SERIES: VGS-150D | DESCRIPTION: INTERNAL 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 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 (under 2,000 m altitude)
- 300 VAC surge resilience (5 seconds)

MODEL

MODEL	output voltage (Vdc)	output voltage range[1] (Vdc)	output current max (A)	output power max (W)	ripple and noise[2] max (mVp-p)	efficiency[3] typ (%)
VGS-150D-12	12	10.2 ~ 13.8	12.5	150.0	100	85.5
VGS-150D-15	15	13.5 ~ 18.0	10.0	150.0	100	86.0
VGS-150D-24	24	21.6 ~ 28.8	6.3	151.2	150	87.0
VGS-150D-48	48	45.6 ~ 55.2	3.2	153.6	250	88.0

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 μF aluminum electrolytic capacitor and 0.1 μF ceramic capacitor on the output.
3. Measured at 230 Vac

PART NUMBER KEY

VGS-150D - XX - X

- VGS-150D: Base Number
- XX: Output Voltage
- X: A - with terminal cover; B - with conformal coating

Please read our datasheet & drawing disclaimer here.

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INPUT

parameter	conditions/description	min	typ	max	units
voltage	ac input dc input	85 120		305 430	Vac Vdc
frequency		47		63	Hz
current	at 85 Vac at 115 Vac at 230 Vac			2.5 2.0 1.0	A A A
inrush current	at 115 Vac, cold start at 230 Vac, cold start			30 45	A A
leakage current	at 240 Vac			2	mA
power factor	at 115 Vac, full load at 230 Vac, full load	0.97 0.91			

OUTPUT

parameter	conditions/description	min	typ	max	units
capacitive load	12 Vdc output 15 Vdc output 24 Vdc output 48 Vdc output			5,000 5,000 5,000 3,000	µF µF µF µF
initial set point accuracy	at full load 12 & 15 Vdc output 24 & 48 Vdc output		 ±2 ±1		 % %
line regulation			±0.5		%
load regulation	0%~100% load		±0.5		%
hold-up time	at 230 Vac	16			ms
temperature coefficient			±0.05		%/°C
remote on/off (CTRL)	turn on (0 ~ 0.8 Vdc) turn off (4 ~ 10 Vdc)				

PROTECTIONS

parameter	conditions/description	min	typ	max	units
over voltage protection	12 Vdc output model, output shutdown, latch 15 Vdc output model, output shutdown, latch 24 Vdc output model, output shutdown, latch 48 Vdc output model, output shutdown, latch			16.8 24.5 33.6 60.0	Vdc Vdc Vdc Vdc
over current protection	constant current, auto-recovery	105		150	%
over temperature protection[1]	over temperature protection activation over temperature protection deactivation	 50		85	°C °C
short circuit protection	constant current, continuous, auto-recovery				

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

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SAFETY & COMPLIANCE

parameter	conditions/description	min	typ	max	units
isolation voltage	input to ground, 1 min, <10mA input to output, 1 min, <10mA output to ground, 1 min, <5mA	2,000 4,000 500			Vac Vac Vac
safety approvals	certified to 62368: IEC, EN, UL designed to meet 60335: EN designed to meet 61558: EN 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				
voltage flicker	IEC/EN61000-3-3				
ESD	IEC/EN 61000-4-2 Contact ±6KV/Air ±8KV perf. Criteria A				
radiated immunity	IEC/EN61000-4-3 3V/m perf. Criteria B				
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 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	see derating curve	-30		70	°C
storage temperature		-40		85	°C
storage humidity	non-condensing	10		95	%

