

## 2 x 4" 100W AC-DC Power Supplies

<https://product.tdk.com/en/power/cus-m>  
[www.emea.lambda.tdk.com/cus100me](http://www.emea.lambda.tdk.com/cus100me)



The compact CUS100ME is packaged in the industry standard 2x4" footprint. The series can deliver 100W convection cooled at 50°C or up to 75W at 85°C with forced air. Conduction cooled, the CUS100M can deliver 100W at 70°C and 50W at 80°C. With Medical & ITE certifications, the unit can be used in both Class I & Class II (no ground wire) applications, and meets Class B Conducted and Radiated EMI. Enclosure options include a baseplate, U channel or U channel with a cover.

### Features

- Up to 100W Utilizing Convection or Conduction Cooling
- Operation in Ambient Temperatures of up to 85°C
- Medical Certifications (2 x MOPP)
- Class B Conducted and Radiated EMI
- Suitable for Class I and Class II installations
- Compact 2 x 4 x 1.24" Size
- Enclosure & Cooling Options

### Benefits

- Quiet Operation
- Suitable for High Ambient Temperature Environments
- Suitable for B and BF Type Medical Equipment
- Easier System EMC Compliance
- Flexible Utilisation
- Space Saving in End Equipment
- Versatile Application

### Model Selector

| Model       | Nominal Output Voltage (V) | Factory Set <sup>(1)</sup> Output Voltage Capability (V) | Maximum Current Convection (A) | Maximum Power Convection (W) |
|-------------|----------------------------|----------------------------------------------------------|--------------------------------|------------------------------|
| CUS100ME-12 | 12                         | 12 - 13.2                                                | 8.33                           | 100                          |
| CUS100ME-15 | 15                         | 15 - 16.5                                                | 6.66                           | 100                          |
| CUS100ME-18 | 18                         | 18 - 19.8                                                | 5.55                           | 100                          |
| CUS100ME-24 | 24                         | 24 - 26.4                                                | 4.16                           | 100                          |
| CUS100ME-28 | 28                         | 28 - 30.8                                                | 3.57                           | 100                          |
| CUS100ME-36 | 36                         | 36 - 39.6                                                | 2.77                           | 100                          |
| CUS100ME-48 | 48                         | 48 - 50                                                  | 2.08                           | 100                          |

| CUS100ME-                                 | 12 | / | U                                                                        | E                                                              | M                                                         |
|-------------------------------------------|----|---|--------------------------------------------------------------------------|----------------------------------------------------------------|-----------------------------------------------------------|
| Output voltage 12, 15, 18, 24, 28, 36, 48 |    |   | blank open frame<br>U U channel<br>A U channel with cover<br>B baseplate | blank dual fuses<br>E <sup>(2)</sup> single input fuse in line | blank JST connectors<br>M <sup>(2)</sup> Molex connectors |

