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

FEATURES

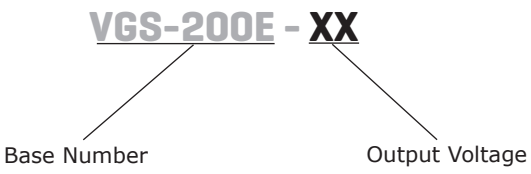
- 200 W continuous switching power supply
- 85 ~ 305 Vac, 120 ~ 430 Vdc input voltage
- adjustable output voltage
- EN/UL/BS EN 62368-1
- designed to meet EN 60335, EN 61558, GB 4943
- CISPR32/EN55032 CLASS B compliant
- temperature range -40 °C ~ +70 °C with derating
- baseplate cooling
- over-temperature, 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[1]	efficiency[2]
	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 dc input	85 120		305 430	Vac Vdc
frequency range		47		63	Hz
current	at 115 Vac at 230 Vac			2.5 1.2	A A
inrush current	at 115 Vac, cold start at 230 Vac, cold start		40 80		A A
leakage current	at 240 Vac			0.5	mA
power factor	at 115 Vac, full load at 230 Vac, full load		0.98 0.95		

OUTPUT

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

PROTECTIONS

parameter	conditions/description		min	typ	max	units
over current protection[4]	normal & high temperature, 230 Vac, rated load		105		200	%
	low temperature, 230 Vac, rated load				105	%
over voltage protection	5 Vdc output model, hiccup 12 Vdc output model, hiccup 24 Vdc output model, hiccup 36 Vdc output model, hiccup 48 Vdc output model, hiccup				6.3 16 35 47 60	Vdc Vdc Vdc Vdc Vdc
short circuit protection[5]	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 input to ground for 1 minute, 5 mA max output to ground for 1 minute, 5 mA max	4,000 2,000 1,250			Vac Vac Vac
safety approvals	certified to 62368-1[6]: UL, EN, BS EN designed to meet 60335: EN designed to meet 61558: EN 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

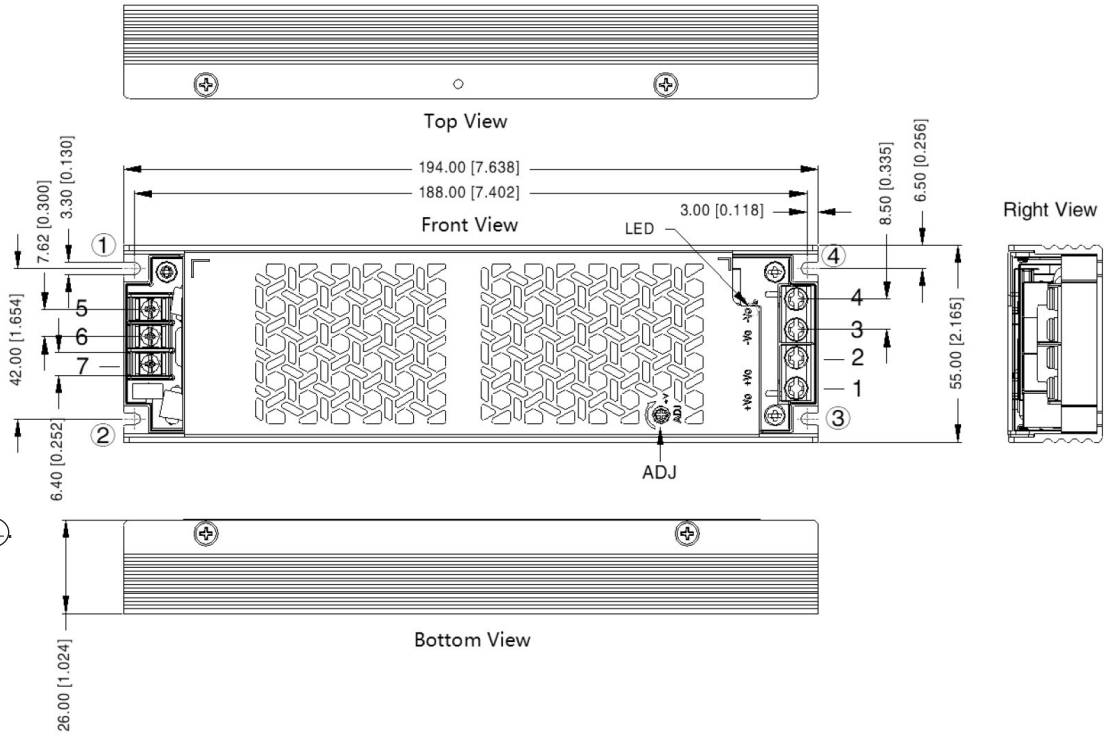
parameter	conditions/description	min	typ	max	units
dimensions	194.00 x 55.00 x 26.00				mm
weight			430		g
cooling	natural convection				
case material	metal (AL6063, SGCC)				

MECHANICAL DRAWING

units: mm [inches]
tolerance: ±1.00 [±0.039]
ADJ: Output voltage adjustable resistor.

