

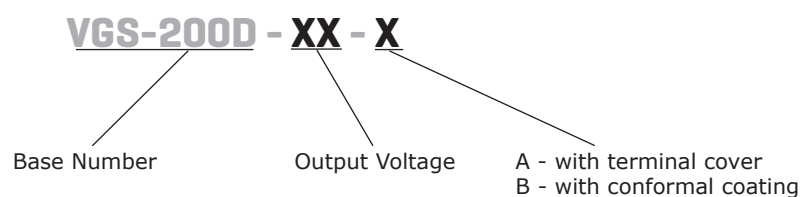
**SERIES: VGS-200D | DESCRIPTION: AC-DC POWER SUPPLY**
**FEATURES**

- wide input range (85 ~ 305 VAC)
- available with conformal coating or terminal cover options
- active Power Factor Correction (PFC)
- certified to IEC/EN/UL 62368
- designed to meet IEC/EN 60335 and GB4943
- output over voltage, over current, over temperature, short circuit protection
- CISPR/EN55032 Class B radiated/conducted emissions



| 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-200D-5  | 5              | 4.5~5.5     | 40.0           | 200.0        | 150                           | 85                      |
| VGS-200D-12 | 12             | 11.4~12.6   | 16.7           | 200.4        | 150                           | 88                      |
| VGS-200D-15 | 15             | 14.25~15.75 | 13.4           | 201.0        | 150                           | 88                      |
| VGS-200D-24 | 24             | 22.8~25.2   | 8.4            | 201.6        | 150                           | 90                      |
| VGS-200D-48 | 48             | 45.6~50.4   | 4.2            | 201.6        | 240                           | 89                      |

Notes: 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.

**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             |     |      | 3.0 | A     |
|                           | at 230 Vac             |     |      | 2.0 | A     |
| inrush current            | at 115 Vac, cold start |     | 35   |     | A     |
|                           | at 230 Vac, cold start |     | 65   |     | A     |
| no load power consumption | at 230 Vac             |     |      | 1.0 | W     |
| 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 V model                                |     |      | 3,000 | μF    |
|                            | 12 V model                               |     |      | 4,000 | μF    |
|                            | 15 V model                               |     |      | 3,300 | μF    |
|                            | 24 V model                               |     |      | 1,500 | μF    |
|                            | 48 V model                               |     |      | 470   | μF    |
| initial set point accuracy | 5 V model, full load range               |     | ±2   |       | %     |
|                            | all other models, full load range        |     | ±1   |       | %     |
| line regulation            | rated load                               |     | ±0.5 |       | %     |
| 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 Vac, full load                    |     | 8    |       | ms    |
|                            | at 230 Vac, full load                    |     | 8    |       | ms    |

## PROTECTIONS

| parameter                   | conditions/description                 | min | typ | max  | units |
|-----------------------------|--|-----|-----|------|-------|
| over current protection     | auto recovery                          | 105 |     | 200  | %     |
| over voltage protection     | 5 V model, auto recovery, hiccup       |     |     | 7.0  | Vdc   |
|                             | 12 V model, output shut down, latching |     |     | 16.2 | Vdc   |
|                             | 15 V model, output shut down, latching |     |     | 21.8 | Vdc   |
|                             | 24 V model, output shut down, latching |     |     | 32.4 | Vdc   |
|                             | 48 V model, output shut down, latching |     |     | 60.0 | Vdc   |
| short circuit protection    | continuous, auto recovery, hiccup      |     |     |      |       |
| over temperature protection | protection activation, full load       |     |     | 85   | °C    |
|                             | protection deactivation                | 55  |     |      | °C    |