Examples: CUS100ME-24/UEM, CUS100ME-12V5/A

## Specifications

| Model                                 |     | CUS100ME                                                                                                                                                                    |
|---------------------------------------|-----|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Input</b>                          |     |                                                                                                                                                                             |
| AC Input Voltage Range (Operating)    | Vac | 85 - 264 <sup>(3)</sup>                                                                                                                                                     |
| Nominal Input Voltage Range           | Vac | 100 - 240 <sup>(3)</sup> (Note: Safety certified for 90 - 264Vac only)                                                                                                      |
| Input Frequency                       | Hz  | 47 - 63 <sup>(4)</sup>                                                                                                                                                      |
| Input Current (100Vac)                | A   | 1.4                                                                                                                                                                         |
| Inrush Current at 230Vac (Cold Start) | A   | <65                                                                                                                                                                         |
| Leakage Current                       | uA  | <250 at 230Vac 63Hz                                                                                                                                                         |
| Touch Current (Enclosure Leakage)     | uA  | <100                                                                                                                                                                        |
| Power Factor (115/230Vac)             | -   | >0.97 / 0.89 (100% load)                                                                                                                                                    |
| Harmonic Compliance                   | -   | Meets IEC61000-3-2 Class A                                                                                                                                                  |
| No Load Power Consumption             | W   | <0.5 (230Vac)                                                                                                                                                               |
| Hold Up Time                          | ms  | >24                                                                                                                                                                         |
| Efficiency                            | %   | Up to 94                                                                                                                                                                    |
| Average Efficiency                    | %   | >87. Measured at 25%, 50%, 75% and 100% load conditions                                                                                                                     |
| Conducted & Radiated EMI              | -   | EN55032/EN55011-B (See application notes for conditions)                                                                                                                    |
| Immunity                              | -   | Compliant with EN60601-1-2:2015 (Ed4), see immunity table                                                                                                                   |
| Insulation Class                      | -   | Construction suitable for Class I or Class II installation                                                                                                                  |
| Safety Certifications and Markings    | -   | IEC/EN/UL/CSA62368-1, 60950-1, IEC/EN60601-1, ES60601-1, CE Mark and UKCA Mark<br>Designed to meet IEC61010-1 and EN60335-1 compliant versions are available <sup>(2)</sup> |

## Immunity

| Test                                 | Standard                                                        | Test Level             | Criteria | Notes                                                     |
|--------------------------------------|-----------------------------------------------------------------|------------------------|----------|-----------------------------------------------------------|
| ESD                                  | EN61000-4-2                                                     | 4                      | A        | -                                                         |
| Radiated Susceptibility              | EN61000-4-3                                                     | 3                      | A        | Includes proximity field requirements of EN60601-1-2:2015 |
| Electrical Fast Transient Burst      | EN61000-4-4                                                     | 4                      | A        | (AC Port, 5kHz and 100kHz)                                |
| Surge                                | EN61000-4-5                                                     | 3                      | A        | -                                                         |
| Conducted Susceptibility             | EN61000-4-6                                                     | 3                      | A        | -                                                         |
| Magnetic fields                      | EN61000-4-8                                                     | 4                      | A        | -                                                         |
| Voltage Dips and Input Interruptions | EN61000-4-11<br>Class 3 Industrial,<br>incl EN55024<br>(100Vac) | 0% for 1/2 cycle       | A        | -                                                         |
|                                      |                                                                 | 0% for 1 cycle         | A        | -                                                         |
|                                      |                                                                 | 40% for 10/12 cycles   | B        | -                                                         |
|                                      |                                                                 | 70% for 25/30 cycles   | A        | -                                                         |
|                                      |                                                                 | 80% for 250/300 cycles | A        | -                                                         |
|                                      |                                                                 | 0% for 250/300 cycles  | B        | -                                                         |
|                                      | EN61000-4-11<br>Class 3 Industrial,<br>incl EN55024<br>(240Vac) | 0% for 1/2 cycle       | A        | -                                                         |
|                                      |                                                                 | 0% for 1 cycle         | A        | -                                                         |
|                                      |                                                                 | 40% for 10/12 cycles   | A        | -                                                         |
|                                      |                                                                 | 70% for 25/30 cycles   | A        | -                                                         |
|                                      |                                                                 | 80% for 250/300 cycles | A        | -                                                         |
|                                      |                                                                 | 0% for 250/300 cycles  | B        | -                                                         |
|                                      | EN60601-1-2:2015<br>(100Vac)                                    | 0% for 1/2 cycle       | A        | -                                                         |
|                                      |                                                                 | 0% for 1 cycle         | A        | -                                                         |
|                                      |                                                                 | 70% for 25/30 cycles   | A        | -                                                         |
|                                      |                                                                 | 0% for 250/300 cycles  | B        | -                                                         |
|                                      | EN60601-1-2:2015<br>(240Vac)                                    | 0% for 1/2 cycle       | A        | -                                                         |
|                                      |                                                                 | 0% for 1 cycle         | A        | -                                                         |
|                                      |                                                                 | 70% for 25/30 cycles   | A        | -                                                         |
|                                      |                                                                 | 0% for 250/300 cycles  | B        | -                                                         |
| Ringwave Test                        | EN61000-4-12                                                    | 3                      | A        | -                                                         |
| Voltage Fluctuations                 | EN61000-4-14                                                    | Class 3                | A        | -                                                         |
| SEMI F47 Line Dip                    | SEMI F47                                                        | -                      | -        | Consult factory                                           |

