

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

FEATURES

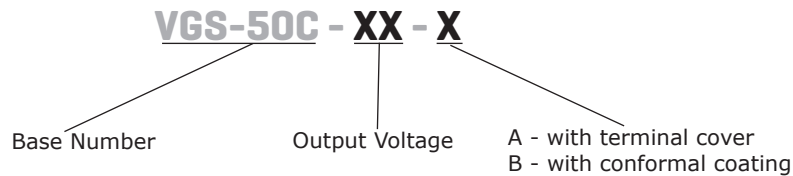
- universal input range (85 ~ 264 VAC)
- UL/EN/IEC 62368 certified
- designed to meet IEC/EN 61558, IEC/EN 60335, and GB 4943 system requirements
- short-circuit, over-current, over-voltage protections
- CISPR/EN55032 Class B radiated/conducted emissions
- output adjustable via trimpot +/- 10%



| MODEL | output voltage | output current | output power | ripple and noise ¹ | efficiency ² |
|------------|----------------|----------------|--------------|-------------------------------|-------------------------|
| | (Vdc) | max (A) | max (W) | typ (mVp-p) | typ (%) |
| VGS-50C-5 | 5 | 10.0 | 50.0 | 80 | 86 |
| VGS-50C-12 | 12 | 4.2 | 50.4 | 120 | 87 |
| VGS-50C-15 | 15 | 3.4 | 51.0 | 120 | 88 |
| VGS-50C-24 | 24 | 2.2 | 52.8 | 150 | 89 |
| VGS-50C-36 | 36 | 1.45 | 52.2 | 200 | 89 |
| VGS-50C-48 | 48 | 1.1 | 52.8 | 200 | 90 |

Notes: 1. Ripple & noise are measured at 20 MHz BW with 47 µF aluminum electrolytic capacitor and 0.1 µF ceramic capacitor on the output.
2. Measured at 230 Vac

PART NUMBER KEY



INPUT

| parameter | conditions/description | min | typ | max | units |
|---------------------------|------------------------|-----|-----|------|-------|
| voltage | ac input | 85 | | 264 | Vac |
| | dc input | 120 | | 373 | Vdc |
| frequency | | 47 | | 63 | Hz |
| current | at 115 Vac | | | 1.2 | A |
| | at 230 Vac | | | 0.8 | A |
| inrush current | at 115 Vac, cold start | | 30 | | A |
| | at 230 Vac, cold start | | 50 | | A |
| leakage current | at 240 Vac | | | 0.75 | mA |
| no load power consumption | | | | 0.3 | W |

OUTPUT

| parameter | conditions/description | min | typ | max | units |
|----------------------------|-------------------------------|-----|------------|-------|--------|
| capacitive load | 5 Vdc output | | | 8,500 | μF |
| | 12 Vdc output | | | 2,000 | μF |
| | 15 Vdc output | | | 1,500 | μF |
| | 24 Vdc output | | | 1,000 | μF |
| | 36 Vdc output | | | 800 | μF |
| | 48 Vdc output | | | 680 | μF |
| initial set point accuracy | 5 Vdc output, full load | | ±2 | | % |
| | other outputs, full load | | ±1 | | % |
| line regulation | | | ±0.5 | | % |
| load regulation | 0%~100% load | | | | |
| | 5 Vdc output other outputs | | ±1 ±0.5 | | % % |
| adjustability | built in trim pot | ±10 | | | % |
| hold-up time | at 115 Vac | 8 | | | ms |
| | at 230 Vac | 30 | | | ms |
| switching frequency | | | 65 | | kHz |
| temperature coefficient | | | ±0.03 | | %/°C |

PROTECTIONS

| parameter | conditions/description | min | typ | max | units |
|--------------------------|-----------------------------------|-----|-----|-------|-------|
| over voltage protection | 5 Vdc output, clamp | | | 6.3 | Vdc |
| | 12 Vdc output, clamp | | | 16.2 | Vdc |
| | 15 Vdc output, clamp | | | 21.75 | Vdc |
| | 24 Vdc output, clamp | | | 33.6 | Vdc |
| | 36 Vdc output, clamp | | | 48.6 | Vdc |
| | 48 Vdc output, clamp | | | 60.0 | Vdc |
| over current protection | auto-recovery | 110 | | 200 | % |
| short circuit protection | hiccup, continuous, auto-recovery | | | | |

