

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

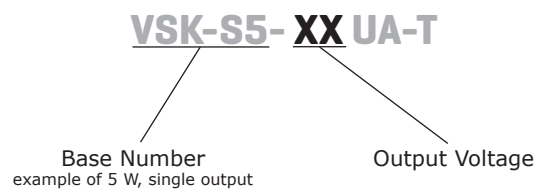
**FEATURES**

- up to 5.5 W continuous output
- encapsulated compact case
- universal input (85~264 Vac/110~370 Vdc)
- single regulated output from 3.3~24 Vdc
- over voltage, over temperature, and short circuit protections
- UL/cUL safety approvals
- efficiency up to 83%



| MODEL          | output voltage | output current | output power | ripple and noise <sup>1</sup> | efficiency |
|----------------|----------------|----------------|--------------|-------------------------------|------------|
|                | (Vdc)          | max (mA)       | max (W)      | max (mVp-p)                   | max (%)    |
| VSK-S5-3R3UA-T | 3.3            | 1250           | 4.125        | 120                           | 74         |
| VSK-S5-5UA-T   | 5              | 1000           | 5            | 120                           | 78         |
| VSK-S5-9UA-T   | 9              | 550            | 5            | 100                           | 78         |
| VSK-S5-12UA-T  | 12             | 420            | 5            | 100                           | 80         |
| VSK-S5-15UA-T  | 15             | 333            | 5            | 100                           | 82         |
| VSK-S5-24UA-T  | 24             | 230            | 5.5          | 100                           | 83         |

Notes: 1. Ripple and noise are measured at 20 MHz BW by "parallel cable" method with 1  $\mu$ F ceramic and 10  $\mu$ F electrolytic capacitors on the output.

**PART NUMBER KEY**


## INPUT

| parameter               | conditions/description                         | min | typ   | max | units |
|-------------------------|--|-----|-------|-----|-------|
| voltage                 |  | 85  |       | 264 | Vac   |
|                         |  | 110 |       | 370 | Vdc   |
| frequency               |  | 47  |       | 63  | Hz    |
| current                 | at 110 Vac                                     |     | 110   |     | mA    |
|                         | at 230 Vac                                     |     | 70    |     | mA    |
| inrush current          | at 110 Vac                                     |     | 10    |     | A     |
|                         | at 230 Vac                                     |     | 20    |     | A     |
| input fuse              | 1 A/250 V, slow-blow type (internal, included) |     |       |     |       |
| temperature coefficient |  |     | ±0.02 |     | %/°C  |

## OUTPUT

| parameter                   | conditions/description | min | typ  | max  | units |
|-----------------------------|------------------------|-----|------|------|-------|
| capcitive load <sup>1</sup> | 3.3 Vdc model          |     |      | 4000 | μF    |
|                             | 5 Vdc model            |     |      | 4000 | μF    |
|                             | 9 Vdc model            |     |      | 1000 | μF    |
|                             | 12 Vdc model           |     |      | 820  | μF    |
|                             | 15 Vdc model           |     |      | 820  | μF    |
|                             | 24 Vdc model           |     |      | 330  | μF    |
| line regulation             |                        |     | ±0.5 |      | %     |
| load regulation             | at 10~100% load        |     | ±1   |      | %     |
| voltage set accuracy        | 3.3 Vdc model          |     | ±3   |      | %     |
|                             | all other models       |     | ±2   |      | %     |
| hold-up time                | at 110 Vac             |     | 12   |      | ms    |
|                             | at 230 Vac             |     | 80   |      | ms    |
| switching frequency         |                        |     |      | 140  | kHz   |

Notes: 1. Test without external circuit

## PROTECTIONS

| parameter                | conditions/description | min | typ | max | units |
|--------------------------|------------------------|-----|-----|-----|-------|
| over voltage protection  | shutdown               |     |     |     |       |
| over current protection  | auto recovery          | 110 |     |     | %     |
| short circuit protection | hiccup, auto recovery  |     |     |     |       |