| Specifications            |        |                                                                                                                              |
|---------------------------|--------|------------------------------------------------------------------------------------------------------------------------------|
| Model                     |        | CUS100ME                                                                                                                     |
| <b>Output</b>             |        |                                                                                                                              |
| Line Regulation           | %      | <0.5 (90 - 264Vac)                                                                                                           |
| Load Regulation           | %      | <1 (0 - 100% load)                                                                                                           |
| Ripple & Noise            | %      | <1% of nominal output for operating temperatures above 0°C<br>At -20°C: 12V model <4%, 15V & 18V model <3%, other models <2% |
| Temperature Coefficient   | %/°C   | ±0.02%/°C                                                                                                                    |
| Minimum Load              | -      | No minimum load required                                                                                                     |
| Overcurrent Protection    | %      | 110 to 190%. Hiccup mode, automatic recovery                                                                                 |
| Overvoltage Protection    | -      | 115-140% of standard output voltage for each model, 48V model max 60V.<br>Latching (unit shutdown), cycle AC input to reset  |
| Remote Sense              | -      | None                                                                                                                         |
| Fan Supply                | -      | None                                                                                                                         |
| Parallel Operation        | -      | Not possible                                                                                                                 |
| Series Operation          | -      | Please contact Technical Sales for guidance                                                                                  |
| <b>Environmental</b>      |        |                                                                                                                              |
| Operating Temperature     | °C     | -20°C to +85°C, see derating curves below for operation above +50°C                                                          |
| Storage Temperature       | °C     | -40°C to +85°C                                                                                                               |
| Humidity (non condensing) | %RH    | 5 - 95%RH                                                                                                                    |
| Cooling                   | -      | Convection, conduction or forced air cooling. See derating curves below                                                      |
| Altitude                  | m      | 5,000m                                                                                                                       |
| Withstand Voltage         | Vac    | Input to Ground 1.5kVAC (1xMOPP), Input to Output 4kVAC (2xMOPP),<br>Output to Ground 1.5kVAC (1xMOPP)                       |
| Isolation Resistance      | MΩ     | >100MΩ at 25°C, 70%RH & 500VDC                                                                                               |
| Vibration (Non Operating) | -      | 2G, 10-500Hz for 1 hour                                                                                                      |
| Shock (Non Operating)     | -      | 30G, 11ms half sine                                                                                                          |
| <b>Other</b>              |        |                                                                                                                              |
| Weight                    | g      | Open Frame: 180g; /U: 240g; /A: 255g; /B: 220g                                                                               |
| Size (WxLxH)              | mm     | Open frame version: 50.8 x 101.6 x 31.5                                                                                      |
| Size (WxLxH)              | Inches | Open frame version: 2 x 4 x 1.24                                                                                             |
| Connectors                | -      | Input: JST B2P3-VH, Output: JST B6P-VH                                                                                       |
| Warranty                  | yrs    | 5                                                                                                                            |

**Notes:**

See website for detailed specifications, test methods and installation manual.

Specification parameters apply at 25°C ambient temperature unless otherwise stated.

(1) Output voltage is factory set and not user adjustable.

