

SERIES: VSK-S15 Series | **DESCRIPTION:** SWITCHING POWER SUPPLY

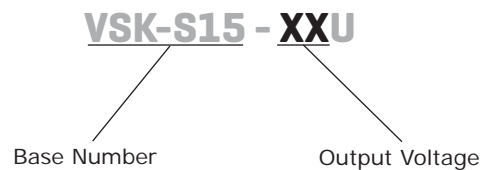
FEATURES

- Up to 15W continuous power
- Compact board mount design
- Universal input (85~264 Vac / 120~370 Vdc)
- Single output from 3.3 to 48 V
- Over voltage, over current, and short circuit protections
- UL/cUL safety approvals
- Efficiency up to 85%


V-Infinity


| MODEL | output voltage | output current | output power | ripple and noise ¹ | efficiency |
|--------------|----------------|----------------|--------------|-------------------------------|------------|
| | (Vdc) | max (A) | max (W) | typ (mVp-p) | typ (%) |
| VSK-S15-3R3U | 3.3 | 3 | 9.9 | 50 | 73 |
| VSK-S15-5U | 5 | 2.8 | 15 | 50 | 76 |
| VSK-S15-9U | 9 | 1.6 | 15 | 50 | 78 |
| VSK-S15-12U | 12 | 1.25 | 15 | 50 | 80 |
| VSK-S15-15U | 15 | 1.0 | 15 | 50 | 80 |
| VSK-S15-24U | 24 | 0.625 | 15 | 50 | 84 |
| VSK-S15-48U | 48 | 0.32 | 15 | 50 | 85 |

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

PART NUMBER KEY


INPUT

| parameter | conditions/description | min | typ | max | units |
|-----------------------------------|-----------------------------------|-----|-----|-----|-------|
| voltage | | 85 | | 264 | Vac |
| | | 110 | | 370 | Vdc |
| frequency | | 47 | | 63 | Hz |
| input current | at 110 Vac, cold start | | 250 | | mA |
| | at 230 Vac, cold start | | 140 | | mA |
| inrush current | at 110 Vac, full load, cold start | | 10 | | A |
| | at 220 Vac, full load, cold start | | 20 | | A |
| external input fuse (recommended) | slow blow, 250 V | | 2 | | A |
| leakage current | 230 V ac, 50 Hz | | 0.3 | | mA |

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 | | 80 | | ms |
| switching frequency | | | | 150 | kHz |

PROTECTIONS

| parameter | conditions/description | min | typ | max | units |
|--------------------------|---|-----|-----|-----|-------|
| over current protection | | | | 110 | % |
| short circuit protection | auto recovery with no damage from a short on any output | | | | |
| over voltage protection | 3.3 V, 5 V output | | | 7.5 | Vdc |
| | 9 V output | | | 12 | Vdc |
| | 12 V, 15 V output | | | 20 | Vdc |
| | 24 V output | | | 30 | Vdc |
| | 48 V output | | | 60 | Vdc |

SAFETY & COMPLIANCE

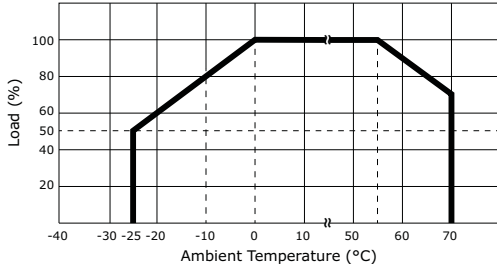
| parameter | conditions/description | min | typ | max | units |
|-------------------|---|---------|-----|-----|-------|
| isolation voltage | primary to secondary (for 1 minute) | 3,000 | | | Vac |
| safety approvals | UL 60950-1, EN60950-1 | | | | |
| safety class | class II | | | | |
| EMI/EMC | EN55022 (level B), IEC/EN 61000-4-2 level 3 (6kV/8kV), IEC/EN 61000-4-3, IEC/EN 61000-4-4 level 3 (2kV), IEC/EN 61000-4-5 level 3 (1kV/2kV) | | | | |
| RoHS compliant | yes | | | | |
| MTBF | 25°C | 300,000 | | | hrs |

ENVIRONMENTAL

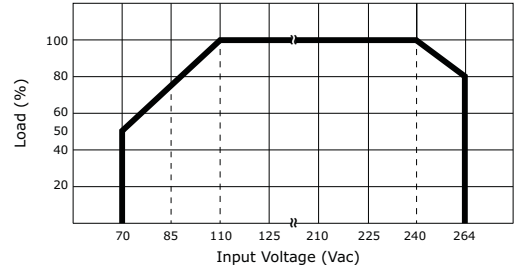
| parameter | conditions/description | min | typ | max | units |
|-----------------------|------------------------|-----|-----|-----|-------|
| operating temperature | | -25 | | 70 | °C |
| storage temperature | | -40 | | 105 | °C |
| case temperature | | | | 90 | °C |
| operating humidity | non-condensing | | | 85 | % |