## SAFETY & COMPLIANCE

| parameter           | conditions/description   | min   | typ | max | units |
|---------------------|--|-------|-----|-----|-------|
| isolation voltage   | for 1 minute   | 4,000 |     |     | Vac   |
| safety approvals    | UL60950-1  |       |     |     |       |
| safety class        | Class II   |       |     |     |       |
| conducted emissions | CISPR22/EN55022, Class B   |       |     |     |       |
| radiated emissions  | CISPR22/EN55022, Class B   |       |     |     |       |
| ESD                 | IEC/EN61000-4-2 Class B, contact ±6 kV / air ±8 kV                               |       |     |     |       |
| radiated immunity   | IEC/EN61000-4-3 Class A, 10V/m   |       |     |     |       |
| EFT/burst           | IEC/EN61000-4-4 Class B, ±2 kV   |       |     |     |       |
|                     | IEC/EN61000-4-4 Class B, ±4 kV (external circuit required, see figure 2)         |       |     |     |       |
| surge               | IEC/EN61000-4-5 Class B, ±1 kV / ±2 kV   |       |     |     |       |
|                     | IEC/EN61000-4-5 Class B, ±2 kV / ±4 kV (external circuit required, see figure 2) |       |     |     |       |
| conducted immunity  | IEC/EN61000-4-6 Class A, 10 Vr.m.s   |       |     |     |       |

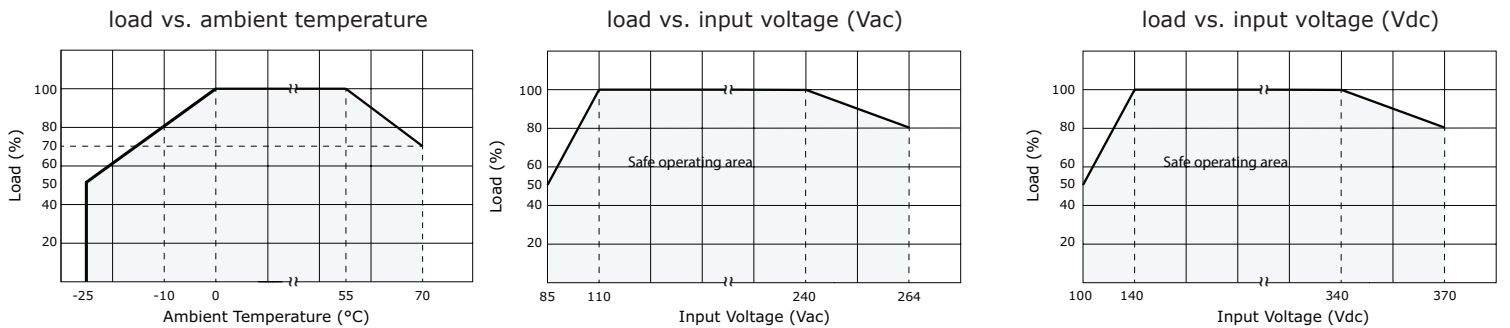
## SAFETY & COMPLIANCE (CONTINUED)

| parameter                    | conditions/description           | min     | typ | max | units |
|------------------------------|----------------------------------|---------|-----|-----|-------|
| PFM                          | IEC/EN61000-4-8 Class A, 10 A/m  |         |     |     |       |
| voltage dips & interruptions | IEC/EN61000-4-11 Class B, 0%-70% |         |     |     |       |
| MTBF                         | as per MIL-HDBK-217F, at 25 °C   | 300,000 |     |     | hours |
| RoHS                         | 2011/65/EU                       |         |     |     |       |