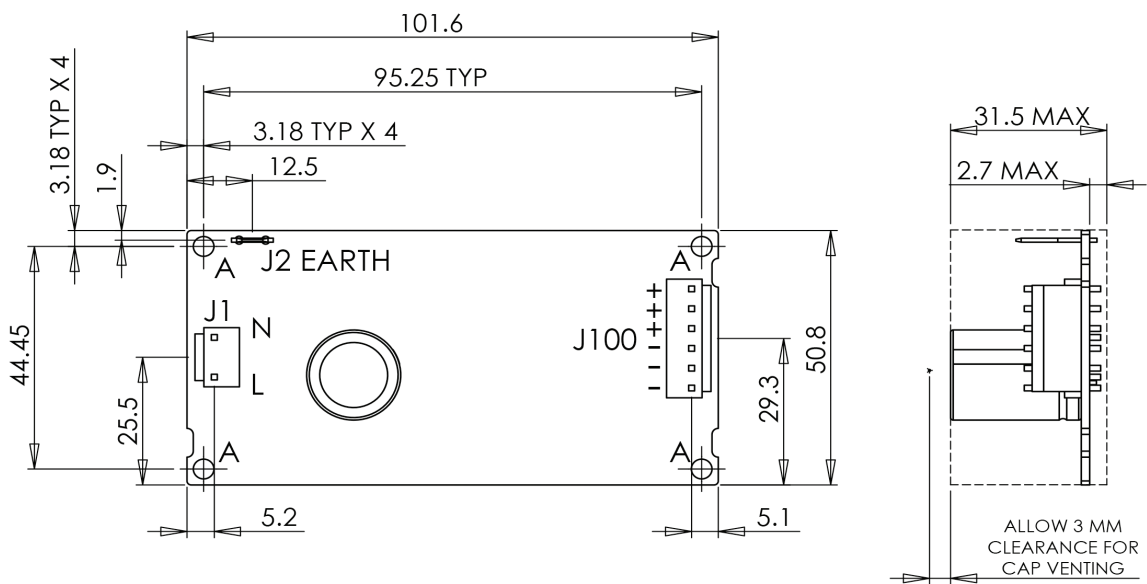
Non-standard output versions may be subject to minimum order quantities and variations to specification. For all non-standard output voltage settings please consult Sales.

(2) Subject to Minimum Order Quantities. Please contact Sales

(3) Derate linearly to 90% load from 90 to 85Vac input.

(4) For operation at 440Hz please consult Technical Sales.

Outline drawing CUS100ME (Open Frame unit)



