

SERIES: VSK-S5 | **DESCRIPTION:** AC-DC POWER SUPPLY

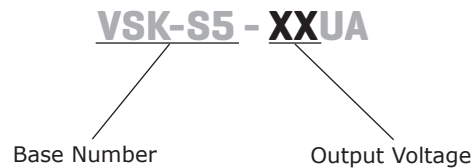
FEATURES

- up to 5.5 W continuous power
- compact board mount design
- universal input (85~264 Vac / 110~370 Vdc)
- single output from 3.3~24 V
- over voltage, over temperature, and short circuit protections
- UL/cUL safety approvals
- efficiency up to 78%



MODEL	output voltage	output current	output power	ripple and noise ¹	efficiency
	(Vdc)	max (A)	max (W)	typ (mVp-p)	typ (%)
VSK-S5-3R3UA	3.3	1.25	4.2	30	66
VSK-S5-5UA	5	1	5	30	72
VSK-S5-9UA	9	0.55	5	30	74
VSK-S5-12UA	12	0.42	5	30	76
VSK-S5-15UA	15	0.33	5	30	76
VSK-S5-24UA	24	0.23	5.5	30	78

Notes: 1. Ripple and noise measured at 20 MHz bandwidth

PART NUMBER KEY


INPUT

parameter	conditions/description	min	typ	max	units
voltage		85 110		264 370	Vac Vdc
frequency		47		440	Hz
input current	at 110 Vac at 230 Vac		110 70		mA mA
inrush current	at 110 Vac at 230 Vac		10 20		A A
external input fuse (recommended)	slow blow, 250 V		1		A

OUTPUT

parameter	conditions/description	min	typ	max	units
line regulation			±0.5		%
load regulation	10 ~ 100%		±1		%
temperature coefficient			0.02		%/°C
hold-up time	at 230 Vac		50		ms
voltage accuracy	3.3 V model all other models		±3 ±2		% %
switching frequency			100		kHz

PROTECTIONS

parameter	conditions/description	min	typ	max	units
over voltage protection	diode clamp and chip lock up				
short circuit protection	auto recovery with no damage from a short on any output				
over temperature protection				150	°C

SAFETY & COMPLIANCE

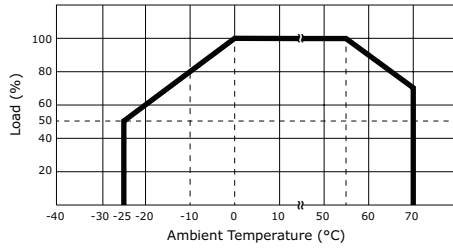
parameter	conditions/description	min	typ	max	units
isolation voltage	primary to secondary (for 1 minute)	4,000			Vac
safety approvals	IEC 60950-1, EN 60950-1, UL 60950-1				
safety class	class II				
EMI/EMC	EN 55011 (level A), IEC/EN 61000-4-2 (level 4, 8kV/15kV), IEC/EN 61000-4-3, IEC/EN 61000-4-4 (level 4, 4kV), IEC/EN 61000-4-5 (level 4, 2kV/4kV)				
RoHS compliant	yes				
MTBF	25°C	300,000			hrs

ENVIRONMENTAL

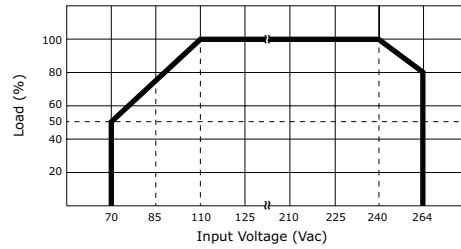
parameter	conditions/description	min	typ	max	units
operating temperature		-25		70	°C
storage temperature		-40		105	°C
case temperature				95	°C
operating humidity	non-condensing			95	%

