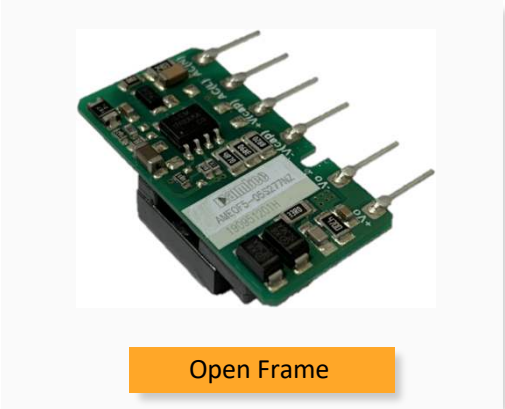


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AMEOF5-277NZ



Open Frame

The AMEOF5-277NZ series is one of Aimtec highly efficient green 5W AC-DC converters. They feature an ultra-wide wide input range accepting either AC or DC voltage, high efficiency, low power consumption and CLASS II reinforced insulation.

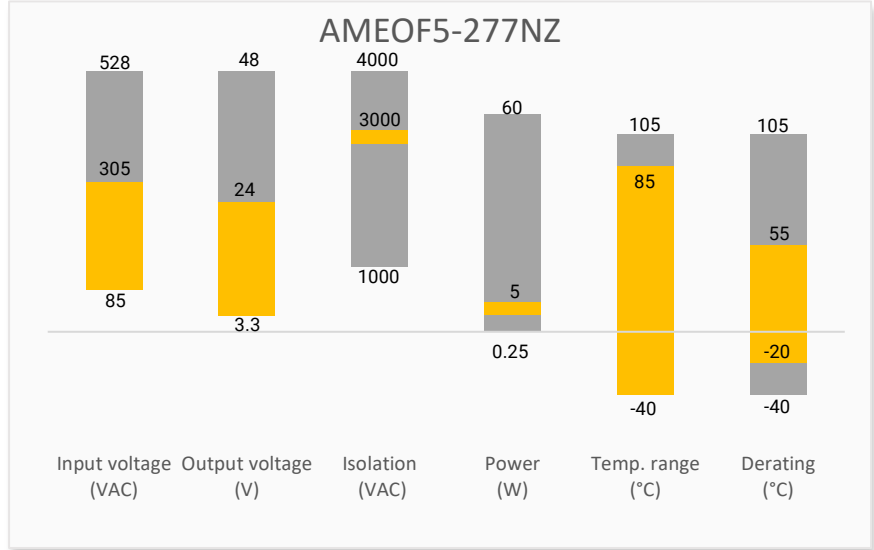
This new series offers great operating temperatures, from -40°C to 85°C and an isolation of 3000VAC for improved reliability and system safety. Furthermore, a high MTBF of 300,000h, output short circuit protection (OSCP), output over-current protection (OCP) come standard with the series.

The converter can be configured to meet class A or class B of the CISPR32/EN55032 standard. This series is suitable for industrial control, electric power, instrumentation and smart home applications with dimensional constraints.

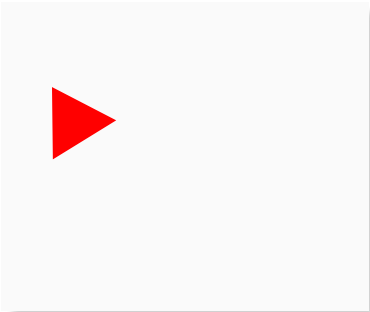
Features

- Universal Input: 85 - 305VAC/70 - 430VDC
- Operating Temp: -40 °C to +85 °C
- High isolation voltage: 3000VAC
- Low ripple & noise, 150mV(p-p), max.
- Output short circuit, over-current protection

Summary



Training



Product Training Video
(click to open)



