CUI INC
a bel group

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

FEATURES

- universal input range (85 ~ 264 Vac)
- Class B emissions (EN 55032/CISPR/FCC)
- certified to IEC/EN/UL 62368-1
- designed to meet IEC/EN 60335
- short circuit, over voltage protection
- <0.15 W no-load power consumption
- Class I or Class II
- up to 5,000 m operating altitude
- OVC III

RoHS c UL us CE UKCA

MODEL

MODEL	output voltage typ (Vdc)	output current max (A)	output power max (W)	ripple and noise[1] max (mVp-p)	efficiency[2] typ (%)
VGS-50E-5	5	8.0	40	150	85
VGS-50E-12	12	4.17	50	120	87
VGS-50E-15	15	3.33	50	150	88
VGS-50E-24	24	2.08	50	240	89
VGS-50E-36	36	1.39	50	360	89
VGS-50E-48	48	1.04	50	480	89

Notes: 1. At full load, nominal input, 20 MHz bandwidth oscilloscope with 0.1µF ceramic capacitor and 10 µF electrolytic capacitor.
2. At 230 Vac input.
3. All specifications are measured at Ta=25°C, humidity <75%, nominal input voltage, and rated output load unless otherwise specified.

PART NUMBER KEY

INPUT

parameter	conditions/description	min	typ	max	units
voltage	ac input dc input	85 120		264 370	Vac Vdc
frequency		47	50~60	63	Hz
current	at 100 Vac, full load			1.2	A
inrush current	at 240 Vac, full load		110		A
leakage current				0.1	mA
no load power consumption				0.15	W

OUTPUT

parameter	conditions/description	min	typ	max	units
capacitive load	5 Vdc output model 12 Vdc output model 15 Vdc output model 24 Vdc output model 36 Vdc output model 48 Vdc output model			8,000 4,200 3,400 2,087 1,440 600	µF µF µF µF µF µF
output voltage set point	5 Vdc output model 12 Vdc output model 15 Vdc output model 24 Vdc output model 36 Vdc output model 48 Vdc output model	4.90 11.76 14.85 23.76 35.64 47.52		5.10 12.24 15.15 24.24 36.36 48.48	Vdc Vdc Vdc Vdc Vdc Vdc
voltage accuracy	5, 12 Vdc output model all other output models		±2 ±1		% %
line regulation	high line to low line			±0.5	%
load regulation	10 % to 100 % load			±1.0	%
hold-up time	at 115 Vac	8			ms
switching frequency			65		kHz

PROTECTIONS

parameter	conditions/description	min	typ	max	units
over voltage protection	auto recovery, hiccup 5 Vdc output model 12 Vdc output model 15 Vdc output model 24 Vdc output model 36 Vdc output model 48 Vdc output model			 6.3 15.6 18.0 29.1 43.3 56.8	 Vdc Vdc Vdc Vdc Vdc Vdc
over current protection	auto recovery, hiccup	110		140	%
short circuit protection	auto recovery, hiccup				

SAFETY & COMPLIANCE

parameter	conditions/description	min	typ	max	units
isolation voltage	input to output, for 1 minunte			4,250	Vac
safety approvals	certified to 62368-1: IEC, EN, UL designed to meet 60335: IEC, EN				
safety class	Class I or Class II				
EMC	EN 55032:2015+AC:2016, 47 CFR FCC Part 15 Subpart B, EN 61000-3-2:2019, EN 61000-3-3:2013 Class B				
EMC immunity	EN 55035: 2017				
conducted emissions	EN 55032, 47 CFR FCC Part 15				
radiated emissions	EN 55032, 47 CFR FCC Part 15				

SAFETY & COMPLIANCE

parameter	conditions/description	min	typ	max	units
ESD	IEC 61000-4-2:2008, Air Discharge: ±8 kV, Contact Discharge: ±4 kV, perf. Criteria A				
EFT/burst	IEC 61000-4-4:2012, ±0.5 kV, ±1 kV, ±2 kV, perf. Criteria A				
surge	IEC 61000-4-5:2014, L-N: ±2 kV, L-E (Ground): ±4 kV, perf. Criteria A				
voltage dips	IEC 61000-4-11:2004, Dip: 30% Reduction, Dip > 95% Reduction, perf. Criteria A				
voltage interruption	IEC 61000-4-11:2004, > 95% Reduction, perf. Criteria B				
MTBF	MIL-HDBK-217F at 25°C	1,200,000			hours
RoHS	yes				

