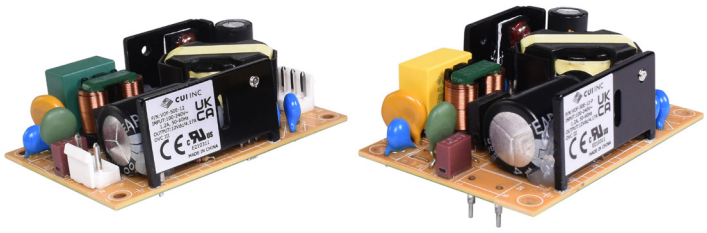
SERIES: VOF-50E | **DESCRIPTION:** INTERNAL AC-DC POWER SUPPLY

FEATURES

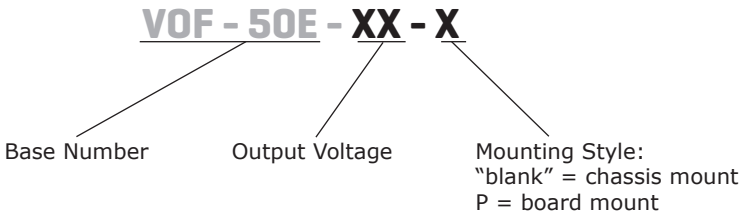
- universal input range (85 ~ 264 Vac)
- Class B emissions (EN 55032/CISPR)
- certified to IEC/EN/UL 62368-1
- designed to meet IEC/EN 60335
- short circuit, over voltage protection
- <0.15 W no-load power consumption
- Class I or Class II
- up to 5,000 m operating altitude
- OVC III



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



Please read our datasheet & drawing disclaimer here.

INPUT

parameter	conditions/description	min	typ	max	units
voltage[4]	ac input (safety approved) dc input	85 120	100~240	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	touch			0.25	mA
no load power consumption				0.15	W

Notes: 4. See the derating curves for more details.

OUTPUT

parameter	conditions/description	min	typ	max	units
capacitive load	5 Vdc output model			8,000	µF
	12 Vdc output model			4,200	µF
	15 Vdc output model			3,400	µF
	24 Vdc output model			2,087	µF
	36 Vdc output model			1,440	µF
	48 Vdc output model			600	µF
output voltage set point	5 Vdc output model	4.90		5.10	Vdc
	12 Vdc output model	11.76		12.24	Vdc
	15 Vdc output model	14.85		15.15	Vdc
	24 Vdc output model	23.76		24.24	Vdc
	36 Vdc output model	35.64		36.36	Vdc
	48 Vdc output model	47.52		48.48	Vdc
voltage accuracy	5, 12 Vdc output model		±2		%
	all other output models		±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			6.3	Vdc
	12 Vdc output model			15.6	Vdc
	15 Vdc output model			18.0	Vdc
	24 Vdc output model			29.1	Vdc
	36 Vdc output model			43.3	Vdc
	48 Vdc output model			56.8	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+A11:2020 Class B EN IEC 61000-3-2:2019+A1:2021, EN 61000-3-3:2013+A2:2021				
EMC immunity	EN 55035: 2017+A11:2020				
conducted emissions	EN 55032				
radiated emissions	EN 55032				

SAFETY & COMPLIANCE

parameter	conditions/description	min	typ	max	units
radiated immunity	IEC 61000-4-3:2020, perf. Criteria A				
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, perf. Criteria A				
surge	IEC 61000-4-5:2014, L-N: ±2 kV, L-E (Ground): ±4 kV, perf. Criteria A				
conducted immunity	IEC 61000-4-6:2013, perf. Criteria A				
PFMF	IEC 61000-4-8:2009, 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				

