

SERIES: VSKM-S5 | DESCRIPTION: MEDICAL AC-DC POWER SUPPLY

FEATURES

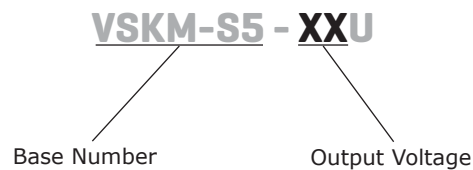
- up to 5.5 W continuous power
- compact board mount design
- universal input (85~264 Vac / 110~370 Vdc)
- single output from 3.3 ~ 24 V
- over voltage, over temperature, and short circuit protections
- full medical approvals
- efficiency up to 78%



MODEL	output voltage (Vdc)	output current max (A)	output power max (W)	ripple and noise ¹ typ (mVp-p)	efficiency typ (%)
VSKM-S5-3R3U	3.3	1.25	4.2	30	66
VSKM-S5-5U	5	1	5	30	72
VSKM-S5-9U	9	0.55	5	30	74
VSKM-S5-12U	12	0.42	5	30	76
VSKM-S5-15U	15	0.33	5	30	76
VSKM-S5-24U	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		63	Hz
current	at 110 Vac at 230 Vac		110 70		mA mA
inrush current	at 110 Vac at 230 Vac		10 20		A A
leakage current	none				
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 set point accuracy	3.3 V output 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

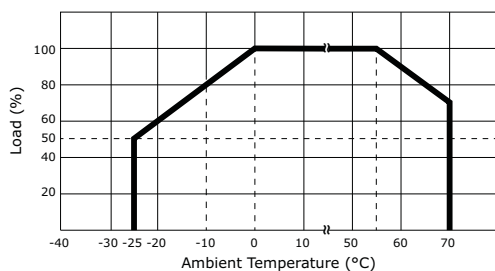
parameter	conditions/description	min	typ	max	units
isolation voltage	primary to secondary (for 1 minute)	4,000			Vac
safety approvals	IEC 60601-1, EN 60601-1, UL 60601-1				
safety class	class II				
EMI/EMC	EN 55011 (level A), IEC/EN 61000-4-2 (level 4, 8kV/15kV), IEC/EN 61000-4-3, IEC/EN 61000-4-4 (level 4, 4kV), IEC/EN 61000-4-5 (level 4, 2kV/4kV)				
RoHS compliant	yes				
MTBF	25°C	300,000			hrs

ENVIRONMENTAL

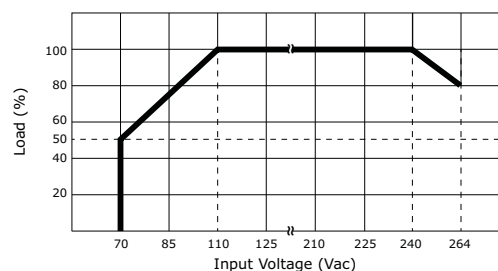
parameter	conditions/description	min	typ	max	units
operating temperature		-25		70	°C
storage temperature		-40		105	°C
case temperature				95	°C
operating humidity	non-condensing			95	%

DERATING CURVES

1. output power vs. ambient temperature



2. output power vs. input voltage



MECHANICAL

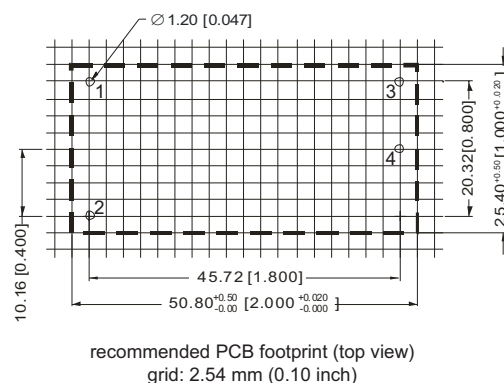
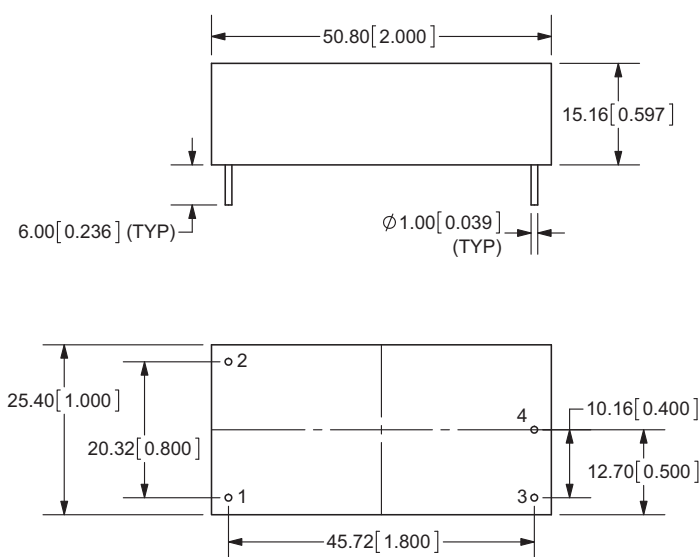
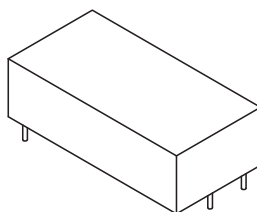
parameter	conditions/description	min	typ	max	units
dimensions	2.0 x 1.0 x 0.6 (50.8 x 25.4 x 15.2 mm)				inch
case material	UL94V-0				
weight			35		g

MECHANICAL DRAWING

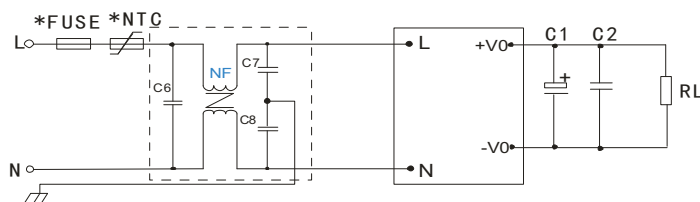
units: mm [inches]

tolerance: ± 0.5 [± 0.02]

pin section tolerance: ± 0.10 [± 0.004]



TYPICAL APPLICATION CIRCUIT



EMC Application Figure

EXTERNAL CAPACITORS TYPICAL VALUE (Unit: μF)		
MODEL	C1	C2
VSKM-S5-3R3U	47	0.1
VSKM-S5-5U	47	0.1
VSKM-S5-9U	33	0.1
VSKM-S5-12U	33	0.1
VSKM-S5-15U	33	0.1
VSKM-S5-24U	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 model choke, recommended inductance is about 10mH-30mH.

REVISION HISTORY

rev.	description	date
1.0	initial release	01/16/2012
1.01	added leakage current to Safety & Compliance	06/20/2012
1.02	picture updated	09/06/2012
1.03	updated input data	11/13/2012

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



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