## SAFETY & COMPLIANCE

| parameter           | conditions/description   | min   | typ | max | units |
|---------------------|--|-------|-----|-----|-------|
| isolation voltage   | input to output, 1 min, <10 mA   | 4,000 |     |     | Vac   |
|                     | input to ground, 1 min, <10 mA   | 2,000 |     |     | Vac   |
|                     | output to ground, 1 min, <10 mA  | 500   |     |     | Vac   |
| safety approvals    | certified to 62368: IEC, EN, UL<br>designed to meet 60335: IEC, EN (excludes 5 V model)<br>designed to meet 4943: GB |       |     |     |       |
| conducted emissions | CISPR32/EN55032 CLASS B  |       |     |     |       |
| radiated emissions  | CISPR32/EN55032 CLASS B  |       |     |     |       |
| harmonic current    | IEC/EN61000-3-2 CLASS A  |       |     |     |       |
| voltage flicker     | IEC/EN61000-3-3  |       |     |     |       |
| ESD                 | IEC/EN 61000-4-2 Contact ±6KV/Air ±8KV, perf. Criteria A   |       |     |     |       |

**SAFETY & COMPLIANCE (CONTINUED)**

| parameter                     | conditions/description  | min     | typ | max | units |
|-------------------------------|---|---------|-----|-----|-------|
| radiated immunity             | IEC/EN61000-4-3 10V/m, perf. Criteria A   |         |     |     |       |
| EFT/burst                     | IEC/EN61000-4-4 ±4KV, perf. Criteria A, (5 V model: +/- 2KV, perf. Criteria A)  |         |     |     |       |
| surge                         | 5 V model: IEC/EN61000-4-5 ±1KV/±2KV, perf. Criteria A<br>all other models: IEC/EN61000-4-5 ±2KV/±4KV, perf. Criteria A |         |     |     |       |
| conducted immunity            | IEC/EN61000-4-6 10Vr.m.s, perf. Criteria A  |         |     |     |       |
| voltage dips and interruption | IEC/EN61000-4-11 0%, 70%, perf. Criteria B  |         |     |     |       |
| RoHS compliant                | yes   |         |     |     |       |
| MTBF                          | as per MIL-HDBK-217F at 25 °C   | 250,000 |     |     | hrs   |

Note: One magnetic bead (nickel-zinc ferrite) should be coupled with the output load line during conducted/radiated emissions testing.

**ENVIRONMENTAL**

| parameter               | conditions/description | min | typ  | max | units |
|-------------------------|------------------------|-----|------|-----|-------|
| operating temperature   | see derating curve     | -30 |      | 70  | °C    |
| storage temperature     |                        | -40 |      | 85  | °C    |
| operating humidity      | non-condensing         | 20  |      | 90  | %     |
| storage humidity        | non-condensing         | 10  |      | 95  | %     |
| temperature coefficient | 0 ~ 45 °C              |     | 0.03 |     | %/°C  |