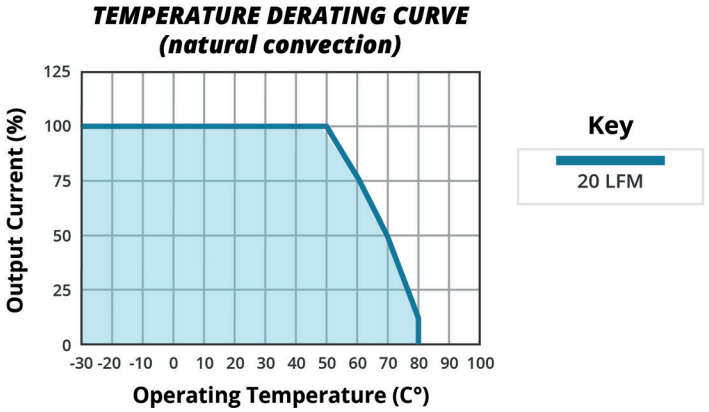
ENVIRONMENTAL

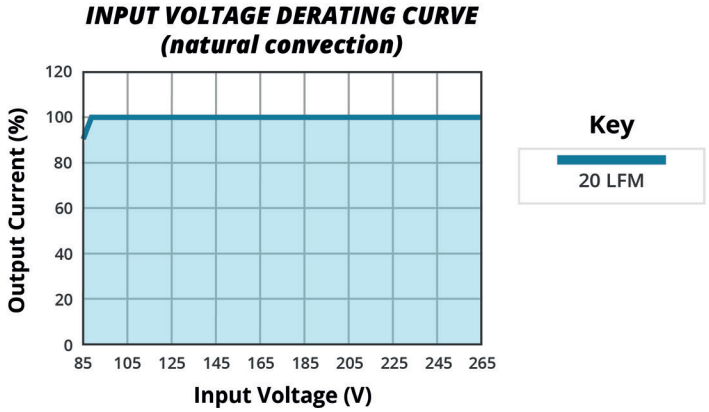
parameter	conditions/description	min	typ	max	units
operating temperature	see derating curves	-30		80	°C
storage temperature		-30		85	°C
storage humidity		0		93	%
altitude	IEC/EN/UL 62368-1 OVC II IEC/EN 62368-1 OVC III designed to meet IEC/EN 60335-1 OVC II			5,000 2,000 3,000	m m m

MECHANICAL

parameter	conditions/description	min	typ	max	units
dimensions	3.598 x 2.520 x 1.358 [91.40 x 64.00 x 34.50 mm]				inch
weight			180		g