Application Notes

Applications



Power Grid



Industrial



Instrumentation



IoT

Models & Specifications

| Single Output | | | | | | | |
|------------------|------------------------|---------------------|------------------------|--------------------|------------------------|------------------------------|-------------------------|
| Model | Input Voltage (VAC/Hz) | Input Voltage (VDC) | Max Output wattage (W) | Output Voltage (V) | Output Current max (A) | Maximum capacitive load (μF) | Efficiency @ 230VAC (%) |
| AMEOF5-03S277NZ | 85~305/47~63 | 70~430 | 3.3 | 3.3 | 1 | 2200 | 67 |
| AMEOF5-05S277NZ | 85~305/47~63 | 70~430 | 5 | 5 | 1 | 1500 | 74 |
| AMEOF5-09S277NZ | 85~305/47~63 | 70~430 | 5 | 9 | 0.56 | 680 | 75 |
| AMEOF5-12S277NZ | 85~305/47~63 | 70~430 | 5 | 12 | 0.42 | 470 | 77 |
| AMEOF5-15S277NZ | 85~305/47~63 | 70~430 | 5 | 15 | 0.34 | 330 | 77 |
| AMEOF5-24S277NZ | 85~305/47~63 | 70~430 | 5 | 24 | 0.21 | 100 | 79 |
| AMEOF5-03SL277NZ | 85~305/47~63 | 70~430 | 3.3 | 3.3 | 1 | 2200 | 67 |
| AMEOF5-05SL277NZ | 85~305/47~63 | 70~430 | 5 | 5 | 1 | 1500 | 74 |
| AMEOF5-09SL277NZ | 85~305/47~63 | 70~430 | 5 | 9 | 0.56 | 680 | 75 |
| AMEOF5-12SL277NZ | 85~305/47~63 | 70~430 | 5 | 12 | 0.42 | 470 | 77 |
| AMEOF5-15SL277NZ | 85~305/47~63 | 70~430 | 5 | 15 | 0.34 | 330 | 77 |
| AMEOF5-24SL277NZ | 85~305/47~63 | 70~430 | 5 | 24 | 0.21 | 100 | 79 |

Input Specifications

| Parameters | Conditions | Typical | Maximum | Units |
|----------------|----------------------------|---------|---------|-------|
| Input Current | 115VAC | | 200 | mA |
| | 277VAC | | 100 | |
| Inrush current | 115VAC | 20 | | A |
| | 277VAC | 40 | | |
| Input fuse | 1A Slow-blow type required | | | |

Output Specifications

| Parameters | Conditions | Typical | Maximum | Units |
|------------------|-----------------|---------|---------|--------|
| Voltage accuracy | 10-100% load | ± 5 | | % |
| Line regulation | Full load | ± 1.5 | | % |
| Load regulation | 10-100% load | ± 3 | | % |
| Ripple & Noise | 20MHz bandwidth | 80 | 150 | mV p-p |

Isolation Specifications

| Parameters | Conditions | Typical | Rated | Units |
|--------------------|-----------------|---------|-------|-------|
| Tested I/O voltage | 60 sec, 5mA max | | 3000 | VAC |

General Specifications

| Parameters | Conditions | Typical | Maximum | Units |
|--------------------------|-----------------------------------|-------------|---------|-----------|
| Over Current protection | Auto recovery | ≥ 110 | | % of Iout |
| Short circuit protection | Hiccup, Continuous, Auto recovery | | | |
| Operating temperature | | -40 to +85 | | °C |
| Storage temperature | | -40 to +105 | | °C |

| | | | | |
|---|---|-------|-----|---------|
| Power consumption | 230VAC | 0.25 | 0.5 | W |
| Temperature coefficient | | ±0.15 | | % / °C |
| Power derating | -40 °C to -20°C, 85VAC to 110VAC | 2.50 | | % / °C |
| | +55 °C to +85°C | 1.67 | | |
| | 85VAC to 110VAC | 1.60 | | % / VAC |
| | 277VAC to 305VAC | 0.43 | | |
| Safety class | Class II | | | |
| Cooling | Free air convection | | | |
| Storage Humidity | | | 95 | % RH |
| Weight | | 6 | | g |
| Dimensions (L x W x H) | 1.38 x 0.71 x 0.43 inches (35.00 x 18.00 x 11.00mm) | | | |
| MTBF | > 300 000 hrs (MIL-HDBK -217F, t _a =+25°C)/Full Load | | | |
| NOTE: All specifications in this datasheet are measured at an ambient temperature of 25°C, humidity<75%, nominal input voltage and at rated output load unless otherwise specified. | | | | |

