

SERIES: PSK-5W | **DESCRIPTION:** INTERNAL AC-DC POWER SUPPLY

FEATURES

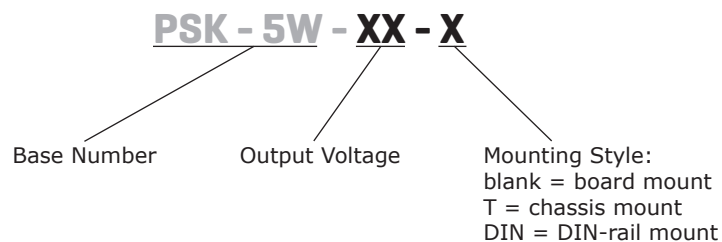
- wide input range (85~305 Vac)
- UL/EN/IEC 62368 certified
- meets CISPR32/EN 55032 Class B without external components
- short-circuit, over-current, over-voltage protections



| MODEL | output voltage | output current | output power | ripple and noise | efficiency |
|----------------------------|----------------|----------------|--------------|------------------|------------|
| | (Vdc) | max (A) | max (W) | typ (mVp-p) | typ (%) |
| PSK-5W-3 ^{1,2,3} | 3.3 | 1.25 | 4.2 | 100 | 70 |
| PSK-5W-5 ^{1,2} | 5 | 1.0 | 5 | 100 | 76 |
| PSK-5W-9 ^{1,2,3} | 9 | 0.55 | 5 | 100 | 74 |
| PSK-5W-12 ^{1,2,3} | 12 | 0.42 | 5 | 100 | 77 |
| PSK-5W-15 ^{1,2,3} | 15 | 0.333 | 5 | 100 | 77 |
| PSK-5W-24 ^{1,2,3} | 24 | 0.23 | 5.5 | 100 | 80 |

- Note:
1. Discontinued model - board mount option.
 2. Discontinued model - chassis mount option.
 3. Discontinued model - DIN-rail mount option.

PART NUMBER KEY



INPUT

| parameter | conditions/description | min | typ | max | units |
|----------------------|------------------------|-----|-----|------|-------|
| voltage | ac input | 85 | | 305 | Vac |
| | dc input | 100 | | 430 | Vdc |
| frequency | | 47 | | 63 | Hz |
| current ¹ | 115 Vac | | | 0.15 | A |
| | 230 Vac | | | 0.10 | A |
| inrush current | 115 Vac | | 10 | | A |
| | 230 Vac | | 20 | | A |
| leakage current | | | | 5 | mA |

Note 1: Recommended input fuse - 1A/300V, slow blow

OUTPUT

| parameter | conditions/description | min | typ | max | units |
|-------------------------|------------------------|-----|------|-------|-------|
| capacitive load | 3.3 Vdc | | | 4,000 | μF |
| | 5 Vdc | | | 4,000 | |
| | 9 Vdc | | | 1,000 | |
| | 12 Vdc | | | 820 | |
| | 15 Vdc | | | 820 | |
| | 24 Vdc | | | 470 | |
| output voltage accuracy | 3.3 V | | ±3 | | % |
| | all other models | | ±2 | | % |
| line regulation | rated load | | ±0.5 | | % |
| load regulation | 0~100% load | | ±1.0 | | % |
| hold-up time | 115 Vac input | | 8 | | ms |
| | 230 Vac input | | 60 | | ms |
| switching frequency | | | 100 | | kHz |

PROTECTIONS

| parameter | conditions/description | min | typ | max | units |
|--------------------------|--------------------------------|-----|-----|-----|-------|
| over voltage protection | 3.3/5 Vdc output | | | 7.5 | V |
| | 9 Vdc output | | | 15 | V |
| | 12/15 Vdc output | | | 20 | V |
| | 24 Vdc output | | | 30 | V |
| over current protection | self recovery | 110 | | | % |
| short circuit protection | output shutdown, auto recovery | | | | |

