CUI INC
a bel group

SERIES: VGS-250C | DESCRIPTION: AC-DC POWER SUPPLY

FEATURES

- up to 250 W continuous power
- 300 W peak power with 3 s duration
- active power factor correction
- 3,000 Vac isolation voltage
- over load, over voltage, over temperature, and short circuit protections
- IEC/EN 62368-1 safety approvals
- safety Class I or Class II
- operating altitude 5,000 m
- external fan power or internal fan

MODEL	output voltage (Vdc)	output current[1,2] max1 (A)	output current[1,2] max2 (A)	output power[1] max (W)	ripple and noise[3] max (mVp-p)	efficiency[4] typ (%)
VGS-250C-12	12	10.0	20.83	250	108	91
VGS-250C-15	15	8.00	16.66	250	135	91
VGS-250C-19	19	6.31	13.15	250	170	91
VGS-250C-24	24	5.00	10.41	250	210	92
VGS-250C-30	30	4.00	8.32	250	270	92
VGS-250C-36	36	3.33	6.94	250	300	93
VGS-250C-48	48	2.50	5.20	250	300	93

Notes:
1. For models equipped with a fan, the maximum load is achieved with 8 CFM of forced air, while models without a fan require 18 CFM of forced air to reach maximum load. The maximum output power for models without a fan, using 8 CFM of forced air, is 120 W.
2. Max1 = convection cooling; Max2 = forced air
3. At full load, nominal input, 20 MHz bandwidth oscilloscope, tip & barrel method, output terminated with 47 µF electrolytic and 0.1 µF ceramic capacitors.
4. Efficiency is measured at full load, and 230 Vac input.

PART NUMBER KEY

VGS-250C - XX - XX

- Base Number
- Output Voltage
- Chassis:
  "blank" = covered[5]
  CF = covered with internal fan
  CS = covered with external fan

Notes:
5. The covered models without a fan will be available in January 2025.

INPUT

parameter	conditions/description	min	typ	max	units
voltage		85	100~240	264	Vac
frequency		47	50~60	63	Hz
current	low line, at 100 Vac, full load high line, at 240 Vac, full load		3.1 1.3		A A
inrush current	low line, at 100 Vac, full load, cold start, 25°C high line, at 240 Vac, full load, cold start, 25°C			20 40	A A
leakage current	at 240 Vac, 60 Hz		0.25		mA
power factor correction	at full load	0.9		1	
no load power consumption	without fan with internal or external fan		0.21 3		W W

OUTPUT

parameter	conditions/description	min	typ	max	units
line regulation[6]	at 100~120 Vac or 200~240 Vac, full load			1	%
load regulation[7]			±3		%
transient response time	at 110 Vac, full load to half load			4	ms
start-up time	at 100~240 Vac, full load		1		s
hold-up time[8]	at 110 Vac, full load			10	ms
temperature coefficient				±0.04	%/°C
fan output voltage[9]			7~12		Vdc
fan output current			0.5		A

Notes:
6. Line regulation is defined by changing ±10% of input voltage from nominal line at rated load.
7. Load regulation is defined by changing ±40% of measured output load from 60% rated load.
8. Hold up time is measured from the end of the last charging pulse to the time which the main output drops down to low limit of main output at rated load and nominal line.
9. Temperature controlled fan output voltage: 7V-12V.
10. At factory, in 60% rated load condition, each output is checked to be within voltage accuracy.

PROTECTIONS

parameter	conditions/description	min	typ	max	units
over voltage protection	latching	112		132	%
over current protection	auto recovery	120		150	%
over temperature protection	auto recovery				

SAFETY & COMPLIANCE

parameter	conditions/description	min	typ	max	units
isolation voltage	input to output 10 mA max input to ground 10 mA max			4,000 1,500	Vac Vac
safety approvals	certified to 62368-1: UL, EN, BS EN				
safety class[11]	class I, II				
conducted emissions	EN 55011, EN 55032 Class B				
radiated emissions	EN 55011, EN 55032 Class B				
harmonic current	EN 61000-3-2, Class A, Class D				
ESD	IEC 61000-4-2 15 kV air discharge, 8 kV contact discharge, perf. Criteria A				
radiated immunity	IEC 61000-4-3, perf. Criteria A				
EFT/burst	IEC610000-4-4 Power line 2 kV, 5 or 100 kHz, perf. Criteria A				
surge	IEC 61000-4-5 1 kV line to neutral, 2 kV line to PE, neutral to PE, perf. Criteria A				
conducted immunity	IEC 61000-4-6 3 Vrms, 6 Vrms, perf. Criteria A				
PFMF	IEC 61000-4-8 30 A/m, 50 Hz, perf. Criteria A				

