


**SERIES:** VGS-50B | **DESCRIPTION:** AC-DC POWER SUPPLY

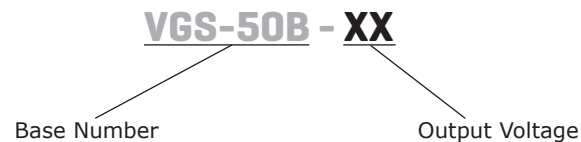
**FEATURES**

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



| MODEL      | output voltage | output current max | output power max | ripple and noise <sup>1</sup> max | efficiency <sup>2</sup> typ |
|------------|----------------|--------------------|------------------|-----------------------------------|-----------------------------|
|            | (Vdc)          | (A)                | (W)              | (mVp-p)                           | (%)                         |
| VGS-50B-12 | 12             | 4.2                | 50.4             | 100                               | 85                          |
| VGS-50B-24 | 24             | 2.2                | 52.8             | 150                               | 88                          |
| VGS-50B-48 | 48             | 1.1                | 52.8             | 200                               | 88                          |

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                   |                                   | 90  |     | 264 | Vac   |
| frequency                 |                                   | 47  |     | 63  | Hz    |
| current                   | at 115 Vac, full load             |     |     | 1.3 | A     |
|                           | at 230 Vac, full load             |     |     | 0.8 | A     |
| inrush current            | at 230 Vac, cold start, full load |     |     | 35  | A     |
| leakage current           |                                   |     |     | 3.5 | mA    |
| no load power consumption | at 230 Vac                        |     |     | 0.3 | W     |

## OUTPUT

| parameter           | conditions/description          | min | typ | max  | units |
|---------------------|---------------------------------|-----|-----|------|-------|
| line regulation     | 12 Vdc output model             |     |     | ±1   | %     |
|                     | all other models                |     |     | ±0.5 | %     |
| load regulation     | 12 Vdc output model             |     |     | ±1   | %     |
|                     | all other models                |     |     | ±0.5 | %     |
| adjustability       | built in trim pot               |     | ±10 |      | %     |
| start-up time       | at 115/230 Vac input, full load |     |     | 2    | s     |
| rise time           | at 115/230 Vac input, full load |     |     | 30   | ms    |
| hold-up time        | at 115 Vac input, full load     | 12  |     |      | ms    |
|                     | at 230 Vac input, full load     | 30  |     |      | ms    |
| switching frequency |                                 |     | 65  |      | kHz   |

## PROTECTIONS

| parameter                | conditions/description                         | min | typ | max | units |
|--------------------------|------------------------------------------------|-----|-----|-----|-------|
| over voltage protection  | output shutdown, must recycle power to recover | 120 |     | 145 | %     |
| over current protection  | output shutdown, auto recovery                 | 110 |     | 180 | %     |
| short circuit protection | output shutdown, auto recovery                 |     |     |     |       |

## SAFETY & COMPLIANCE

| parameter                          | conditions/description                                                                | min | typ   | max | units |
|------------------------------------|---------------------------------------------------------------------------------------|-----|-------|-----|-------|
| isolation voltage                  | input to output for 1 minute, 10 mA                                                   |     | 1,500 |     | Vac   |
|                                    | input to ground for 1 minute, 10 mA                                                   |     | 1,500 |     | Vac   |
|                                    | output to ground for 1 minute, 10 mA                                                  |     | 500   |     | Vac   |
| isolation resistance               | input to output at 500 Vdc                                                            | 100 |       |     | MΩ    |
|                                    | input to ground at 500 Vdc                                                            | 100 |       |     | MΩ    |
|                                    | output to ground 500 Vdc                                                              | 100 |       |     | MΩ    |
| safety approvals                   | IEC/EN 60950-1, UL 60950-1                                                            |     |       |     |       |
| safety class                       | class I                                                                               |     |       |     |       |
| conducted emissions                | EN 55032:2015, Class B                                                                |     |       |     |       |
| radiated emissions                 | EN 55032:2015, Class B                                                                |     |       |     |       |
| input current harmonics            | EN 61000-3-2:2014, 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; signal & telecommunication ports: 0.5 kV, Class B |     |       |     |       |

Notes: 1. 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)

