

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

- 200 W continuous switching power supply
- 85 ~ 305 Vac, 120 ~ 430 Vdc input voltage
- adjustable output voltage
- EN/UL/BS EN 62368-1
- designed to meet EN 60335, EN 61558, GB 4943
- CISPR32/EN55032 CLASS B compliant
- temperature range -40 °C ~ +70 °C with derating
- baseplate cooling
- over-temperature, output over-voltage, over-current, short-circuit protection
- over-current & short-circuit protection delay
- 5,000 m operating altitude
- accepts AC or DC input (dual-use of same terminal)


**MODEL**

| MODEL       | output voltage |             | output current | output power | ripple and noise <sup>1</sup> | efficiency <sup>2</sup> |
|-------------|----------------|-------------|----------------|--------------|-------------------------------|-------------------------|
|             | typ (Vdc)      | range (Vdc) | max (A)        | max (W)      | typ (mVp-p)                   | typ (%)                 |
| VGS-200E-5  | 5              | 4.5~5.5     | 40.0           | 200.0        | 200                           | 91                      |
| VGS-200E-12 | 12             | 11.4~12.6   | 16.7           | 200.4        | 240                           | 93                      |
| VGS-200E-24 | 24             | 22.8~25.2   | 8.4            | 201.6        | 240                           | 94                      |
| VGS-200E-36 | 36             | 34.2~37.8   | 5.6            | 201.6        | 240                           | 94                      |
| VGS-200E-48 | 48             | 45.6~50.4   | 4.2            | 201.6        | 300                           | 94                      |

Note: 1. Ripple and noise are measured at 20 MHz BW with 47 uF aluminum electrolytic capacitor and 0.1 uF ceramic capacitor on the output.  
 2. Measured at 230 Vac.  
 3. Unless otherwise specified, the parameters in this datasheet were measured under the conditions of Ta=25°C, humidity<75% RH with nominal input voltage and rated output load.

**PART NUMBER KEY**


## INPUT

| parameter       | conditions/description | min | typ  | max | units |
|-----------------|------------------------|-----|------|-----|-------|
| voltage range   | ac input               | 85  |      | 305 | Vac   |
|                 | dc input               | 120 |      | 430 | Vdc   |
| frequency range |                        | 47  |      | 63  | Hz    |
| current         | at 115 Vac             |     |      | 2.5 | A     |
|                 | at 230 Vac             |     |      | 1.2 | A     |
| inrush current  | at 115 Vac, cold start |     | 40   |     | A     |
|                 | at 230 Vac, cold start |     | 80   |     | A     |
| leakage current | at 240 Vac             |     |      | 0.5 | mA    |
| power factor    | at 115 Vac, full load  |     | 0.98 |     |       |
|                 | at 230 Vac, full load  |     | 0.95 |     |       |

## OUTPUT

| parameter                  | conditions/description                   | min | typ  | max    | units |
|----------------------------|------------------------------------------|-----|------|--------|-------|
| capacitive load            | 5 Vdc output model                       |     |      | 10,000 | μF    |
|                            | 12 Vdc output model                      |     |      | 8,000  | μF    |
|                            | 24 Vdc output model                      |     |      | 5,000  | μF    |
|                            | 36 Vdc output model                      |     |      | 3,000  | μF    |
|                            | 48 Vdc output model                      |     |      | 2,000  | μF    |
| initial set point accuracy | 5 Vdc output model, full load range      |     | ±2   |        | %     |
|                            | all other models, full load range        |     | ±1   |        | %     |
| line regulation            | 5 Vdc output model, rated load           |     | ±0.5 |        | %     |
|                            | all other models, rated load             |     | ±0.3 |        | %     |
| load regulation            | 5 V model at 230 Vac, 0~100% load        |     | ±1   |        | %     |
|                            | all other models at 230 Vac, 0~100% load |     | ±0.5 |        | %     |
| hold-up time               | at 115 & 230 Vac, full load              |     | 10   |        | ms    |

