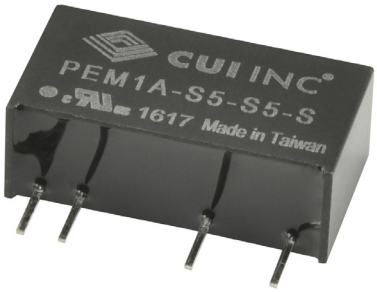
# **SERIES:** PEM1A-S | **DESCRIPTION:** DC-DC CONVERTER

## FEATURES

- up to 1 W isolated output
- industry standard SIP 7 package
- 1:1 input range
- single unregulated output
- 4,000 Vdc isolation voltage
- -40 to 85°C temperature range
- efficiency up to 70%
- UL/cUL certified



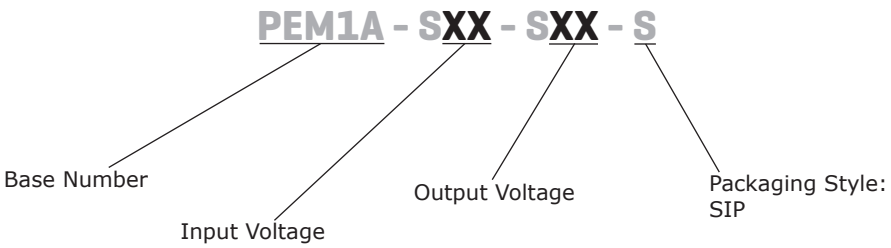

RoHS c US

## MODEL

| MODEL | input voltage typ (Vdc) | input voltage range (Vdc) | output voltage (Vdc) | output current max (mA) | output power max (W) | ripple & noise[1] max (mVp-p) | efficiency typ (%) |
|---|---|---|---|---|---|---|---|
| PEM1A-S5-S5-S | 5 | 4.5~5.5 | 5 | 200 | 1 | 100 | 70 |

Notes: 1. At full load, nominal input, 20 MHz bandwidth oscilloscope, output terminated with a 0.1 µF multilayer low ESR ceramic capacitor.
2. All specifications measured at Ta=25°C, nominal input voltage, rated output load, and after warm up unless otherwise specified.

## PART NUMBER KEY






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## INPUT

| parameter | conditions/description | min | typ | max | units |
|---|---|---|---|---|---|
| operating input voltage | | 4.5 | 5 | 5.5 | Vdc |

## OUTPUT

| parameter | conditions/description | min | typ | max | units |
|---|---|---|---|---|---|
| maximum capacitive load[1] | | | | 1200 | µF |
| voltage accuracy | at full load, Vin nominal,<br>see tolerance envelope curves | | | ±5 | % |
| line regulation | for Vin change of 1%<br>measured from low to high line, full load | | ±1.2 | | % |
| load regulation | measured from 10~100% load | | ±12 | ±15 | % |
| switching frequency | at Vin nominal | 50 | 65 | 105 | kHz |

Note: 1. Maximum capacitive load is defined as the capacitive load that will allow start up in under 1 second without damage.

## SAFETY AND COMPLIANCE

| parameter | conditions/description | min | typ | max | units |
|---|---|---|---|---|---|
| isolation voltage | input to output for 1 second | | 4,000 | | Vdc |
| isolation resistance | at 500 Vdc | 1,000 | | | MΩ |
| isolation capacitance | | | | 75 | pF |
| safety approvals | UL/cUL (60950-1, 2nd Edition) | | | | |
| MTBF | as per MIL-HDBK-217F, full load, 25°C<br>as per MIL-HDBK-217F, full load, 85°C | 850,000<br>123,000 | | | hours<br>hours |
| RoHS | yes | | | | |