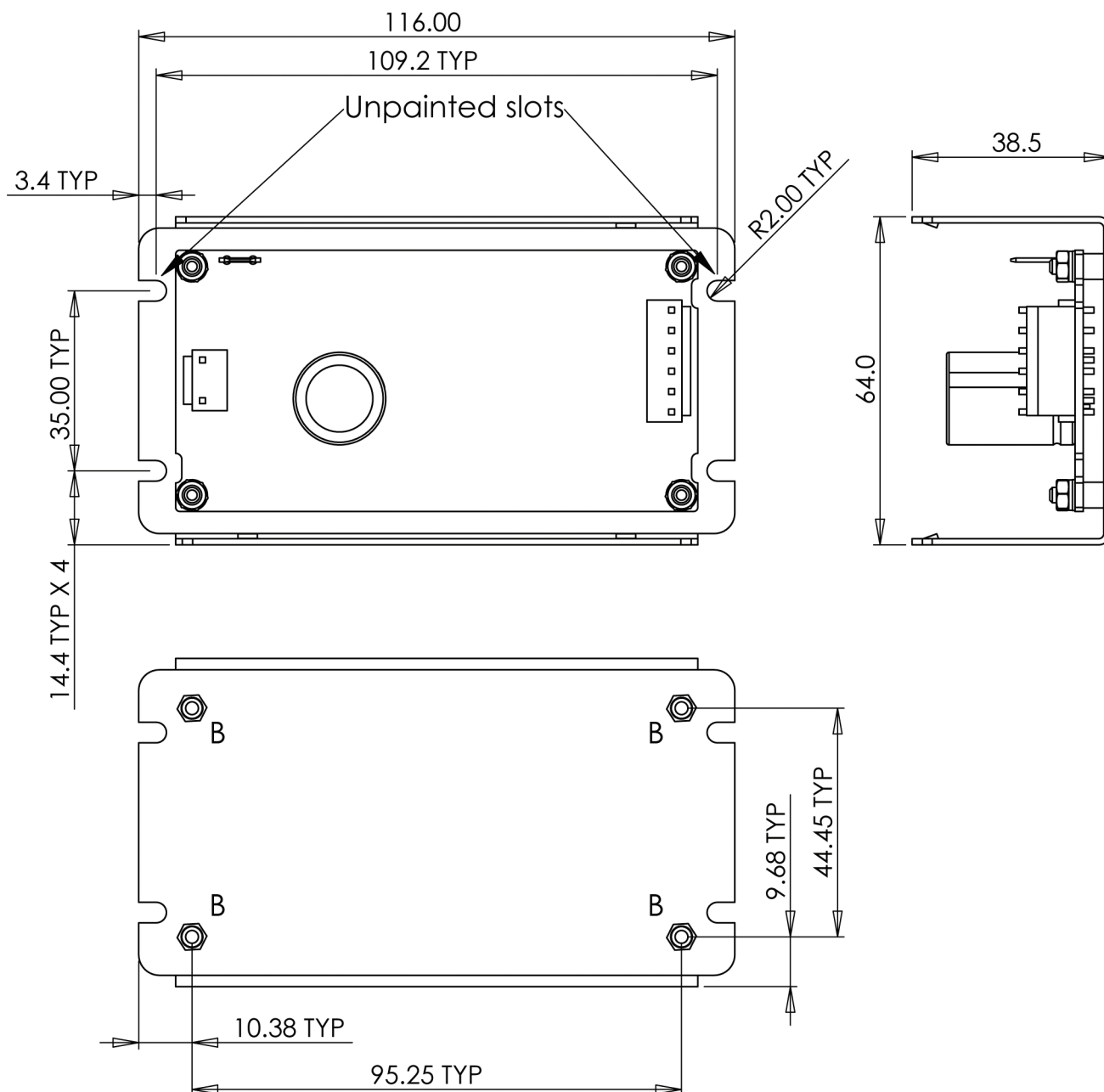
OPEN FRAME UNIT

DIMENSION TOLERANCES: 0.00 ±0.2 0.0 ±0.4  
(CONNECTOR PART NUMBERS ALSO IN APPLICATION NOTE)

| REF DES       | MANUFACTURER | CONNECTOR TYPE | MATING HOUSING                                 | CRIMP                                              |
|---------------|--------------|----------------|------------------------------------------------|----------------------------------------------------|
| J1            | JST          | B2P3-VH        | VAR-2                                          | 20-18AWG - SVA-41T-P1.1                            |
| J1 M-option   | Molex        | 10-63-4027     | 09-50-1031                                     | 08-70-1031                                         |
| J2            | Tyco         | 62490          | 22-18AWG - 2-520407-2<br>16-14AWG - 3-520408-2 | 22-18AWG - 2-520407-2<br>16-14AWG - 2-520408-2     |
| J100          | JST          | B6P-VH         | VHR-6N                                         | 22-18AWG - SVH-21T-P1.1<br>20-16AWG - SVH-41T-P1.1 |
| J100 M-option | Molex        | 09-65-2068     | 09-50-1061                                     | 08-70-1031                                         |

NOTE:  
A - 4 OFF FIXING HOLES ø3.96 TO ACCOMMODATE M3 SCREWS  
MAXIMUM STANDOFF DIAMETER - 5.4mm  
MAXIMUM TOP SIDE WASHER DIAMETER - 6mm