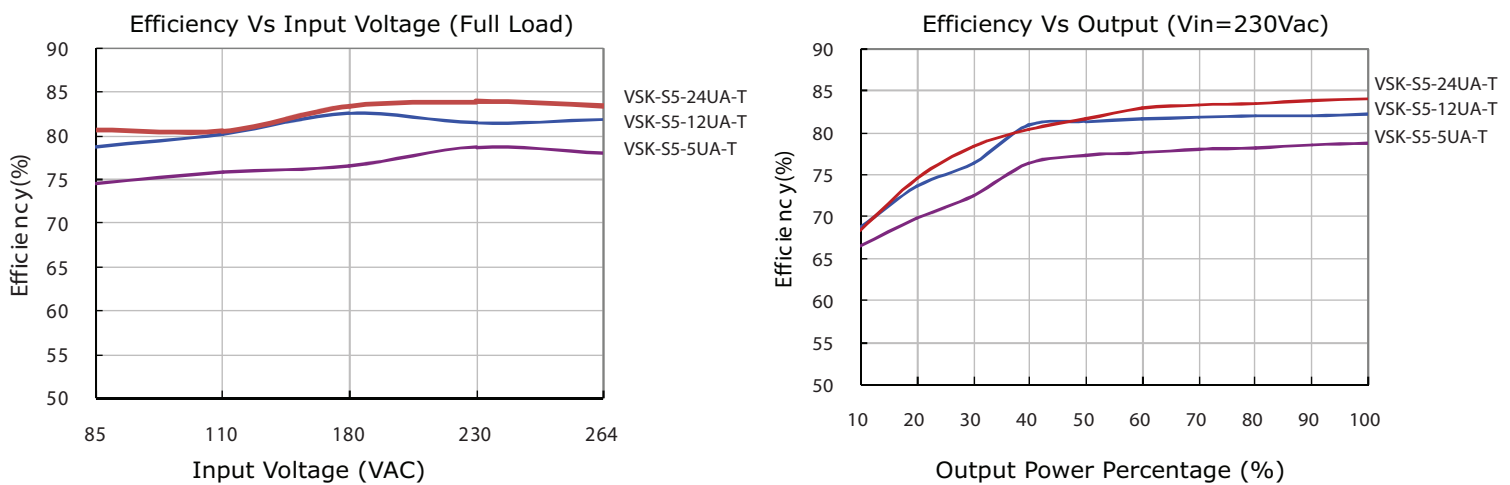
## ENVIRONMENTAL

| parameter             | conditions/description | min | typ | max | units |
|-----------------------|------------------------|-----|-----|-----|-------|
| operating temperature | see derating curves    | -25 |     | 70  | °C    |
| storage temperature   |                        | -25 |     | 105 | °C    |
| storage humidity      | non-condensing         |     |     | 95  | %     |

## DERATING CURVES



## EFFICIENCY CURVES



## MECHANICAL

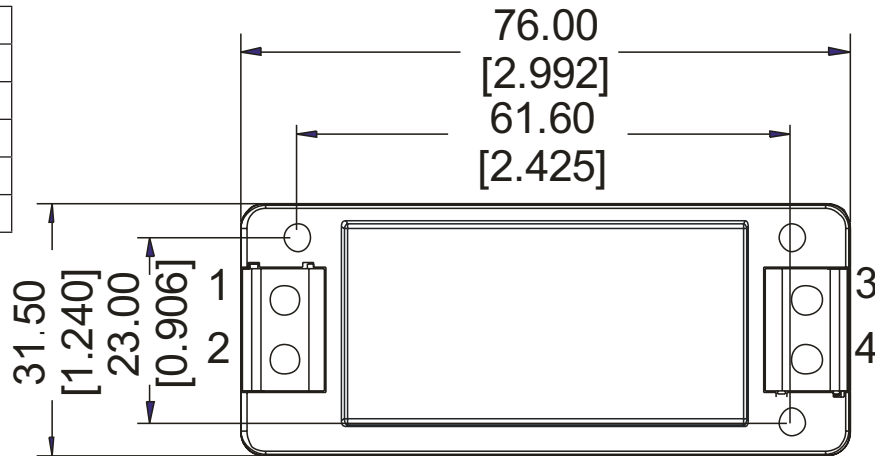
| parameter  | conditions/description                            | min | typ | max | units |
|------------|---|-----|-----|-----|-------|
| dimensions | 76.0 x 31.50 x 23.96 (2.992 x 1.240 x 0.943 inch) |     |     |     | mm    |
| material   | UL94V-0   |     |     |     |       |
| weight     |   |     | 52  |     | g     |