Safety Specifications

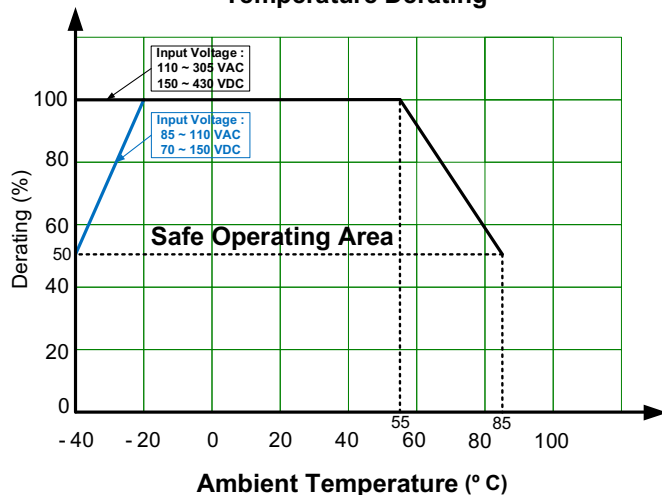
Parameters

| | | | | |
|--|--|--|--|--|
| Agency approvals | UL 62368-1 | | | |
| Standards | Design to meet ICE/EN62368-1, EN60335 | | | |
| | EMC - Conducted and radiated emission | CISPR32 / EN55032 Class A, (With typical application circuit, EMI Class A circuit) CISPR32 / EN55032 Class B, (With EMI Class B circuit) | | |
| | Electrostatic Discharge Immunity | IEC 61000-4-2 Contact ±4KV, Criteria B | | |
| | RF, Electromagnetic Field Immunity | IEC 61000-4-3 10V/m, Criteria A | | |
| | Electrical Fast Transient/Burst Immunity | IEC 61000-4-4 ±2KV, Criteria B (With typical application circuit, EMS Class III circuit) IEC 61000-4-4 ±4KV, Criteria B (With EMS Class IV circuit) | | |
| | Surge Immunity | IEC 61000-4-5 L-L ±1KV, Criteria B (with typical application circuit, EMS Class III and EMI Class A circuit) IEC 61000-4-5 L-L ±2KV, Criteria B (with EMS Class IV and EMI Class A circuit) | | |
| | | IEC 61000-4-5 L-L ±1KV, L-G ±2KV, Criteria B (with EMS Class III and EMI Class B circuit) IEC 61000-4-5 L-L ±2KV, L-G ±4KV, Criteria B (with EMS Class IV and EMI Class B circuit) | | |
| | | IEC 61000-4-5 L-L ±1KV, L-G ±2KV, Criteria B (with EMS Class III and EMI Class B circuit) IEC 61000-4-5 L-L ±2KV, L-G ±4KV, Criteria B (with EMS Class IV and EMI Class B circuit) | | |
| | RF, Conducted Disturbance Immunity | IEC 61000-4-6 10Vr.m.s with EMC recommended circuit, Criteria A | | |
| Voltage dips, Short Interruptions Immunity | IEC 61000-4-11 0%, 70%, with EMC recommended circuit, Criteria B | | | |

