

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

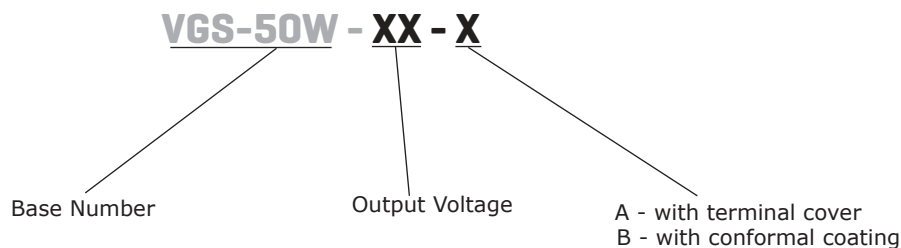
**FEATURES**

- 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 and IEC/EN 60335 system requirements
- short-circuit, over-current, over-voltage protections
- CISPR/EN55032 class B radiated/conducted emissions



MODEL	output voltage	output current	output power	ripple and noise <sup>1</sup>	efficiency <sup>2</sup>
	(Vdc)	max (A)	max (W)	typ (mVp-p)	typ (%)
VGS-50W-5	5	10	50	80	83
VGS-50W-12	12	4.2	50	120	86
VGS-50W-15	15	3.4	51	120	87
VGS-50W-24	24	2.2	52	150	88
VGS-50W-36	36	1.45	52	240	89
VGS-50W-48	48	1.1	52	240	90

Notes: 1. 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.  
 2. Measured at 230 Vac.

**PART NUMBER KEY**


## INPUT

parameter	conditions/description	min	typ	max	units
voltage	ac input	85		305	Vac
	dc input	120		430	Vdc
frequency		47		63	Hz
current	115 Vac			1.2	A
	230 Vac			0.8	A
inrush current	115 Vac, full load, cold start		30		A
	230 Vac, full load, cold start		60		A
leakage current	277 Vac			0.75	mA
no load power consumption				0.5	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			470	μF
	48 Vdc output			220	μF
line regulation	full load		±0.5		%
load regulation	0% ~ 100%, 5 Vdc output		±1		%
	0% ~ 100%, other outputs		±0.5		%
hold-up time	115 Vac, full load		8		ms
	230 Vac, full load		30		ms
switching frequency			65		kHz
adjustability	built in trim pot		±10		%
temperature coefficient			±0.03		%
initial set point accuracy	5 V model		±2		%
	other models		±1		%

## PROTECTIONS

parameter	conditions/description	min	typ	max	units
over voltage protection	5 Vdc output, clamp, auto recovery			6.3	Vdc
	12 Vdc output, hiccup, auto recovery			16.2	Vdc
	15 Vdc output, hiccup, auto recovery			21.75	Vdc
	24 Vdc output, hiccup, auto recovery			33.6	Vdc
	36 Vdc output, hiccup, auto recovery			49.0	Vdc
	48 Vdc output, hiccup, auto recovery			60.0	Vdc
over current protection	230 Vac, auto recovery	110		200	%
short circuit protection	continuous, auto recovery				

## 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. <10mA	1,250			Vac
safety approvals	certified to	62368: IEC, EN, UL			
	designed to meet	60335: IEC, EN			
	designed to meet	61558: IEC, EN			
safety class	class I				
EMI/EMC	CISPR 32/EN 55032 class B, IEC/EN 61000-3-2 class A				
ESD	IEC/EN 61000-4-2 Contact ±6KV/Air ±8kV perf. criteria A				
radiated immunity	IEC/EN 61000-4-3 10 V/m perf. criteria A				
EFT/burst	IEC/EN 61000-4-4 ±2KV perf. criteria A				

## SAFETY & COMPLIANCE

surge	IEC/EN 61000-4-5 line to line ±2kV/line to ground ±4kV perf. criteria A		
conducted immunity	IEC/EN 61000-4-6 10 Vr.m.s perf. criteria A		
voltage dips and interruption	IEC/EN 61000-4-11 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	%

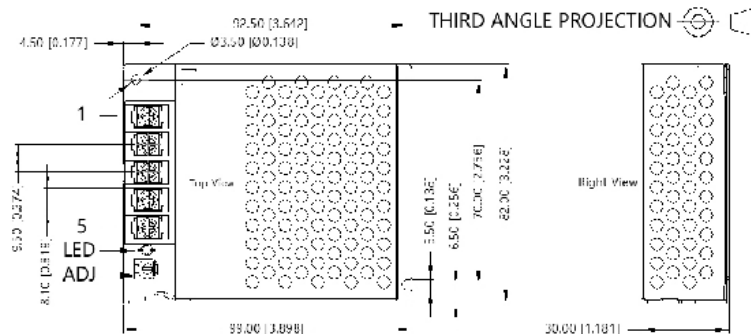
## MECHANICAL

parameter	conditions/description	min	typ	max	units
dimensions	99 x 82 x 30 mm				mm
weight			190		g
cooling	free air convection				
case material	metal (AL1100, SGCC)				