SAFETY & COMPLIANCE

| parameter | conditions/description | min | typ | max | units |
|--------------------|---|---------|-----|-----|-------|
| isolation voltage | for 1 minute, 5mA | 4,000 | | | Vac |
| safety approvals | UL/EN/IEC 62368 | | | | |
| safety class | Class II | | | | |
| EMI/EMC | CISPR32/EN55032: Class B (no external components required) | | | | |
| ESD | IEC/EN 61000-4-2: Contact ±6KV/ Air ±8KV, perf. Criteria B | | | | |
| radiated immunity | IEC/EN 61000-4-3: 10V/m, perf. Criteria A | | | | |
| EFT/burst | IEC/EN 61000-4-4: ±2KV, perf. Criteria B | | | | |
| | IEC/EN 61000-4-4: ±4KV, perf. Criteria B, see recommended EMC circuit | | | | |
| surge | IEC/EN 61000-4-5: line to line ±1KV, perf. Criteria B | | | | |
| | IEC/EN 61000-4-5: line to line ±2kV, line to ground ±4kV, perf. Criteria B, see recommended EMC circuit | | | | |
| conducted immunity | IEC/EN 61000-4-6: 10Vr.m.s, perf. Criteria A | | | | |
| voltage dips | IEC/EN 61000-4-11: 0%, 70% | | | | |
| MTBF | MIL-HDBK-217F@25°C | 300,000 | | | hours |
| RoHS | yes | | | | |

ENVIRONMENTAL

| parameter | conditions/description | min | typ | max | units |
|-----------------------|------------------------|-----|-----|-----|-------|
| operating temperature | | -40 | | 70 | °C |
| storage temperature | | -40 | | 85 | °C |
| storage humidity | | 0 | | 95 | % |

SOLDERABILITY

| parameter | conditions/description | min | typ | max | units |
|----------------|------------------------|-----|-----|-----|-------|
| wave soldering | | | | 260 | °C |
| hand soldering | 3~5 seconds max | | | 360 | °C |

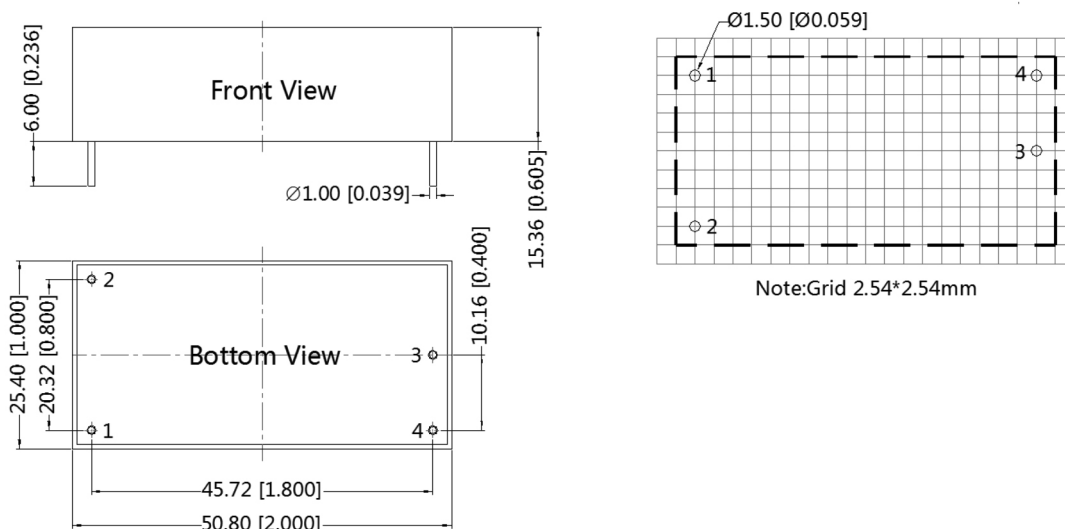
MECHANICAL

| parameter | conditions/description | min | typ | max | units |
|---------------|---|-----|-----|-----|-------|
| dimensions | DIP: 50.80 x 25.40 x 15.36 | | | | mm |
| | chassis mount: 76.00 x 31.50 x 24.16 | | | | mm |
| | DIN rail: 76.00 x 31.50 x 28.76 | | | | mm |
| weight | DIP | | 31 | | g |
| | chassis mount | | 52 | | g |
| | DIN rail | | 70 | | g |
| case material | Black plastic, flame-retardant and heat-resistant (UL94V-0) | | | | |

MECHANICAL DRAWING (BOARD MOUNT)