SAFETY & COMPLIANCE (CONTINUED)

parameter	conditions/description	min	typ	max	units
voltage dips	IEC 61000-4-11 100% reduction for 0.5 cycle at 50 Hz, perf. Criteria A IEC 61000-4-11 100% reduction for 1 cycle at 50 Hz, perf. Criteria A IEC 61000-4-11 30% reduction for 25/30 cycles at 50/60 Hz, perf. Criteria A				
voltage interruptions	IEC 61000-4-11, 100% reduction for 250/300 cycles at 50/60 Hz, perf. Criteria B				
MTBF	as per MIL-HDBK-217F at 25°C	300,000			hours
RoHS	yes				

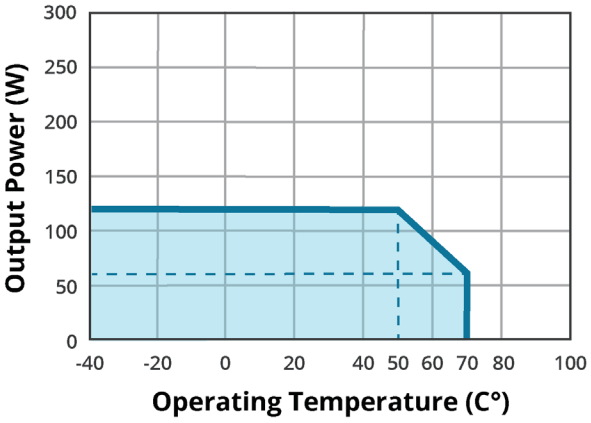
Notes: 11. Safety Class II operation may require external EMI/EMC components.

ENVIRONMENTAL

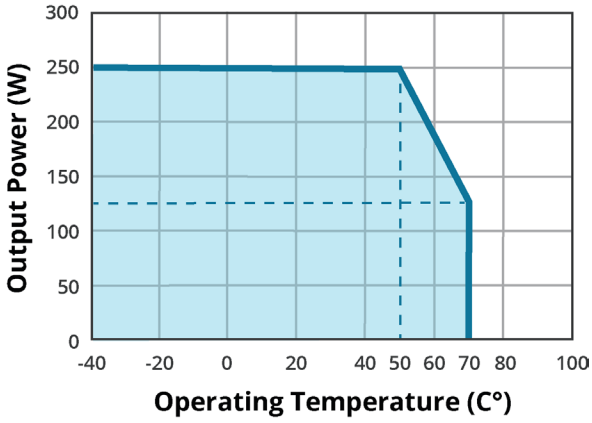
parameter	conditions/description	min	typ	max	units
operating temperature	see derating curves	-40		70	°C
storage temperature	10~95% RH	-40		85	°C
operating humidity	non-condensing	0		95	%
storage humidity	non-condensing	0		95	%
vibration	10~500 Hz, 10 min/1 cycle, 60 min. each along X, Y, Z axes			5	g
altitude				5,000	m

DERATING CURVES

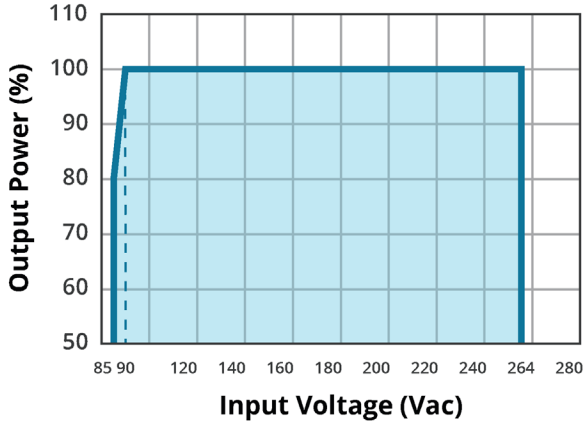
TEMPERATURE DERATING CURVE (natural convection)



TEMPERATURE DERATING CURVE (8 CMF airflow)

