

**SERIES:** VGS-15W | **DESCRIPTION:** AC-DC POWER SUPPLY

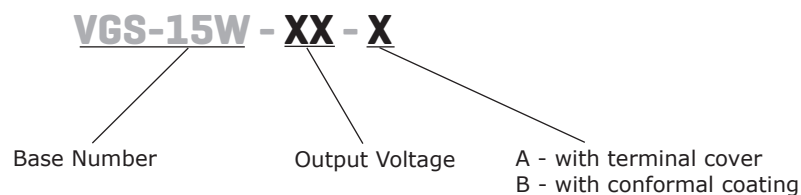
**FEATURES**

- wide input range (85 ~ 305 Vac)
- available with conformal coating or terminal cover options
- UL/EN/IEC 62368 certified
- designed to meet IEC/EN 61558 system requirements
- short-circuit, over-current, over-voltage protections
- input over voltage category III design
- CISPR/EN55032 Class B radiated/conducted emissions



| MODEL      | output voltage |             | output current max (A) | output power max (W) | ripple and noise <sup>1</sup> max (mVp-p) | efficiency <sup>2</sup> typ (%) |
|------------|----------------|-------------|------------------------|----------------------|-------------------------------------------|---------------------------------|
|            | typ (Vdc)      | range (Vdc) |                        |                      |                                           |                                 |
| VGS-15W-3  | 3.3            | 2.85~3.6    | 3.0                    | 9.9                  | 80                                        | 73                              |
| VGS-15W-5  | 5              | 4.5~5.5     | 3.0                    | 15.0                 | 80                                        | 78                              |
| VGS-15W-12 | 12             | 10.2~13.8   | 1.3                    | 15.6                 | 120                                       | 82                              |
| VGS-15W-15 | 15             | 13.5~18.0   | 1.0                    | 15.0                 | 120                                       | 82                              |
| VGS-15W-24 | 24             | 21.6~28.8   | 0.625                  | 15.0                 | 150                                       | 83                              |
| VGS-15W-48 | 48             | 42.0~54.0   | 0.32                   | 15.36                | 150                                       | 83                              |

Notes: 1. Ripple & noise are measured at 20 MHz BW with 47 uF electrolytic and 0.1 uF ceramic capacitors 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                | 100 |     | 430  | Vdc   |
| frequency range           |                         | 47  |     | 63   | Hz    |
| current                   | at 115 Vac              |     |     | 0.35 | A     |
|                           | at 230 Vac              |     |     | 0.25 | A     |
| inrush current            | at 115 Vac              |     | 30  |      | A     |
|                           | at 230 Vac              |     | 50  |      | A     |
| leakage current           | at 277 Vac              |     |     | 0.5  | mA    |
| no load power consumption | at 230 Vac              |     |     | 0.35 | W     |
|                           | 5 V, 12 V & 24 V models |     |     |      |       |
|                           | all other models        |     |     | 0.5  | W     |

## OUTPUT

| parameter                  | conditions/description        | min | typ  | max   | units |
|----------------------------|-------------------------------|-----|------|-------|-------|
| capacitive load            | 3.3 V models                  |     |      | 3,000 | μF    |
|                            | 5 V models                    |     |      | 2,400 | μF    |
|                            | 12 V models                   |     |      | 1,800 | μF    |
|                            | 15 V models                   |     |      | 1,200 | μF    |
|                            | 24 V models                   |     |      | 600   | μF    |
|                            | 48 V models                   |     |      | 300   | μF    |
| initial set point accuracy | 3.3 V models, full load       |     | ±3   |       | %     |
|                            | 5 V models, full load         |     | ±2   |       | %     |
|                            | all other models, full load   |     | ±1   |       | %     |
| line regulation            | 3.3 & 5 V models, rated load  |     | ±1.0 |       | %     |
|                            | all other models, rated load  |     | ±0.5 |       | %     |
| load regulation            | 3.3 & 5 V models, 0~100% load |     | ±1.0 |       | %     |
|                            | all other models, 0~100% load |     | ±0.5 |       | %     |
| switching frequency        |                               |     | 65   |       | kHz   |
| hold-up time               | at 115 Vac                    |     | 7    |       | ms    |
|                            | at 230 Vac                    |     | 48   |       | ms    |

## PROTECTIONS

| parameter                | conditions/description            | min | typ | max  | units |
|--------------------------|-----------------------------------|-----|-----|------|-------|
| over current protection  | auto recovery                     | 110 |     | 200  | %     |
| over voltage protection  | 3.3 & 5 V models, hiccup or clamp |     |     | 6.75 | Vdc   |
|                          | 12 V models, hiccup or clamp      |     |     | 16.2 | Vdc   |
|                          | 15 V models, hiccup or clamp      |     |     | 21.8 | Vdc   |
|                          | 24 V models, hiccup or clamp      |     |     | 33.6 | Vdc   |
|                          | 48 V models, hiccup or clamp      |     |     | 60.0 | Vdc   |
| short circuit protection | continuous, auto recovery, hiccup |     |     |      |       |