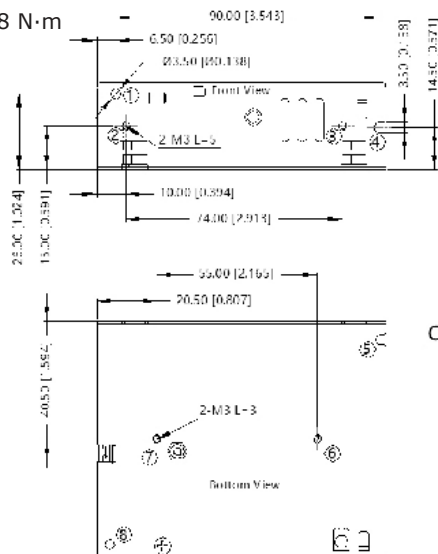
## MECHANICAL DRAWING

units: mm  
tolerance: ±1 mm [±0.039 mm]

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

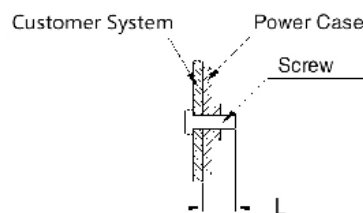


wire range: 22-12 AWG  
connector tightening torque: M3.5, 0.8 N·m



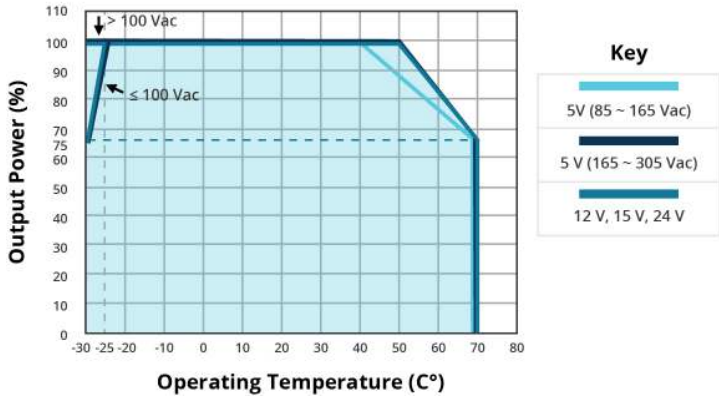
Position	Screw spec.	L (max)	Torque (max)
② - ③	M3	5 mm	0.4 N·m
⑥ - ⑦	M3	3 mm	0.4 N·m

Note: At least one hole position, ①~③ must be securely connected to Protective Earth (PE) ④

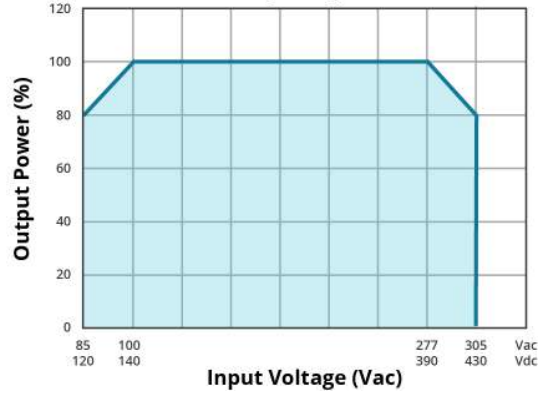


## DERATING CURVE

**TEMPERATURE DERATING CURVE**

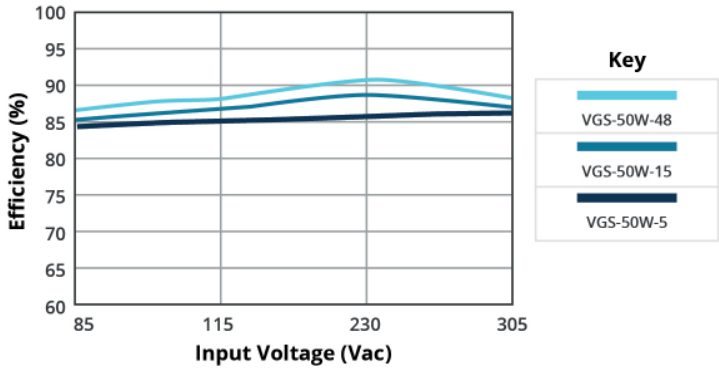


**INPUT VOLTAGE DERATING CURVE (25 °C)**

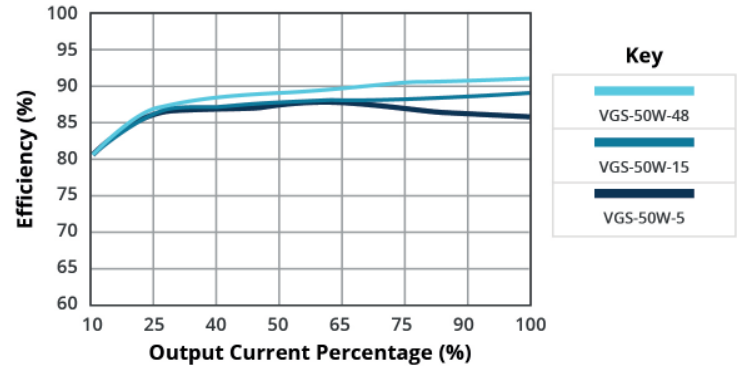


## EFFICIENCY CURVES

**EFFICIENCY VS INPUT LOAD (full load)**



**EFFICIENCY VS OUTPUT LOAD (at 230 Vac)**



## REVISION HISTORY

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rev.	description	date
1.0	initial release	09/02/2020
1.01	derating and efficiency curves updated	06/08/2021
1.02	UKCA mark added	06/13/2022
1.03	derating curve updated	05/31/2023

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



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