

**SERIES:** VGS-75D | **DESCRIPTION:** INTERNAL AC-DC POWER SUPPLY

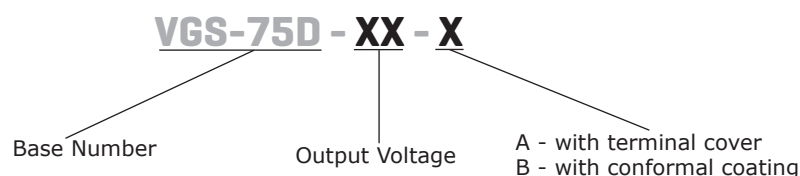
**FEATURES**

- available with conformal coating or terminal cover options
- active Power Factor Correction (PFC)
- certified to IEC/EN/UL 62368
- designed to meet IEC/EN 61558, IEC/EN 60335, and GB4943
- output over voltage, over current, over temperature, short circuit protection
- CISPR/EN55032 Class B radiated/conducted emissions
- input over voltage category III for fixed installations
- 300 VAC surge resilience (5 seconds)


**MODEL**

|            | output<br>voltage<br>(Vdc) | range <sup>1</sup><br>(Vdc) | output<br>current<br>max<br>(A) | output<br>power<br>max<br>(W) | ripple<br>and noise <sup>2</sup><br>max<br>(mVp-p) | efficiency <sup>3</sup><br>typ<br>(%) |
|------------|----------------------------|-----------------------------|---------------------------------|-------------------------------|----------------------------------------------------|---------------------------------------|
| VGS-75D-5  | 5                          | 4.75 ~ 5.5                  | 15.0                            | 75.0                          | 120                                                | 82                                    |
| VGS-75D-12 | 12                         | 11.4 ~ 13.2                 | 6.3                             | 75.6                          | 120                                                | 85                                    |
| VGS-75D-15 | 15                         | 14.3 ~ 16.5                 | 5.0                             | 75.0                          | 120                                                | 86                                    |
| VGS-75D-24 | 24                         | 22.8 ~ 26.4                 | 3.2                             | 76.8                          | 120                                                | 87                                    |
| VGS-75D-48 | 48                         | 45.6 ~ 52.8                 | 1.6                             | 76.8                          | 200                                                | 89                                    |

Notes: 1. Output adjustable via built-in trimpot. The actual adjustment range may extend beyond the values listed and care should be taken to ensure the output voltage and output power do not exceed stated limits.  
 2. Ripple & noise are measured at 20 MHz BW with 47  $\mu$ F aluminum electrolytic capacitor and 0.1  $\mu$ F ceramic capacitor on the output.  
 3. Measured at 230 Vac.

**PART NUMBER KEY**


## INPUT

| parameter       | conditions/description | min  | typ | max | units |
|-----------------|------------------------|------|-----|-----|-------|
| voltage         | ac input               | 85   |     | 264 | Vac   |
|                 | dc input               | 120  |     | 370 | Vdc   |
| frequency       |                        | 47   |     | 63  | Hz    |
| current         | at 115 Vac             |      |     | 1.0 | A     |
|                 | at 230 Vac             |      |     | 0.6 | A     |
| inrush current  | at 115 Vac, cold start |      | 20  |     | A     |
|                 | at 230 Vac, cold start |      | 35  |     | A     |
| leakage current | at 240 Vac             |      |     | 2   | mA    |
| power factor    | at 115 Vac             | 0.98 |     |     |       |
|                 | at 230 Vac             | 0.93 |     |     |       |

## OUTPUT

| parameter                  | conditions/description                             | min | typ   | max    | units |
|----------------------------|----------------------------------------------------|-----|-------|--------|-------|
| capacitive load            | 5 Vdc output                                       |     |       | 10,000 | μF    |
|                            | 12 Vdc output                                      |     |       | 6,000  | μF    |
|                            | 15 Vdc output                                      |     |       | 5,000  | μF    |
|                            | 24 Vdc output                                      |     |       | 1,500  | μF    |
|                            | 48 Vdc output                                      |     |       | 680    | μF    |
| initial set point accuracy | at full load                                       |     | ±2    |        | %     |
| line regulation            |                                                    |     | ±0.5  |        | %     |
| load regulation            | 5 Vdc output 0%~100% load                          |     | ±1    |        | %     |
|                            | other outputs 0%~100% load                         |     | ±0.5  |        | %     |
| hold-up time               | at 230 Vac                                         | 16  |       |        | ms    |
| temperature coefficient    |                                                    |     | ±0.03 |        | %/°C  |
| remote on/off (CTRL)       | module on (0 ~ 0.8 Vdc)<br>module off (4 ~ 10 Vdc) |     |       |        |       |

