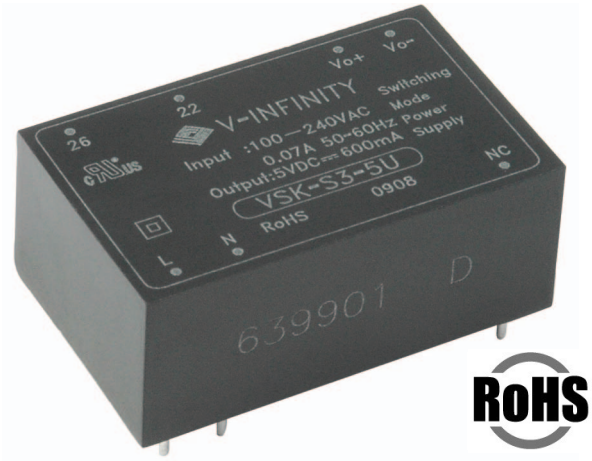
PART NUMBER: VSK-S3-XXU

DESCRIPTION: ac-dc converter

features

- **green design, no-load power consumption < 0.3 W**
- **universal input 85~264 Vac/ 110~370 VDC**
- **encapsulated, compact case**
- **high efficiency**
- **surface mounting technology**
- **100kHz fixed frequency**
- **fixed output voltage**
- **thermal shutdown**
- **output short circuit protection**
- **low output ripple and noise**
- **isolated output**



model

model	output (Vo1/Io1)	output (Iomax/T)	power max.	ripple & noise max.	efficiency (%)
VSK-S3-3R3U	3.3V/700mA	900mA/60S	2.3 W	60 mVp-p	63
VSK-S3-5U	5V/600mA	750mA/60S	3.0 W	60 mVp-p	72
VSK-S3-9U	9V/330mA	450mA/60S	3.0 W	60 mVp-p	74
VSK-S3-12U	12V/250mA	330mA/60S	3.0 W	60 mVp-p	76
VSK-S3-15U	15V/200mA	250mA/60S	3.0 W	60 mVp-p	76
VSK-S3-24U	24V/125mA	160mA/60S	3.0 W	60 mVp-p	78

INPUT

parameter	conditions/description	min	nom	max	units
input frequency		47	(50~60)	440	Hz
input voltage	output power derated from 85-90 VAC	85		264	VAC
		110		370	VDC
input current	AC input of 110 VAC			65	mA
	AC input of 230 VAC			30	mA
inrush current	measured at 110 VAC at full load, cold start			10	A
	measured at 220 VAC at full load, cold start			20	A
leakage current	none				

OUTPUT

parameter	conditions/description	min	nom	max	units
voltage tolerance	±3% for 3.3V output	-2%		+2%	
line regulation		-3%		+3%	
load regulation	10% to 100%	-5%		+5%	
rise time				100	mS
hold-up time	Vin = 230 V ac		50		mS

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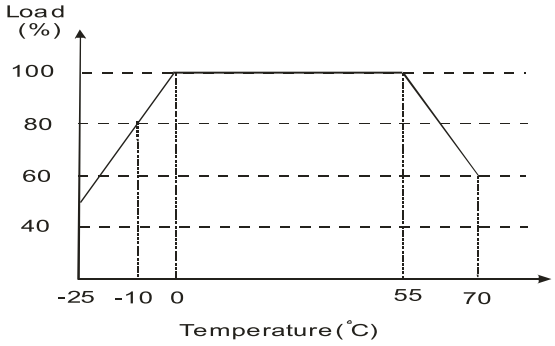
PROTECTION CIRCUIT

parameter	conditions/description
over temperature	150 ºC max.
over voltage	chip lock up

