

# Amplifiers

## Model 4000SP0z8G2z5

### Features:

- 4000 W Pulse, 0.8 – 2.5 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](http://www.arworld.us/amplifiers)

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ISO 9001:2015 Certified  
ISO 17025:2017 Accredited

The Model 4000SP0z8G2z5 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 4000 watts minimum peak RF pulse power at the amplifier output connector. Stated power specifications are at the fundamental frequency.



The Model 4000SP0z8G2z5 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.

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- 4000 W
- 0.8 – 2.5 GHz

| Electrical Specifications                          |            |         |           |              |      |
|--|------------|---------|-----------|--------------|------|
| Parameter  | Symbol     | Minimum | Typical   | Maximum      | Unit |
| Rated Power Output (0.8 – 2.5 GHz)                 | PSAT       | 4000    |           |              | W    |
| Input for Rated Output                             | Pin        |         |           | 1            | mW   |
|  |            |         |           | 0            | dBm  |
| Pulse Droop-100µs pulse@ 4000 W                    |            |         |           | -1.0         | dB   |
| Operating Frequency                                | BW         | 0.8     |           | 2.5          | GHz  |
| Gain (Small Signal)                                |            | 66      |           |              | dB   |
| Gain Reduction Adjustment (when below compression) |            | 20      |           |              | dB   |
| Flatness (@ rated power)                           | $\Delta G$ |         | $\pm 1.5$ | $\pm 2.5$    | dB   |
| Input Impedance                                    | Z in       |         | 50        |              | Ohm  |
|  |            |         |           | $\leq 2.0:1$ | VSWR |
| Output Impedance                                   | Z out      |         | 50        |              | Ohm  |
| Noise Figure                                       | NF         |         |           | $\leq 12$    | dB   |
| Harmonic Distortion up to 1.4 GHz @ $\geq 3200$ W  | H2, H3     |         |           | $\leq -15$   | dBc  |
| Harmonic Distortion up to 2.5 GHz                  | H2, H3     |         |           | $\leq -20$   | dBc  |
| Spurious   |            |         |           | -60          | dBc  |
| Power Consumption                                  | PD         |         |           | 1800         | 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<br>Will operate without damage or oscillation when connected to any load impedance. Alarm and protection above 1 kW reflected power (i.e., load VSWR > 3:1 @ 4 kW; VSWR > 6:1 @ 2 kW) |                        |         | 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)      | 50.3 x 53.3 x 83.8               | cm   |
|  | 19.8 x 21 x 33                   | in   |
| Dimensions (No Cabinet) – 11U for 19" Rack | 48.3 x 48.8 x 77.5               | cm   |
|  | 19 x 19.2 x 30.5                 | in   |
| Weight (With Cabinet)                      | 95                               | kg   |
|  | 210                              | lb   |
| Weight (No Cabinet)                        | 86                               | kg   |
|  | 190                              | 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            | 7-16, female, rear   |
| 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                   | Harting 09120022652 & 09200030301<br>Axial Screw Terminals: Harting<br>09120022752 & 19200031421 |



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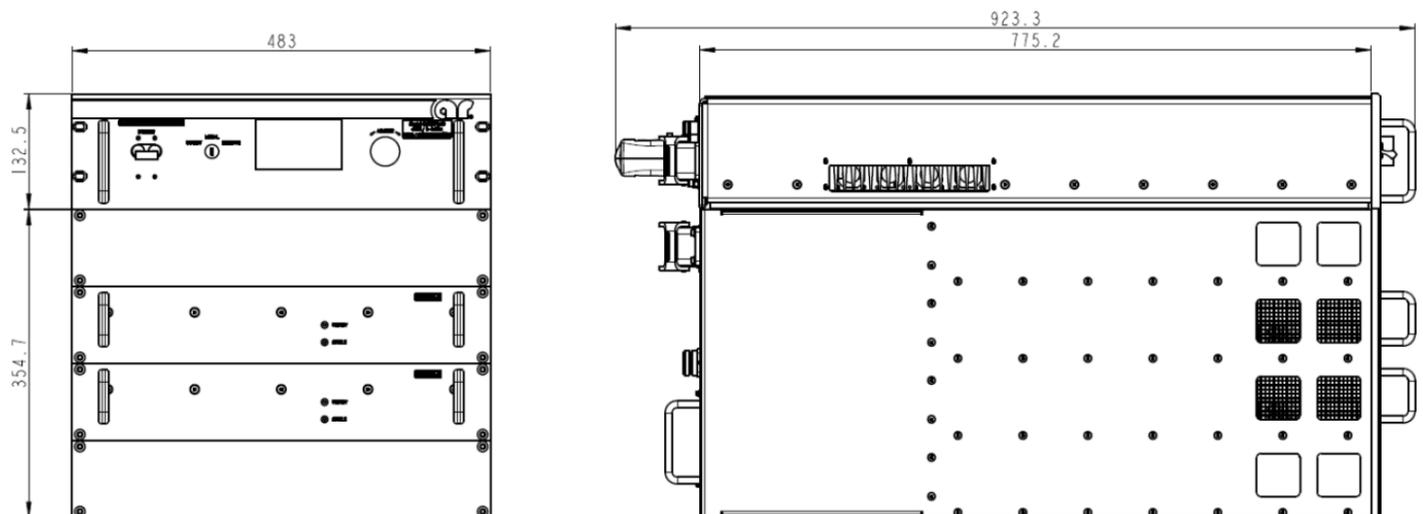
| Pulse Capability       |  |
|------------------------|--|
| Parameter              | Value  |
| Pulse Width            | 0.1 – 100 $\mu$ s  |
| Pulse Rate (PRF)       | 50 kHz maximum   |
| Duty Cycle             | 5% maximum   |
| RF Rise and Fall       | 30 ns maximum (10 - 90 %)  |
| Delay                  | $\leq$ 1 $\mu$ s from pulse input to RF 90%                            |
| Pulse Width Distortion | $\pm$ 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                             |

