


**SERIES:** VGS-200B | **DESCRIPTION:** AC-DC POWER SUPPLY

**FEATURES**

- +70°C operation
- output trim
- current/voltage/temperature protections
- screw terminal interface
- switch-selectable AC input range
- low standby power consumption
- 30 mm height



| MODEL       | output<br>voltage | output<br>current<br>max | output<br>power<br>max | ripple<br>and noise <sup>1</sup><br>max | efficiency <sup>2</sup><br>typ |
|-------------|-------------------|--------------------------|------------------------|-----------------------------------------|--------------------------------|
|             | (Vdc)             | (A)                      | (W)                    | (mVp-p)                                 | (%)                            |
| VGS-200B-12 | 12                | 17                       | 204                    | 150                                     | 87.5                           |
| VGS-200B-24 | 24                | 8.8                      | 211.2                  | 150                                     | 89.5                           |
| VGS-200B-48 | 48                | 4.4                      | 211.2                  | 200                                     | 90                             |

Notes: 1. 20 MHz bandwidth oscilloscope, 12" of twisted load cables paralleled with 0.1  $\mu$ F ceramic and 47  $\mu$ F electrolytic capacitors placed across the terminals at the load.  
 2. At 230 Vac, 50 Hz, full load.  
 3. All specifications are measured at Ta=25°C, nominal input voltage, and rated output load unless otherwise specified.

**PART NUMBER KEY**


## INPUT

| parameter                 | conditions/description                         | min       | typ        | max        | units      |
|---------------------------|------------------------------------------------|-----------|------------|------------|------------|
| voltage                   | via input selector switch <sup>1</sup>         | 90<br>180 | 115<br>230 | 132<br>264 | Vac<br>Vac |
| frequency                 |                                                | 47        |            | 63         | Hz         |
| current                   | at 115 Vac, full load<br>at 230 Vac, full load |           |            | 4<br>2.5   | A<br>A     |
| inrush current            | at 230 Vac, cold start, full load              |           |            | 60         | A          |
| leakage current           | at 240 Vac                                     |           |            | 2          | mA         |
| no load power consumption | at 230 Vac                                     |           |            | 0.75       | W          |

Notes: 1. Input selector must be set to match input voltage or damage could occur.

## OUTPUT

| parameter           | conditions/description                         | min      | typ | max        | units    |
|---------------------|------------------------------------------------|----------|-----|------------|----------|
| line regulation     |                                                |          |     | ±0.5       | %        |
| load regulation     | 12 Vdc output model<br>all other models        |          |     | ±1<br>±0.5 | %<br>%   |
| adjustability       | built in trim pot                              |          | ±10 |            | %        |
| start-up time       | at 115/230 Vac, full load                      |          |     | 1.5        | s        |
| rise time           | at 115/230 Vac, full load                      |          |     | 30         | ms       |
| hold-up time        | at 115 Vac, full load<br>at 230 Vac, full load | 12<br>16 |     |            | ms<br>ms |
| switching frequency |                                                |          | 65  |            | kHz      |

## PROTECTIONS

| parameter                  | conditions/description         | min | typ | max | units |
|----------------------------|--------------------------------|-----|-----|-----|-------|
| over voltage protection    | output shutdown, auto recovery | 115 |     | 150 | %     |
| over current protection    | output shutdown, auto recovery | 105 |     | 150 | %     |
| short circuit protection   | output shutdown, auto recovery |     |     |     |       |
| over temperture protection | output shutdown, auto recovery |     |     |     |       |

## SAFETY & COMPLIANCE

| parameter                          | conditions/description                                                                                             | min               | typ                   | max | units             |
|------------------------------------|--------------------------------------------------------------------------------------------------------------------|-------------------|-----------------------|-----|-------------------|
| isolation voltage                  | input to output for 1 minute, 10 mA<br>input to ground for 1 minute, 10 mA<br>output to ground for 1 minute, 10 mA |                   | 1,500<br>1,500<br>500 |     | Vac<br>Vac<br>Vac |
| isolation resistance               | input to output at 500 Vdc<br>input to ground at 500 Vdc<br>output to ground 500 Vdc                               | 100<br>100<br>100 |                       |     | MΩ<br>MΩ<br>MΩ    |
| safety approvals                   | IEC/EN 60950-1, UL 60950-1                                                                                         |                   |                       |     |                   |
| safety class                       | class I                                                                                                            |                   |                       |     |                   |
| conducted emissions                | EN 55032:2015, Class A                                                                                             |                   |                       |     |                   |
| radiated emissions                 | EN 55032:2015, Class A                                                                                             |                   |                       |     |                   |
| voltage fluctuation and flicker    | EN 61000-3-3:2013, Class A                                                                                         |                   |                       |     |                   |
| ESD immunity                       | IEC 61000-4-2, air: ±8 kV; contact: ±4 kV, Class A                                                                 |                   |                       |     |                   |
| radiated field immunity            | IEC 61000-4-3, 3 V/m, Class A                                                                                      |                   |                       |     |                   |
| electrical fast transient immunity | IEC 61000-4-4, Ac power port: 1 kV;<br>signal & telecommunication ports: 0.5 kV, Class B                           |                   |                       |     |                   |

Notes: 2. The power supply is considered a component which will be installed into final equipment. The final equipment still must be tested to meet the necessary EMC directives.