DERATING CURVES

1. output power vs. ambient temperature



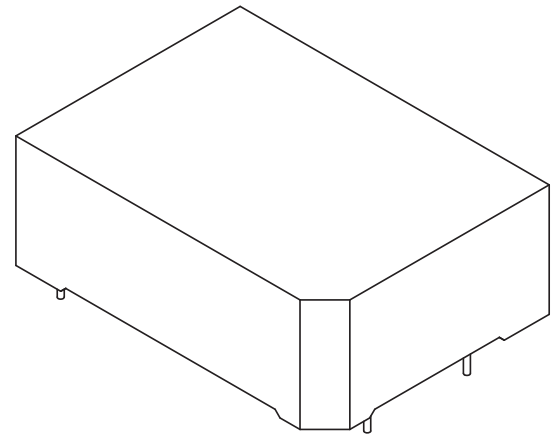
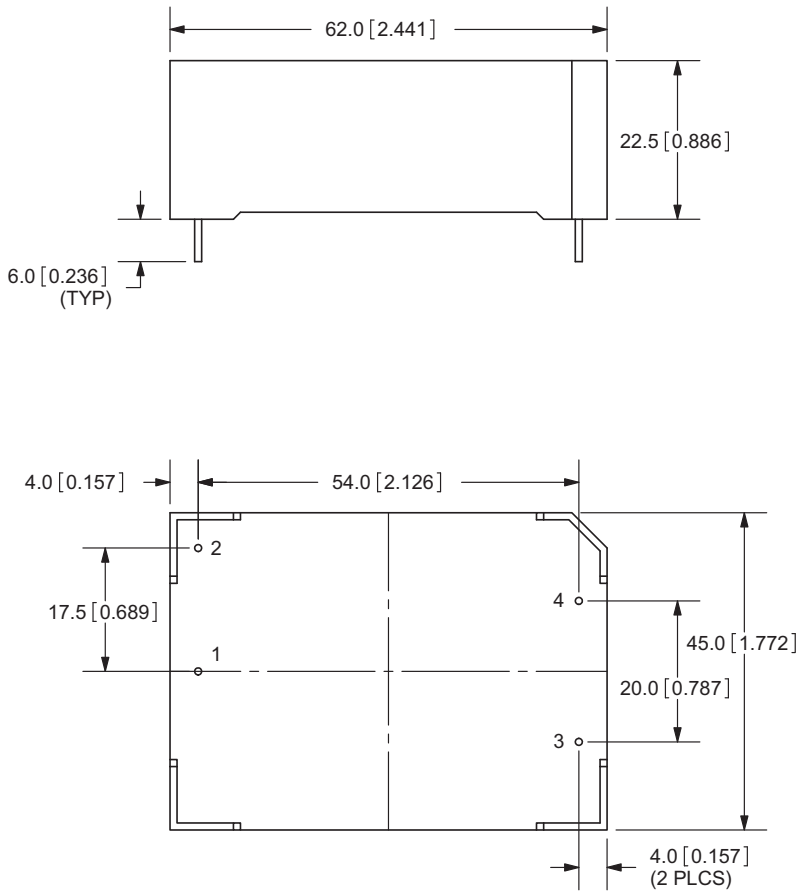
2. output power vs. input voltage



MECHANICAL

| parameter | conditions/description | min | typ | max | units |
|---------------|---|-----|-----|-----|-------|
| dimensions | 2.44 x 1.77 x 0.88 inch (62.0 x 45.0 x 22.5 mm) | | | | |
| case material | UL94V-0 | | | | |

MECHANICAL DRAWING

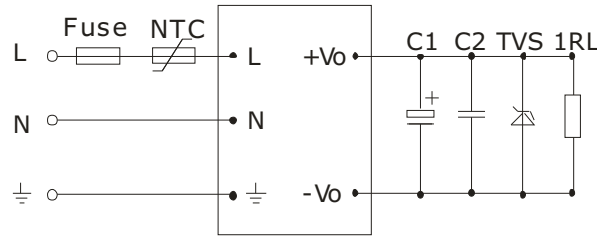


| PIN CONNECTIONS | |
|-----------------|----------|
| PIN | FUNCTION |
| 1 | AC(N) |
| 2 | AC(L) |
| 3 | -Vo |
| 4 | +Vo |

NOTE:
 PIN DIAMETER: 1.00±0.05mm
 WEIGHT: 80g
 TOLERANCE:
 ±0.5mm UNLESS OTHERWISE SPECIFIED

BOTTOM VIEW

TYPICAL APPLICATION CIRCUIT



| EXTERNAL CAPACITORS TYPICAL VALUE (Unit: μF) | | |
|--|-----|-----|
| MODEL | C1 | C2 |
| VSK-S15-3R3U | 680 | 0.1 |
| VSK-S15-5U | 680 | 0.1 |
| VSK-S15-9U | 470 | 0.1 |
| VSK-S15-12U | 220 | 0.1 |
| VSK-S15-15U | 220 | 0.1 |
| VSK-S15-24U | 68 | 0.1 |
| VSK-S15-48U | 33 | 0.1 |

- Notes:
- Output filtering capacitors C1, and C2 are 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 is used to filter high frequency noise. TVS is recommended component to protect post-circuits (when converter fails).
 - External input NTC is recommended to use 5D-9

REVISION HISTORY

| rev. | description | date |
|------|-----------------|------------|
| 1.0 | initial release | 07/26/2011 |

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



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