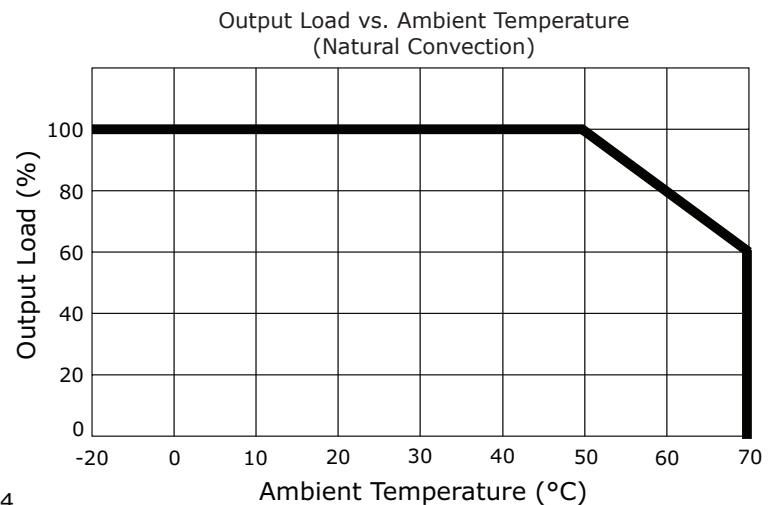
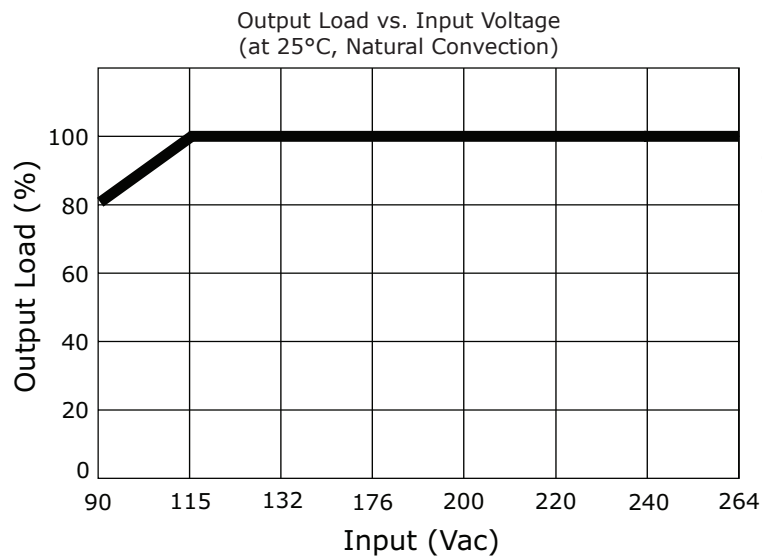
| parameter                   | conditions/description                                                                                                                                                    | min | typ     | max | units |
|-----------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|---------|-----|-------|
| 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 V <sub>ms</sub> , 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

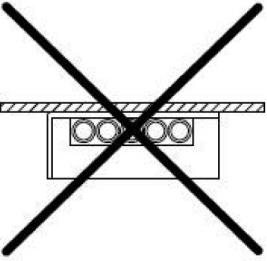
| parameter              | conditions/description                                | min | typ | max | units |
|------------------------|-------------------------------------------------------|-----|-----|-----|-------|
| dimensions             | 99 x 82 x 30                                          |     |     |     | mm    |
| weight                 |                                                       |     | 200 |     | g     |
| cooling                | natural convection                                    |     |     |     |       |
| input/output connector | screw terminals accept 22~12 AWG wire, 1.2 N-m torque |     |     |     |       |

## MECHANICAL DRAWING

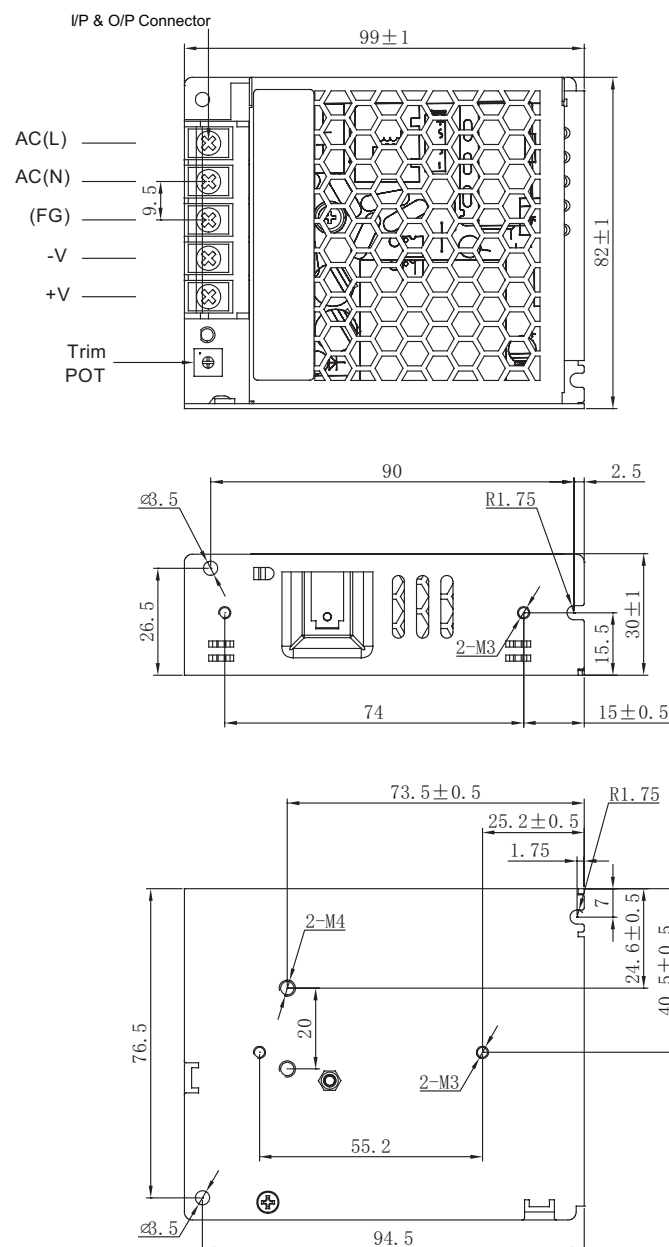
units: mm

tolerance:  $\pm 0.3$  mm

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

| 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 |

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

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