## MECHANICAL DRAWING

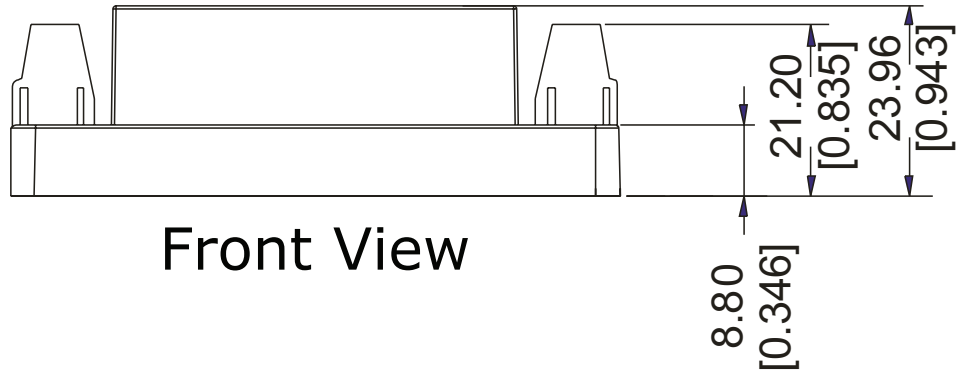
units: mm [inch]  
 tolerance: ±0.50 [±0.020]

wire range: 24~12 AWG

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



Top View



Front View

## TYPICAL APPLICATION CIRCUIT

Figure 1

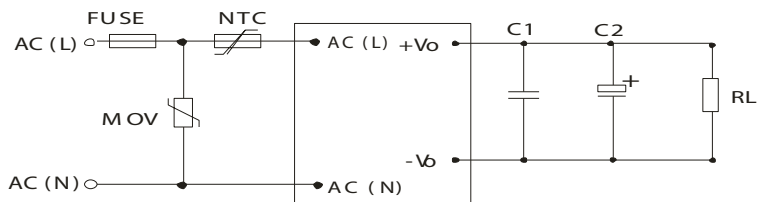


Table 1

| Recommended External Circuit Components |                      |                      |           |       |         |
|---|----------------------|----------------------|-----------|-------|---------|
| MODEL                                   | C1 <sup>1</sup> (μF) | C2 <sup>1</sup> (μF) | FUSE      | NTC   | MOV     |
| VSK-S5-3R3UA-T                          | 1                    | 220                  | 1 A/250 V | 12D-5 | S14K350 |
| VSK-S5-5UA-T                            | 1                    | 220                  | 1 A/250 V | 12D-5 | S14K350 |
| VSK-S5-9UA-T                            | 1                    | 100                  | 1 A/250 V | 12D-5 | S14K350 |
| VSK-S5-12UA-T                           | 1                    | 100                  | 1 A/250 V | 12D-5 | S14K350 |
| VSK-S5-15UA-T                           | 1                    | 100                  | 1 A/250 V | 12D-5 | S14K350 |
| VSK-S5-24UA-T                           | 1                    | 47                   | 1 A/250 V | 12D-5 | S14K350 |

Note: 1. Output filtering capacitor C1 is a ceramic capacitor that is used to filter high frequency noise. C2 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 the manufacturer's datasheet. Voltage derating of capacitor should be 80% or above.

## EMC RECOMMENDED CIRCUIT

Figure 2

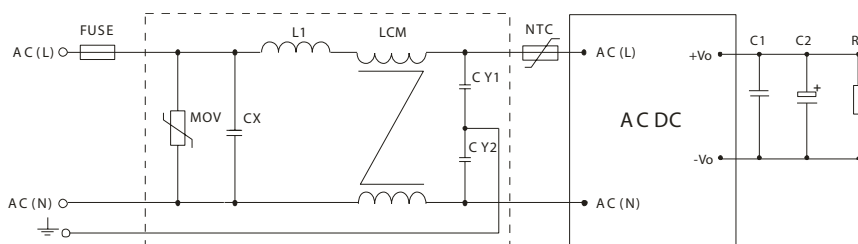


Table 2

| Recommended External Circuit Components |                                 |
|---|---------------------------------|
| FUSE                                    | 1A/250V, slow fusing, necessary |
| MOV                                     | S14K350                         |
| CY1, CY2                                | 1nF/400VAC                      |
| CX                                      | 0.1μF/275VAC                    |
| LCM                                     | 2.2mH                           |
| L1                                      | 4.7μH/2.0A                      |
| C1, C2                                  | see Table 1                     |

Note: 1. All specifications measured at Ta=25°C, humidity <75%, nominal input voltage, and rated output load, unless otherwise specified.