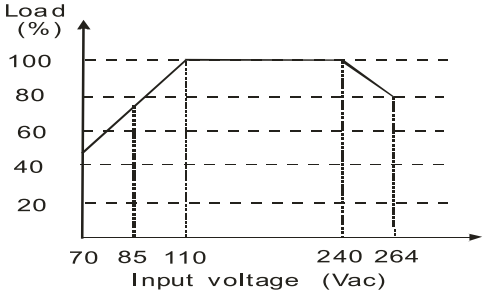
GENERAL

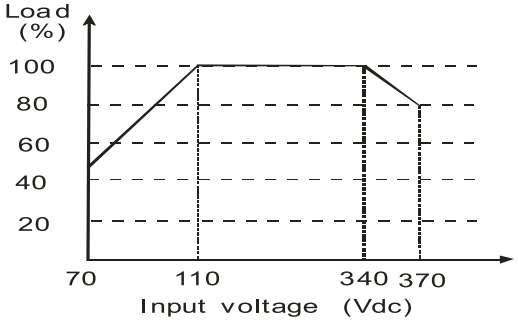
parameter	conditions/description	min	nom	max	units
operating temp.		-25		70	ºC
storage temp.		-40		105	ºC
case temp.				95	°C
power derating	above 55°C		2		%/°C
humidity				95%	RH
storage humid.	non-condensing	20%		90%	RH
isolation voltage	applied for 1 minute				
(HI-POT)	primary to secondary, 500 Vdc @ 100 MΩ	3000			VAC
MTBF	at 25°C	200,000			hours
RoHS	yes				
case material	UL94V-0				
safety	IEC60950, approved to EN60950, UL60950				
EMC[1]	IEC/EN 61000-4-2 level 4 (8kV/15kV), IEC/EN 61000-4-2, IEC/EN 61000-4-4 level 3 (2kV),				
	IEC/EN 61000-4-4 level 4 (4kV), IEC/EN 61000-4-5 level 3 (1kV/2kV), IEC/EN 61000-4-5 level 4 (2kV/4kV)				
warranty	standard warranty length			2	years

TEMPERATURE VS LOAD



INPUT VOLTAGE VS LOAD





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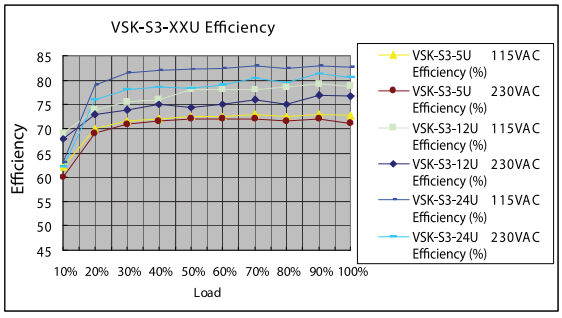
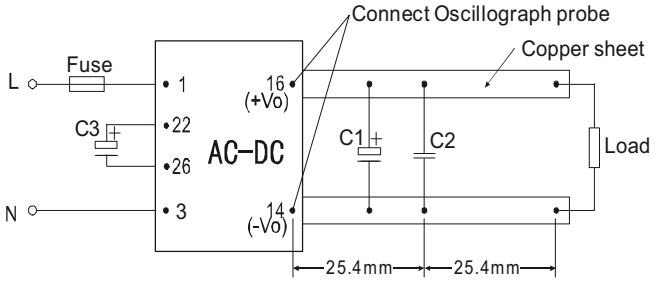
DESCRIPTION: ac-dc converter