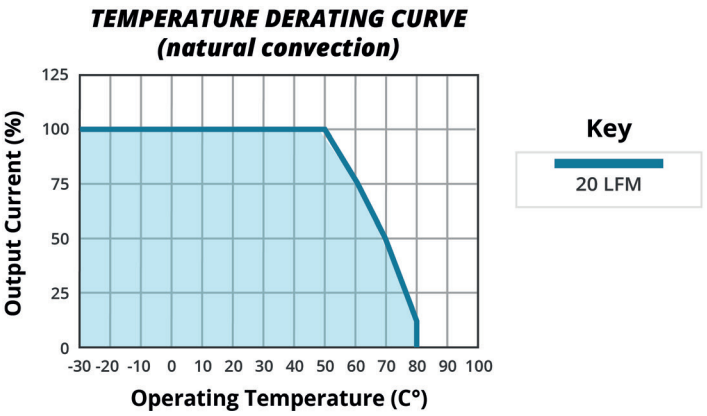
ENVIRONMENTAL

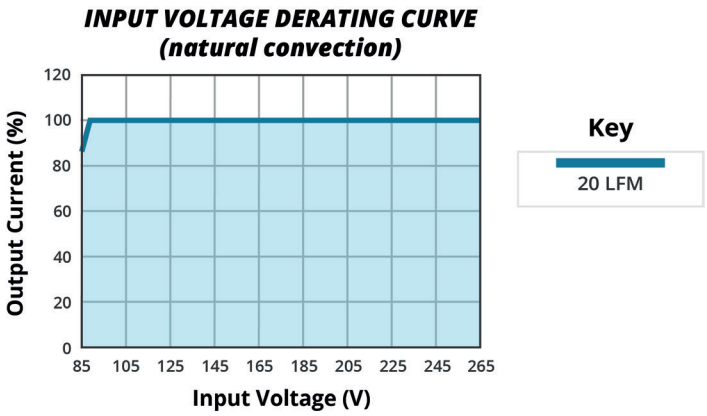
parameter	conditions/description	min	typ	max	units
operating temperature	see derating curves (safety approved at maximum 50°C or refer to report)	-30		80	°C
storage temperature		-30		85	°C
storage humidity		0		93	%
altitude	IEC/EN/UL 62368-1 OVC II IEC/EN 62368-1 OVC III designed to meet IEC/EN 60335-1 OVC II			5,000 2,000 3,000	m m m

MECHANICAL

parameter	conditions/description	min	typ	max	units
dimensions	chassis mount: 3.000 x 2.000 x 1.067 [76.20 x 50.80 x 27.1 mm] board mount: 3.000 x 2.000 x 1.142 [76.20 x 50.80 x 29 mm]				inch inch
weight	chassis mount board mount		95 93		g g

DERATING CURVES



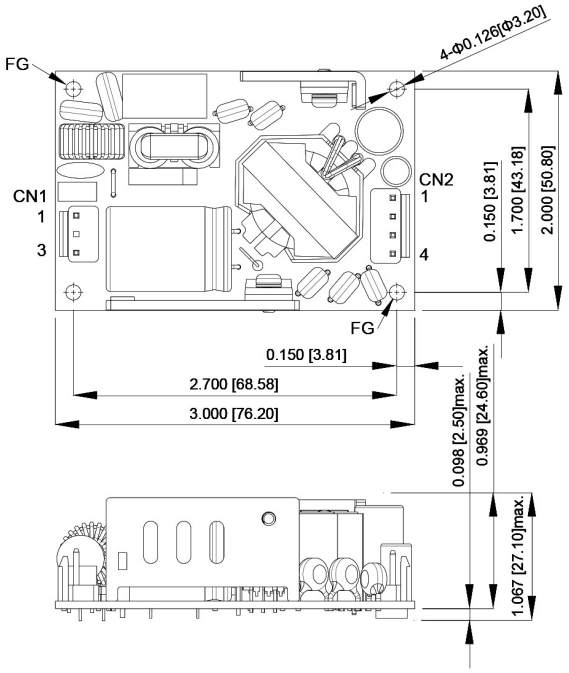


MECHANICAL DRAWING

Chassis mount
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)		

