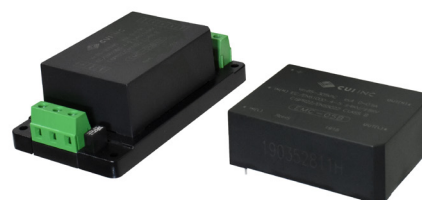


SERIES: EMC-05B | **DESCRIPTION:** AC POWER LINE FILTER

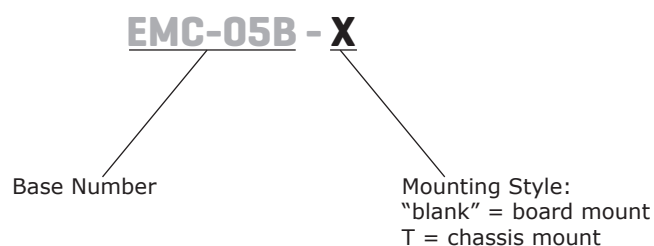
FEATURES

- reduces emissions to help comply with CISPR22 / EN 55022 Class B
- protects against surge events and Electrical Fast Transients
- wide input voltage range (85 ~ 305 Vac)
- 0.5 A rated current
- -40 to +85°C temperature range
- options for board and chassis mounting

**SPECIFICATIONS**

| parameter | conditions/description | min | typ | max | units |
|----------------------------------|---|-----|-----|-----|-------|
| input voltage | | 85 | | 305 | Vac |
| input current | | | | 0.5 | A |
| RoHS | yes | | | | |
| operating temperature | | -40 | | 85 | °C |
| storage temperature | | -40 | | 105 | °C |
| storage humidity | non-condensing | | | | |
| case temperature rise | at 220 Vac, 0.05 A | | | 5 | °C |
| | at 220 Vac, 0.25 A | | | 20 | °C |
| | at 220 Vac, 0.5 A | | | 30 | °C |
| leakage current (line to ground) | 2000 Vac, tested for 1 minute | | 2 | | mA |
| noise attenuation | 150 kHz ~ 1 GHz: EMC-05B | | 30 | | dB |
| EFT | IEC/EN61000-4-4 | | ±4 | | kV |
| surge | IEC/EN61000-4-5, +/-4 kV (2 ohms) / +/-6 kV (12 ohms) | | | | |

PART NUMBER KEY



MECHANICAL

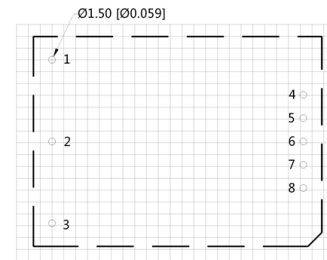
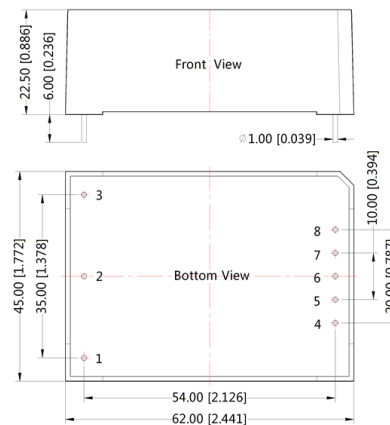
| parameter | conditions/description | min | typ | max | units |
|---------------|--|-----|--------|-----|-------|
| dimensions | board mount - 62.00 x 45.00 x 22.50 [2.44 x 1.77 x 0.89 inch] chassis mount - 96.10 x 54.00 x 31.00 [3.78 x 2.13 x 1.22 inch] | | | | mm |
| case material | black flame-retardant heat-proof epoxy resin (UL94-V0) | | | | |
| weight | board mount, chassis mount | | 85/135 | | g |

MECHANICAL DRAWING (BOARD MOUNT-B)

units: mm [inch]

tolerance: ± 0.50 [± 0.020]pin diameter tolerance: ± 0.50 [± 0.020]

| PIN-OUT | |
|---------|----------|
| PIN | Function |
| 1 | GND |
| 2 | IN(N) |
| 3 | IN(L) |
| 4 | OUT(N) |
| 5, 6, 7 | NC |
| 8 | OUT(L) |