**MECHANICAL**

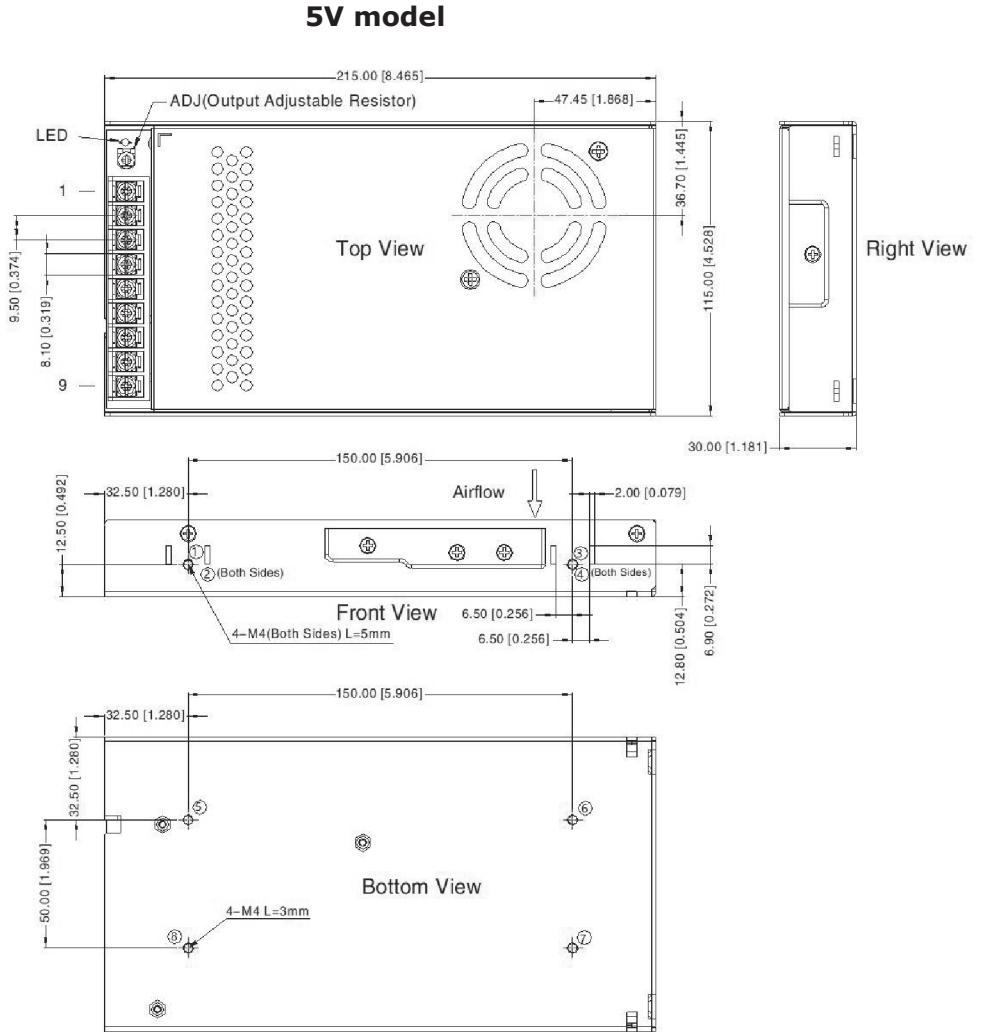
| parameter     | conditions/description  | min | typ        | max | units    |
|---------------|---|-----|------------|-----|----------|
| dimensions    | 5V model: 215.00 x 115.00 x 30.00<br>all other models: 179.00 x 99.00 x 30.00 |     |            |     | mm<br>mm |
| weight        | 5V model<br>all other models  |     | 750<br>475 |     | g<br>g   |
| cooling       | natural convection  |     |            |     |          |
| case material | metal (AL1100)  |     |            |     |          |

## MECHANICAL DRAWING

units: mm [inches]  
 tolerance:  $\pm 1.00$  [ $\pm 0.039$ ]  
 wire range: 22~12 AWG  
 connector tightening torque: M3.5, 0.8 N·m

| PIN OUT |          |
|---------|----------|
| PIN     | Function |
| 1       | +Vo      |
| 2       | +Vo      |
| 3       | +Vo      |
| 4       | -Vo      |
| 5       | -Vo      |
| 6       | -Vo      |
| 7       | ⊕        |
| 8       | AC (N)   |
| 9       | AC (L)   |


Note: At least one position ①~⑧ must be securely connected to the GND. ⊕




| Position | Screw Spec. | L (max) | Torque (max) |
|----------|-------------|---------|--------------|
| ① ~ ④    | M4          | 5 mm    | 0.9 N·m      |
| ⑤ ~ ⑧    | M4          | 3 mm    | 0.9 N·m      |