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MECHANICAL

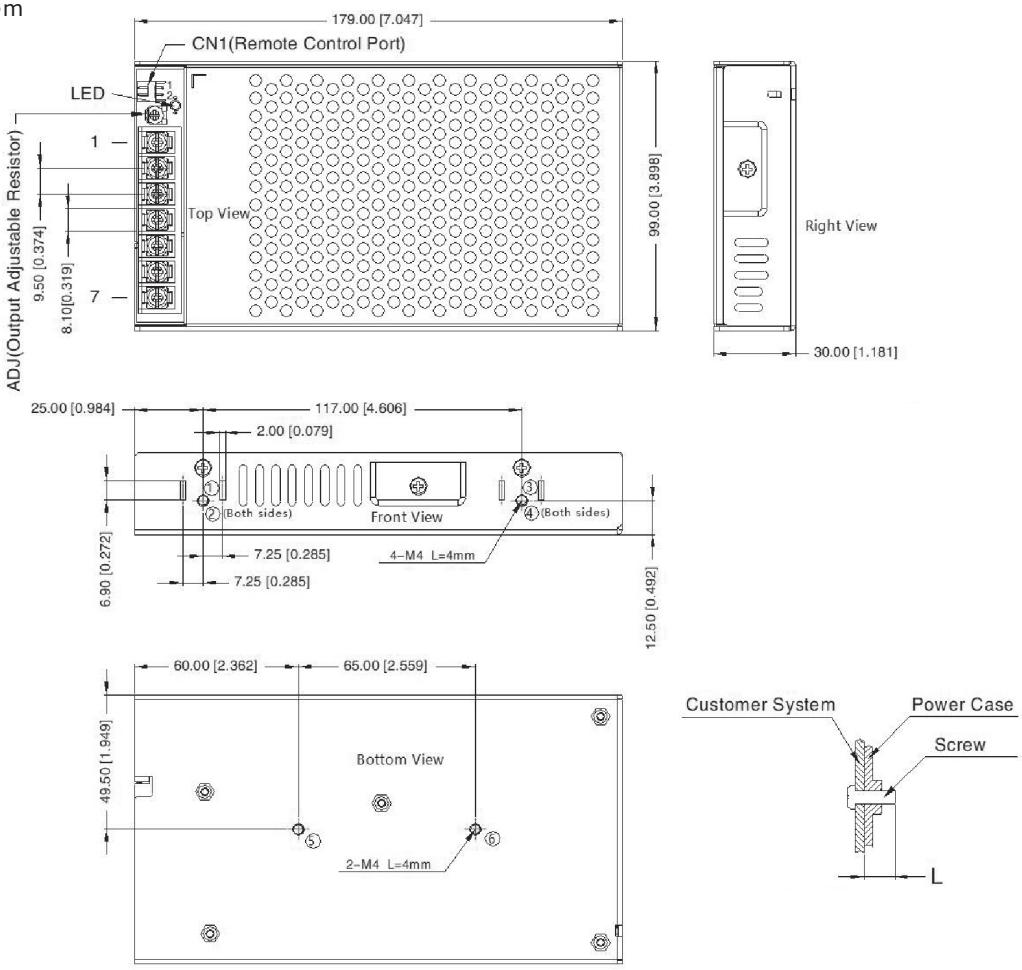
parameter	conditions/description	min	typ	max	units
dimensions	179 × 99 × 30				mm
weight			500		g
cooling	natural convection				
case material	metal (AL1100, SGCC)				

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	+Vo
2	+Vo
3	-Vo
4	-Vo
5	⏚
6	AC(N)
7	AC(L)

Note: At least one hole position, ①~⑥, must be securely connected to Protective Earth (PE). ⏚



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

POSITION	SCREW SPEC	L (MAX)	TORQUE (MAX)
①~⑥	M4	4mm	0.9N·m

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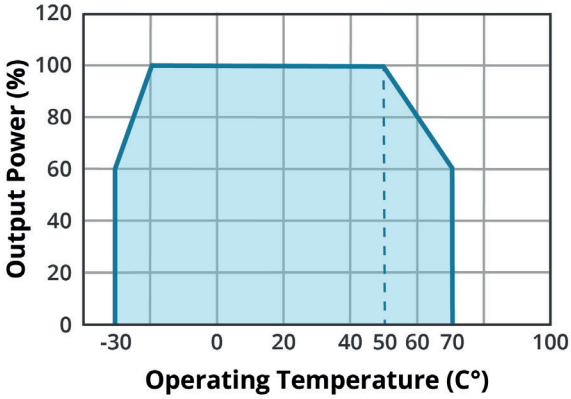
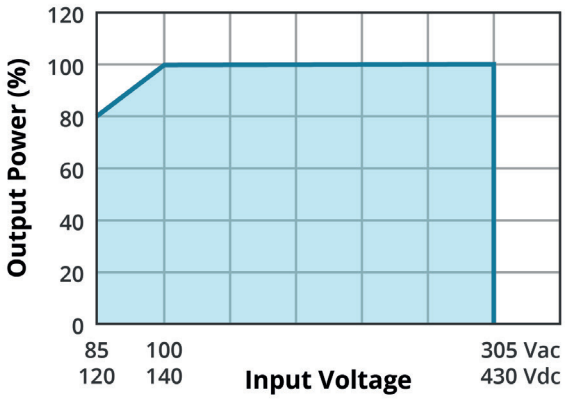
DERATING CURVE