Note: Grid 2.54*2.54mm

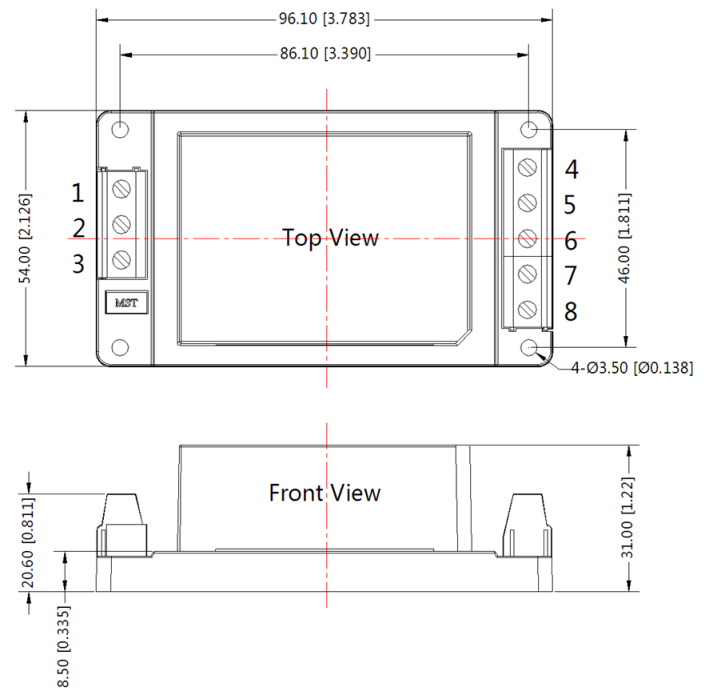
Recommended PCB Layout
Top View

| Supporting Product Table | | | | | | |
|--------------------------|-----------------------------------|----------------------------|-------------------------------|------------------------------|-------------------------------------|-----------------------------------|
| Model | EMI (without external circuit) | EMI (with EMC filter) | EFT (w/o external circuit) | EFT (with EMC filter) | Surge (w/o external circuit) | Surge (with EMC filter) |
| VSK-S1 | CISPR22/EN55022 CLASS B | - | - | IEC/EN61000-4-4 $\pm 2KV$ | - | IEC61000-4-5 $\pm 4KV/\pm 6KV$ |
| VSK-S2 | CISPR22/EN55022 CLASS B | - | - | IEC/EN61000-4-4 $\pm 2KV$ | - | IEC61000-4-5 $\pm 4KV/\pm 6KV$ |
| VSK-S3 | CISPR22/EN55022 CLASS A | CISPR22/EN55022 CLASS B | - | IEC/EN61000-4-4 $\pm 2KV$ | - | IEC61000-4-5 $\pm 4KV/\pm 6KV$ |
| VSK-S5 | CISPR22/EN55022 CLASS A | CISPR22/EN55022 CLASS B | IEC/EN61000-4-4 $\pm 2KV$ | IEC/EN61000-4-4 $\pm 4KV$ | IEC/EN61000-4-5 $\pm 1K/\pm 2KV$ | IEC61000-4-5 $\pm 4KV/\pm 6KV$ |
| VSK-S10 | CISPR22/EN55022 CLASS A | CISPR22/EN55022 CLASS B | IEC/EN61000-4-4 $\pm 2KV$ | IEC/EN61000-4-4 $\pm 4KV$ | IEC/EN61000-4-5 $\pm 1K$ | IEC61000-4-5 $\pm 4KV/\pm 6KV$ |

MECHANICAL DRAWING (CHASSIS MOUNT)

units: mm [inch]
tolerance: ± 0.50 [± 0.020]
wire range: 24~12 AWG
dimensions: 96.1 x 54 x 31 mm

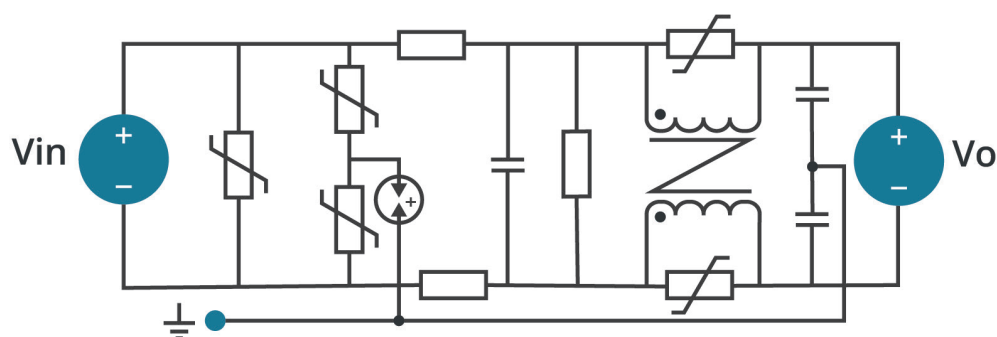
| PIN | Function |
|-----|----------|
| 1 | GND |
| 2 | IN(N) |
| 3 | IN(L) |
| 4 | OUT(N) |
| 5 | NC |
| 6 | NC |
| 7 | NC |
| 8 | OUT(L) |