## 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                                    | 1,250 |     |     | Vac   |
| safety approvals    | certified to 62368: IEC, EN, UL<br>designed to meet 61558: IEC, EN |       |     |     |       |
| safety class        | class I                                                            |       |     |     |       |
| conducted emissions | CISPR32/EN55032 CLASS B                                            |       |     |     |       |
| radiated emissions  | CISPR32/EN55032 CLASS B                                            |       |     |     |       |
| ESD                 | IEC/EN 61000-4-2 Contact ±6KV/Air ±8KV, perf. Criteria B           |       |     |     |       |

## 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 ±2KV, perf. Criteria A                                  |     |         |     |       |
| surge                         | IEC/EN61000-4-5 line to line ±1KV/line to ground ±2KV, 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                                           |     | 700,000 |     | hrs   |

## 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         | 0   |      | 95  | %     |
| temperature coefficient |                        |     | 0.03 |     | %/°C  |

## MECHANICAL

| parameter     | conditions/description | min | typ | max | units |
|---------------|------------------------|-----|-----|-----|-------|
| dimensions    | 65.00 x 55.00 x 25.00  |     |     |     | mm    |
| weight        |                        |     | 90  |     | g     |
| cooling       | natural convection     |     |     |     |       |
| case material | metal (AL5052, SGCC)   |     |     |     |       |

## MECHANICAL DRAWING

### Standard Model

units: mm [inches]

tolerance: ±1.00 [±0.039]

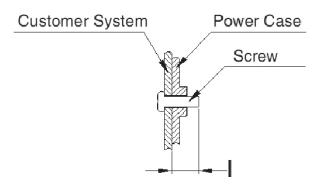
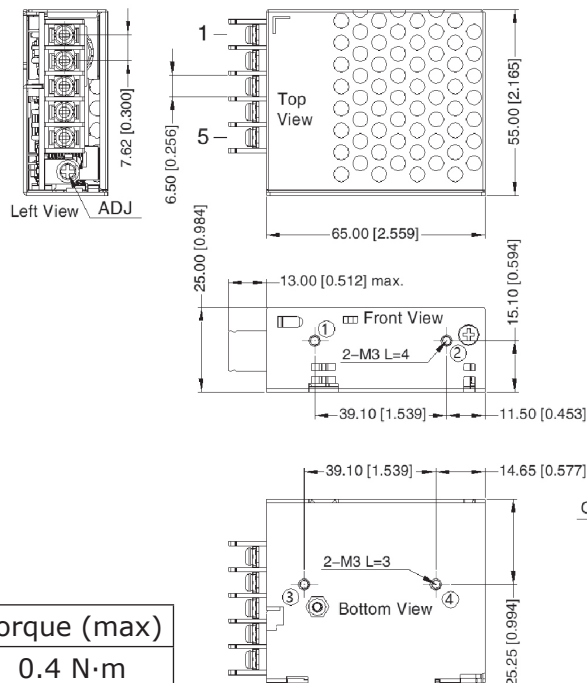
wire range: 22~14 AWG

connector tightening torque: M3, 0.4 N·m

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

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

| Position | Screw Spec. | L (max) | Torque (max) |
|----------|-------------|---------|--------------|
| ① ~ ②    | M3          | 4 mm    | 0.4 N·m      |
| ③ ~ ④    | M3          | 3 mm    | 0.4 N·m      |



## MECHANICAL DRAWING (CONTINUED)

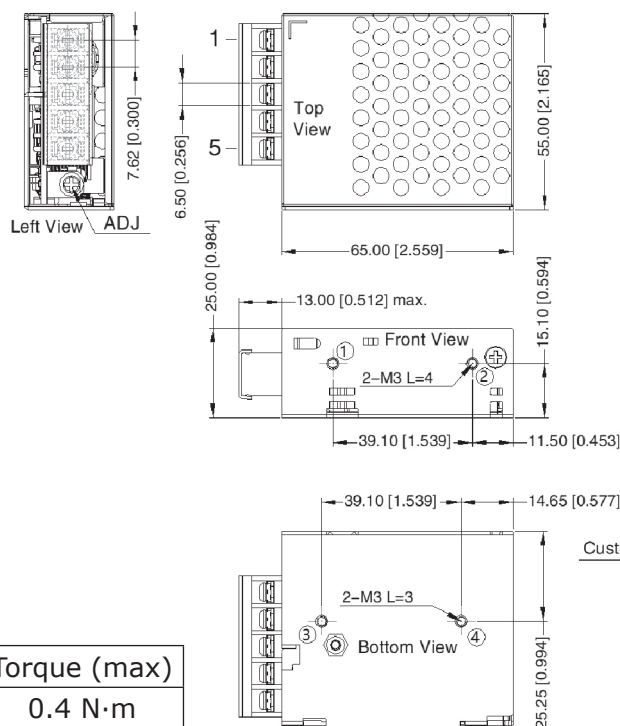
### Terminal Cover Option

units: mm [inches]  
 tolerance:  $\pm 1.00$  [ $\pm 0.039$ ]  
 wire range: 22~14 AWG  
 connector tightening torque: M3, 0.4 N·m