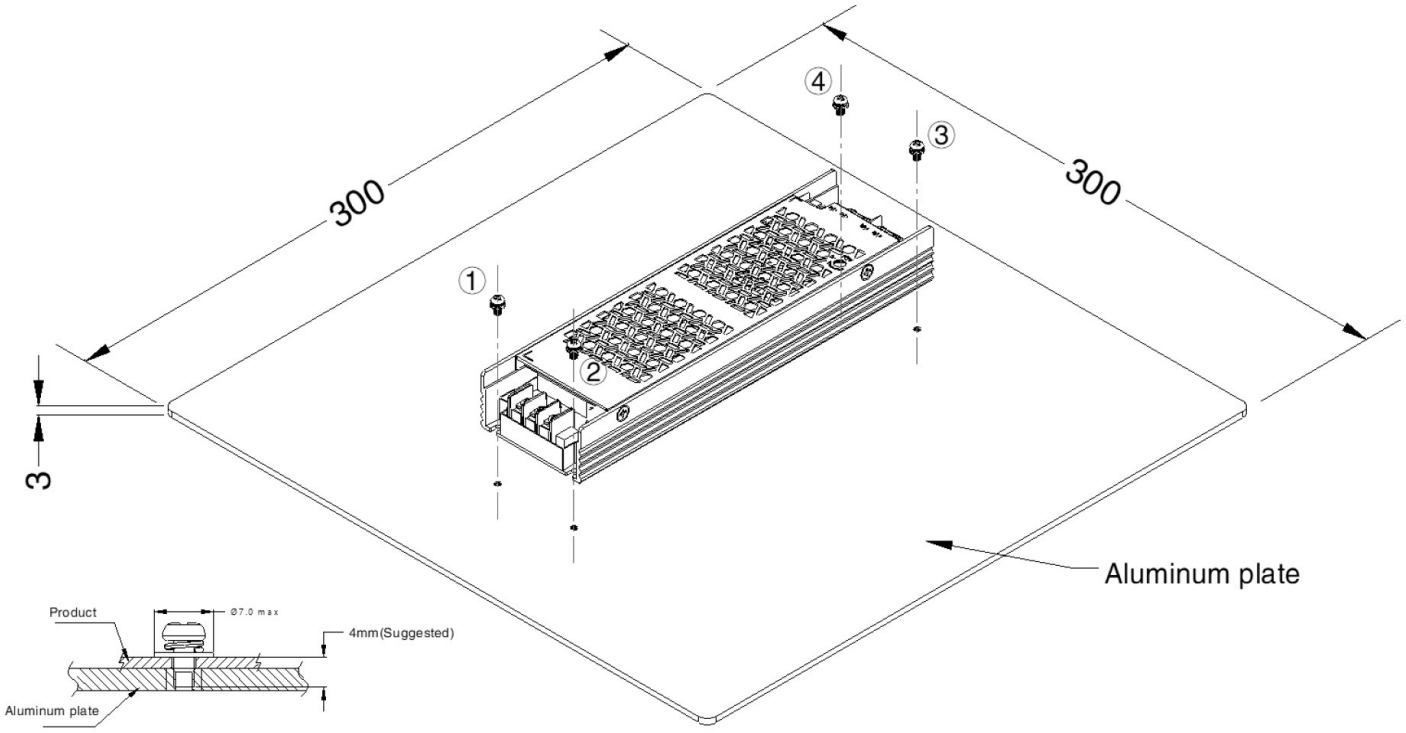
PIN OUT	
PIN	Function
1	+Vo
2	+Vo
3	-Vo
4	-Vo
5	⏚
6	AC (N)
7	AC (L)

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	-Vo double wires +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		