SAFETY & COMPLIANCE

| parameter | conditions/description | min | typ | max | units |
|-------------------|---|--------|-----------|-----|-------|
| isolation voltage | input to ground | 2,000 | | | Vac |
| | input to output | 4,000 | | | Vac |
| | output to ground | 1,250 | | | Vac |
| safety approvals | certified to: | 62368: | IEC/EN/UL | | |
| | designed to meet: | 60335: | IEC/EN | | |
| | designed to meet: | 61558: | IEC/EN | | |
| | designed to meet: | 4943: | GB | | |
| safety class | Class I | | | | |
| EMI/EMC | CISPR32/EN55032 Class B, IEC/EN61000-3-2 Class A | | | | |
| ESD | IEC/EN 61000-4-2 Contact ±6KV /Air ±8KV, perf. Criteria A | | | | |

SAFETY & COMPLIANCE

| | | | |
|--------------------------------|--|---------|-------|
| radiated immunity | IEC/EN 61000-4-3 10V/m, perf. Criteria A | | |
| EFT/burst | IEC/EN 61000-4-4 ±2KV, 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 10 Vr.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 | | -30 | | 70 | °C |
| storage temperature | | -40 | | 85 | °C |
| operating humidity | non-condensing | 20 | | 90 | % |
| storage humidity | non-condensing | 0 | | 95 | % |

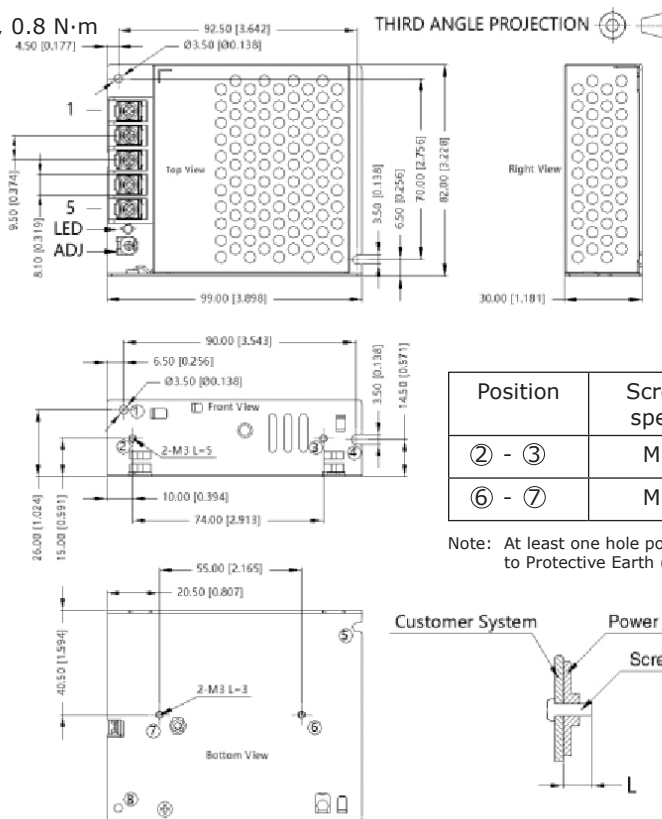
MECHANICAL

| parameter | conditions/description | min | typ | max | units |
|---------------|------------------------|-----|-----|-----|-------|
| dimensions | 99.00 x 82.00 x 30.00 | | | | mm |
| weight | | | 180 | | g |
| cooling | natural convection | | | | |
| case material | metal (AL1100, SGCC) | | | | |

MECHANICAL DRAWING

units: mm [inch]
 tolerance: ±1.0 [±0.039]
 wire range: 22-12 AWG
 connector tightening torque: M3.5, 0.8 N·m