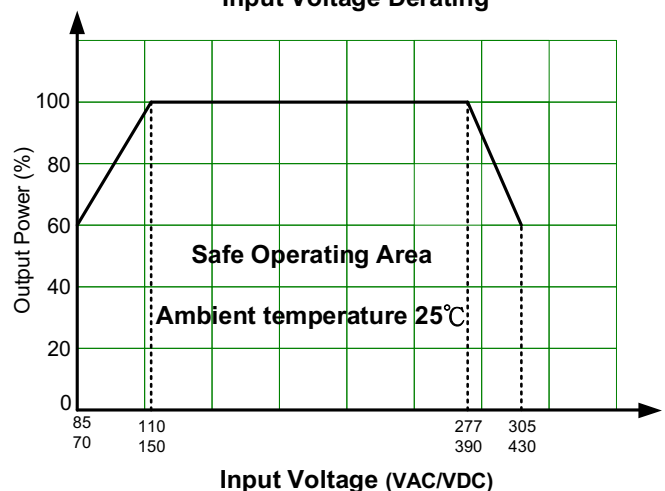
Derating



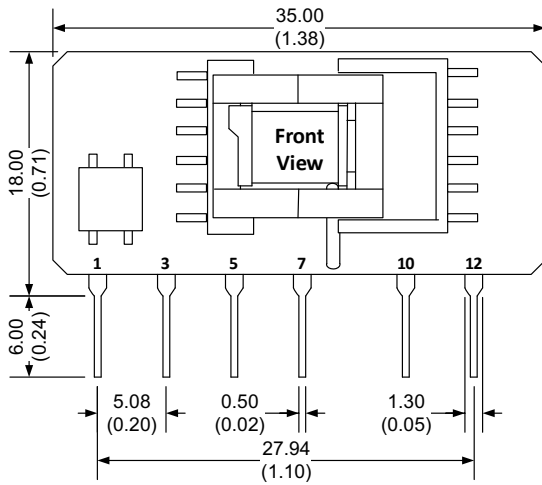
Temperature Derating



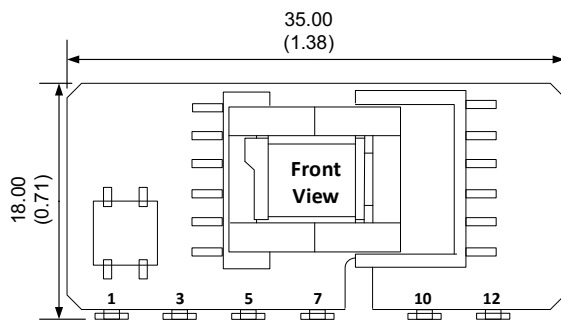
Input Voltage Derating



Dimensions



Note:
Unit: mm [inch]
Pin section tolerances: ± 0.10 [± 0.004]
General tolerances: ± 0.50 [± 0.020]



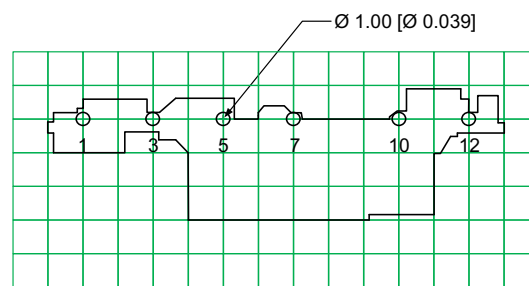
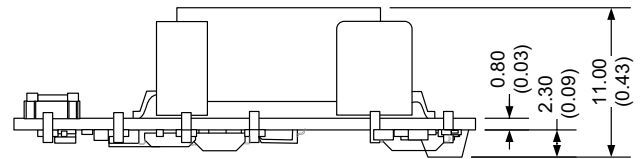
Note:
Unit: mm [inch]
Pin section tolerances: ± 0.10 [± 0.004]
General tolerances: ± 0.50 [± 0.020]

| Pin Output Specifications | |
|---------------------------|--------------|
| Pin | Function |
| 1 | AC Input (N) |
| 3 | AC Input (L) |
| 5 | +V_Cap |
| 7 | -V_Cap |
| 10 | -V Output |
| 12 | +V Output |