INSTALATION DIAGRAM

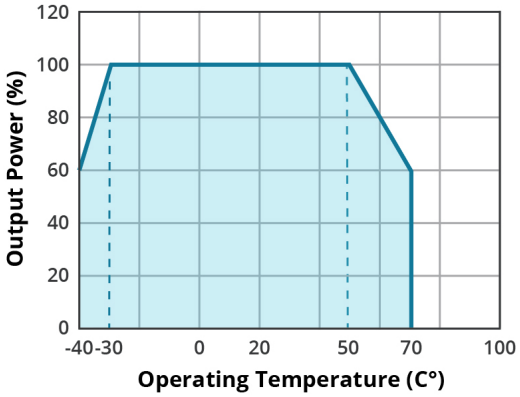


Position	Screw Spec.	L (suggested)	Torque (max)
① ~④	M3	4 mm	0.4 N·m

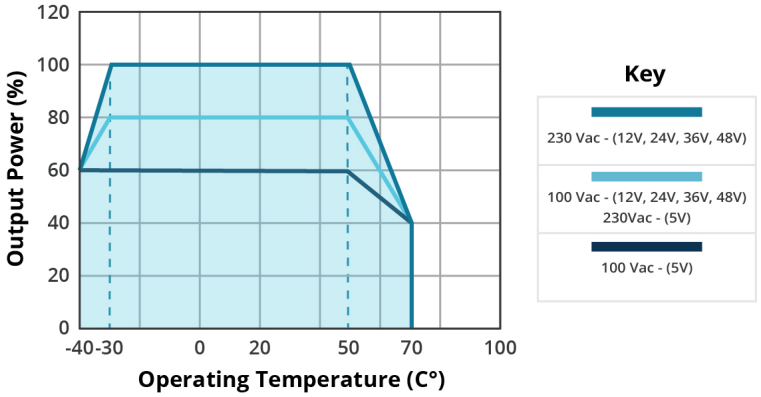
Note:
6. In order to meet the "derating curve", the product testing must be installed onto an aluminum plate. The size of the suggested aluminum plate is shown as above. For optimizing thermal performance, it is necessary to apply thermal grease on the bottom of the product.
7. It is suggested to install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

DERATING CURVES

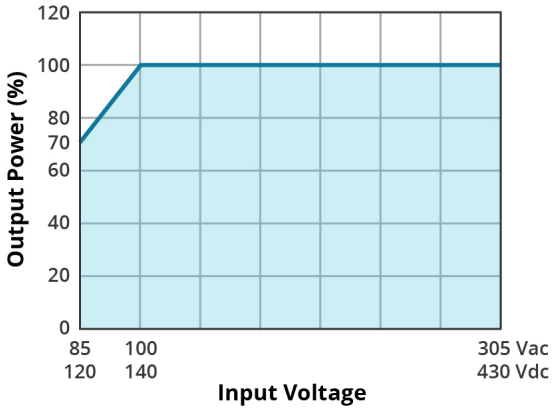
TEMPERATURE DERATING CURVE with aluminum plate (85~305 Vac, 120~430 Vdc)



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



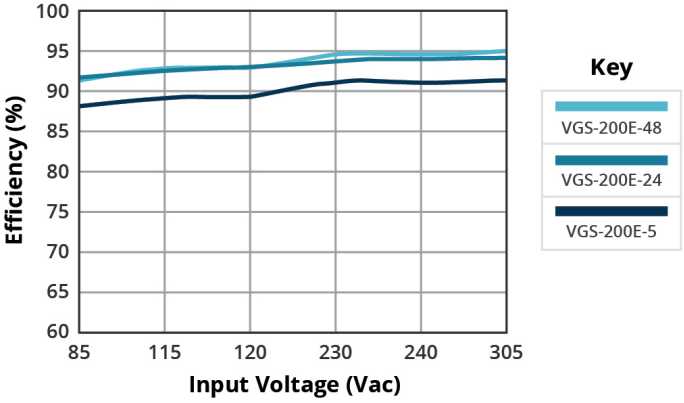
INPUT VOLTAGE DERATING CURVE (25°C)



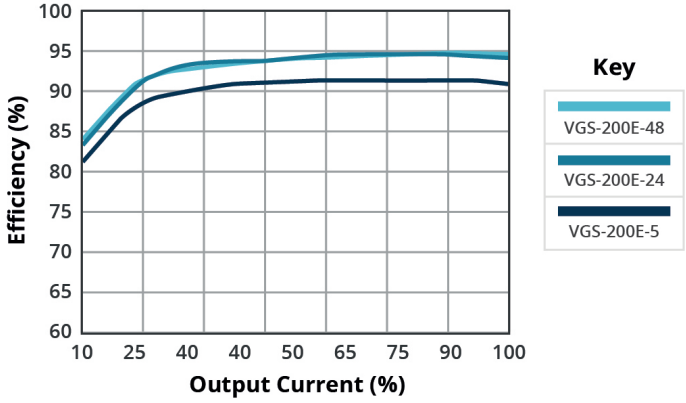
Note:
8. With an AC input voltage between 80 ~ 100 Vac and a DC input between 120 ~ 140 Vdc the output power must be derated as per the temperature derating curves.
9. This product is suitable for applications using natural convection. For applications in closed enviroment please consult CUI.

EFFICIENCY CURVES

EFFICIENCY VS INPUT VOLTAGE (full load)



EFFICIENCY VS OUTPUT CURRENT (Vin = 230 Vac)



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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