## PROTECTIONS

| parameter                             | conditions/description                         | min                                                                                        | typ | max | units |
|---------------------------------------|------------------------------------------------|--------------------------------------------------------------------------------------------|-----|-----|-------|
| over current protection <sup>4</sup>  | normal & high temperature, 230 Vac, rated load | 105                                                                                        |     | 200 | %     |
|                                       | low temperature, 230 Vac, rated load           |                                                                                            |     | 105 | %     |
| over voltage protection               | 5 Vdc output model, hiccup                     |                                                                                            |     | 6.3 | Vdc   |
|                                       | 12 Vdc output model, hiccup                    |                                                                                            |     | 16  | Vdc   |
|                                       | 24 Vdc output model, hiccup                    |                                                                                            |     | 35  | Vdc   |
|                                       | 36 Vdc output model, hiccup                    |                                                                                            |     | 47  | Vdc   |
|                                       | 48 Vdc output model, hiccup                    |                                                                                            |     | 60  | Vdc   |
| short circuit protection <sup>5</sup> | 5 Vdc output model                             | hiccup, constant current (200~300%Io) works 200ms, turn off 10s, continuous, auto recovery |     |     |       |
|                                       | all other models                               | hiccup, constant current (200~300%Io) works 1s, turn off 10s, continuous, auto recovery    |     |     |       |
| over temperature protection           | output shutdown, auto recovery                 |                                                                                            |     |     |       |

Note: 4. At 230 Vac, rated load. Delay time is 1s with auto recovery after the abnormality is removed.

5. Recovery time is 10s max after the short circuit disappears.

## SAFETY & COMPLIANCE

| parameter                     | conditions/description                                                                                                                     | min     | typ | max | units |
|-------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------|---------|-----|-----|-------|
| isolation voltage             | input to output for 1 minute, 5 mA max                                                                                                     | 4,000   |     |     | Vac   |
|                               | input to ground for 1 minute, 5 mA max                                                                                                     | 2,000   |     |     | Vac   |
|                               | output to ground for 1 minute, 5 mA max                                                                                                    | 1,250   |     |     | Vac   |
| safety approvals              | certified to 62368-1 <sup>6</sup> : UL, EN, BS EN<br>designed to meet 60335: EN<br>designed to meet 61558: EN<br>designed to meet 4943: GB |         |     |     |       |
| safety class                  | Class I                                                                                                                                    |         |     |     |       |
| conducted emissions           | CISPR32/EN55032 CLASS B                                                                                                                    |         |     |     |       |
| radiated emissions            | CISPR32/EN55032 CLASS B                                                                                                                    |         |     |     |       |
| harmonic current              | IEC/EN61000-3-2 CLASS A, CLASS C and CLASS D                                                                                               |         |     |     |       |
| ESD                           | IEC/EN 61000-4-2 Contact ±6KV/Air ±8KV, perf. Criteria A                                                                                   |         |     |     |       |
| radiated immunity             | IEC/EN 61000-4-3 10V/m, perf. Criteria A                                                                                                   |         |     |     |       |
| EFT/burst                     | IEC/EN 61000-4-4 ±4KV, perf. Criteria A                                                                                                    |         |     |     |       |
| surge                         | IEC/EN 61000-4-5 line to line ±2KV/line to ground ±4KV, perf. Criteria A                                                                   |         |     |     |       |
| conducted immunity            | IEC/EN61000-4-6 10Vrms, perf. Criteria A                                                                                                   |         |     |     |       |
| voltage dips and interruption | IEC/EN61000-4-11 0%, 70%, perf. Criteria B                                                                                                 |         |     |     |       |
| intercom interference test    | MS-SOP-DQC-007, perf. Criteria B                                                                                                           |         |     |     |       |
| RoHS compliant                | yes                                                                                                                                        |         |     |     |       |
| MTBF                          | as per MIL-HDBK-217F at 25 °C                                                                                                              | 300,000 |     |     | hrs   |

Note: 6. Certification applies to 100~240 Vac applications.

## ENVIRONMENTAL

| parameter               | conditions/description | min | typ  | max | units |
|-------------------------|------------------------|-----|------|-----|-------|
| operating temperature   | see derating curve     | -40 |      | 70  | °C    |
| storage temperature     |                        | -40 |      | 85  | °C    |
| operating humidity      | non-condensing         | 20  |      | 90  | %     |
| storage humidity        | non-condensing         | 10  |      | 95  | %     |
| temperature coefficient |                        |     | 0.03 |     | %/°C  |

## MECHANICAL

| parameter     | conditions/description | min | typ | max | units |
|---------------|------------------------|-----|-----|-----|-------|
| dimensions    | 194.00 x 55.00 x 26.00 |     |     |     | mm    |
| weight        |                        |     | 430 |     | g     |
| cooling       | natural convection     |     |     |     |       |
| case material | metal (AL6063, SGCC)   |     |     |     |       |

