

## Features:



- 45W Small Compact Size 87.0 x 52.0 x 29.5mm
- Wide AC & DC Input 85V to 264VAC
- Temperature Range -40°C to +70°C
- Output Range: 5V - 48VDC
- Low Standby Power <0.5W
- Fully Isolated Pri - Sec >4000Vrms
- Insulation: Class II
- Materials: UL94-V0
- IEC/EN/UL62368-1, EN61558-1 safety approval



## Description

VTX-214-045-1## is a compact AC-DC power converter. It features a wide AC input 85V to 264VAC and a DC input voltage 100 to 370VDC. The converters have been designed with low power consumption, high efficiency, high reliability, reinforced isolation. It offers good EMC performance compliant to IEC/EN61000-4 and CISPR32/EN55032 and meets IEC/EN/UL62368, EN61558 standards. The converters are widely used in industrial, power, home appliances, instrumentation, communication and civil applications. For extremely harsh EMC environment, we recommend using the application circuit show in this Datasheet. or contact our Technical team for further support.

## Selection Guide

| Part Number            | Power Rating Watts | Output Voltage (VDC) | Output Current (mA) | Ambient Temp. (°C)   | Efficiency Typical | Input Range                   |
|------------------------|--------------------|----------------------|---------------------|----------------------|--------------------|-------------------------------|
| <b>VTX-214-045-105</b> | 40                 | 5                    | 8000                | 50°C<br>(70°C @ 50%) | >81%               | 85 - 264VAC<br>(100 - 370VDC) |
| <b>VTX-214-045-109</b> | 45                 | 9                    | 5000                |                      |                    |                               |
| <b>VTX-214-045-112</b> | 45                 | 12                   | 3800                |                      |                    |                               |
| <b>VTX-214-045-115</b> | 45                 | 15                   | 3000                |                      |                    |                               |
| <b>VTX-214-045-124</b> | 45                 | 24                   | 1900                |                      |                    |                               |
| <b>VTX-214-045-148</b> | 45                 | 48                   | 940                 |                      |                    |                               |
|                        |                    |                      |                     |                      |                    |                               |

**Note: Other output voltages are available upon request.**

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| Input Specification |               |                        |         |      |      |
|---------------------|---------------|------------------------|---------|------|------|
| Item                | Conditions    | Min                    | Typical | Max  | Unit |
| Input Voltage       | AC Input      | 85                     | -       | 264  | VAC  |
|                     | DC Input      | 100                    | -       | 370  | VDC  |
| Input Frequency     |               | 47                     | -       | 63   | Hz   |
| Input Current       | 115VAC        | -                      | -       | 1.5  | A    |
|                     | 230VAC        | -                      | -       | 0.75 |      |
| Inrush Curent       | 115VAC        | -                      | 30      | -    |      |
|                     | 230VAC        | -                      | 60      | -    |      |
| Leakage Current     | 277VAC / 50Hz | 0.1mA RMS Max          |         |      |      |
| Internal Fuse       |               | 3.15Amp Slow Blow Fuse |         |      |      |

| Output Specification            |                                      |                                   |         |     |      |
|---------------------------------|--------------------------------------|-----------------------------------|---------|-----|------|
| Item                            | Conditions                           | Min                               | Typical | Max | Unit |
| <b>Output Voltage</b>           | Output                               | -                                 | +/-2    | -   | %    |
| <b>Line Regulation</b>          | Full Load                            | -                                 | +/-0.5  | -   |      |
| <b>Load Regulation</b>          | 0% - 100% Load                       | -                                 | +/-1    | -   |      |
| <b>Ripple / Noise</b>           | 20MHz Bandwidth (Peak to Peak Value) | -                                 | 60      | 120 | mV   |
| <b>Stand by Power</b>           | 230VAC                               | -                                 | -       | 0.5 | W    |
| <b>Temp. Coefficient</b>        |                                      | -                                 | +/-0.02 | -   | %/°C |
| <b>Short Circuit Protection</b> |                                      | Hiccup, Continuous, Self-recovery |         |     |      |
| <b>Over Current Protection</b>  |                                      | >110% Load Self-recovery          |         |     |      |
| <b>Over Voltage Protection</b>  |                                      | Hiccup, Continuous, Self-recovery |         |     |      |
| <b>Minimum Load</b>             |                                      | 0                                 | -       | -   | %    |
| <b>Hold-up Time</b>             | 115VAC Input                         | -                                 | 8       | -   | mS   |
|                                 | 230VAC Input                         | -                                 | 50      | -   |      |