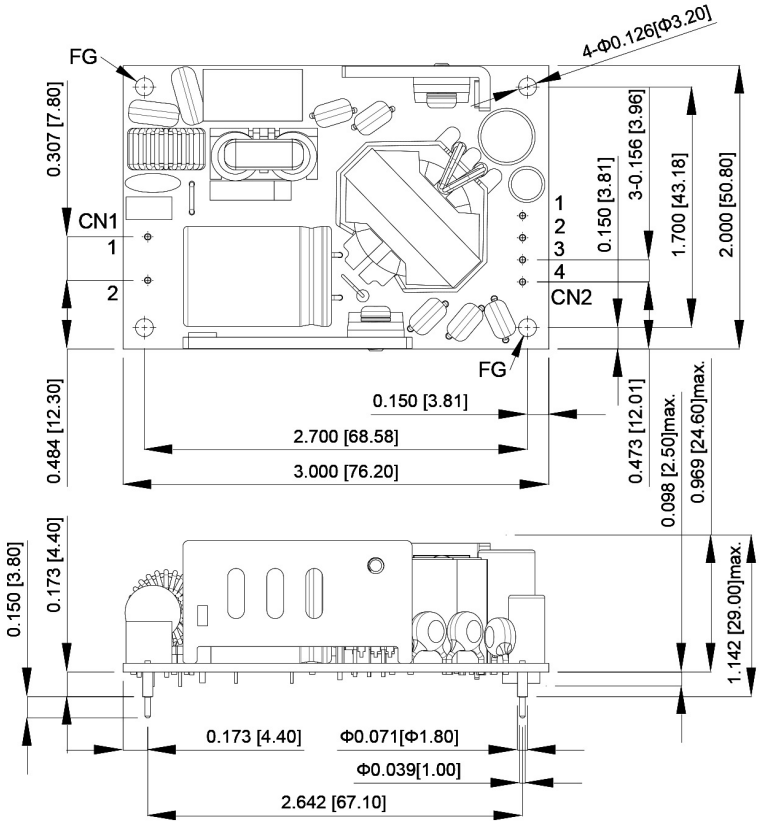
DC Output Connector(CN2): TKP PVHI-04 or equivalent			
PIN	Function	Mating Housing	Terminal
1	+Vout	JST VHR-4N or equivalent	JST SVH-21T-P1.1 or equivalent
2	+Vout		
3	-Vout		
4	-Vout		



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

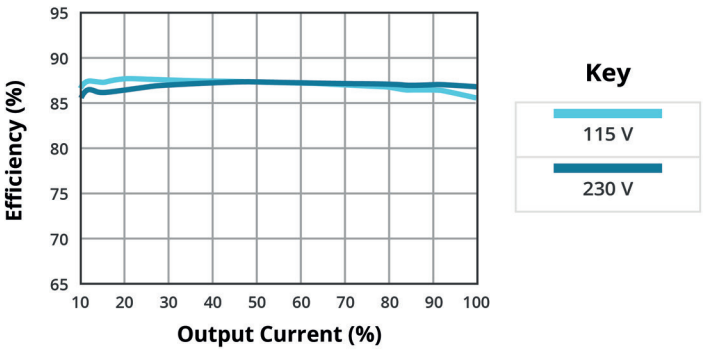
PIN CONNECTIONS CN1	
PIN	Function
1	AC(L)
2	AC(N)