## MECHANICAL DRAWING

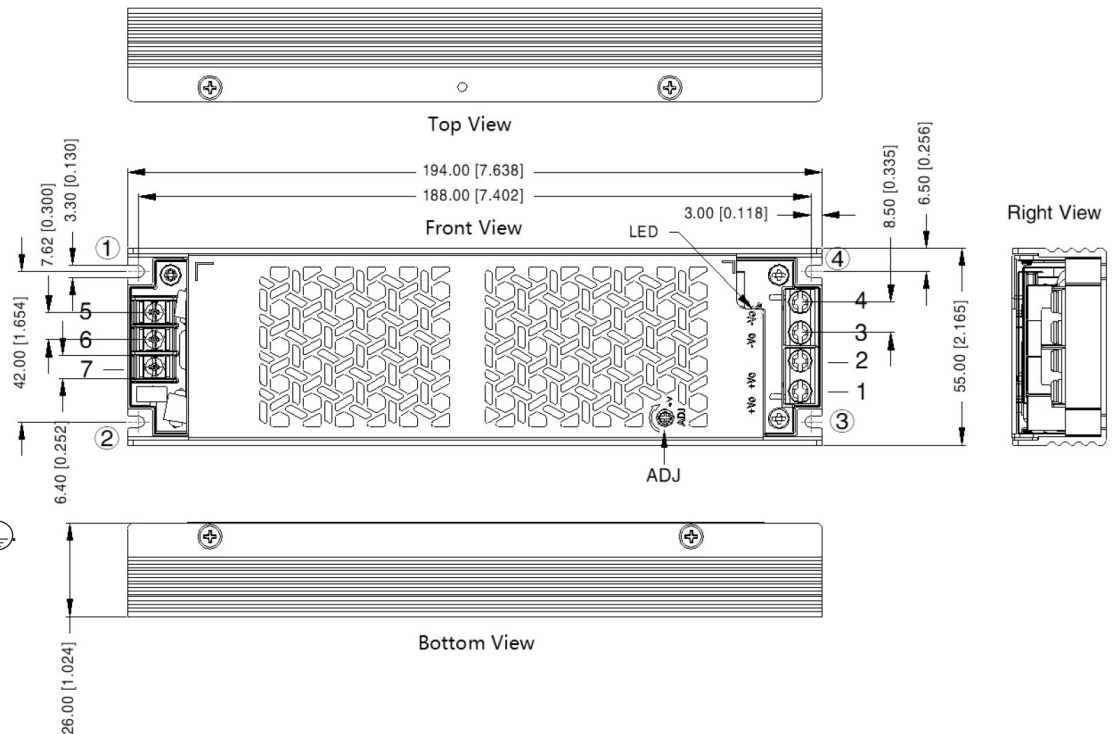
units: mm [inches]

tolerance:  $\pm 1.00$  [ $\pm 0.039$ ]

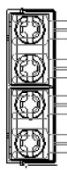
ADJ: Output voltage adjustable resistor.

| PIN OUT |                                                                                   |
|---------|-----------------------------------------------------------------------------------|
| PIN     | Function                                                                          |
| 1       | +Vo                                                                               |
| 2       | +Vo                                                                               |
| 3       | -Vo                                                                               |
| 4       | -Vo                                                                               |
| 5       |  |
| 6       | AC (N)                                                                            |
| 7       | AC (L)                                                                            |