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

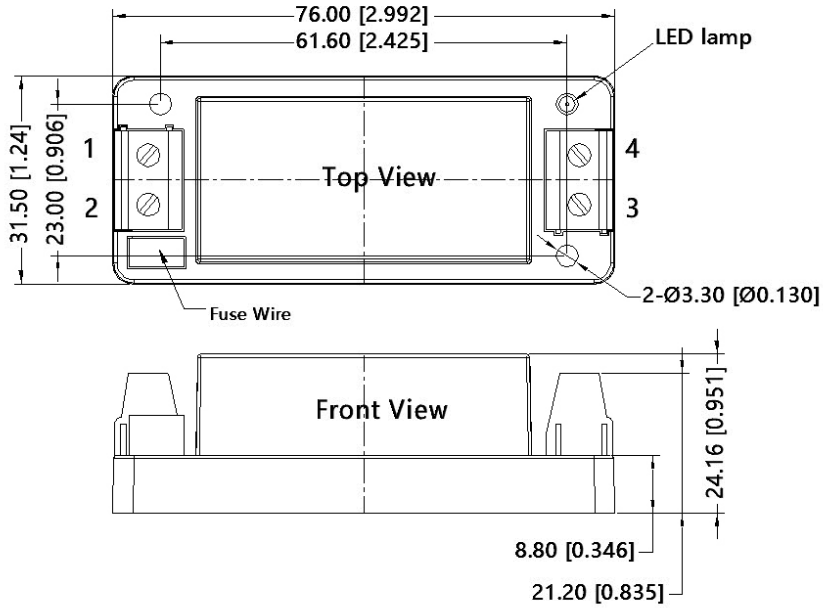
| PIN CONNECTIONS | |
|-----------------|----------|
| PIN | Function |
| 1 | AC(N) |
| 2 | AC(L) |
| 3 | -Vo |
| 4 | +Vo |



MECHANICAL DRAWING (CHASSIS MOUNT)

units: mm [inch]
 tolerance: ± 0.50 [± 0.020]
 wire range: 24~12 AWG
 tightening torque: Max 0.4 N·m

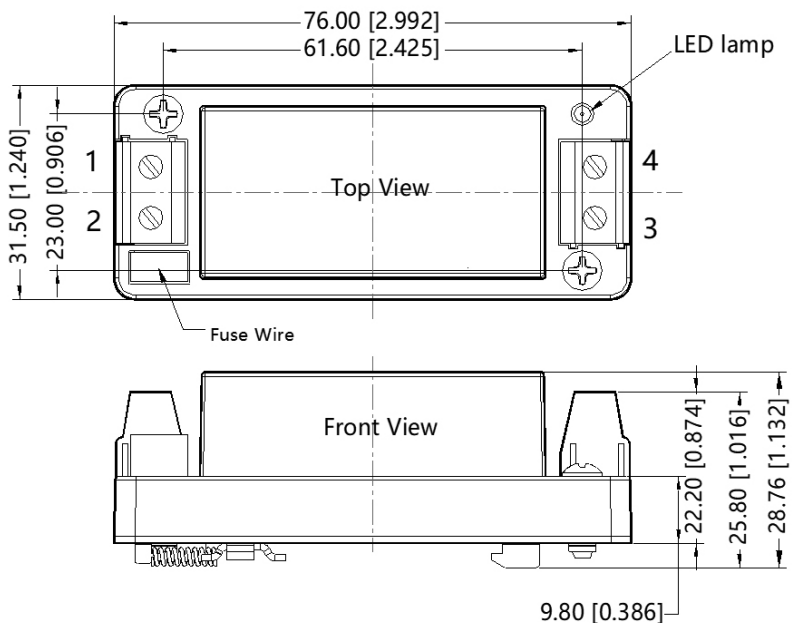
| PIN CONNECTIONS | |
|-----------------|----------|
| PIN | Function |
| 1 | AC(N) |
| 2 | AC(L) |
| 3 | -Vo |
| 4 | +Vo |



MECHANICAL DRAWING (DIN-RAIL MOUNT)

units: mm [inch]
 tolerance: ± 0.50 [± 0.020]
 wire range: 24~12 AWG
 tightening torque: Max 0.4 N·m
 mounting rail: TS35, rail needs to connect safety ground

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



TYPICAL APPLICATION CIRCUIT

Output Filter Components:

We recommend using an electrolytic capacitor with high frequency, and low ESR rating for C2 (refer to manufacture’s datasheet). Choose a Capacitor voltage rating with at least 20% margin, in other words not exceeding 80%. C1 is a ceramic capacitor used for filtering high-frequency noise and TVS is a recommended suppressor diode to protect the application in case of a converter failure.