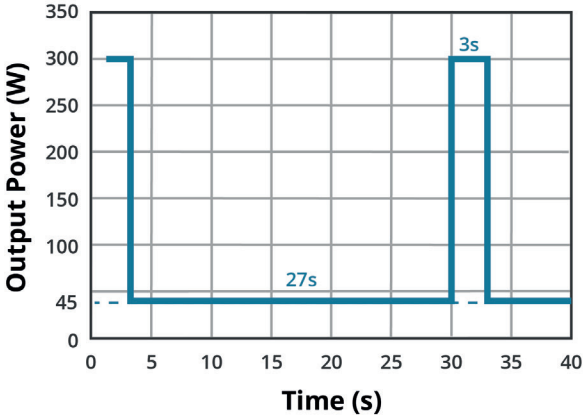


INPUT VOLTAGE DERATING CURVE

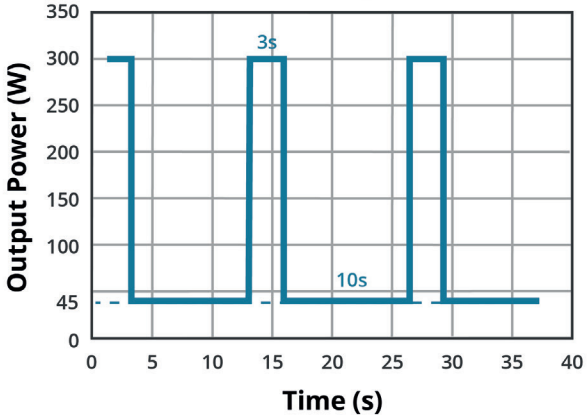


DERATING CURVES (CONTINUED)

PEAK CYCLE DIAGRAM (natural convection)



PEAK CYCLE DIAGRAM (8 CMF airflow)



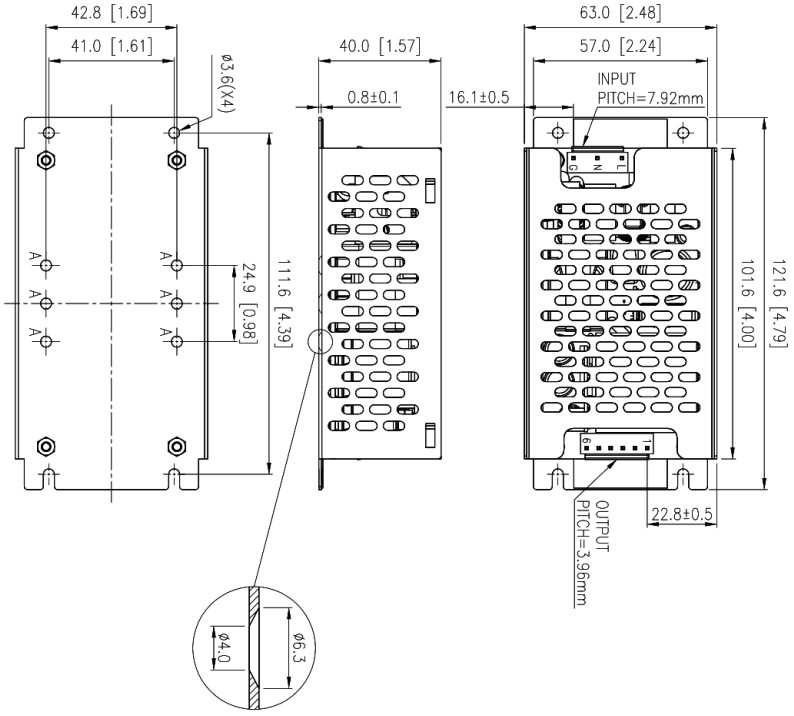
MECHANICAL

parameter	conditions/description	min	typ	max	units
dimensions	covered	63.0 × 121.6 × 40.0 [2.48 x 4.79 x 1.57 inch]			mm
	covered with internal fan	63.0 × 121.6 × 50.8 [2.48 x 4.79 x 2.00 inch]			mm
	covered with external fan	63.0 × 121.6 × 50.0 [2.48 x 4.79 x 1.97 inch]			mm
weight	covered		325		g
	covered with internal fan		340		g
	covered with external fan		330		g
cooling	natural convection or 8 CFM forced air				

MECHANICAL DRAWING

Covered
units: mm [inch]
screw size diameter: 2.9 mm (min)

PIN CONNECTIONS		
Connector	PIN	Function
P1	L	Line
P1	N	Neutral
P1	G	Ground or PE
P2	1	+Vout
P2	2	+Vout
P2	3	+Vout
P2	4	-Vout
P2	5	-Vout
P2	6	-Vout