## Outline drawing CUS100ME/U (U Channel) Option

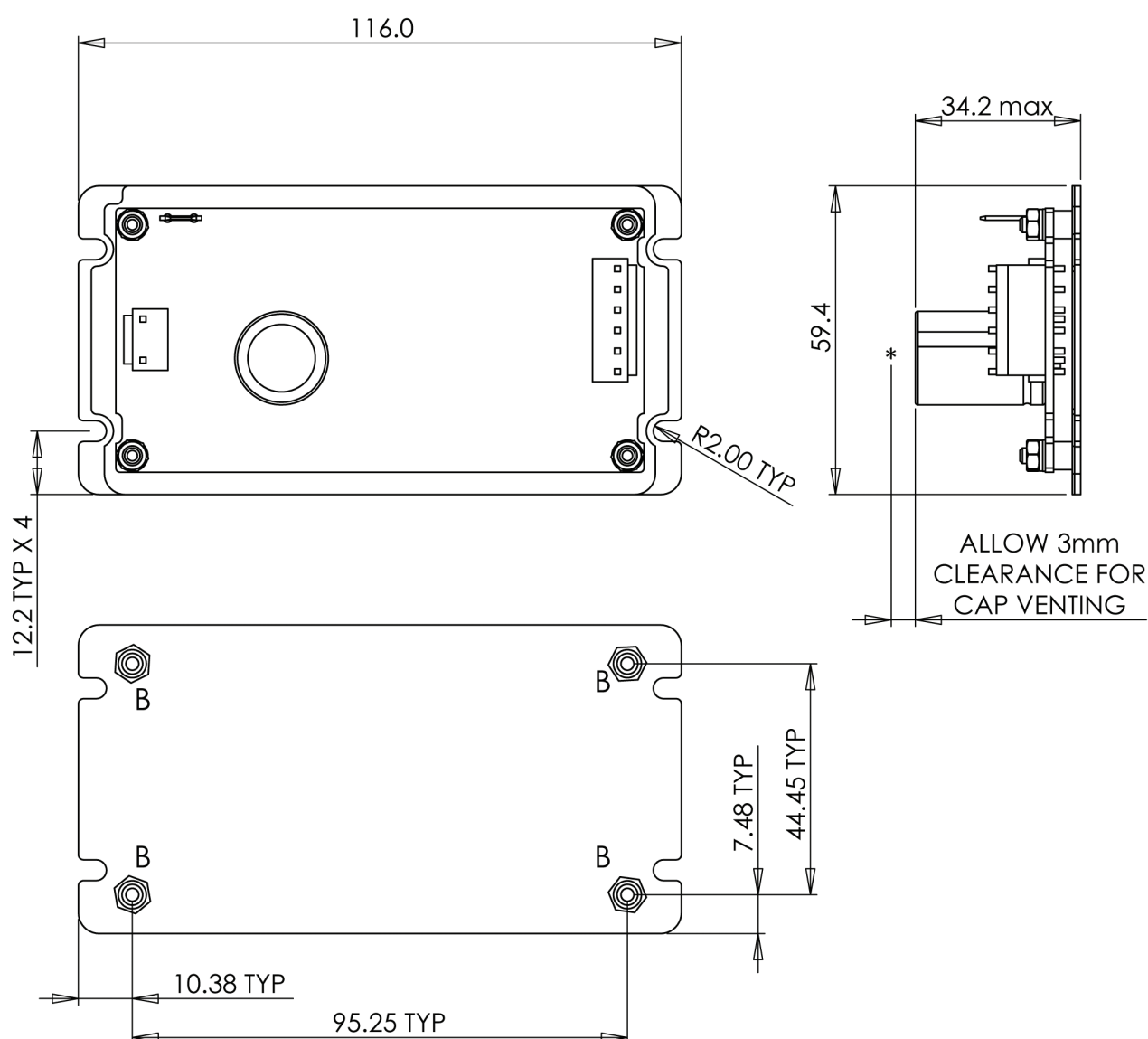


DIMENSION TOLERANCES: 0.00  $\pm$ 0.2 0.0  $\pm$ 0.4

NOTE: B - 4 OFF M3 FIXING - max thread penetration 4.25 mm

