VSWR-S	--	2:1	--	V_{DD}=V1, I_{DQ}=$I_{DQ1,}$ PW=PW1, DF=DF1, T_F=25±5°C P_{IN}= P_{IN1}, F=F1, F2, F3. Rotate 2:1 output VSWR through 360° phase. No oscillatory or pulse break-up characteristics allowed on detected output pulse. All non-harmonically related signals must be at least –65 dBc.
100%	3:1 Load Mismatch Tolerance	LMT	--	3:1	--	V_{DD}=V1, I_{DQ}=$I_{DQ1,}$ PW=PW1, DF=DF1, T_F=25±5°C P_{IN}= P_{IN1}, F=F1, F2, F3. Rotate 3:1 output VSWR through 360° phase. Post test P_O = Pre test P_O±5W
Note 1	V1 = 50V; I_{DQ1} = 200mA; PW1 = 300us; DF1 = 10%, P_{IN1}= 56W					
Note 2	Test Frequencies: F1 = 1.20 GHz, F2 = 1.30 GHz, F3 = 1.40 GHz.					
Note 3	T_{F1} = 25±5°C = Device flange temperature.					
Note 4	Screen 'BD' = parameter qualified By Design.					

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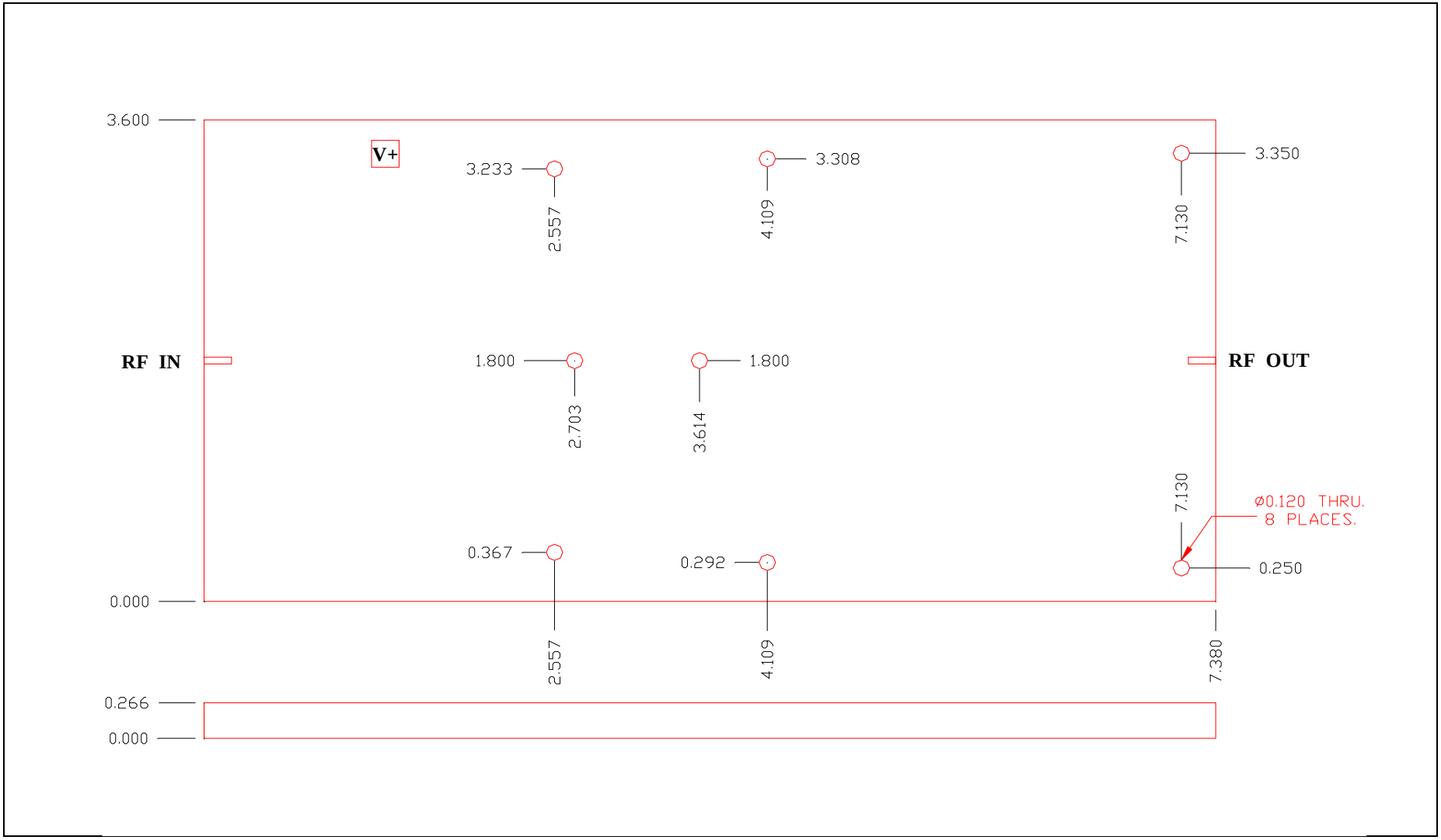
PALLET DIMENSIONAL OUTLINE DRAWING



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Data Sheet Status	
Proposed Specification	This data sheet contains proposed specifications.
Preliminary Specification	This data sheet contains specifications based on preliminary measurements and data.
Product Specification	This data sheet contains final product specifications.

Maximum Ratings

Stress above one or more of the maximum ratings may cause permanent damage to the device. These are maximum ratings only operation of the device at these or at any other conditions above those given in the characteristics sections of the specification is not implied. Exposure to maximum values for extended periods of time may affect device reliability.

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