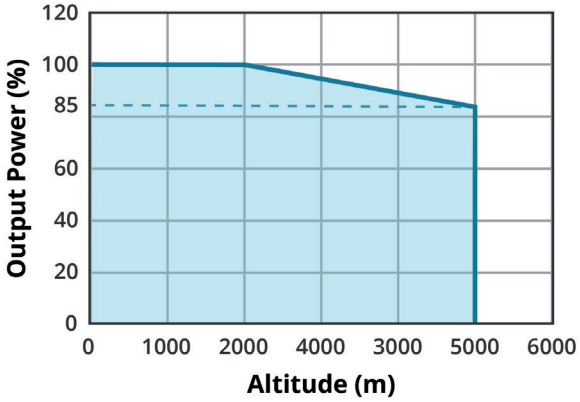
TEMPERATURE DERATING CURVE



INPUT VOLTAGE DERATING CURVE (25°C)

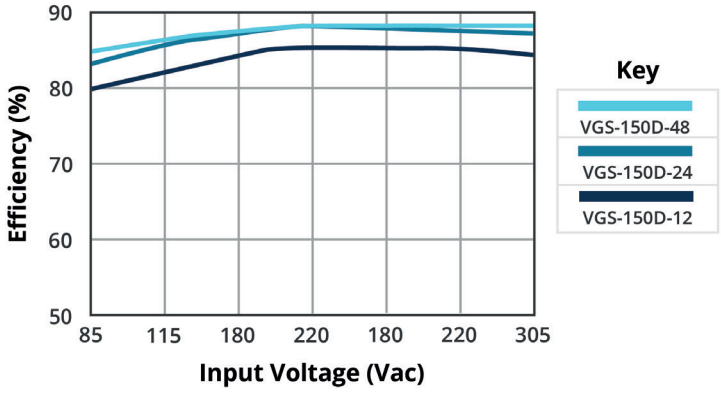


ALTITUDE DERATING CURVE

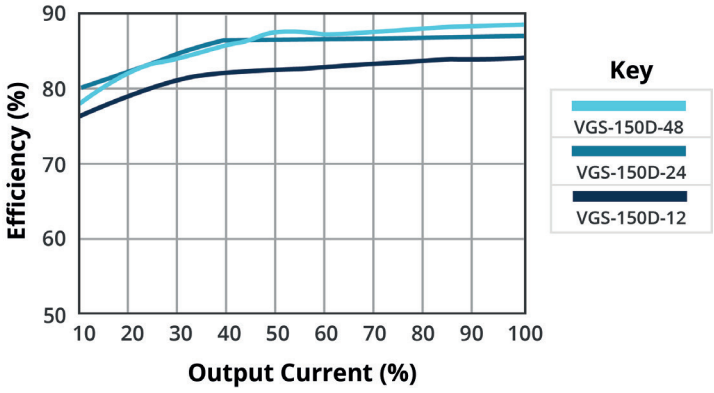


EFFICIENCY CURVES

EFFICIENCY VS INPUT VOLTAGE (full load)



EFFICIENCY VS OUTPUT LOAD



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REVISION HISTORY

rev.	description	date
1.0	initial release	12/09/2020
1.01	derating and efficiency curves updated	02/01/2022
1.02	UKCA mark added	06/10/2022
1.03	features updated	12/14/2023

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

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