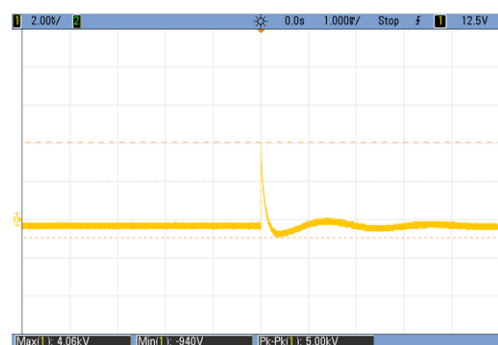
EMC SPECIFICATIONS

The EMC-05B model increases the surge protection to IEC/EN61000-4-5 $\pm 4\text{KV}$ (2Ω internal resistance)/ $\pm 6\text{KV}$ (12Ω internal resistance) levels. This model assists in meeting EMI requirements according to CISPR22 /EN 55022 Class B.

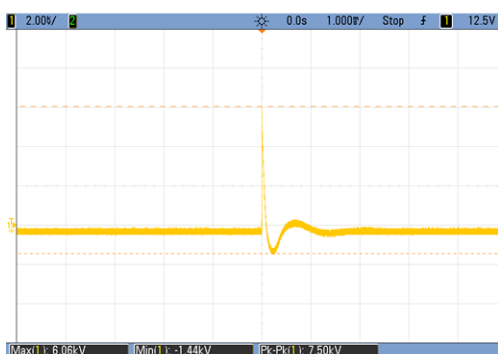
Figure 1
Internal Circuit



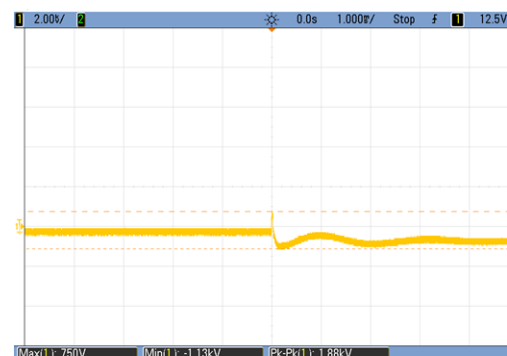
EMC-05B



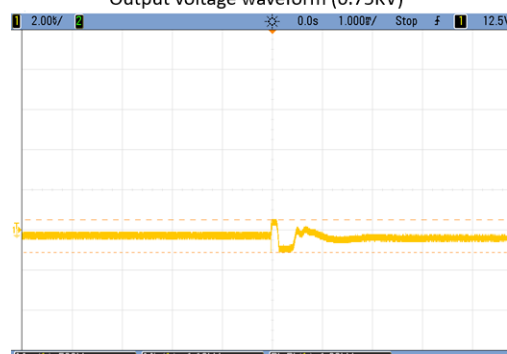
Input voltage waveform (Differential mode 4.06KV)



Input voltage waveform (Common mode 6.06KV)



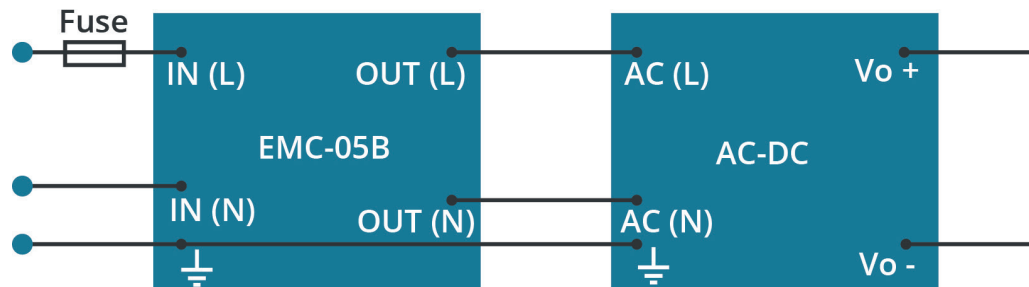
Output voltage waveform (0.75KV)



Output voltage waveform (0.5KV)

APPLICATION CIRCUIT

Figure 2
Application Circuit



REVISION HISTORY

| rev. | description | date |
|------|------------------------------|------------|
| 1.0 | initial release | 12/10/2019 |
| 1.01 | din-rail mount model removed | 04/09/2021 |
| 1.02 | circuit figures updated | 01/12/2022 |

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



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