PIN CONNECTIONS CN2	
PIN	Function
1	+Vout
2	+Vout
3	-Vout
4	-Vout

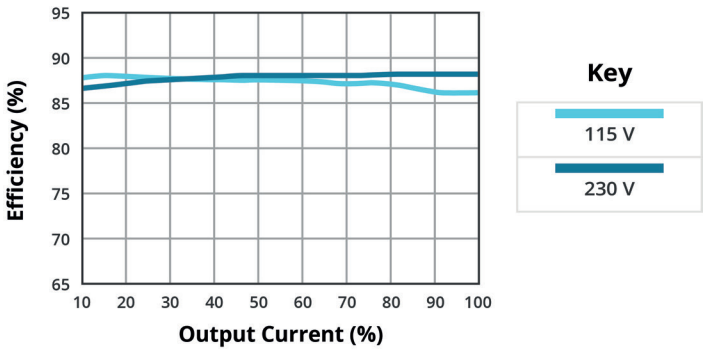


EFFICIENCY CURVES

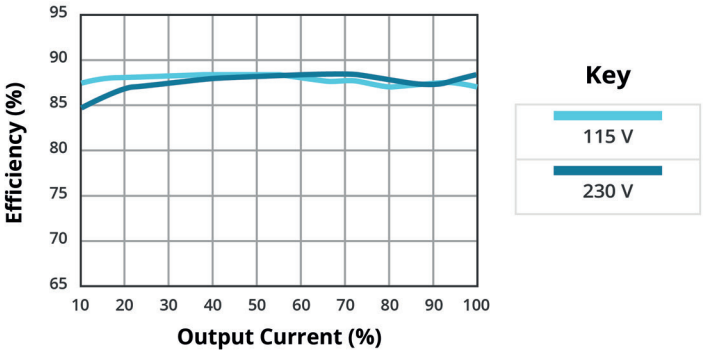
EFFICIENCY VS OUTPUT LOAD (VOF-50E-5)



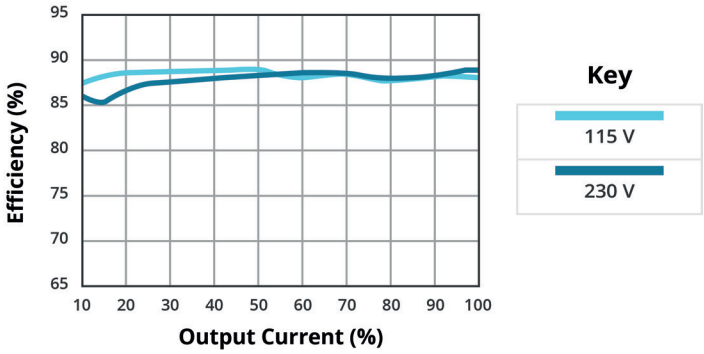
EFFICIENCY VS OUTPUT LOAD (VOF-50E-12)



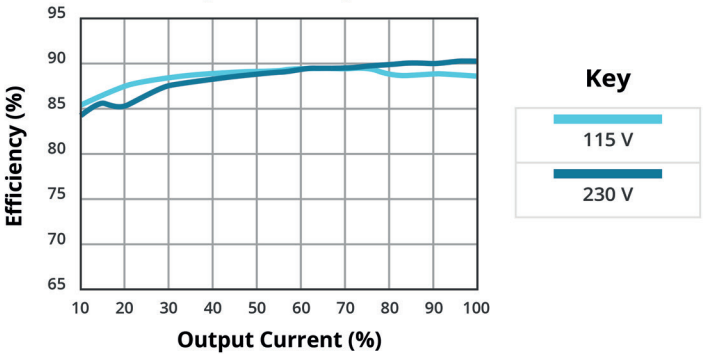
EFFICIENCY VS OUTPUT LOAD (VOF-50E-15)



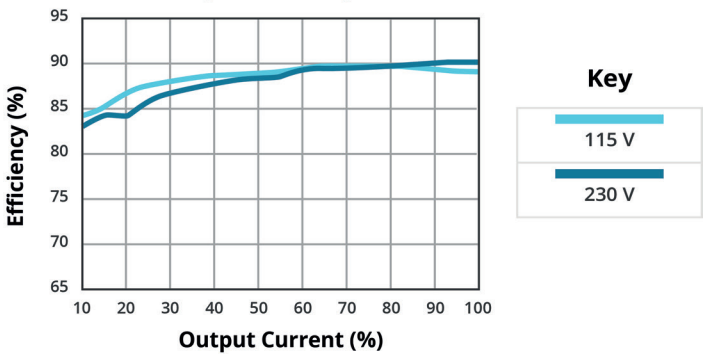
EFFICIENCY VS OUTPUT LOAD (VOF-50E-24)