## PROTECTIONS

| parameter                                | conditions/description                         | min | typ | max  | units |
|------------------------------------------|------------------------------------------------|-----|-----|------|-------|
| over voltage protection                  | 5 Vdc output model, output shut down, latched  |     |     | 7.0  | Vdc   |
|                                          | 12 Vdc output model, output shut down, latched |     |     | 20.0 | Vdc   |
|                                          | 15 Vdc output model, output shut down, latched |     |     | 25.0 | Vdc   |
|                                          | 24 Vdc output model, output shut down, latched |     |     | 32.4 | Vdc   |
|                                          | 48 Vdc output model, output shut down, latched |     |     | 60.0 | Vdc   |
| over current protection                  | auto-recovery                                  | 105 |     |      | %     |
| over temperature protection <sup>1</sup> | over temperature protection activation         |     |     | 85   | °C    |
|                                          | over temperature protection deactivation       | 50  |     |      | °C    |
| short circuit protection                 | constant current, continuous, auto-recovery    |     |     |      |       |

Note: 1. Over temperature protection thresholds under full load conditions.

## SAFETY & COMPLIANCE

| parameter                      | conditions/description                                                                                                     | min     | typ | max | units |
|--------------------------------|----------------------------------------------------------------------------------------------------------------------------|---------|-----|-----|-------|
| isolation voltage              | input to ground, 1 min, <10mA                                                                                              | 2,000   |     |     | Vac   |
|                                | input to output, 1 min, <10mA                                                                                              | 4,000   |     |     | Vac   |
|                                | output to ground, 1 min, <5mA                                                                                              | 500     |     |     | Vac   |
| safety approvals               | certified to 62368: IEC, EN, UL/cUL<br>designed to meet 60335: EN<br>designed to meet 61558: EN<br>designed to meet GB4943 |         |     |     |       |
| safety class                   | Class I                                                                                                                    |         |     |     |       |
| conducted emissions            | CISPR32/EN55032 CLASS B                                                                                                    |         |     |     |       |
| radiated emissions             | CISPR32/EN55032 CLASS B                                                                                                    |         |     |     |       |
| harmonic current               | IEC/EN61000-3-2 CLASS A                                                                                                    |         |     |     |       |
| ESD                            | IEC/EN61000-4-2 Contact ±6KV/Air ±8KV perf. Criteria B                                                                     |         |     |     |       |
| radiated immunity              | IEC/EN61000-4-3 10V/m perf. Criteria A                                                                                     |         |     |     |       |
| EFT/burst                      | IEC/EN61000-4-4 ±2KV perf. Criteria B                                                                                      |         |     |     |       |
| surge                          | IEC/EN61000-4-5 line to line ±1KV/line to ground ±2KV perf. Criteria B                                                     |         |     |     |       |
| conducted immunity             | IEC/EN61000-4-6 10Vr.m.s perf. Criteria A                                                                                  |         |     |     |       |
| voltage dips and interruptions | IEC/EN61000-4-11 0%, 70% perf. Criteria B                                                                                  |         |     |     |       |
| MTBF                           | as per MIL-HDBK-217F at 25°C                                                                                               | 300,000 |     |     | hours |
| RoHS                           | yes                                                                                                                        |         |     |     |       |

## ENVIRONMENTAL

| parameter             | conditions/description                  | min | typ | max | units |
|-----------------------|-----------------------------------------|-----|-----|-----|-------|
| operating temperature | 5 Vdc output model, see derating curve  | -25 |     | 60  | °C    |
|                       | other output models, see derating curve | -25 |     | 70  |       |
| storage temperature   |                                         | -40 |     | 85  | °C    |
| operating humidity    | non-condensing                          | 20  |     | 90  | %     |
| storage humidity      | non-condensing                          | 0   |     | 95  | %     |

