

**CUI INC**

a bel group

date 07/18/2023

page 1 of 5

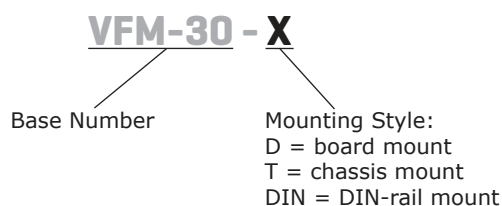
**SERIES: VFM-30 | DESCRIPTION: DC POWER LINE FILTER****FEATURES**

- ensures surge compliance to IEC/EN61000-4-5 standard  
±2 kV (2Ω) / ±4 kV (12Ω)
- reduces emissions to help comply with CISPR22 / EN 55022 Class B
- accepts up to 1.5 A (rms) of nominal input current
- wide input voltage range (10~36 Vdc)
- wide operating temperature range (-40 to +85 °C)
- options for board-mount, chassis-mount, or DIN-Rail mounting

**SPECIFICATIONS**

| parameter             | conditions/description  | min | typ       | max | units |
|-----------------------|---|-----|-----------|-----|-------|
| input voltage         |   | 10  | 24        | 36  | Vdc   |
| output power          |   |     |           | 30  | W     |
| no load input current | at 24 Vdc   |     |           | 10  | mA    |
| efficiency            | at 24 Vdc, full load  |     | 98        |     | %     |
| isolation voltage     | +Vin to GND, -Vin to GND, at 1 minute and leakage current 5 mA max        |     |           | 500 | Vac   |
| conducted emissions   | CISPR22/EN55022, 150 kHz ~ 30 MHz class B                                 |     |           |     |       |
| radiated emissions    | CISPR22/EN55022, 30 MHz ~ 1 GHz class B                                   |     |           |     |       |
| ESD                   | IEC/EN61000-4-2, air ±8 kV, contact ± 6kV, class B                        |     |           |     |       |
| radiated immunity     | IEC/EN61000-4-3, 10 V/m, class A  |     |           |     |       |
| EFT/burst             | IEC/EN61000-4-4, ±4 kV(5 kHz, 100 kHz), class B                           |     |           |     |       |
| surge                 | IEC/EN61000-4-5, ±2 kV (1.2μs/50μs 2Ω)/±4 kV (1.2 μs/50 μs 12 Ω), class B |     |           |     |       |
| conducted immunity    | IEC/EN61000-4-6, 10 Vr.m.s, class A                                       |     |           |     |       |
| MTBF                  | as per MIL-HDBK-217F, 40°C  |     | 1,000,000 |     | hours |
| RoHS                  | yes   |     |           |     |       |
| operating temperature |   | -40 |           | 85  | °C    |
| storage temperature   |   | -55 |           | 125 | °C    |
| storage humidity      | non-condensing  | 5   |           | 95  | %     |

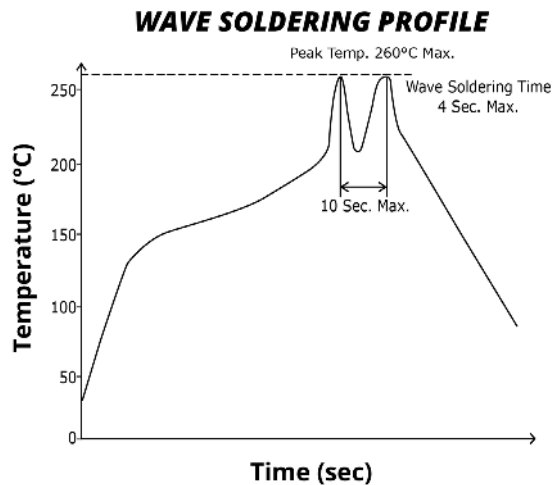
Notes: 1. All specifications are measured at Ta=25°C, humidity &lt; 75%, nominal input voltage, and rated load, unless otherwise specified.

**PART NUMBER KEY**

## SOLDERABILITY<sup>2</sup>

| parameter      | conditions/description     | min | typ | max | units |
|----------------|----------------------------|-----|-----|-----|-------|
| hand soldering | for 3~5 seconds            | 350 | 360 | 370 | °C    |
| wave soldering | see wave soldering profile |     |     | 260 | °C    |

Note: 2. For board mount models only.