| PIN OUT |            |
|---------|------------|
| PIN     | Function   |
| 1       | AC (L)     |
| 2       | AC (N)     |
| 3       | $\text{⏏}$ |
| 4       | -Vo        |
| 5       | +Vo        |

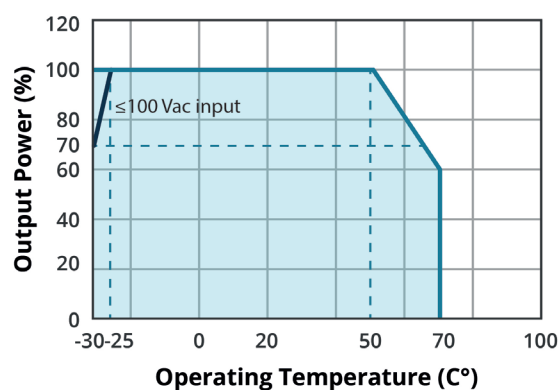
Note: At least one position ①~④ must be securely connected to the GND.  $\text{⏏}$

| Position | Screw Spec. | L (max) | Torque (max) |
|----------|-------------|---------|--------------|
| ① ~ ②    | M3          | 4 mm    | 0.4 N·m      |
| ③ ~ ④    | M3          | 3 mm    | 0.4 N·m      |

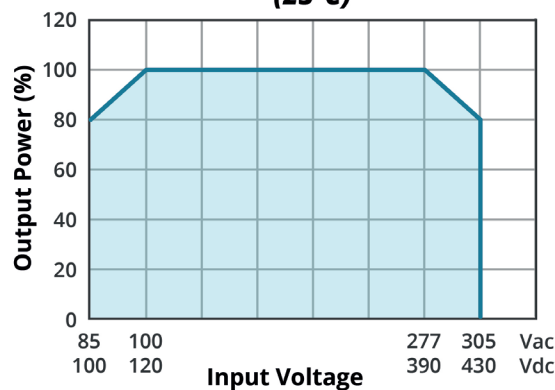


## DERATING CURVES

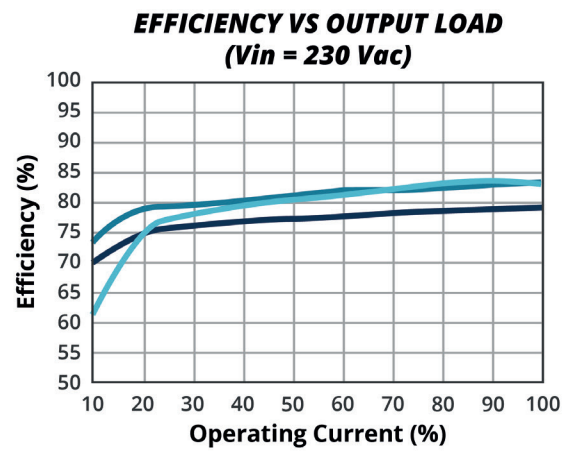
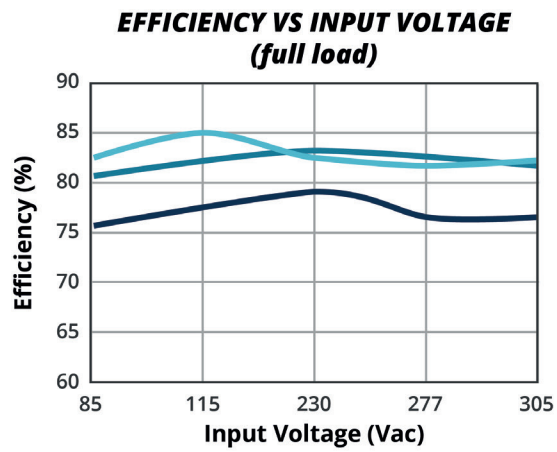
**TEMPERATURE DERATING CURVE**



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



## EFFICIENCY CURVES



## REVISION HISTORY

| rev. | description                                         | date       |
|------|-----------------------------------------------------|------------|
| 1.0  | initial release                                     | 02/10/2021 |
| 1.01 | derating and efficiency curves updated              | 02/11/2022 |
| 1.02 | UKCA mark added, mechanical drawing section updated | 06/06/2022 |
| 1.03 | no load power consumption updated                   | 07/06/2022 |

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



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