RECOMMENDED TORQUE - M3 - 0.5 - 0.6 Nm

## Outline drawing CUS100ME/B (Baseplate) Option

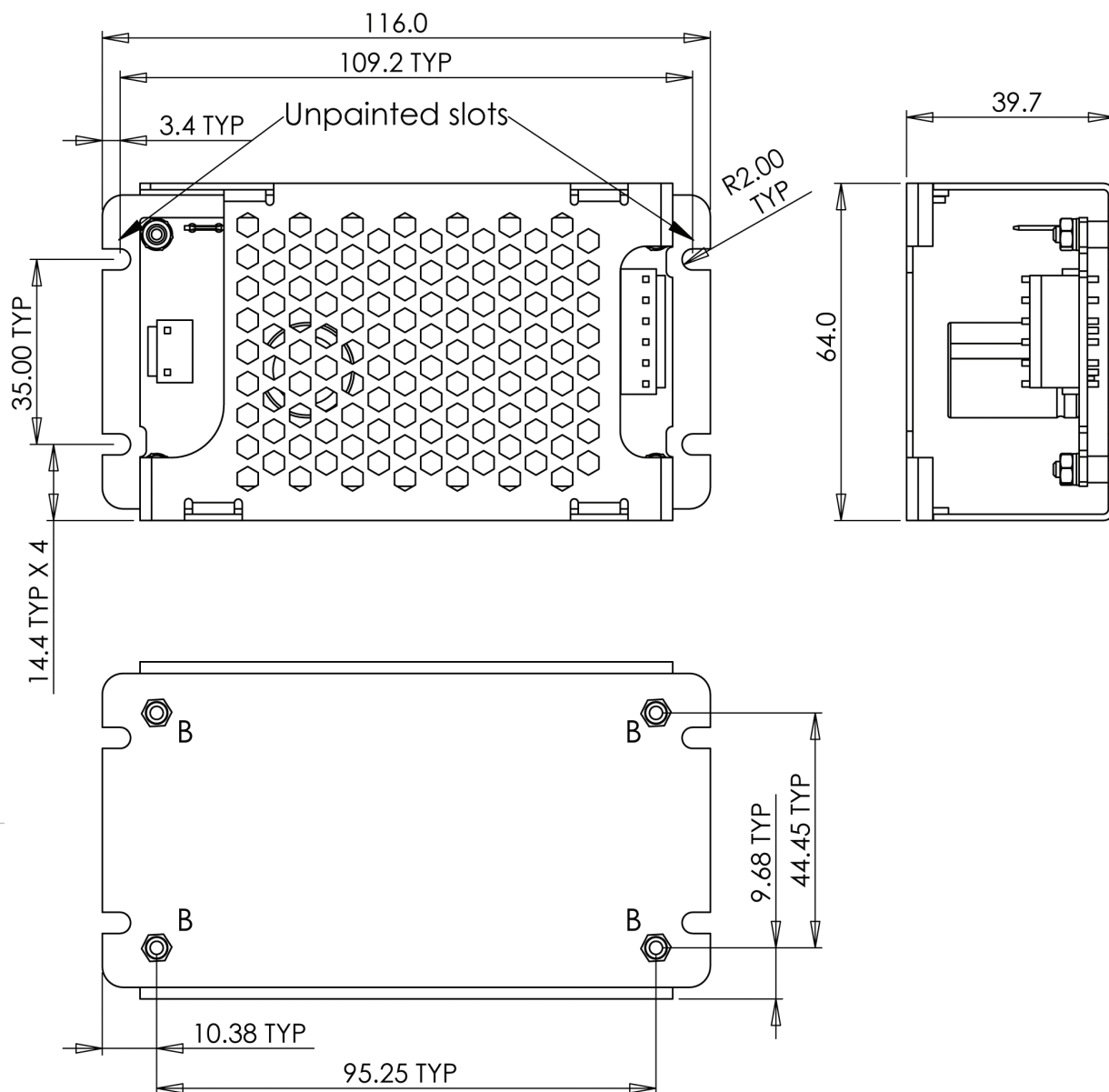


DIMENSION TOLERANCES: 0.00 ±0.2 0.0 ±0.4

NOTE: B - 4 OFF M3 FIXING - max thread penetration 4.25 mm

