

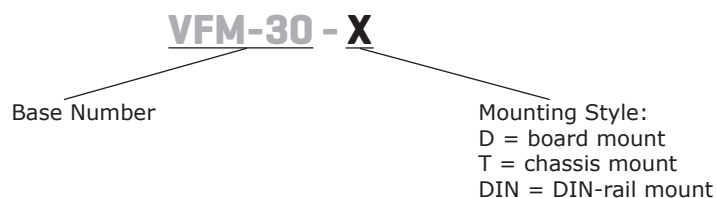
**SERIES: VFM-30 | DESCRIPTION: DC POWER LINE FILTER**
**FEATURES**

- 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
- designed for use with PYBE30-Q24 DC-DC converter


**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 <sup>2</sup> | meets CISPR32 /EN 55032 150 kHz ~ 30 MHz, class B                         |     |           |     |       |
| radiated emissions <sup>2</sup>  | meets CISPR32 /EN 55032 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  | %     |

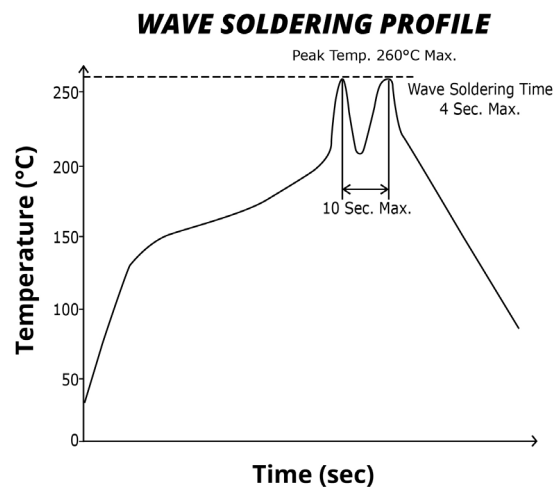
Notes: 1. All specifications are measured at Ta=25°C, humidity < 75%, nominal input voltage, and rated load, unless otherwise specified.  
 2. When paired with PYBE30-Q24 DC-DC converter.

**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.



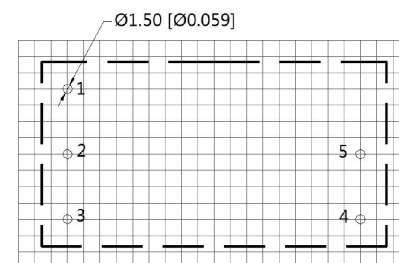
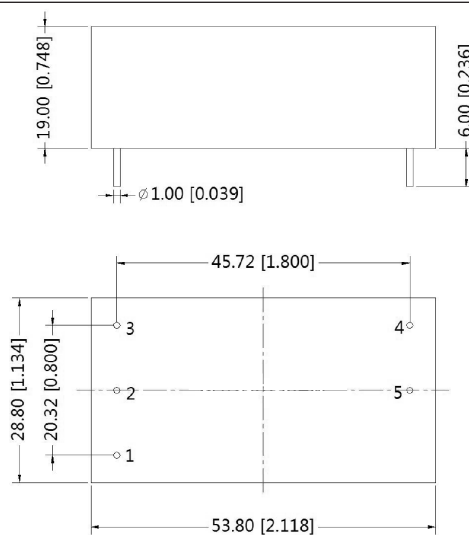
## MECHANICAL

| 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<br>mm<br>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<br>g<br>g    |

## MECHANICAL DRAWING (BOARD MOUNT)

units: mm [inch]  
tolerance:  $\pm 0.50$  [ $\pm 0.020$ ]  
pin diameter tolerance:  $\pm 0.10$  [ $\pm 0.004$ ]

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



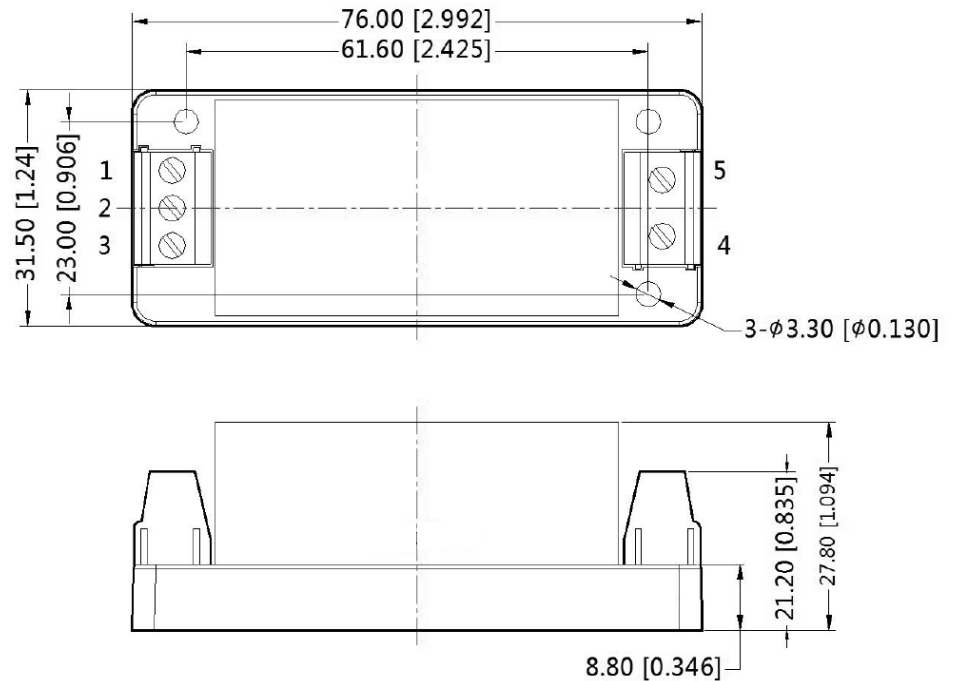
Note : Grid 2.54\*2.54mm  
Recommended PCB Layout  
Top View