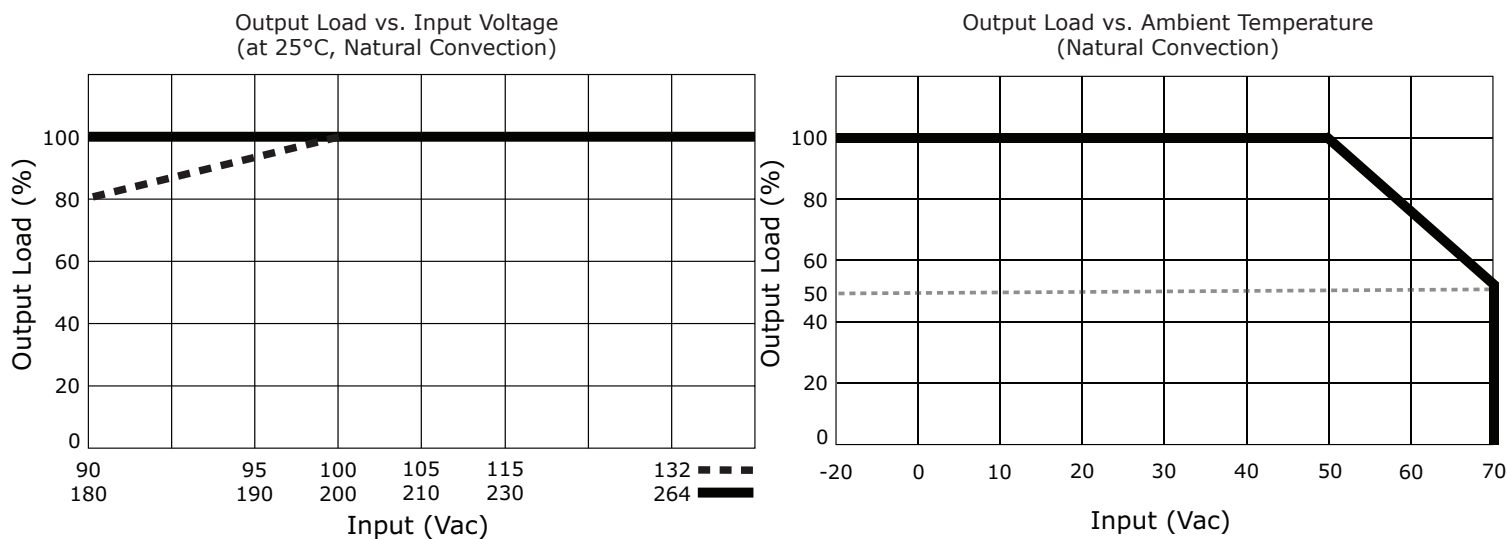
**SAFETY & COMPLIANCE (CONTINUED)**

| parameter                   | conditions/description                                                                                                                                                    | min | typ     | max | units |
|-----------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|---------|-----|-------|
| surge immunity              | IEC 61000-4-5, input L to input N: 1 kV;<br>input L to FG: 2 kV; input N to FG: 2 kV, Class C                                                                             |     |         |     |       |
| conducted immunity          | IEC 61000-4-6, frequency range: 0.15~80 MHz;<br>field strength: 3 Vms, Class A                                                                                            |     |         |     |       |
| magnetic field immunity     | IEC 61000-4-8, 1 A/m, Class A                                                                                                                                             |     |         |     |       |
| voltage dips, interruptions | IEC 61000-4-11:<br>voltage dips >95% reduction, 0.5 period, Class A<br>voltage dips 30% reduction, 25 period, Class B<br>voltage dips >95% reduction, 250 period, Class C |     |         |     |       |
| MTBF                        | as per MIL-HDBK-217F, 25°C                                                                                                                                                |     | 200,000 |     | hours |
| RoHS                        | yes                                                                                                                                                                       |     |         |     |       |

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**ENVIRONMENTAL**

| parameter             | conditions/description | min | typ | max | units |
|-----------------------|------------------------|-----|-----|-----|-------|
| operating temperature | see derating curves    | -20 |     | 70  | °C    |
| storage temperature   |                        | -40 |     | 85  | °C    |
| operating humidity    | non-condensing         | 20  |     | 90  | %     |
| storage humidity      | non-condensing         | 10  |     | 95  | %     |