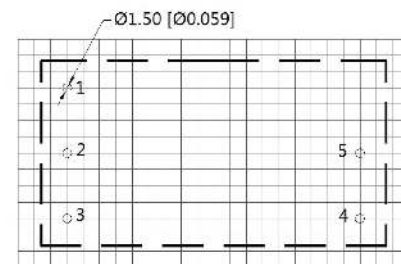
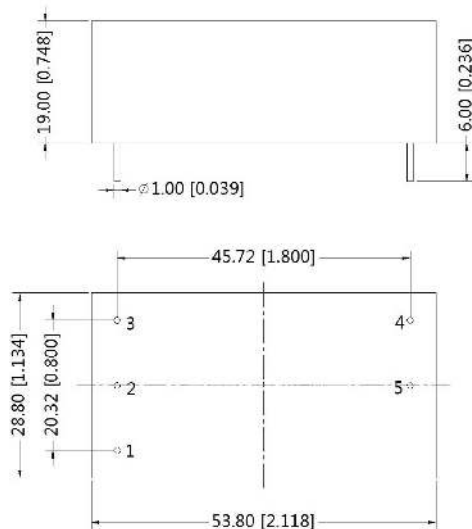
## MECHANICAL

| parameter     | conditions/description   | min | typ            | max | units |
|---------------|--|-----|----------------|-----|-------|
| dimensions    | board mount: 53.80 x 28.80 x 19.00 [2.118 x 1.134 x 0.748 inch]<br>chassis mount: 76.00 x 31.50 x 27.80 [2.992 x 1.240 x 1.094 inch]<br>DIN-Rail mount: 76.00 x 31.50 x 32.40 [2.992 x 1.240 x 1.276 inch] |     |                |     | mm    |
| case material | black flame-retardant heat-proof epoxy resin (UL94V-0)   |     |                |     |       |
| weight        | board mount<br>chassis mount<br>DIN-rail mount   |     | 50<br>70<br>90 |     | g     |

## MECHANICAL DRAWING (BOARD MOUNT)

units: mm [inch]  
tolerance: ±0.50[±0.020]  
pin diameter tolerance: ±0.10[±0.004]

| PIN CONNECTIONS |          |
|-----------------|----------|
| PIN             | Function |
| 1               | GND      |
| 2               | -Vin     |
| 3               | +Vin     |
| 4               | +Vout    |
| 5               | -Vout    |



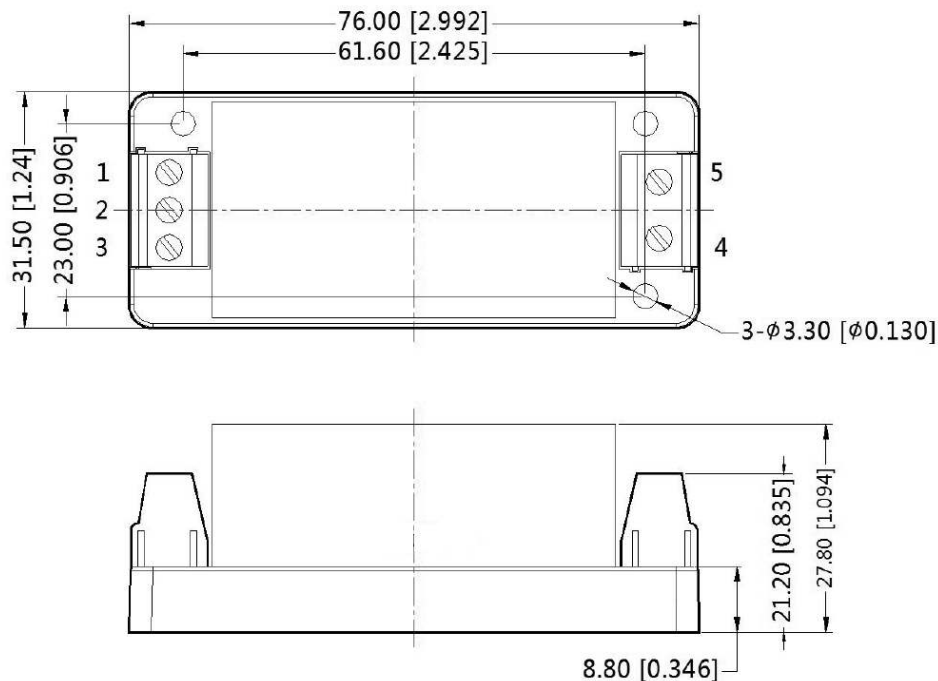
Note : Grid 2.54\*2.54mm  
Recommended PCB Layout  
Top View

## MECHANICAL DRAWING (CHASSIS MOUNT)

units: mm [inch]  
tolerance:  $\pm 0.50$  [ $\pm 0.020$ ]

wire range: 24~12 AWG  
tightening torque: 0.4 N\*m max

| PIN CONNECTIONS |          |
|-----------------|----------|
| PIN             | Function |
| 1               | GND      |
| 2               | -Vin     |
| 3               | +Vin     |
| 4               | +Vout    |
| 5               | -Vout    |