DERATING CURVES



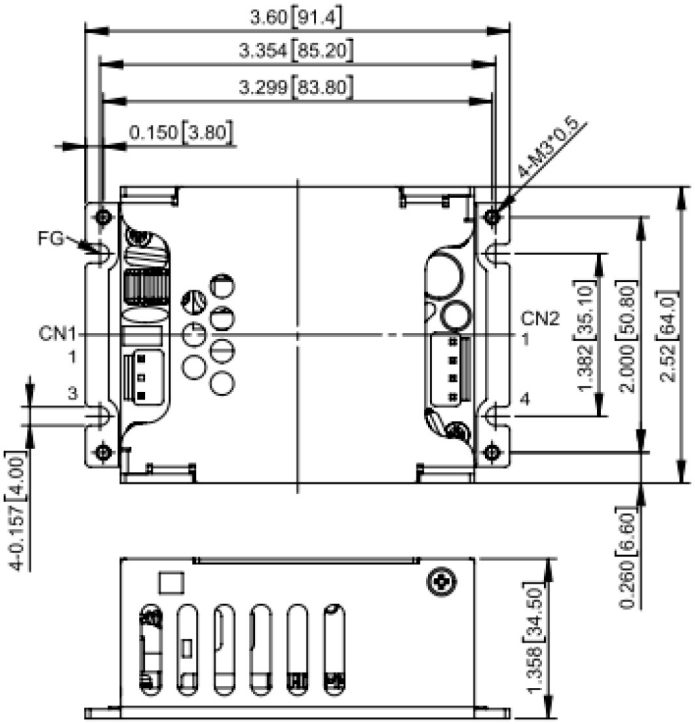


MECHANICAL DRAWING

units: inch [mm]
tolerance: inches: x.xxx = ±0.02
mm: x.xx = ±0.5

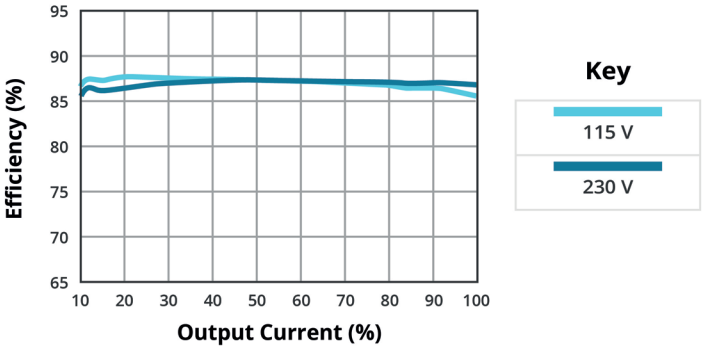
AC Input Connector(CN1): TKP PVHI-03N2 or equivalent			
PIN	Function	Mating Housing	Terminal
1	AC(L)	JST VHR-3N or equivalent	JST SVH-21T-P1.1 or equivalent
2	-		
3	AC(N)		

DC Output Connector(CN2): TKP PVHI-04 or equivalent			
PIN	Function	Mating Housing	Terminal
1	+Vout	JST VHR-4N or equivalent	JST SVH-21T-P1.1 or equivalent
2	+Vout		
3	-Vout		
4	-Vout		

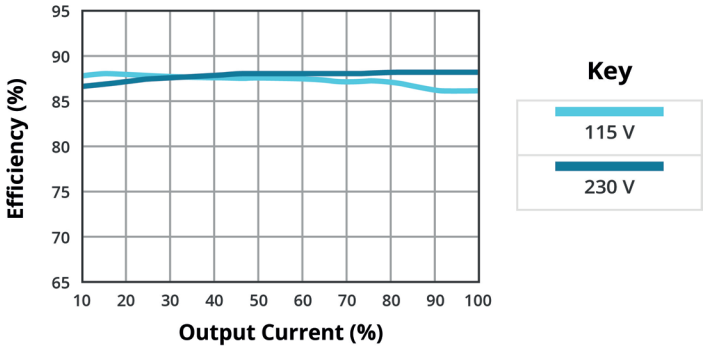


EFFICIENCY CURVES

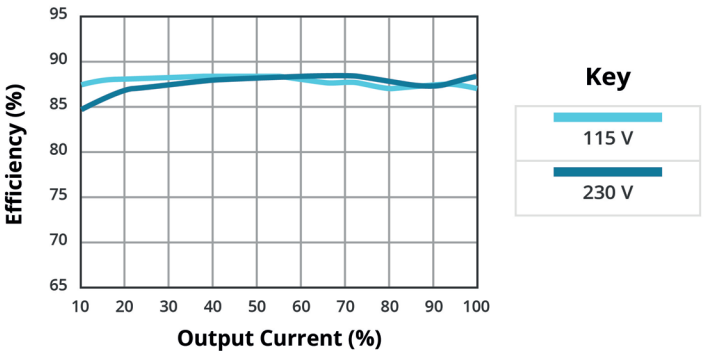
EFFICIENCY VS OUTPUT LOAD (VGS-50E-5)



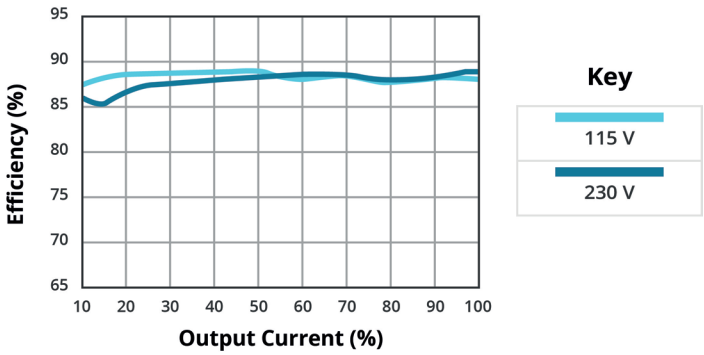
EFFICIENCY VS OUTPUT LOAD (VGS-50E-12)



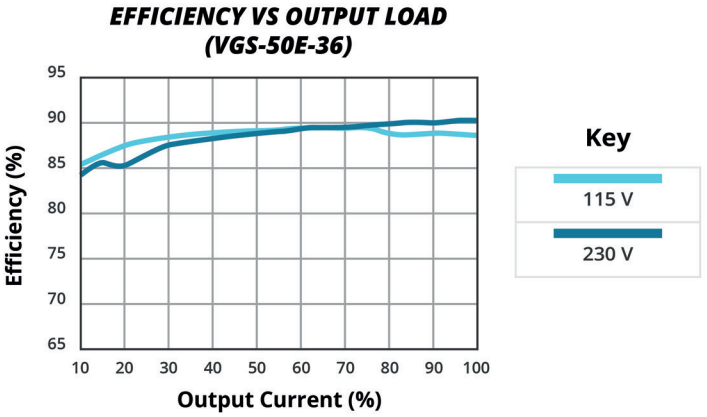
EFFICIENCY VS OUTPUT LOAD (VGS-50E-15)