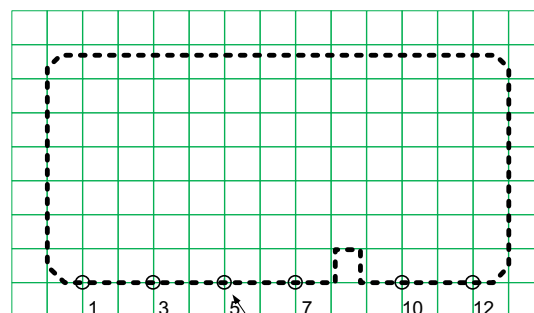
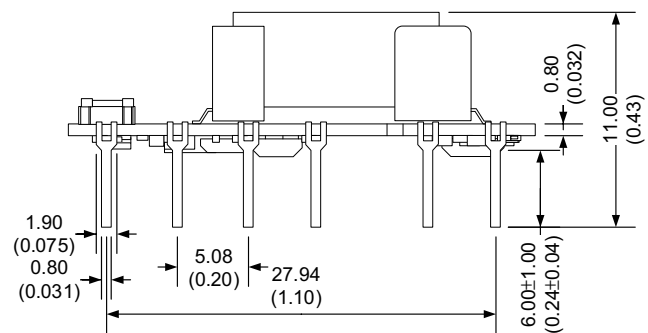
Note:

1. Capacitor between pin5 and pin7 is necessary.
2. External circuit on the output side is necessary. Please refer to the recommended circuit.
3. It is needed to have distance ≥ 6.4 mm for safety between external components in primary circuit and secondary circuit.
4. The layout of the device is for reference only, please refer to the actual product.

Bottom View

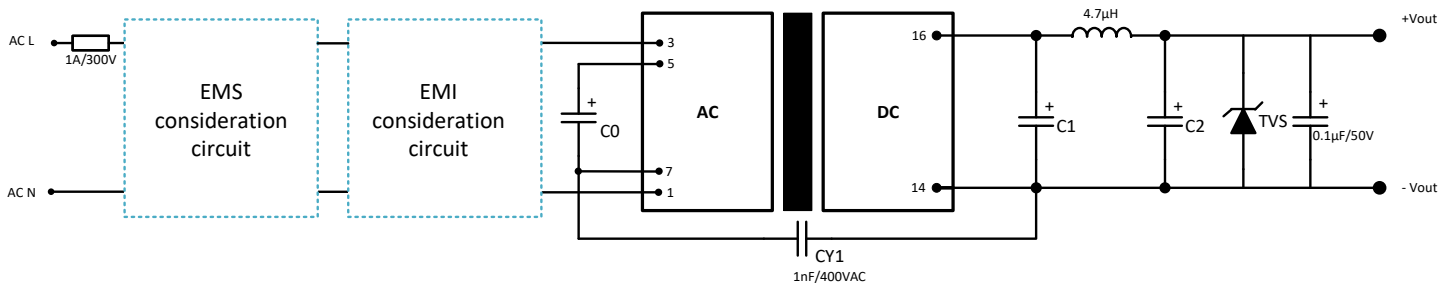


Note : Grid 2.54*2.54 mm



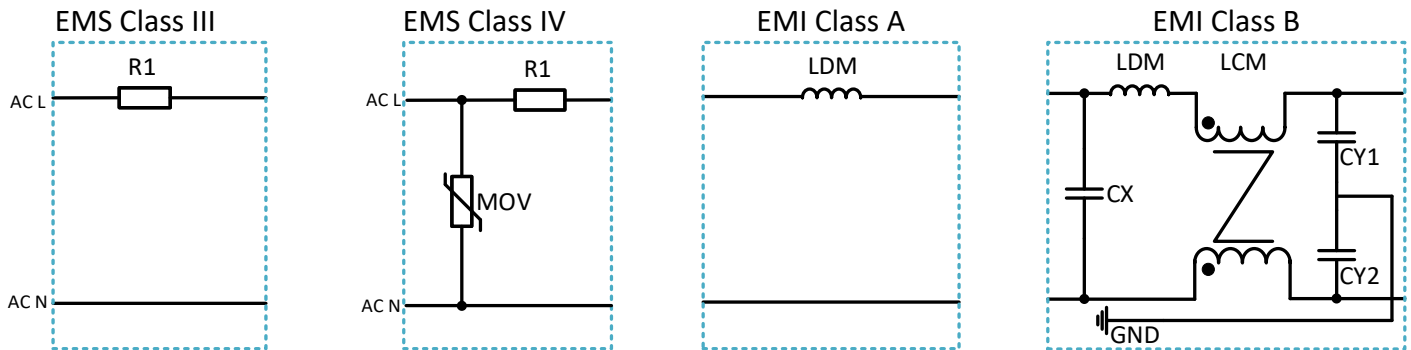
Note : Grid 2.54*2.54 mm $\varnothing 1.20$ [$\varnothing 0.047$]

Recommended EMC external circuit



A suppressor diode (TVS) with 1.2 times of the output voltage rating is recommended.