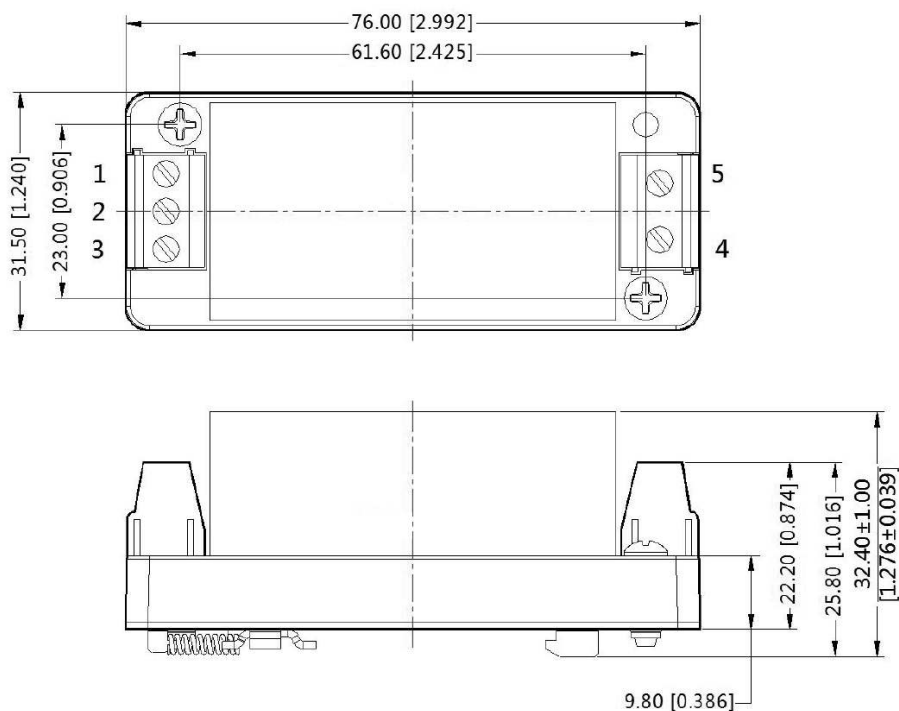


## MECHANICAL DRAWING (DIN-RAIL MOUNT)

units: mm [inch]  
tolerance:  $\pm 0.50$  [ $\pm 0.020$ ]

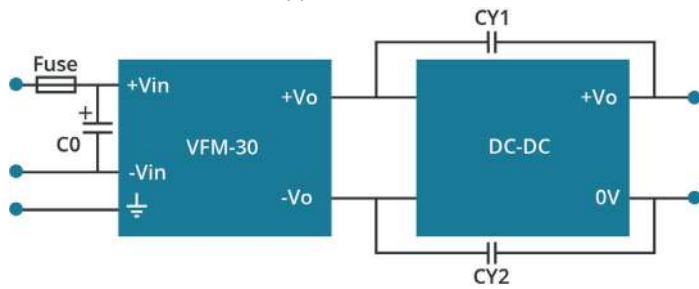
installed on DIN rail TS35  
wire range: 24~12 AWG  
tightening torque: 0.4 N\*m max

| PIN CONNECTIONS |          |
|-----------------|----------|
| PIN             | Function |
| 1               | GND      |
| 2               | -Vin     |
| 3               | +Vin     |
| 4               | +Vout    |
| 5               | -Vout    |



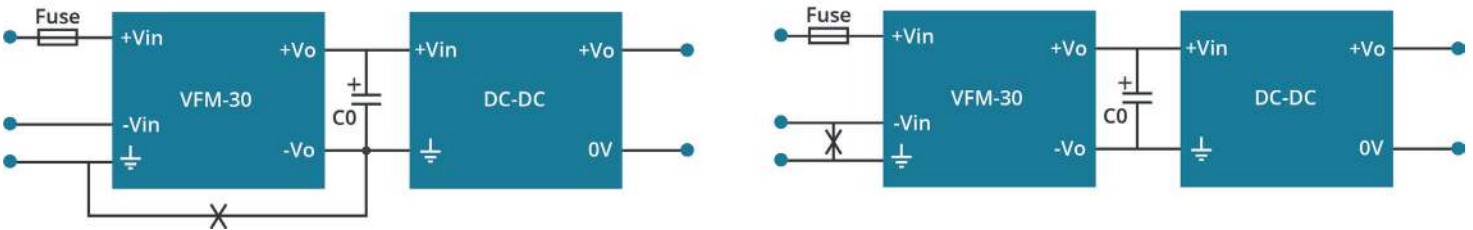
## APPLICATION CIRCUIT

Figure 1  
Application Circuit



| Recommended External Circuit Components |  |
|---|--|
| FUSE                                    | choose according to power module datasheet |
| C0                                      | 400 $\mu$ F / 200 V, electrolytic          |
| CY1, CY2                                | 1 nF / 2 kV                                |

Figure 2  
Non-supported Application for Module



## REVISION HISTORY

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| rev. | description             | date       |
|------|-------------------------|------------|
| 1.0  | initial release         | 11/14/2018 |
| 1.01 | circuit figures updated | 01/14/2022 |
| 1.02 | features updated        | 07/18/2023 |

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.

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.