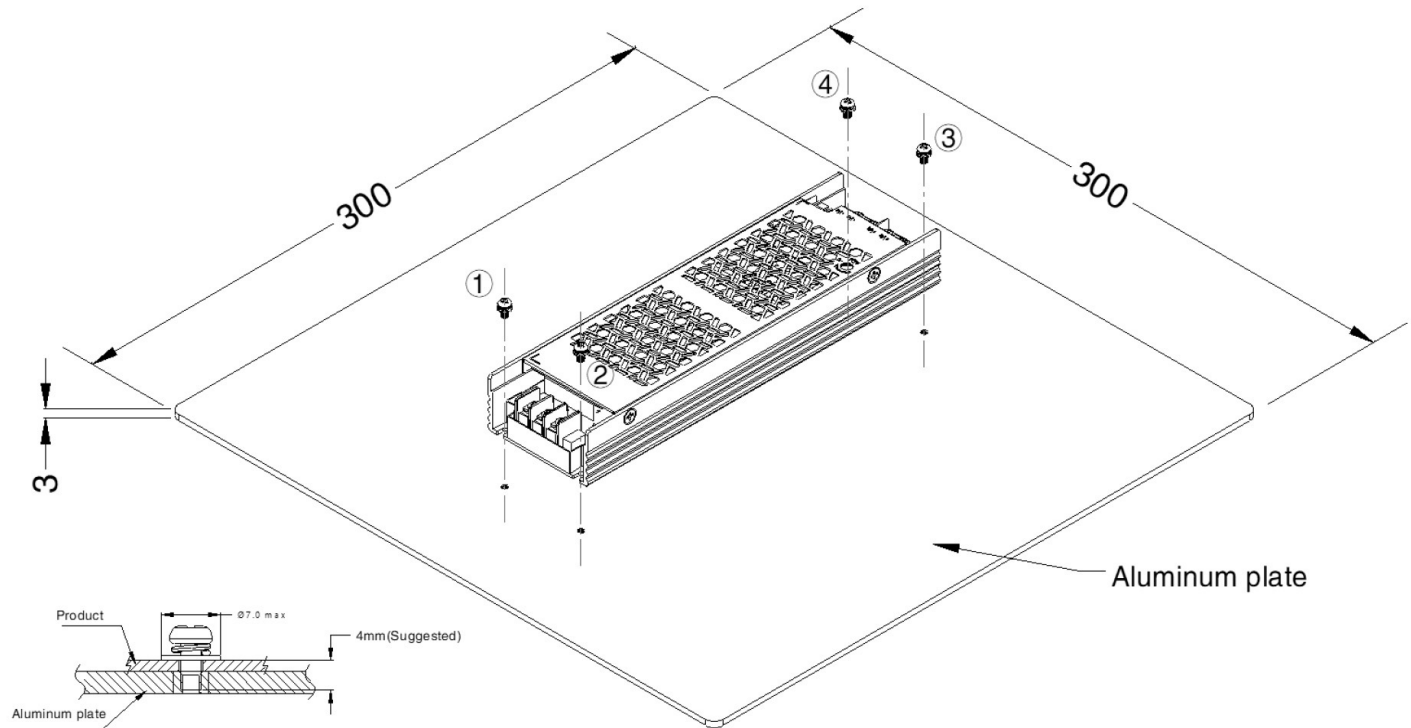
Note: At least one position ①~④ must be securely connected to the .



### CONNECTOR WIRES RANGE

|                | Input connector   | Output connector (single wire) | Output connector (double wires) | Output connector (double wires)                                                                                               |
|----------------|-------------------|--------------------------------|---------------------------------|-------------------------------------------------------------------------------------------------------------------------------|
| 5 V            | 22 ~ 14 AWG       | not suggested                  | 14 ~ 12 AWG                     | <br>-Vo double wires<br>+Vo double wires |
| 12 V           |                   | 14 ~ 12 AWG                    | 18 ~ 12 AWG                     |                                                                                                                               |
| 24, 36, 48 V   |                   | 18 ~ 12 AWG                    | 20 ~ 12 AWG                     |                                                                                                                               |
| Screw / Torque | M3.5, Max 0.5 N·m | M3.5, Max 0.8 N·m              |                                 |                                                                                                                               |

## INSTALLATION DIAGRAM

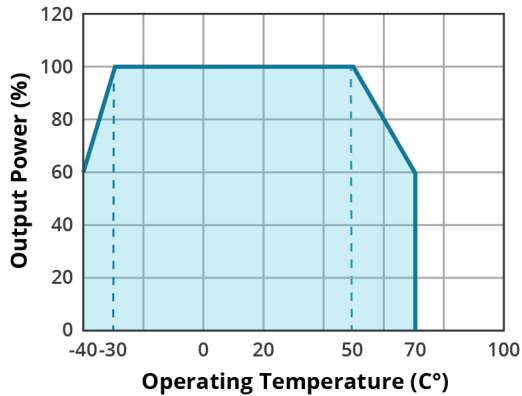


| Position | Screw Spec. | L (suggested) | Torque (max) |
|----------|-------------|---------------|--------------|
| ① ~ ④    | M3          | 4 mm          | 0.4 N·m      |