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

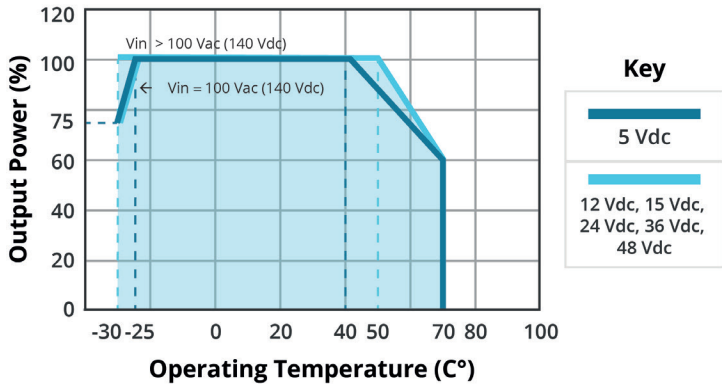


| Position | Screw spec. | L (max) | Torque (max) |
|----------|-------------|---------|--------------|
| ② - ③ | M3 | 5 mm | 0.4 N·m |
| ⑥ - ⑦ | M3 | 3 mm | 0.4 N·m |

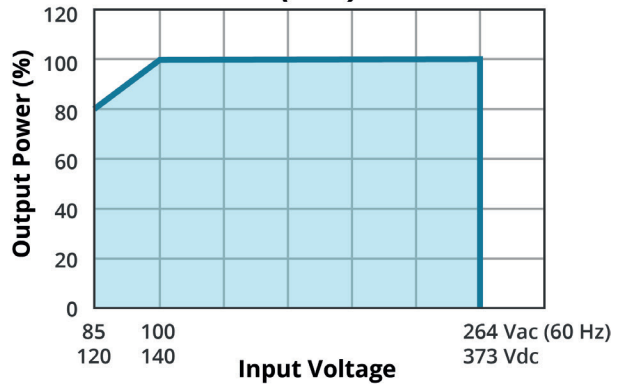
Note: At least one hole position, ①~③, must be securely connected to Protective Earth (PE) ⏚

DERATING CURVE

TEMPERATURE DERATING CURVE

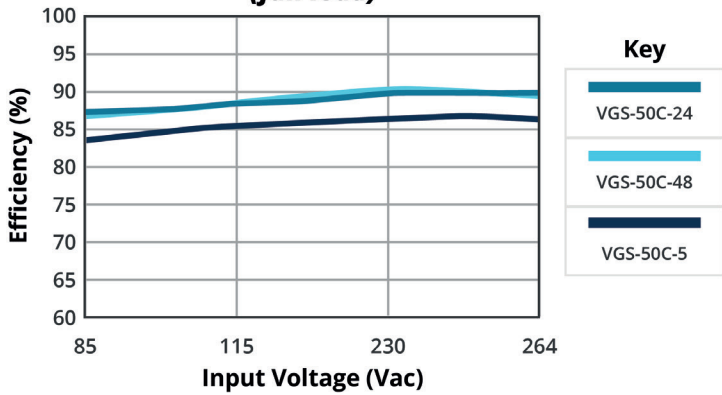


INPUT VOLTAGE DERATING CURVE (25°C)

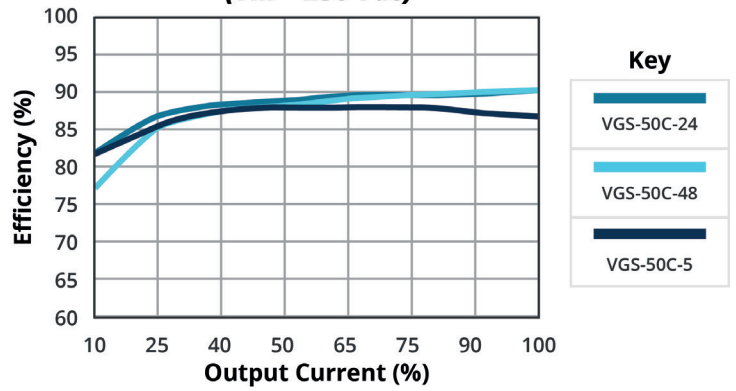


EFFICIENCY CURVES

EFFICIENCY VS INPUT VOLTAGE (full load)



EFFICIENCY VS OUTPUT LOAD (Vin = 230 Vac)



REVISION HISTORY

| rev. | description | date |
|------|--|------------|
| 1.0 | initial release | 09/28/2020 |
| 1.01 | derating and efficiency curves updated | 02/10/2022 |
| 1.02 | UKCA mark added | 06/06/2022 |

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



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