

Amplifiers

Model 1300SP1G2

Features:

- 1300 W Pulse, 1.0 - 2.0 GHz
- Class B design
- Full VSWR tolerant
- CE & RoHS Compliant
- High Efficiency

Applications:

- EMC Test applications
- RADAR
- Science

To view our full amplifier portfolio visit:

www.arworld.us/amplifiers

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ISO 9001:2015 Certified
ISO 17025 :2017 Accredited

The Model 1300SP1G2 is a self-contained, forced-air-cooled, broadband solid-state microwave amplifier designed for pulse applications at low duty factors where instantaneous bandwidth and high gain are required. The unit provides a conservative 1300 watts minimum peak RF pulse power at the amplifier output connector. Stated power specifications are at the fundamental frequency.



The Model 1300SP1G2 is equipped with a Digital Control Panel (DCP) which provides both local and remote control of the amplifier. The DCP uses a color LCD touch screen and a single rotary knob to offer status reporting and control capability. The display provides Forward Power and Reflected Power values plus amplifier status. Special features include a gain control and RF output level protection.

All amplifier control functions and status indications are available remotely in GPIB/IEEE-488 format, RS-232 serial and Ethernet. The bus interface connector is located on the back panel and positive control of local or remote operation is assured by a keylock on the front panel of the amplifier.

Housed in a stylish contemporary cabinet, the amplifier provides readily available pulsed RF power for a variety of applications in Test and Measurement, (including EMC RF pulse susceptibility testing), Industrial and University Research and Development, and Service applications. AR also offers a broad range of amplifiers for CW (Continuous Wave) applications.

The export classification for this equipment is 3A999.d. These commodities, technology or software are controlled for export in accordance with the U.S. Export Administration Regulations. Diversion contrary to U.S. law is prohibited.

- 1300 W Pulse
- 1 – 2 GHz

Electrical Specifications

Parameter	Symbol	Minimum	Typical	Maximum	Unit
Rated Power Output (1.0 - 2.0 GHz)	PSAT	1300			W
Input for Rated Output	Pin			1	mW
				0	dBm
Pulse Droop-50 μ s pulse@ 1300 W				-0.5	dB
Operating Frequency	BW	1.0		2.0	GHz
Gain (Small Signal)		61.2			dB
Gain Reduction Adjustment (when below compression)		20			dB
Flatness (@ rated power)	ΔG		± 1.5	± 2.5	dB
Input Impedance	Z in		50		Ohm
				$\leq 2.0:1$	VSWR
Output Impedance	Z out		50		Ohm
Noise Figure	NF			≤ 12	dB
Harmonic Distortion up to 1.2 GHz @ ≥ 800 W	H2, H3			≤ -15	dBc
Harmonic Distortion up to 2 GHz				≤ -20	dBc
Spurious				≤ -60	dBc
Power Consumption	PD			500	W

Absolute Maximum Rating

Exceeding any of the limits listed here may result in permanent damage to the device.

Parameter	Minimum	Typical	Maximum	Unit
RF Drive			+13	dBm
RF Load		1:1	3:1 @ rated power	VSWR
RF Load Reflected Will operate without damage or oscillation when connected to any load impedance. Alarm and protection above 325 W reflected power (load VSWR > 3:1 @ 1.3 kW; >6:1 @ 650 W)			25	%
AC Power	100		264	VAC
AC Power	50		60	Hz
Ambient Temperature	+5	+25	+40	°C
Storage Temperature	-20		+50	°C
Altitude			2000	m
Shock/Vibration	Normal Truck Transport			

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Mechanical Specifications

Parameters	Typical	Unit
Dimensions (With Cabinet) (W x H x D) 4U	50.3 x 19.8 x 71.4	cm
	19.8 x 7.8 x 28.1	in
Dimensions (No Cabinet)	48.3 x 17.8 x 68.2	cm
	19 x 7 x 26.85	in
Weight (With Cabinet)	35	kg
	76	lb
Weight (No Cabinet)	30	kg
	66	lb
Cooling	Forced air (self-contained fans)	
Acoustical Noise Measured @ 1 Meter	67	dBa

Regulatory Compliance

Type	Standard
EMC	EMC Directive 2014/30/UE
Safety	Low Voltage Directive 2014/35/UE
RoHS	Directive 2011/65/EU
Export	3A999.d

Connector Interfaces

Function	Type
RF Input	N, female, front
RF Output	N female, front
RF Forward Sample	N, female, rear
RF Reverse Sample	N, female, rear
Pulse Input	BNC, female, rear
IEEE-488	24-pin
RS-232	9 pin subminiature D
Ethernet	RJ-45
Interlock	15-pin subminiature D
AC	IEC C20/IEC C19

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Pulse Capability	
Parameter	Value
Pulse Width	0.1 –50 us (0.1–1 ms for M4 version, see Table 1)
Pulse Rate (PRF)	50 kHz maximum
Duty Cycle	6% max
RF Rise and Fall	30 ns maximum (10 - 90 %)
Delay	≤1 μs from pulse input to RF 90%
Pulse Width Distortion	±25 ns maximum (difference between Pulse input gate and RF pulse)
Pulse Off Isolation	60 dB minimum
Pulse Input	+5V nominal / 50 ohms internal termination