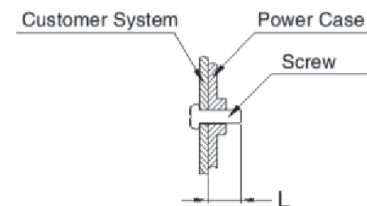
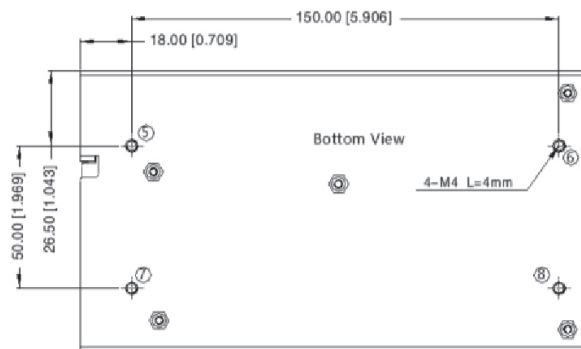
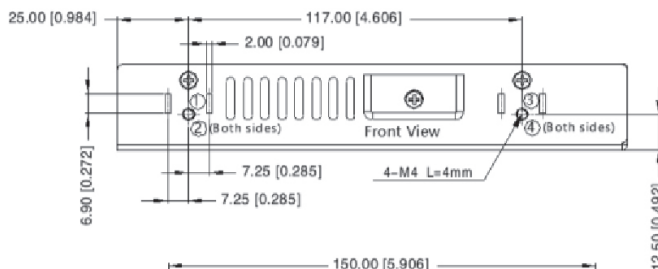
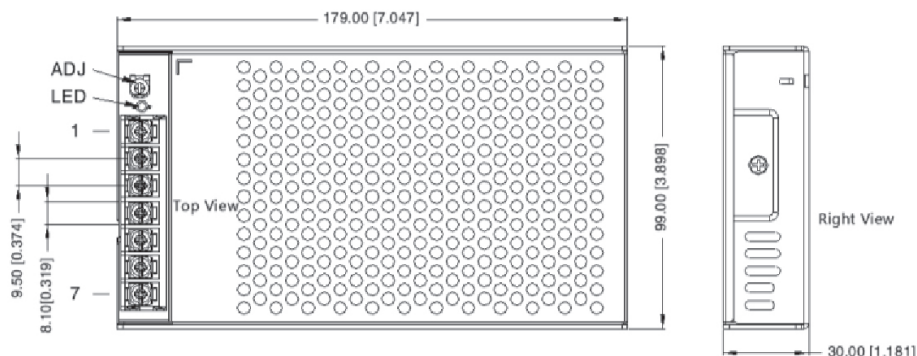
## MECHANICAL DRAWING

units: mm [inches]  
 tolerance:  $\pm 1.00$  [ $\pm 0.039$ ]  
 wire range: 22~12 AWG  
 connector tightening torque: M3.5, 0.8 N·m

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

Note: At least one position ①~⑧ must be securely connected to the GND. 

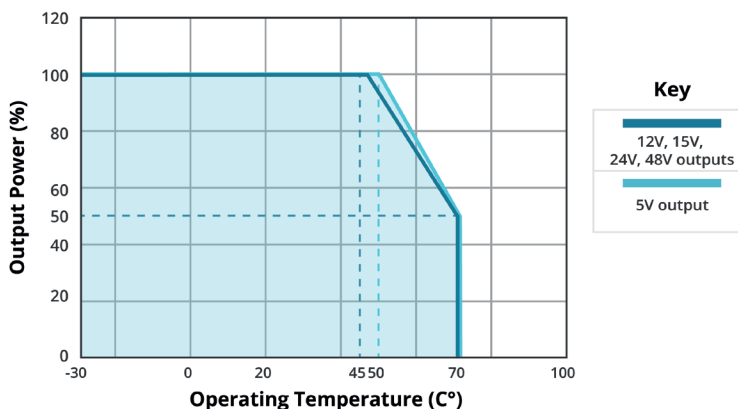
### 12V, 15V, 24V, 48V models



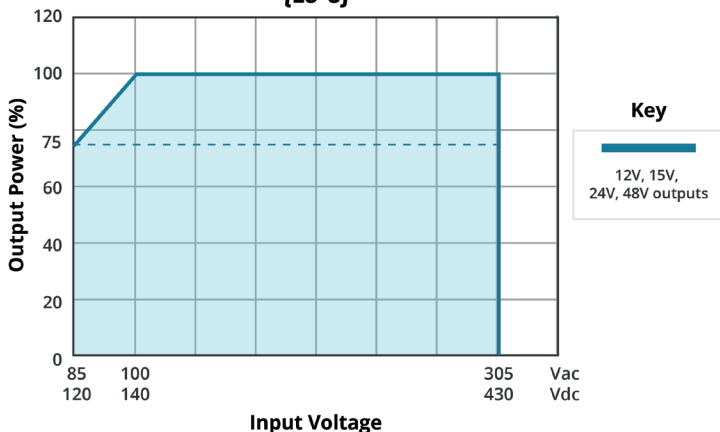
| Position | Screw Spec. | L (max) | Torque (max) |
|----------|-------------|---------|--------------|
| ① ~ ⑧    | M4          | 4 mm    | 0.9 N·m      |