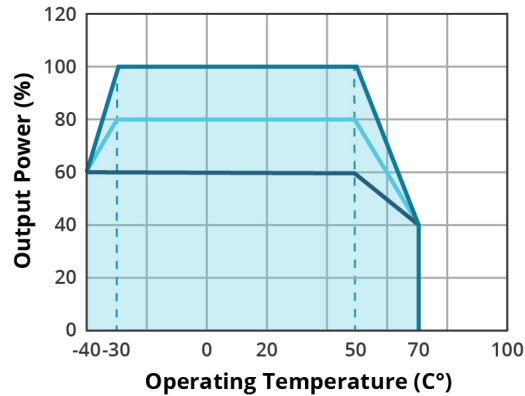
- Note:**
- In order to meet the "derating curve", the product testing must be installed onto an aluminum plate. The size of the suggested aluminum plate is shown as above. For optimizing thermal performance, it is necessary to apply thermal grease on the bottom of the product.
  - It is suggested to install the product with M3 x 5 combination screws, and the product must be firmly installed at the centre of the aluminum plate.

## DERATING CURVES

**TEMPERATURE DERATING CURVE  
with aluminum plate  
(85~305 Vac, 120~430 Vdc)**



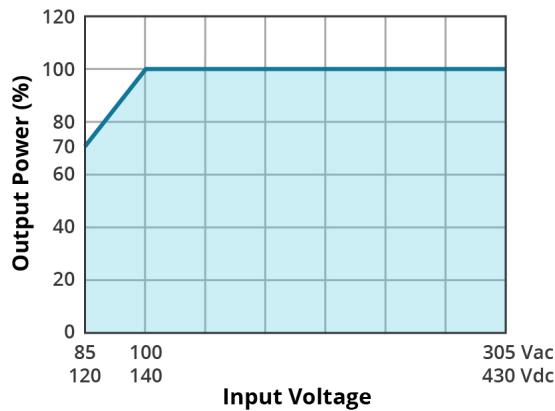
**TEMPERATURE DERATING CURVE  
without aluminum plate  
(85~305 Vac, 120~430 Vdc)**



### Key

|                                |
|--------------------------------|
| 230 Vac - (12V, 24V, 36V, 48V) |
| 100 Vac - (12V, 24V, 36V, 48V) |
| 230Vac - (5V)                  |
| 100 Vac - (5V)                 |

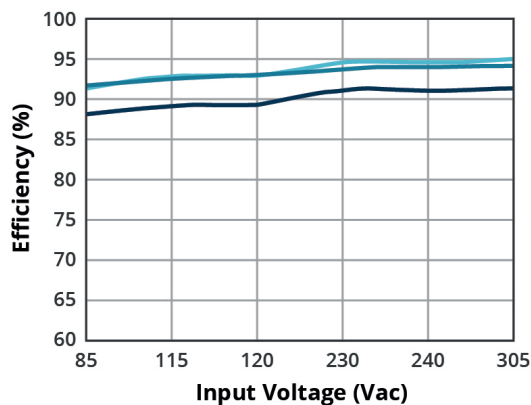
**INPUT VOLTAGE DERATING CURVE  
(25°C)**



- Note:
- With an AC input voltage between 80 ~ 100 Vac and a DC input between 120 ~ 140 Vdc the output power must be derated as per the temperature derating curves.
  - This product is suitable for applications using natural convection. For applications in closed environment please consult CUI.

## EFFICIENCY CURVES

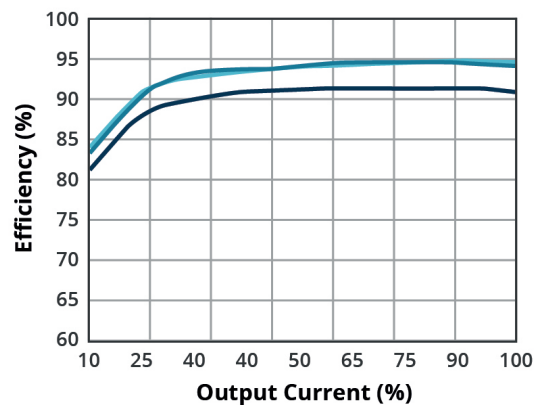
**EFFICIENCY VS INPUT VOLTAGE  
(full load)**



### Key

|             |
|-------------|
| VGS-200E-48 |
| VGS-200E-24 |
| VGS-200E-5  |

**EFFICIENCY VS OUTPUT CURRENT  
(Vin = 230 Vac)**



### Key

|             |
|-------------|
| VGS-200E-48 |
| VGS-200E-24 |
| VGS-200E-5  |

## REVISION HISTORY

| rev. | description     | date       |
|------|-----------------|------------|
| 1.0  | initial release | 10/17/2023 |

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



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CUI offers a two (2) year limited warranty. Complete warranty information is listed on our website.

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