TYPICAL EFFICIENCY CURVE



MEASURING CIRCUIT



APPLICATION CIRCUITS

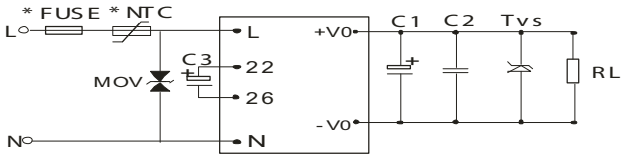


Figure1

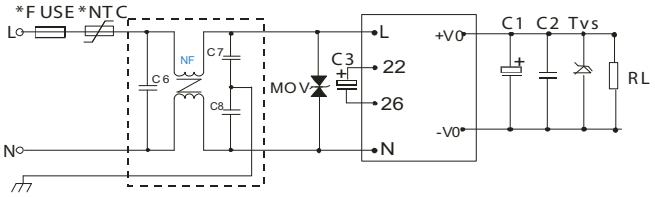


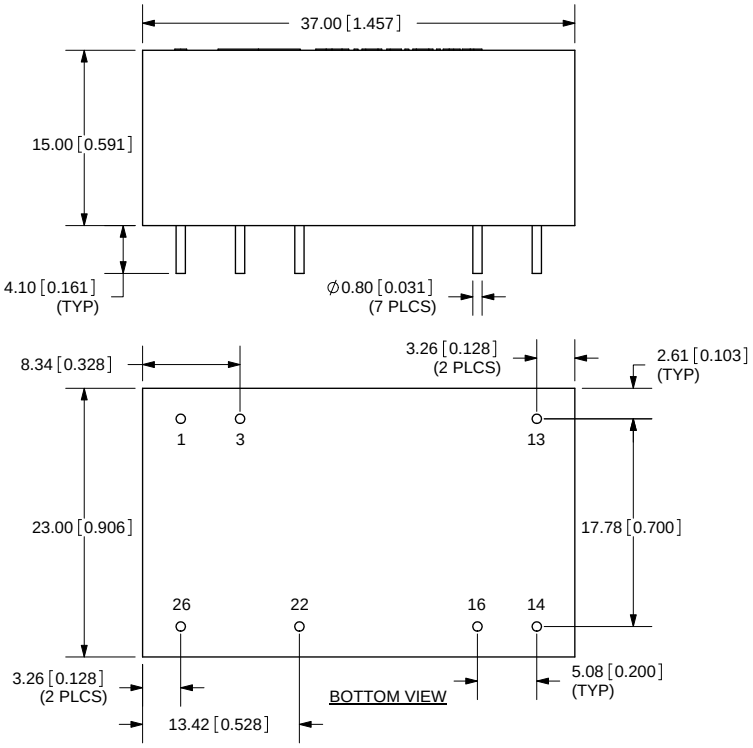
Figure 2 VSK-S3 EMC Filtering Circuit

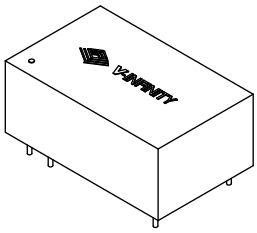
EXTERNAL CAPACITORS TYPICAL VALUE(Unit: μF)				
model	C1	C2	C3	TVS
VSK-S3-3R3U	150	0.1	4.7/400V	P4KE6.8A
VSK-S3-5U	150	0.1	4.7/400V	P4KE6.8A
VSK-S3-9U	150	0.1	4.7/400V	P4KE12A
VSK-S3-12U	150	0.1	4.7/400V	P4KE20A
VSK-S3-15U	150	0.1	4.7/400V	P4KE20A
VSK-S3-24U	150	0.1	4.7/400V	P4KE30A

Note!

1. Output filtering capacitors C1, C3 is electrolytic capacitors, 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, C4 is ceramic capacitors , it is used to filter high frequency noise. TVS is a recommended component to protect post-circuits (when converter fails).
2. MOV is required for VSK-S3 models. Model: 471KD05, it is used to protect the device under surge.
3. It is recommended to connect FUSE, the parameter is 0.5A/250V slow blow. External input NTC is recommended to use D-14 or 10Ω/2W wire-round resistor.
4. If EMC performance is required, recommended to add "EMC filter" at the input end(see figure 2)
   C6:X capacitor, recommended parameter 0.1uF/275V;
   C7,C8:Y capacitor, recommended parameter 220pF/275V;
   NF: common model choke, recommended inductance is about 10mH-30mH.
5. Terminals 22 and 26 are internal rectification and filtering terminals. To protect the models further, it is recommended to connect an electrolytic capacitor C3 (it is recommended to be 4.7uF/400V). If operation voltage of the module is between 160~264VAC, C3 can be removed.

REV.	DESCRIPTION	DATE
A	NEW DRAWING	4/2/2008



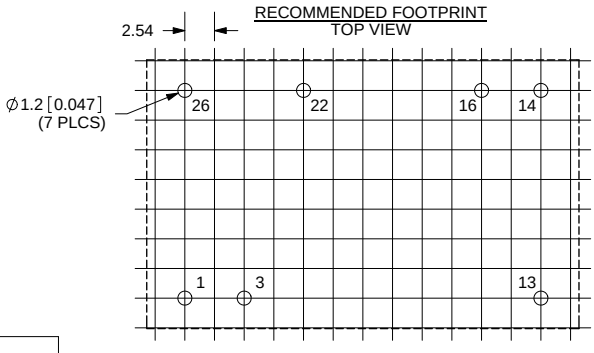


SCALE: 1:1

NOTE:
PIN DIAMETER: 0.80±0.05mm
WEIGHT: 25g

TOLERANCE:
±0.5mm UNLESS OTHERWISE SPECIFIED

RoHS



FOOTPRINT DETAILS

PIN	FUNCTION
1	L
3	N
13	NC
14	-Vo
16	+Vo
22	+Vin(DC)
26	-Vin(DC)

NC: no connection

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TITLE: SWITCHING POWER SUPPLY		REV: A
PART NO. VSK-S3-XXU		UNITS: MM [INCHES]
DRAWN BY: ZRJ	APPROVED BY:	SCALE: 2:1

PC FILE NAME: VSK-S3-XXU