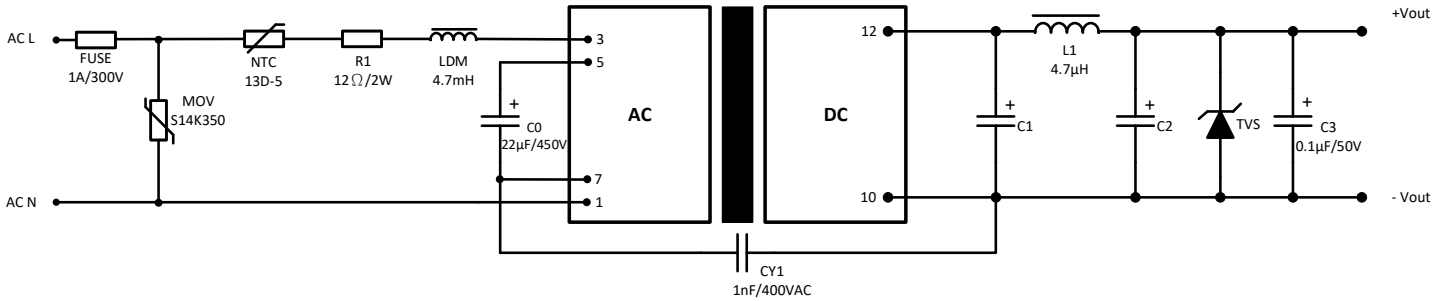
EMI & EMS Recommended Circuit



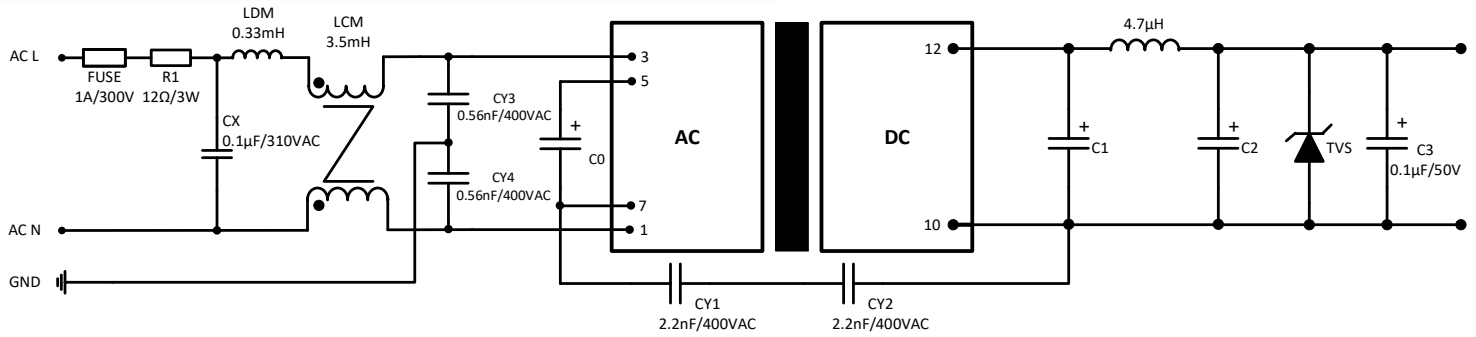
| Component | EMS | | EMI | |
|-----------|-----------|----------|---------|---------------|
| | Class III | Class IV | CLASS A | CLASS B |
| MOV | - | S14K350 | - | - |
| R1 | 12Ω/3W | 12Ω/3W | - | - |
| CX | - | - | - | 0.1µF/310VAC |
| CY1 | - | - | - | 0.56nF/400VAC |
| CY2 | - | - | - | 0.56nF/400VAC |
| LCM | - | - | - | 3.5mH |
| LDM | - | - | 4.7mH | 0.33mH |
| FUSE | 1A/300V | 2A/300V | 1A/300V | 1A/300V |