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| General Specification        |                             |                                     |         |      |       |
|------------------------------|-----------------------------|-------------------------------------|---------|------|-------|
| Item                         | Conditions                  | Min                                 | Typical | Max  | Unit  |
| <b>Dielectric Strength</b>   | Input to Output (1Min, 5mA) | 4000                                | -       | -    | VAC   |
| <b>Insulation Resistance</b> | Input to Output (500VDC)    | 100                                 |         |      | M.Ohm |
| <b>Operating Temperature</b> |                             | -40                                 | -       | +70  | °C    |
| <b>Storage Temperature</b>   |                             | -40                                 | -       | +85  |       |
| <b>Storage Humidity</b>      |                             | -                                   | -       | +95  | %RH   |
| <b>Soldering Temperature</b> | Wave Soldering              | 260 +/-5°C                          |         |      |       |
|                              | Manual Soldering            | 360 +/-5°C                          |         |      |       |
| <b>Switching Frequency</b>   |                             | -                                   | 65      | -    | KHz   |
| <b>Altitude</b>              |                             | -                                   | -       | 5000 | m     |
| <b>Safety Class</b>          |                             | CLASS II                            |         |      |       |
| <b>MTBF</b>                  |                             | >300KHrs @ 25°C (MIL-HDBK-217F)     |         |      |       |
| <b>Safety Approvals</b>      |                             | IEC/UL62368-1, EN61558-1, EN60335-1 |         |      |       |
| <b>Dimensions</b>            |                             | 87.0 x 52.0 x 29.5mm                |         |      |       |
| <b>Weight</b>                |                             | 205g                                |         |      |       |
| <b>Body Colour</b>           |                             | Orange or Black                     |         |      |       |

| EMC Specification |                   |                                              |
|-------------------|-------------------|----------------------------------------------|
| <b>Emissions</b>  | CE /RE            | CISPR32 / EN55032 CLASS B<br>EN55014-1       |
| <b>Immunity</b>   | ESD               | IEC/EN 61000-4-2 CONTACT +/-8KV<br>EN55014-2 |
|                   | RS                | IEC/EN 61000-4-3 10V/m<br>EN55014-2          |
|                   | EFT               | IEC/EN 61000-4-4                             |
|                   | SURGE             | IEC/EN 61000-4-5, EN55014-2                  |
|                   | CS                | IEC/EN 61000-4-6 10V/r.m.s.<br>EN55014-2     |
|                   | Voltage Variation | IEC/EN 61000-4-11, EN55014-2                 |

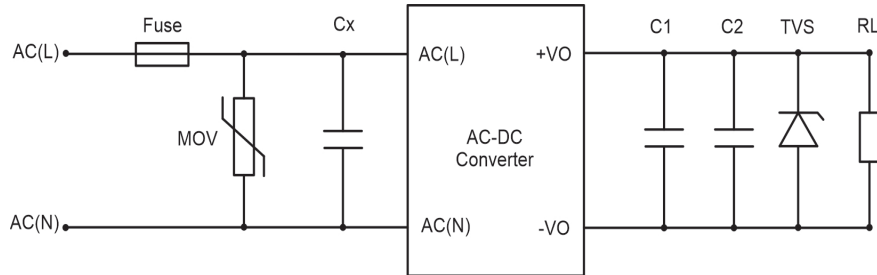
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## Application Schematic for EMC