DERATING CURVES

1. output power vs. ambient temperature



2. output power vs. input voltage

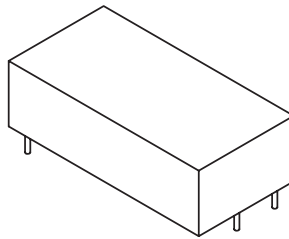


MECHANICAL

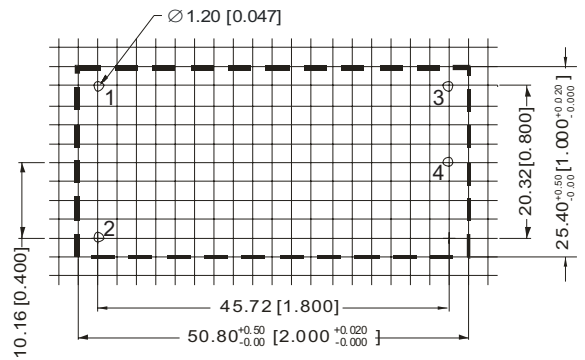
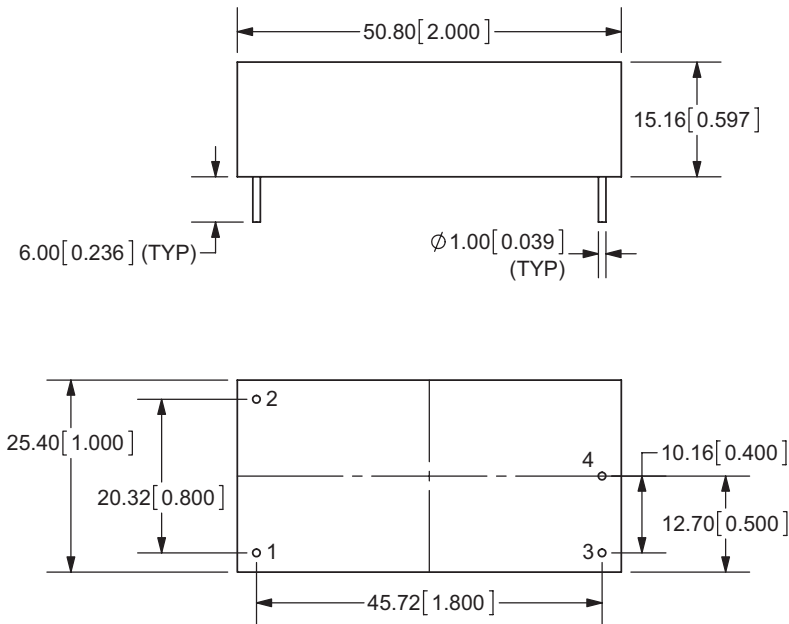
parameter	conditions/description	min	typ	max	units
dimensions	50.8 x 25.4 x 15.2 (2.0 x 1.0 x 0.6 inch)				mm
case material	UL94V-0				
weight			35		g

MECHANICAL DRAWING

units: mm [inches]
 tolerance: ±0.5 [±0.02]
 pin section tolerance: ±0.10 [±0.004]

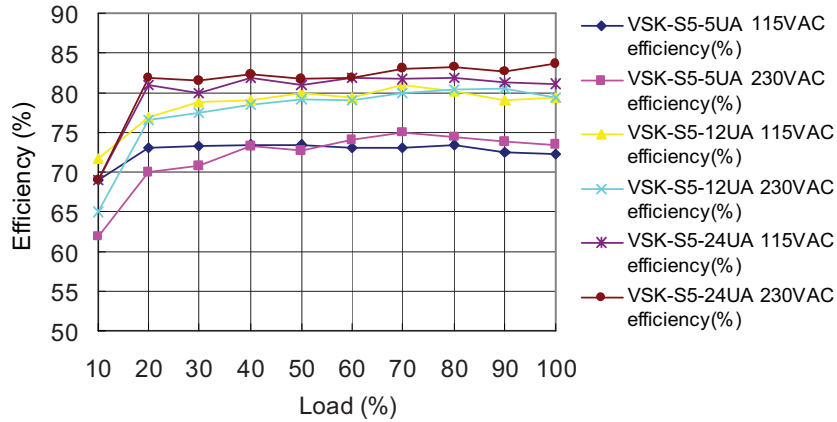


PIN CONNECTIONS	
PIN	FUNTION
1	AC(N)
2	AC(L)
3	+Vo
4	-Vo

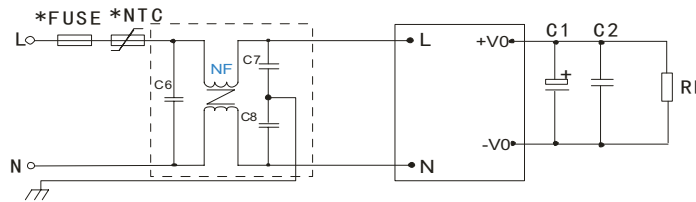


recommended PCB footprint (top view)
 grid: 2.54 mm (0.10 inch)

EFFICIENCY CURVES



TYPICAL APPLICATION CIRCUIT



EMC Application Figure

EXTERNAL CAPACITORS TYPICAL VALUE (Unit: μF)		
MODEL	C1	C2
VSK-S5-3R3UA	47	0.1
VSK-S5-5UA	47	0.1
VSK-S5-9UA	33	0.1
VSK-S5-12UA	33	0.1
VSK-S5-15UA	33	0.1
VSK-S5-24UA	10	0.1

- Notes:
- Output filtering capacitor C1 is an electrolytic capacitor. It is recommended to use high frequency and low impedance electrolytic capacitors. For capacitance and current of capacitor please refer to manufacture's datasheet. Voltage derating of capacitor should be 80% or above. C2 is ceramic capacitor, it is used to filter high frequency noise.
 - It is recommended to use a 1A/250V slow blow FUSE. External input NTC is recommended to use 5D-14 or 10 Ω /2W wire-round resistor.
 - If EMC performance is required, it is recommended to add "EMC filter" at the input end (see EMC Application Figure).
 C6: X capacitor, recommended parameter 0.1 μF /275V;
 C7,C8: Y capacitor, recommended parameter 2200pF/400V;
 CY: Y capacitor, recommended parameter 102K/400V
 NF: common mode choke, recommended inductance is about 10mH-30mH.

Note: All specifications measured at 25°C, humidity <75%, nominal input voltage, and full load unless otherwise noted.

REVISION HISTORY

rev.	description	date
1.0	initial release	07/26/2011
1.01	new template applied	03/06/2012
1.02	V-Infinity branding removed	08/21/2012
1.03	added efficiency curves	12/10/2012
1.04	updated spec	04/01/2013

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



CUI INC[®]

Headquarters
20050 SW 112th Ave.
Tualatin, OR 97062
800.275.4899

Fax 503.612.2383
cui.com
techsupport@cui.com

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