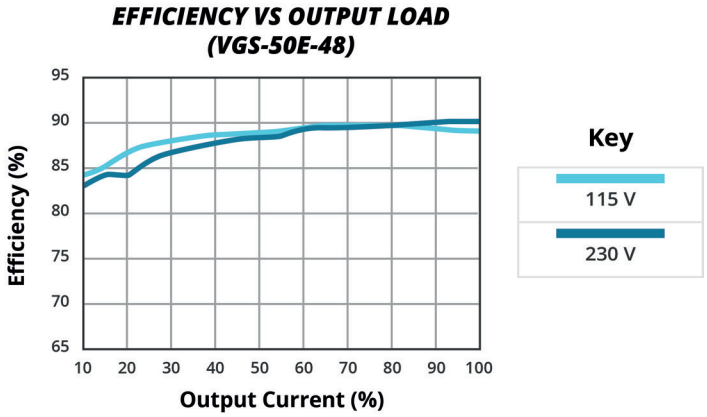


EFFICIENCY VS OUTPUT LOAD (VGS-50E-24)



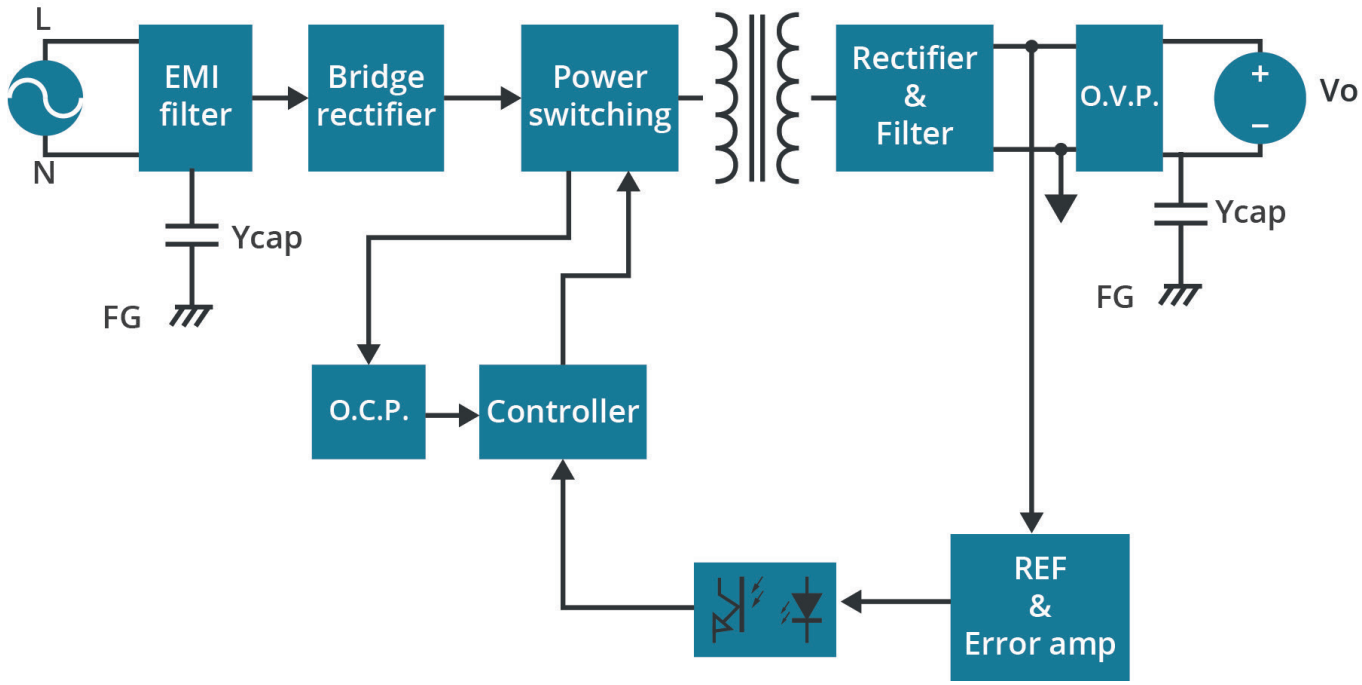
EFFICIENCY CURVES (CONTINUED)





ELECTRICAL BLOCK DIAGRAM

Figure 1



REVISION HISTORY

rev.	description	date
1.0	initial release	10/17/2024

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