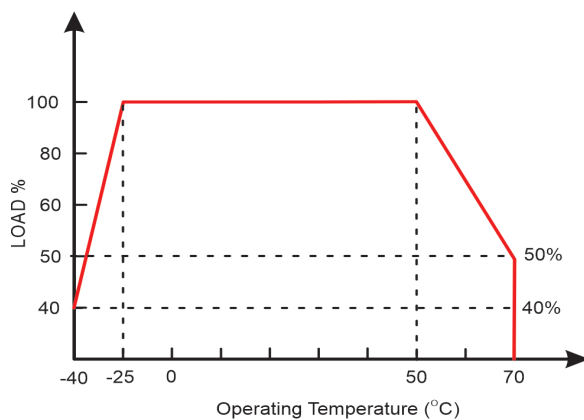
### Typical Application EMC



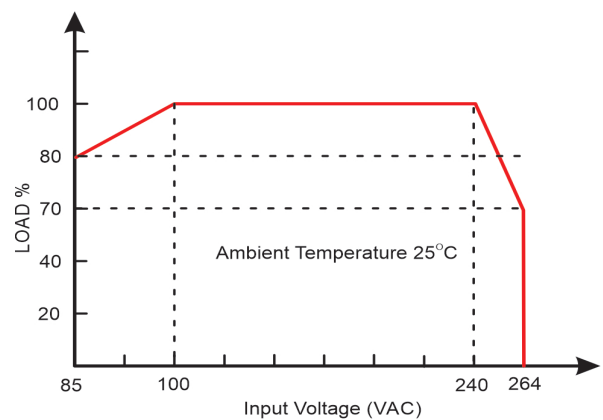
| Part Number                                                            | Cx           | C1        | C2        | TVS      | Fuse                    | MOV     | Capacitance Load Max |
|------------------------------------------------------------------------|--------------|-----------|-----------|----------|-------------------------|---------|----------------------|
| VTX-214-045-105                                                        | 0.22uF /275V | 1uF /100V | 680uF/25V | SMBJ7.0A | 3.15A/270V<br>Slow Blow | S14K350 | 30000 uF             |
| VTX-214-045-109                                                        |              |           | 680uF/25V | SMBJ20A  |                         |         | 6400 uF              |
| VTX-214-045-112                                                        |              |           | 220uF/25V | SMBJ20A  |                         |         | 6400 uF              |
| VTX-214-045-115                                                        |              |           | 220uF/25V | SMBJ20A  |                         |         | 5600 uF              |
| VTX-214-045-124                                                        |              |           | 120uF/50V | SMBJ30A  |                         |         | 2000 uF              |
| VTX-214-045-148                                                        |              |           | 100uF/63V | SMBJ64A  |                         |         | 600 uF               |
| Note: For additional filtering requirements, contact technical support |              |           |           |          |                         |         |                      |

## Derating Graphs

### Temperature Derating Graph



### Input Voltage Derating Graph



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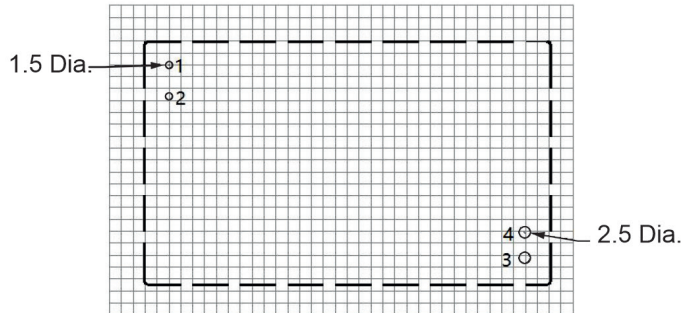
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## Dimensions

Side View



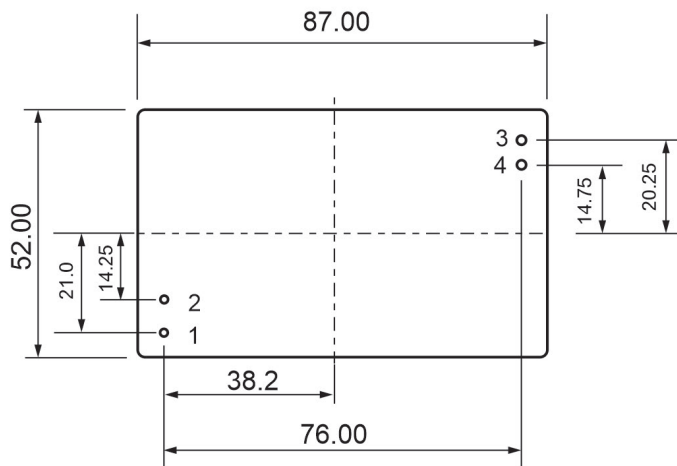
Top View



Grid Pitch 2.54 x 2.54mm (0.1 x 0.1 Inch)

Recommended PCB Pad hole 1.5/2.5mm Dia.

Pin View



(Tolerances: x.xx =  $\pm 0.05$ , x.x =  $\pm 0.5$ )

| PIN Number | Function |
|------------|----------|
| 1          | AC(L)    |
| 2          | AC(N)    |
| 3          | +Vo      |
| 4          | -Vo      |
|            |          |

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