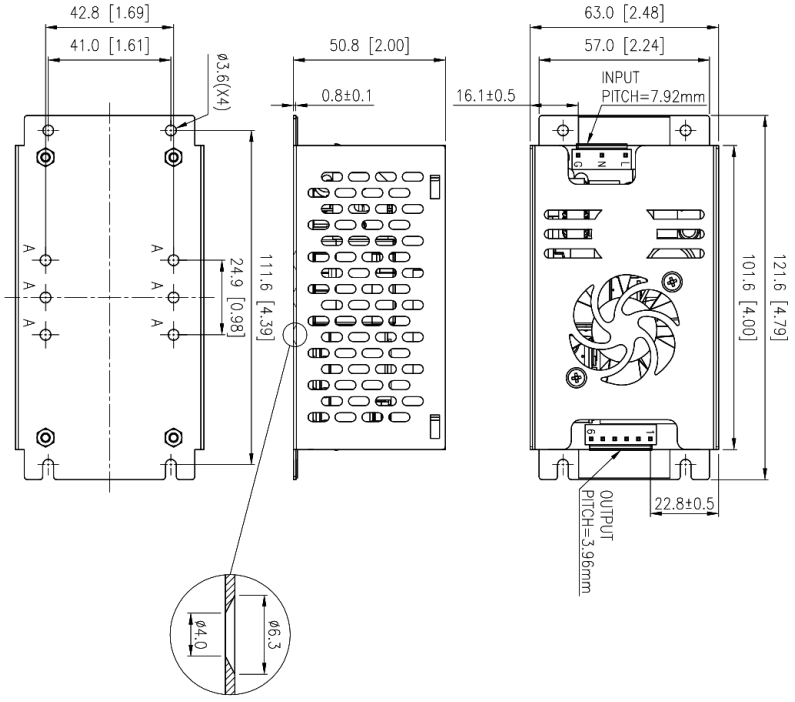


MECHANICAL DRAWING (CONTINUED)

Covered with Internal Fan

units: mm [inch]
screw size diameter: 2.9 mm (min)

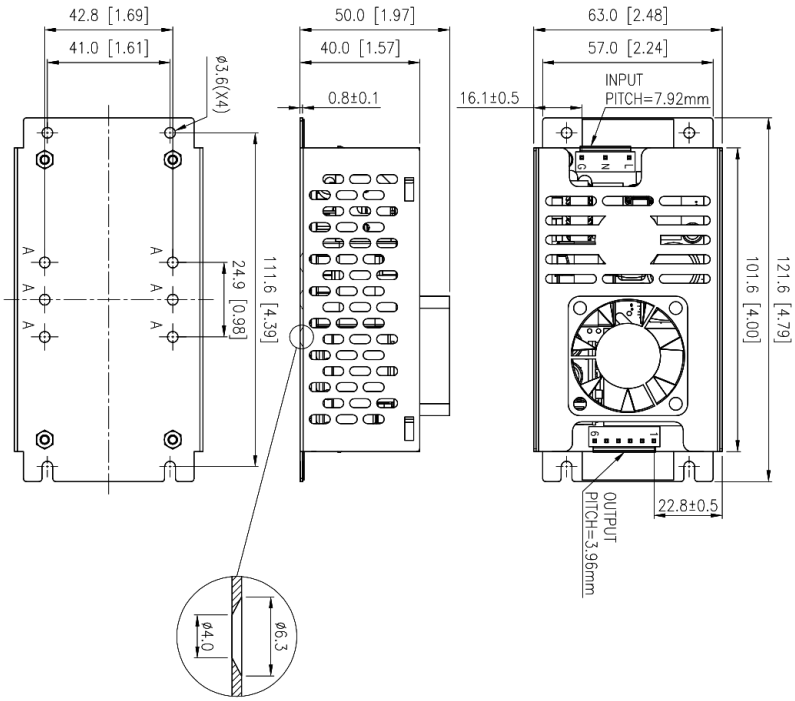
PIN CONNECTIONS		
Connector	PIN	Function
P1	L	Line
P1	N	Neutral
P1	G	Ground or PE
P2	1	+Vout
P2	2	+Vout
P2	3	+Vout
P2	4	-Vout
P2	5	-Vout
P2	6	-Vout



Covered with External Fan

units: mm [inch]
screw size diameter: 2.9 mm (min)

PIN CONNECTIONS		
Connector	PIN	Function
P1	L	Line
P1	N	Neutral
P1	G	Ground or PE
P2	1	+Vout
P2	2	+Vout
P2	3	+Vout
P2	4	-Vout
P2	5	-Vout
P2	6	-Vout



REVISION HISTORY

rev.	description	date
1.0	initial release	10/01/2024

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

CUI INC
a bel group

Headquarters
15575 SW Sequoia Pkwy #100
Portland, OR 97224
800.275.4899

Fax 503.612.2383
cui.com
techsupport@cui.com