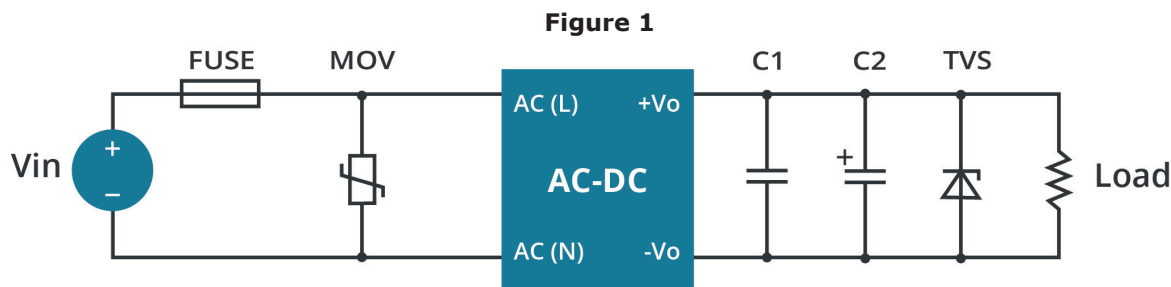


Table 1

| Part No. | C1(μ F) | C2(μ F) | FUSE | MOV | TVS |
|-----------|--------------|--------------|------------------------------------|---------|---------|
| PSK-5W-3 | 1 | 220 | 1A/300V, slow-blow, required | S14K350 | SMBJ7A |
| PSK-5W-5 | | 220 | | | SMBJ7A |
| PSK-5W-9 | | 100 | | | SMBJ12A |
| PSK-5W-12 | | 100 | | | SMBJ20A |
| PSK-5W-15 | | 100 | | | SMBJ20A |
| PSK-5W-24 | | 47 | | | SMBJ30A |

EMC RECOMMENDED CIRCUIT

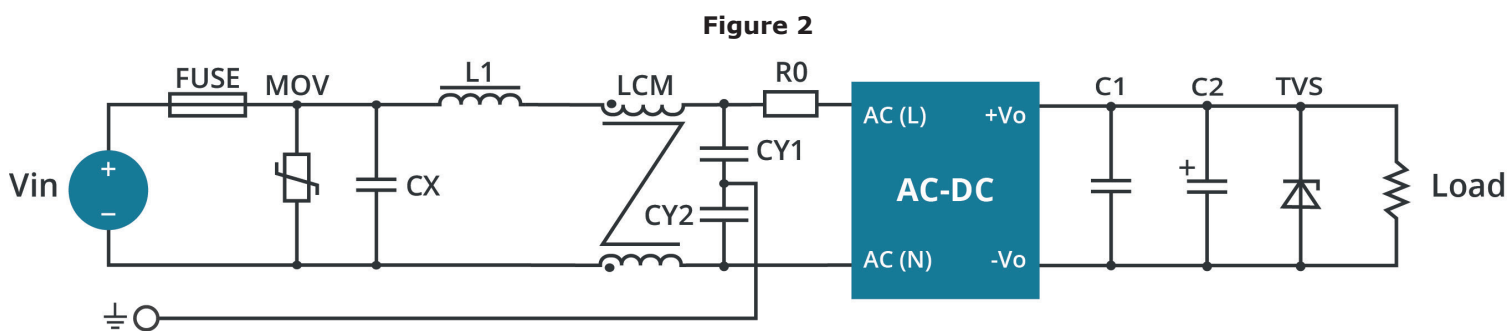
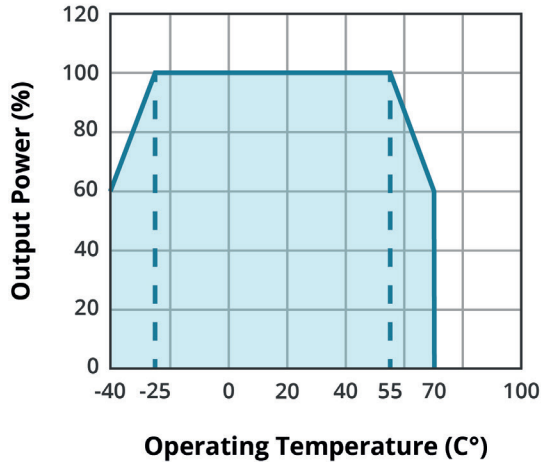