| Model | C0 | C1 | C2 |
|----------------|--|-----------------------------|-----------|
| 3.3 VDC output | 10µF/450V (-20°C to +85°C) 22µF/450V (-40°C to +85°C) | 470µF/16V (Solid capacitor) | 150µF/35V |
| 5 VDC output | | 470µF/16V (Solid capacitor) | 150µF/35V |
| 9 VDC output | | 270µF/16V (Solid capacitor) | 100µF/35V |
| 12 VDC output | | 270µF/16V (Solid capacitor) | 100µF/35V |
| 15 VDC output | | 470µF/35V | 47µF/35V |
| 24 VDC output | | 220µF/35V | 47µF/35V |

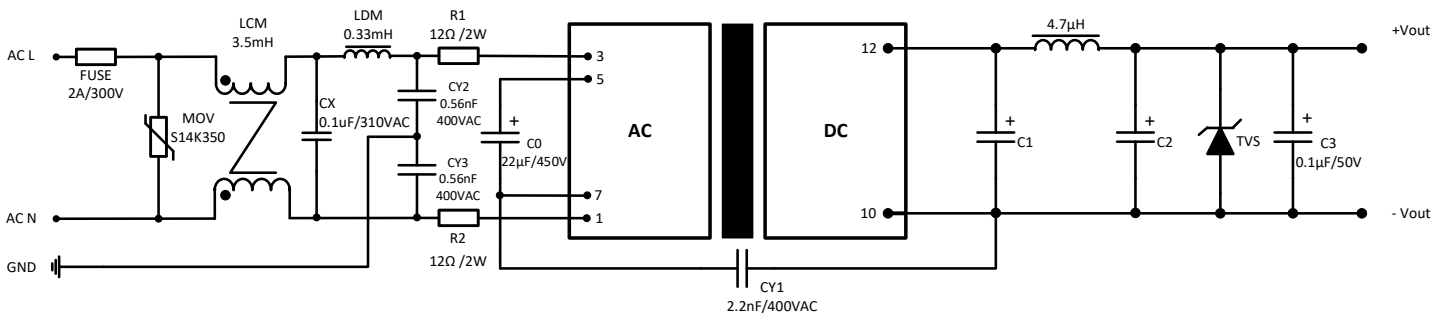
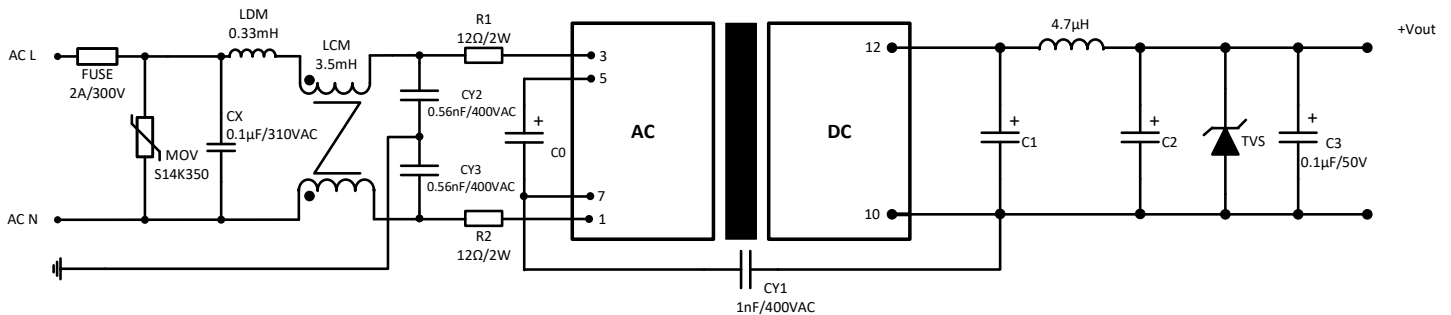
Typical application circuit



Recommended EMC circuit for EN60335



Recommended EMC circuit for EMI Class B, EMS Class IV



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