## MECHANICAL

| parameter     | conditions/description | min | typ | max | units |
|---------------|------------------------|-----|-----|-----|-------|
| dimensions    | 159 x 97 x 30          |     |     |     | mm    |
| weight        |                        |     | 380 |     | g     |
| cooling       | natural convection     |     |     |     |       |
| case material | metal (AL1100, SGCC)   |     |     |     |       |

## MECHANICAL DRAWING

units: mm [inch]

tolerance:  $\pm 1.0$  [ $\pm 0.039$ ]

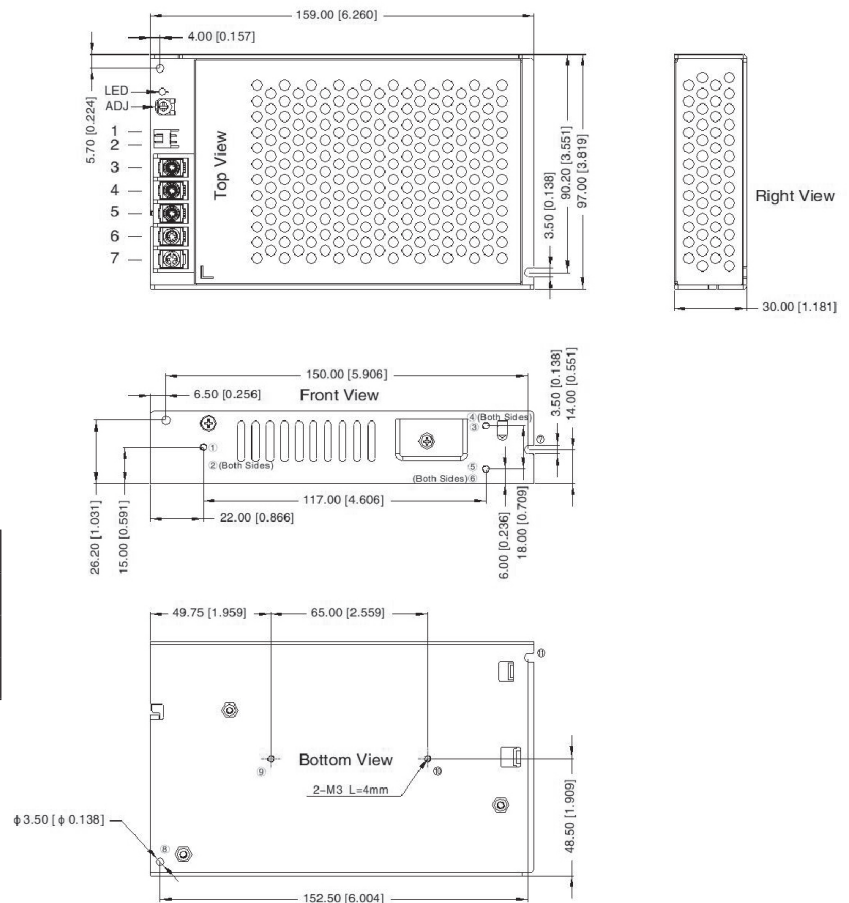
wire range: 22-12 AWG

connector tightening torque: M3.5, 0.8 N·m

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

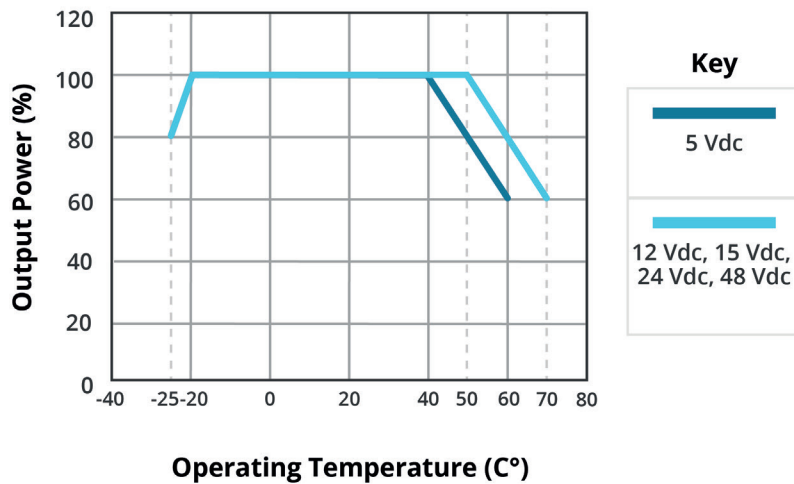
Note: At least one hole position,  
 ①~④, must be securely connected  
 to Protective Earth (PE). 