## 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    |

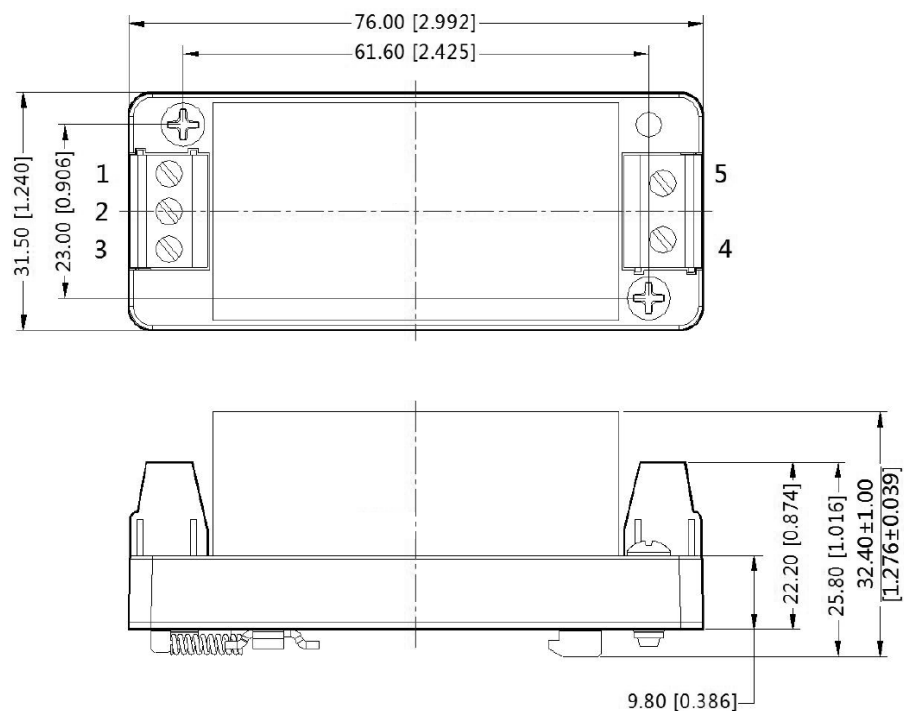


## MECHANICAL DRAWING (DIN-RAIL MOUNT)

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

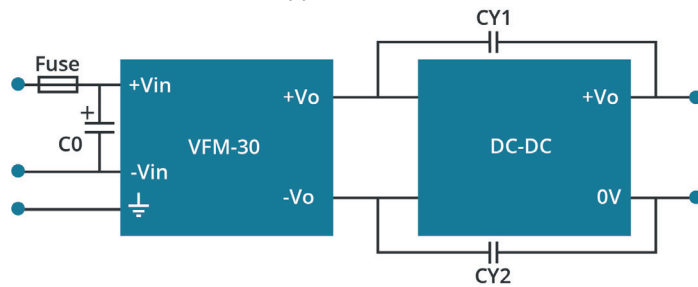
installed on DIN rail TS35  
wire range: 24~12 AWG  
tightening torque: 0.4 N\*m max

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



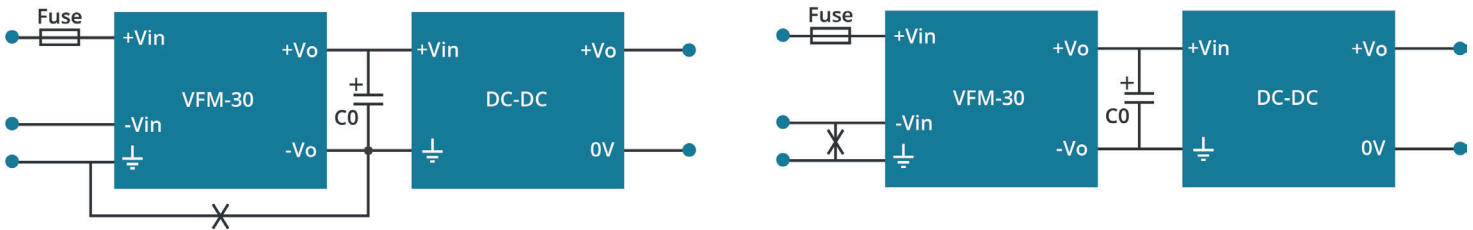
## APPLICATION CIRCUIT

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

| rev. | description             | date       |
|------|-------------------------|------------|
| 1.0  | initial release         | 11/14/2018 |
| 1.01 | circuit figures updated | 01/14/2022 |
| 1.02 | features updated        | 09/12/2023 |

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

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