Ordering Options

| Model Number    | RF Input   | RF Output      |
|-----------------|--|----------------|
| 4000SP0z8G2z5   | N (f), front   | 7-16 (f), rear |
| 4000SP0z8G2z5M1 | N (f), rear  | 7-16 (f), rear |
| 4000SP0z8G2z5M2 | Same as 4000SP0z8G2z5 with enclosure removed for rack mounting   |                |
| 4000SP0z8G2z5M3 | Same as 4000SP0z8G2z5M1 with enclosure removed for rack mounting |                |

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

Envelope Drawing



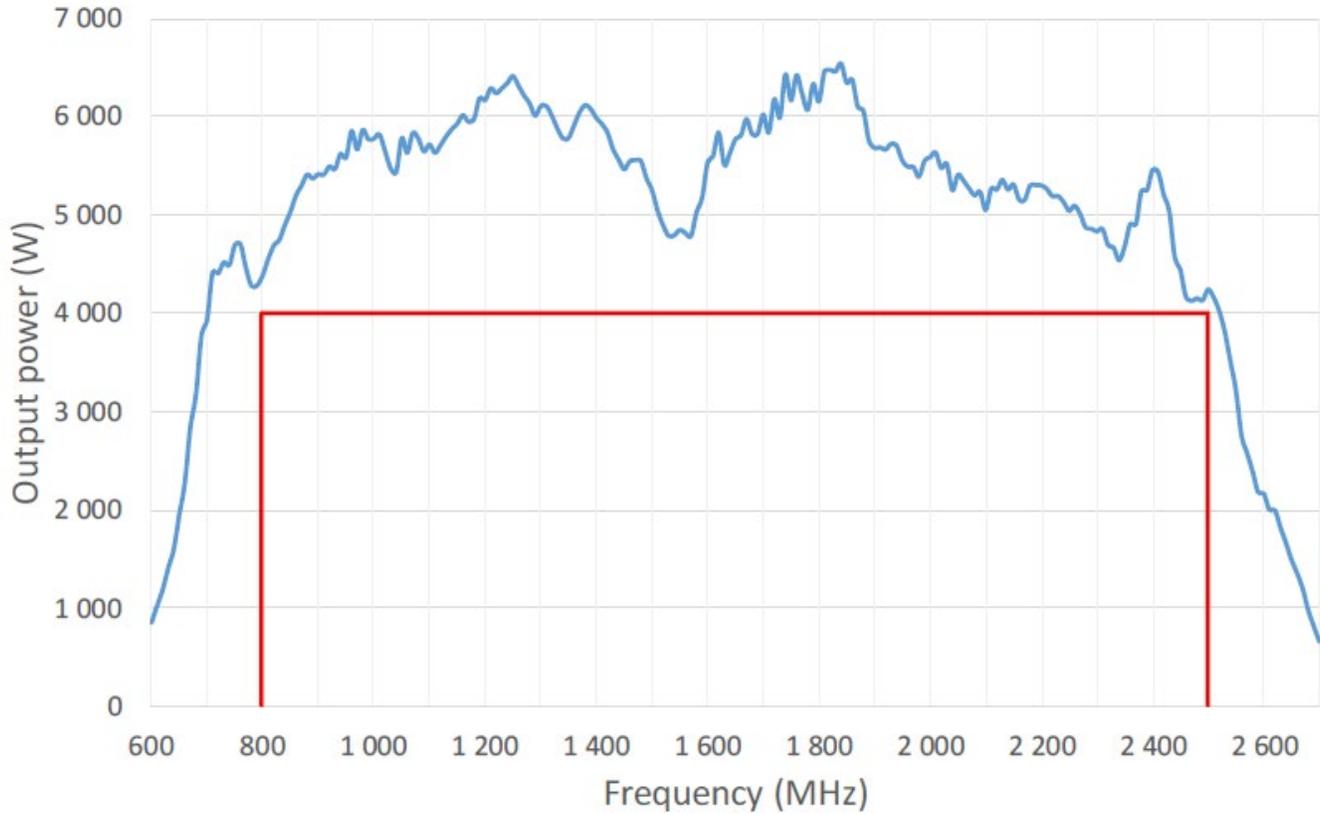
Units=mm; base model 4000SP0z8G2z5 shown



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Typical Output Power (Psat @ 0 dBm input)



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