**DERATING CURVES**

## MECHANICAL

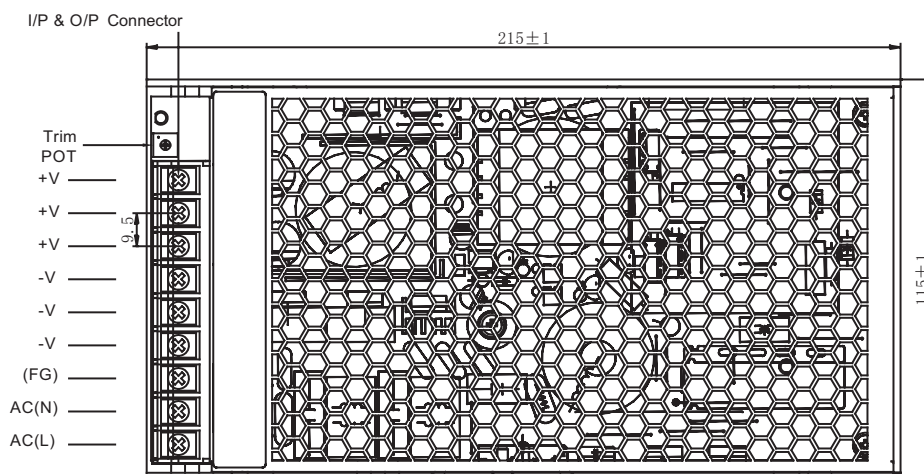
| parameter              | conditions/description                                | min | typ  | max | units |
|------------------------|-------------------------------------------------------|-----|------|-----|-------|
| dimensions             | 215 x 115 x 30                                        |     |      |     | mm    |
| weight                 |                                                       |     | 1000 |     | g     |
| cooling                | natural convection                                    |     |      |     |       |
| input/output connector | screw terminals accept 22~12 AWG wire, 1.2 N-m torque |     |      |     |       |

## MECHANICAL DRAWING

units: mm

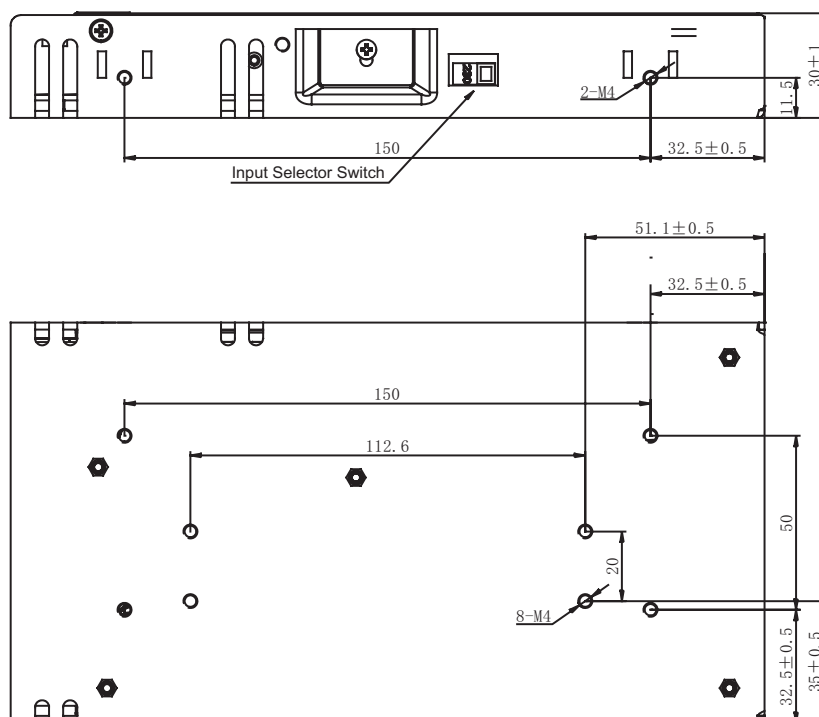
tolerance:  $\pm 0.3$  mm

| Input/Output Connector |          |
|------------------------|----------|
| PIN                    | Function |
| 1                      | +V       |
| 2                      | +V       |
| 3                      | +V       |
| 4                      | -V       |
| 5                      | -V       |
| 6                      | -V       |
| 7                      | FG       |
| 8                      | AC(N)    |
| 9                      | AC(L)    |



| MOUNTING SCREWS      |           |           |
|----------------------|-----------|-----------|
| Screw Size           | Max Depth | Torque    |
| M3X0.5               | 4 mm      | <0.75 N-m |
| M4X0.7               | 4 mm      | <0.8 N-m  |
| MOUNTING ORIENTATION |           |           |
|                      |           |           |

Note: 1. Parts should not be mounted in an upside down orientation.



## REVISION HISTORY

| rev. | description                      | date       |
|------|----------------------------------|------------|
| 1.0  | initial release                  | 06/20/2018 |
| 1.01 | updated terminal function detail | 06/14/2019 |

The revision history provided is for informational purposes only and is believed to be accurate.

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