## ENVIRONMENTAL

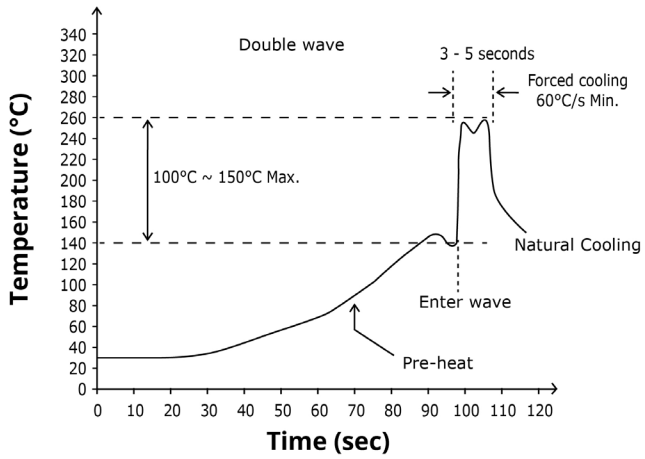
| parameter | conditions/description | min | typ | max | units |
|---|---|---|---|---|---|
| operating temperature | | -40 | | 85 | °C |
| storage temperature | | -55 | | 125 | °C |
| operating humidity | non-condensing | | | 95 | % |

## SOLDERABILITY

| parameter | conditions/description | min | typ | max | units |
|---|---|---|---|---|---|
| wave soldering | see wave solder profile | | | 260 | °C |

Note: 2. The wave solder profile is measured on lead temperature.
3. Need to keep the solder parts internal temperature less than about 210°C.

***WAVE SOLDERING PROFILE***
***(Lead-free)***






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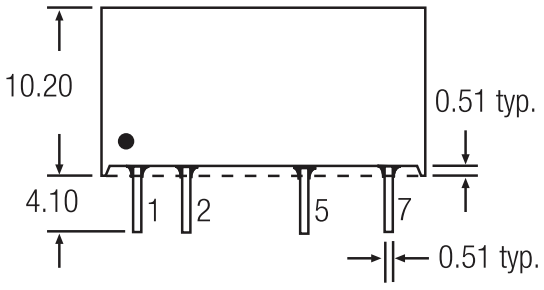
## MECHANICAL

| parameter | conditions/description | min | typ | max | units |
|---|---|---|---|---|---|
| dimensions | 19.60 x 7.05 x 10.20 | | | | mm |
| case material | non-conductive black plastic (UL94V-0) | | | | |
| weight | | | 2.7 | | g |

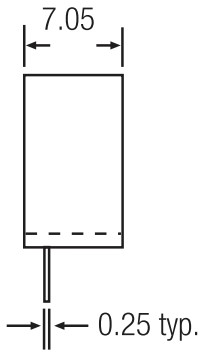
## MECHANICAL DRAWING

units: mm
tolerance: X.X = ±0.5 mm
X.XX = ±0.25 mm

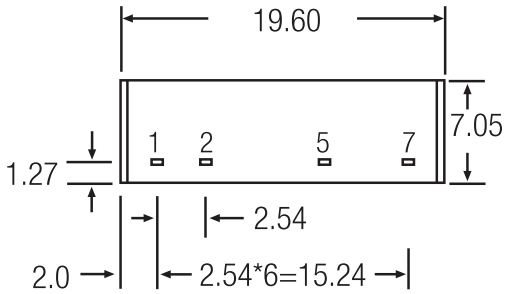
| PIN CONNECTIONS | |
|---|---|
| PIN | Function |
| 1 | +Vin |
| 2 | -Vin |
| 5 | -Vout |
| 7 | +Vout |