## REVISION HISTORY

| rev. | description                                  | date       |
|------|--|------------|
| 1.0  | initial release                              | 09/06/2012 |
| 1.01 | updated mechanical drawing and product photo | 11/28/2012 |
| 1.02 | updated spec                                 | 03/08/2013 |
| 1.03 | updated spec                                 | 08/23/2013 |
| 1.04 | updated spec                                 | 01/08/2014 |
| 1.05 | changed internal IC, updated datasheet       | 06/05/2015 |

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



**CUI INC**<sup>®</sup>

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

Fax 503.612.2383  
**cui.com**  
techsupport@cui.com

CUI offers a two (2) year limited warranty. Complete warranty information is listed on our website.

CUI reserves the right to make changes to the product at any time without notice. Information provided by CUI is believed to be accurate and reliable. However, no responsibility is assumed by CUI for its use, nor for any infringements of patents or other rights of third parties which may result from its use.

CUI products are not authorized or warranted for use as critical components in equipment that requires an extremely high level of reliability. A critical component is any component of a life support device or system whose failure to perform can be reasonably expected to cause the failure of the life support device or system, or to affect its safety or effectiveness.

Компания «Океан Электроники» предлагает заключение долгосрочных отношений при поставках импортных электронных компонентов на взаимовыгодных условиях!

Наши преимущества:

- Поставка оригинальных импортных электронных компонентов напрямую с производств Америки, Европы и Азии, а так же с крупнейших складов мира;
- Широкая линейка поставок активных и пассивных импортных электронных компонентов (более 30 млн. наименований);
- Поставка сложных, дефицитных, либо снятых с производства позиций;
- Оперативные сроки поставки под заказ (от 5 рабочих дней);
- Экспресс доставка в любую точку России;
- Помощь Конструкторского Отдела и консультации квалифицированных инженеров;
- Техническая поддержка проекта, помощь в подборе аналогов, поставка прототипов;
- Поставка электронных компонентов под контролем ВП;
- Система менеджмента качества сертифицирована по Международному стандарту ISO 9001;
- При необходимости вся продукция военного и аэрокосмического назначения проходит испытания и сертификацию в лаборатории (по согласованию с заказчиком);
- Поставка специализированных компонентов военного и аэрокосмического уровня качества (Xilinx, Altera, Analog Devices, Intersil, Interpoint, Microsemi, Actel, Aeroflex, Peregrine, VPT, Syfer, Eurofarad, Texas Instruments, MS Kennedy, Miteq, Cobham, E2V, MA-COM, Hittite, Mini-Circuits, General Dynamics и др.);

Компания «Океан Электроники» является официальным дистрибьютором и эксклюзивным представителем в России одного из крупнейших производителей разъемов военного и аэрокосмического назначения «JONHON», а так же официальным дистрибьютором и эксклюзивным представителем в России производителя высокотехнологичных и надежных решений для передачи СВЧ сигналов «FORSTAR».



## JONHON

«JONHON» (основан в 1970 г.)

Разъемы специального, военного и аэрокосмического назначения:

(Применяются в военной, авиационной, аэрокосмической, морской, железнодорожной, горно- и нефтедобывающей отраслях промышленности)

«FORSTAR» (основан в 1998 г.)

ВЧ соединители, коаксиальные кабели, кабельные сборки и микроволновые компоненты:

(Применяются в телекоммуникациях гражданского и специального назначения, в средствах связи, РЛС, а так же военной, авиационной и аэрокосмической отраслях промышленности).



Телефон: 8 (812) 309-75-97 (многоканальный)

Факс: 8 (812) 320-03-32

Электронная почта: [ocean@oceanchips.ru](mailto:ocean@oceanchips.ru)

Web: <http://oceanchips.ru/>

Адрес: 198099, г. Санкт-Петербург, ул. Калинина, д. 2, корп. 4, лит. А