EFFICIENCY VS OUTPUT LOAD (VOF-50E-36)

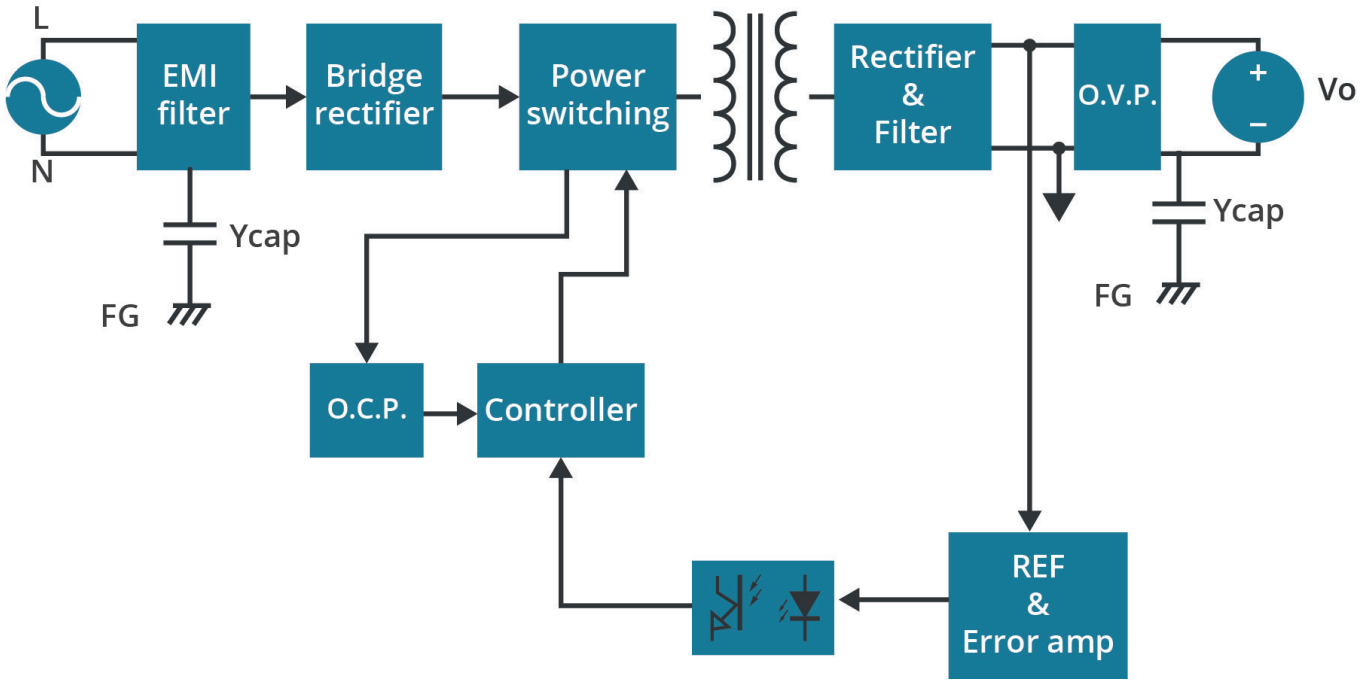


EFFICIENCY VS OUTPUT LOAD (VOF-50E-48)



ELECTRICAL BLOCK DIAGRAM

Figure 1



REVISION HISTORY

rev.	description	date
1.0	initial release	10/17/2024
1.01	safeties updated	12/12/2024

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

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