| CN1: KANGDAO TJC3-NAWD-2P |          |                        |                      |
|---------------------------|----------|------------------------|----------------------|
| PIN                       | FUNCTION | CONNECTOR              | TERMINAL             |
| 1                         | RC+      | KANGDAO<br>XI-25001-2Y | KANGDAO<br>XH2.54-TE |
| 2                         | RC-      |                        |                      |

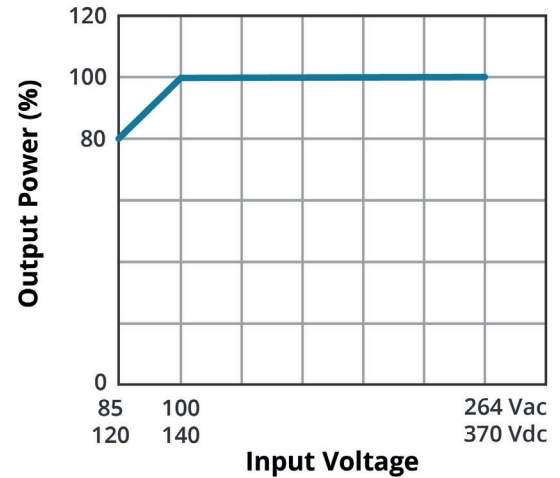


## DERATING CURVE

### TEMPERATURE DERATING CURVE

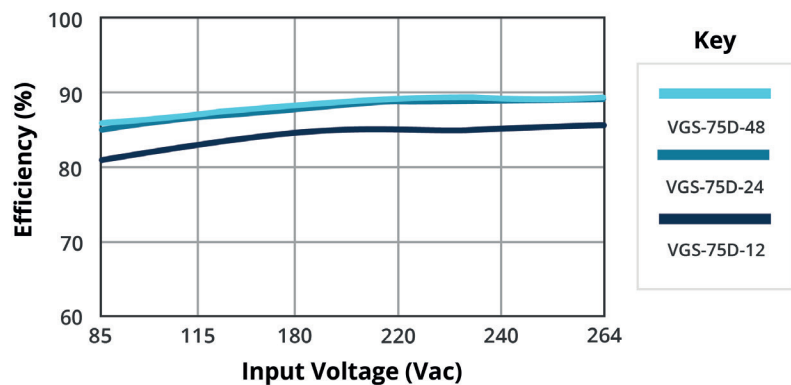


### INPUT VOLTAGE DERATING CURVE (25°C)

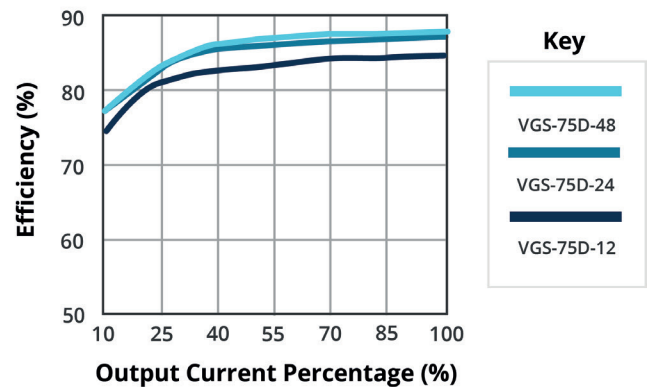


## EFFICIENCY CURVES

### EFFICIENCY VS INPUT VOLTAGE (FULL LOAD)



### EFFICIENCY VS OUTPUT LOAD



## REVISION HISTORY

| rev. | description     | date       |
|------|-----------------|------------|
| 1.0  | initial release | 12/09/2020 |

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



**Headquarters**  
20050 SW 112th Ave.  
Tualatin, OR 97062  
**800.275.4899**

Fax 503.612.2383  
**cui.com**  
techsupport@cui.com

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