



X-band Pulsed GaN "Slimline" High Power Amplifier (HPA)

Product Reference: DM-X400-04

Electrical performance specified at 40V, 20°C and into terminating VSWR <1.3:1 unless otherwise stated

Spec ref.	Description	Units	limits	Value	Comment
1.00	Electrical Performance				
1.01	Lowest Frequency	GHz		8.2	
1.02	Highest Frequency	GHz		9.5	Will extend to 9.6GHz; output power may dip below specified minimum
1.03	Peak pulsed output power (Psat)	W	min	400	At output of N-type connector into VSWR <1.3:1.
1.04	Output power variation (Psat)	dB	max	±1	Deviation from median power across the band
1.05	RF input power	dBm	max	0±1	
1.06	Saturated Power Gain	dB	nom	55	Depends on level of compression and input power
1.07	Pulse droop (on 100µs pulse)	dB	max	0.8	Typically <0.7
1.08	HPA turn on time (from standby)	ns	nom	200	Measured between 10% and 90% points. Can be customised to be faster
1.09	RF Gating Pulse width (min)	µs	min	2	Shorter time is feasible but not specified
1.10	Duty cycle	%	max	15	Not to be exceeded with any pulse width, or damage may occur
1.11	PRI	µs	min	13.3	At minimum pulse width only. Constrained by duty cycle.
1.12	Power Supply	Vdc	min	40	
1.13	Power supply variation	V	max	+0.5	
1.14	Mean DC current	A	max	8	At maximum (15%) duty
1.15	Power added efficiency @15% duty	%	min	16	At maximum (15%) duty. Typically 20% across all performance
1.16	Termination return loss	dB	min	17.7	To achieve specified performance
1.17	Worst case load VSWR		max	3:1	Not to be exceeded, else damage may occur at high power output
1.18	Internal reservoir capacitance	µF	min	1000	Can be adjusted to suit requirements
2.00	Environmental & Physical				
2.01	Input RF connection			SMA-F	
2.02	Output RF connection			N-Female	
2.03	Operating temperature	°C		0 to +60	Heatsink required. Max temperature at interface must not exceed 60°C
2.04	Operating humidity level				Non-condensing atmosphere
2.05	Weight	kg	nom	1.5	
2.06	Ingress Protection rating	IP		55	
2.07	Dimensions (exc connectors & fixings)	mm		197x150x30	Diamond Microwave drawing ref: 02-00176x01 (See p2)
3.00	Operating Modes				
3.01	Standby (RF power output disabled)				HPA is enabled/disabled with "RF_Enable" signal (TTL or 3.3V LVCMOS). Signal high = HPA enabled
3.02	Pulsed (RF power ON)				Amplifier will amplify any CW or nested RF signal present at RF Input, during "RF_Gate" control pulse (TTL or 3.3V LVCMOS)
3.03	Alarm (Output)				Alarm signal (3.3V LVCMOS-Low) for any alarm state. Connect "Alarm" (externally) to "RF_Enable" to auto-disable HPA

End User undertaking is required for export licence application



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NOTES

1. DON'T SCALE

2. IF IN DOUBT ASK

3. NOTE: THIS DRAWING MAY INCLUDE DETAIL THAT IS SUBJECT TO UK EXPORT CONTROLS. A LICENSE MAY BE REQUIRED PRIOR TO EXPORT

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ISSUED	SOLEMN OATHS	DATE	25/07/2017
DATE	SCALE	1:1	
METRIC DIMENSIONS IN MM UNLESS SPECIFIED			
TOLERANCES UNLESS OTHERWISE SPECIFIED			
LINEAR & ANGULAR TOLERANCES			
SURFACE FINISH TO BE UNLESS SPECIFIED			
ISO 12715			
MATERIAL SEE BILL OF MATERIALS			
FINISH			

PART NAME: Top Level Assembly
PART NUMBER: 02-00176x01
SHEET: 7 OF 7
SIZE: A1

Power and Control (See Pin-Out)

PIN-OUT TABLE

POWER/CONTROL CONNECTOR	SIGNAL
A1	40V
A2	GND
1	NC
2	NC
3	NC
4	NC
5	NC
6	NC
7	NC
8	NC
9	NC
10	NC
11	NC
12	GND
13	RF_ENABLE
14	RF_GATE
15	ALARM

End User undertaking is required for export licence application