## DERATING CURVES

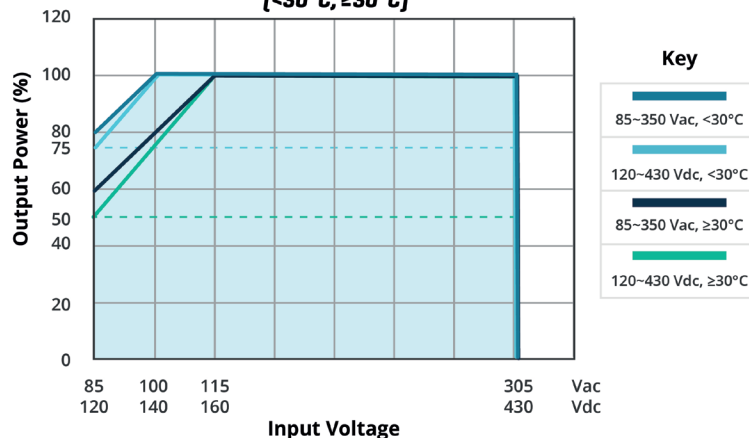
TEMPERATURE DERATING CURVE



INPUT VOLTAGE DERATING CURVE  
12V, 15V, 24V, 48V models  
[25°C]

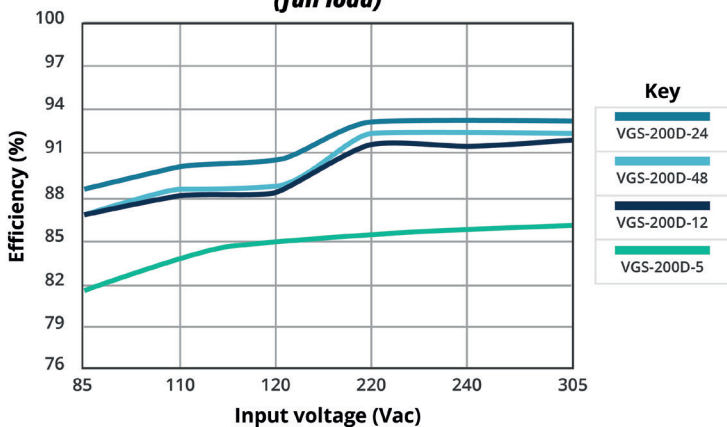


INPUT VOLTAGE DERATING CURVE  
5V model  
[<30°C, ≥30°C]

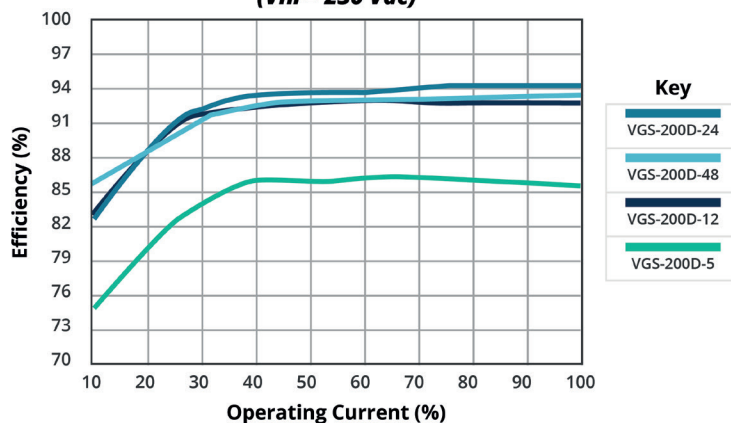


## EFFICIENCY CURVES

EFFICIENCY VS INPUT VOLTAGE  
(full load)



EFFICIENCY VS OUTPUT LOAD  
(Vin = 230 Vac)



## REVISION HISTORY

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| rev. | description                            | date       |
|------|--|------------|
| 1.0  | initial release                        | 03/09/2021 |
| 1.01 | derating and efficiency curves updated | 01/31/2022 |
| 1.02 | UKCA mark added                        | 06/10/2022 |

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



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