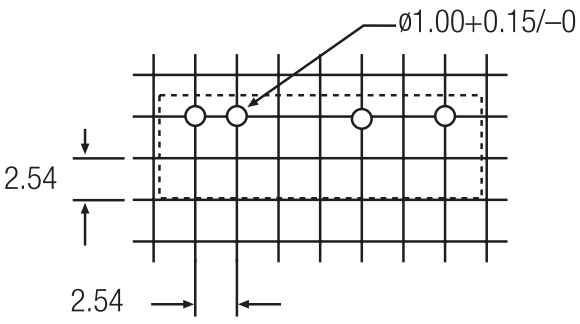

Front View




Side View




Bottom View



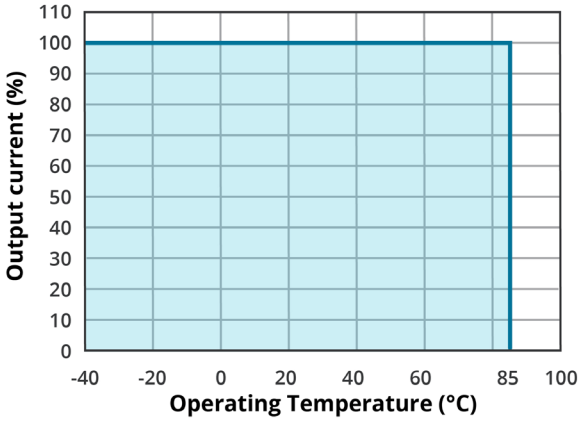

Recommended PCB Layout
Top View



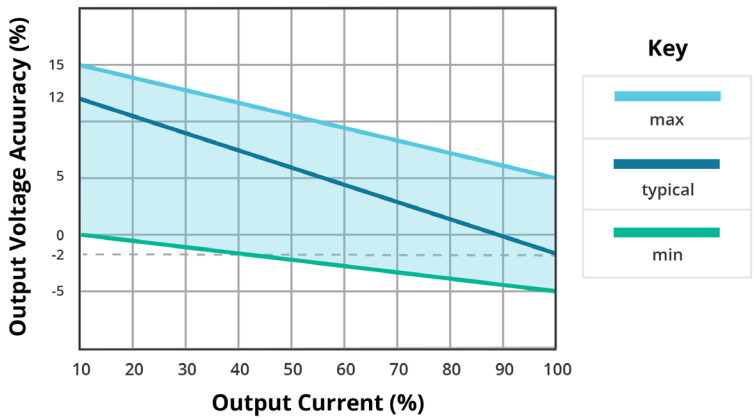
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## PERFORMANCE CURVES

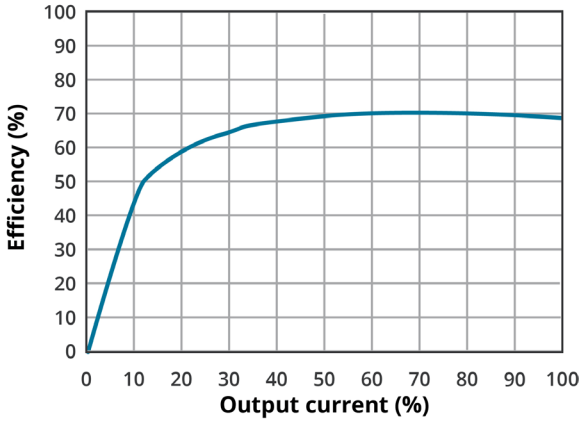
***TEMPERATURE DERATING CURVE***




***OUTPUT REGULATION CURVE (nominal input)***



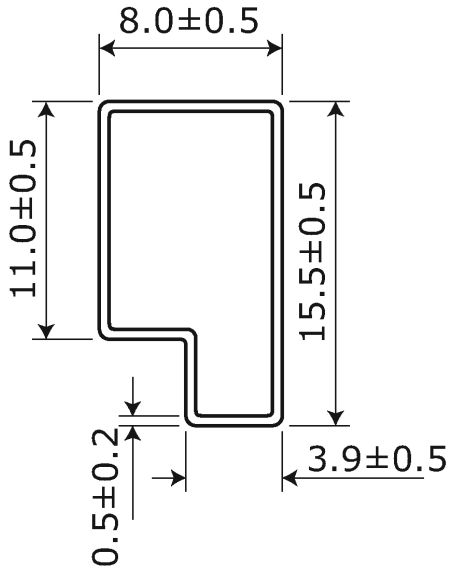

***EFFICIENCY VS OUTPUT LOAD***




## PACKAGING

units: mm

Tube Size: 15.5 x 8 x 520 mm
QTY: 25 pcs






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## REVISION HISTORY

| rev. | description | date |
|---|---|---|
| 1.0 | initial release | 07/25/2016 |
| 1.01 | company logo updated | 03/30/2021 |
| 1.02 | performance curves updated | 07/08/2021 |
| 1.03 | company address updated | 11/05/2024 |
| 1.05 | datasheet updated | 04/24/2025 |
| 1.06 | derating curve added | 03/25/2026 |

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

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

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