Table 1

Pulse length range*	Pulse droop	Rated RF Output Power Minimum (Average saturated power into a 50 Ohm load)							
		VSWR≤2.5:1*		VSWR≤3:1*		VSWR≤4:1*		VSWR≤6:1*	
		Fwd	Max Rev	Fwd	Max Rev	Fwd	Max Rev	Fwd	Max Rev
0.1-50us	≤0.5dB	1.3kW	0.2kW	1.2kW	0.29kW	1.0kW	0.37kW	0.9kW	0.46kW
0.1-100us	≤0.8dB	1.1kW	0.21kW	1.0kW	0.26kW	0.9kW	0.33kW	0.8kW	0.40kW
0.1-200us	≤1dB	1.0kW	0.18kW	0.9kW	0.22kW	0.8kW	0.28kW	0.7kW	0.34kW
0.1-500us	≤1.2dB	0.9kW	0.16kW	0.8kW	0.20kW	0.7kW	0.24kW	0.6kW	0.30kW
0.1-1ms	≤1.5dB	0.8kW	0.14kW	0.7kW	0.17kW	0.6kW	0.22kW	0.5kW	0.28kW
NOTE: * Pulse length ranges and VSWR ranges are user settings									

Ordering Options

MODEL NUMBER	RF INPUT	RF OUTPUT
1300SP1G2	N (f), front	N (f), front
1300SP1G2M1	N (f), rear	N (f), rear (power output loss of ≤0.3dB)
1300SP1G2M2	Same as 1300SP1G2 with enclosure removed for rack mounting	
1300SP1G2M3	Same as 1300SP1G2M1 with enclosure removed for rack mounting	
1300SP1G2M4	Same as 1300SP1G2 with addition of special pulse capabilities (See Table 1)	

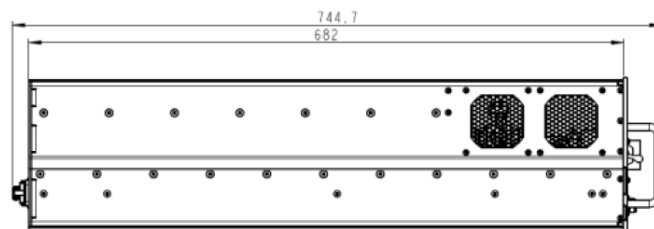
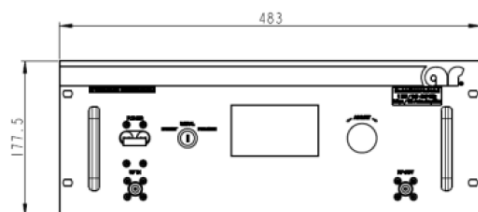
Contact your AR RF/Microwave Instrumentation Sales Associate for specific model configuration pricing.



Model 1300SP1G2

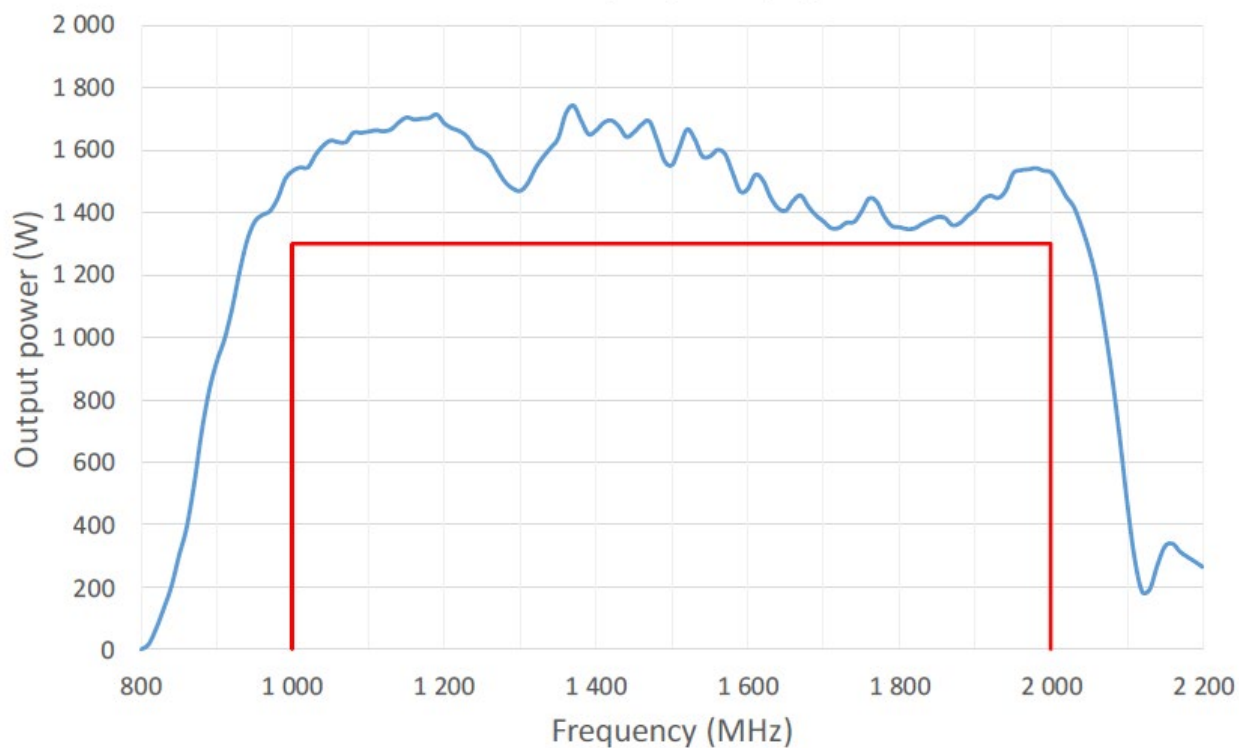
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Envelope Drawing



Units=mm; base model 1300SP1G2 shown

TYPICAL OUTPUT POWER (Psat @ 0 dBm input)



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