Table 2

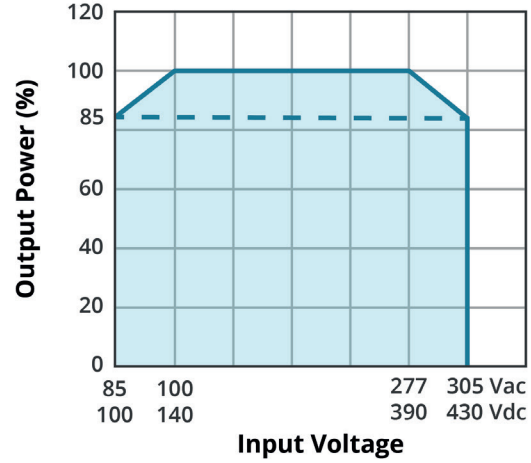
| Components | Recommended Value |
|------------|------------------------------|
| MOV | S14K350 |
| CX | 0.1 μ F/310VAC |
| L1 | 4.7 μ H/2.0A |
| CY1 | 1nF/400VAC |
| CY2 | 1nF/400VAC |
| LCM | 2.2mH |
| FUSE | 2A/300V, slow-blow, required |
| R0 | 33 Ω /3W |

DERATING CURVE

TEMPERATURE DERATING CURVE
(85~305 Vac/100~430 Vdc)

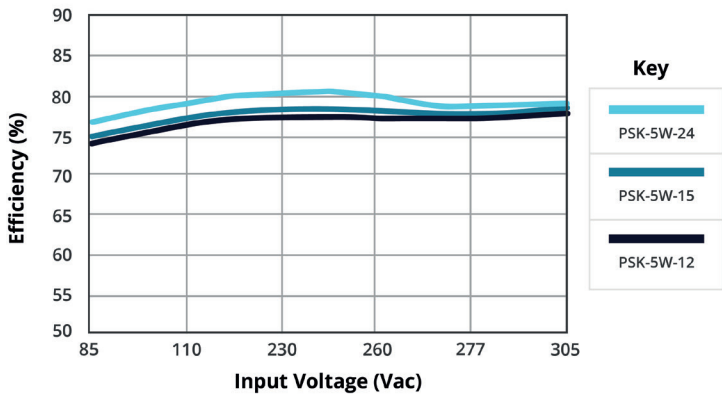


TEMPERATURE DERATING CURVE
(25°C)

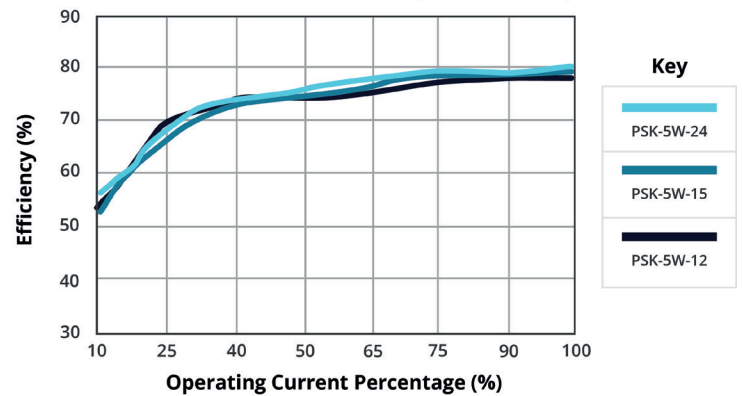


EFFICIENCY CURVES

EFFICIENCY VS INPUT VOLTAGE (Full load)



EFFICIENCY VS OUTPUT LOAD (Vin = 277 Vac)



REVISION HISTORY

| rev. | description | date |
|------|---|------------|
| 1.0 | initial release | 06/29/2020 |
| 1.01 | mechanical drawings updated | 12/03/2020 |
| 1.02 | figure and circuit drawings updated | 02/24/2021 |
| 1.03 | discontinued models PSK-5W-3, PSK-5W-9, PSK-5W-12, PSK-5W-15, PSK-5W-3-T, PSK-5W-12-T, PSK-5W-15-T, PSK-5W-3-DIN, PSK-5W-5-DIN, PSK-5W-12-DIN, PSK-5W-15-DIN, PSK-5W-24-DIN | 07/01/2022 |
| 1.04 | discontinued models PSK-5W-3-DIN, PSK-5W-5, PSK-5W-5-T, PSK-5W-9-T, PSK-5W-9-DIN, PSK-5W-24, PSK-5W-24-T | 09/13/2022 |

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



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