RECOMMENDED TORQUE - M3 - 0.5 - 0.6 Nm

## Outline drawing CUS100ME/A (U Channel with cover) Option

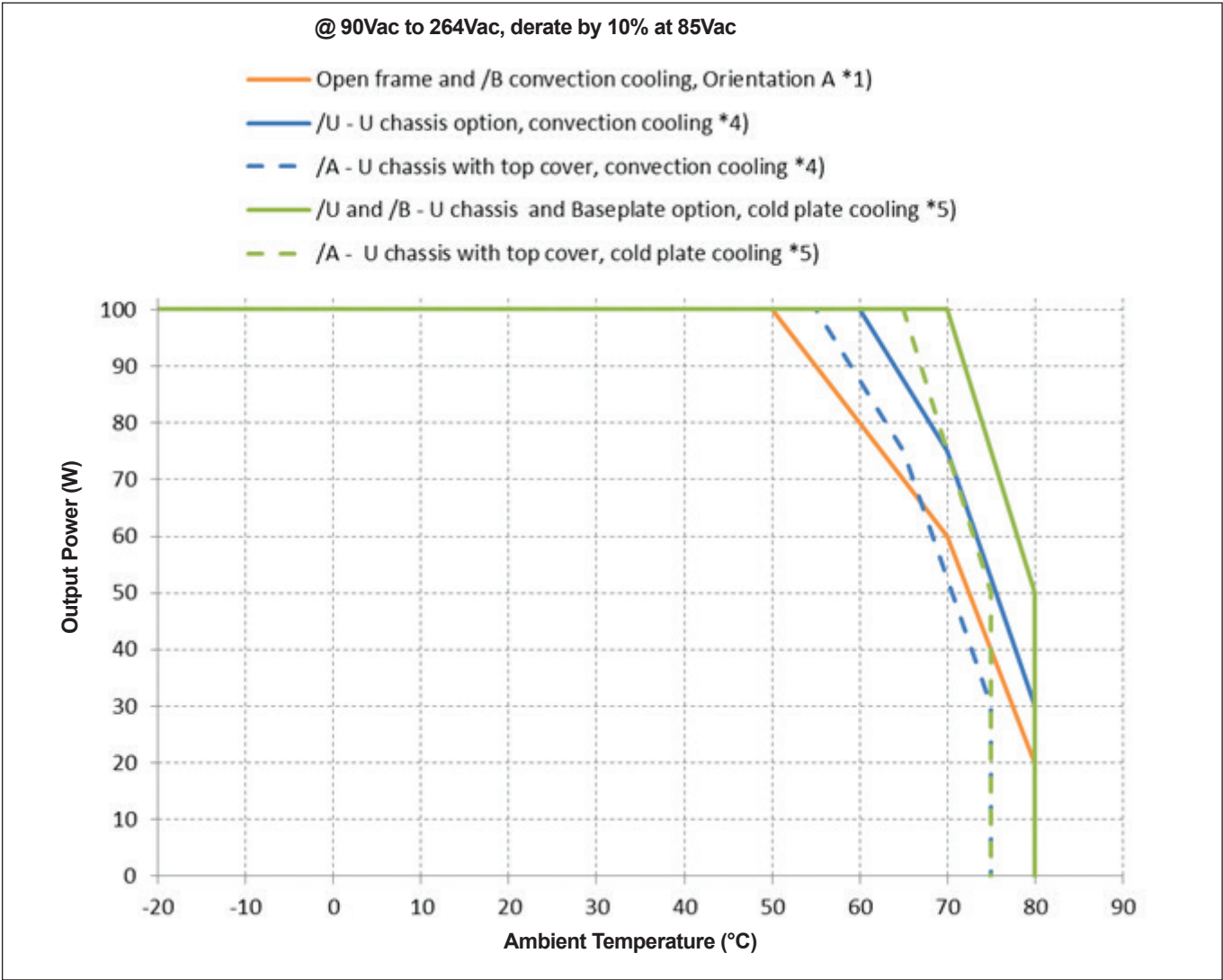


DIMENSION TOLERANCES: 0.00 ±0.2 0.0 ±0.4

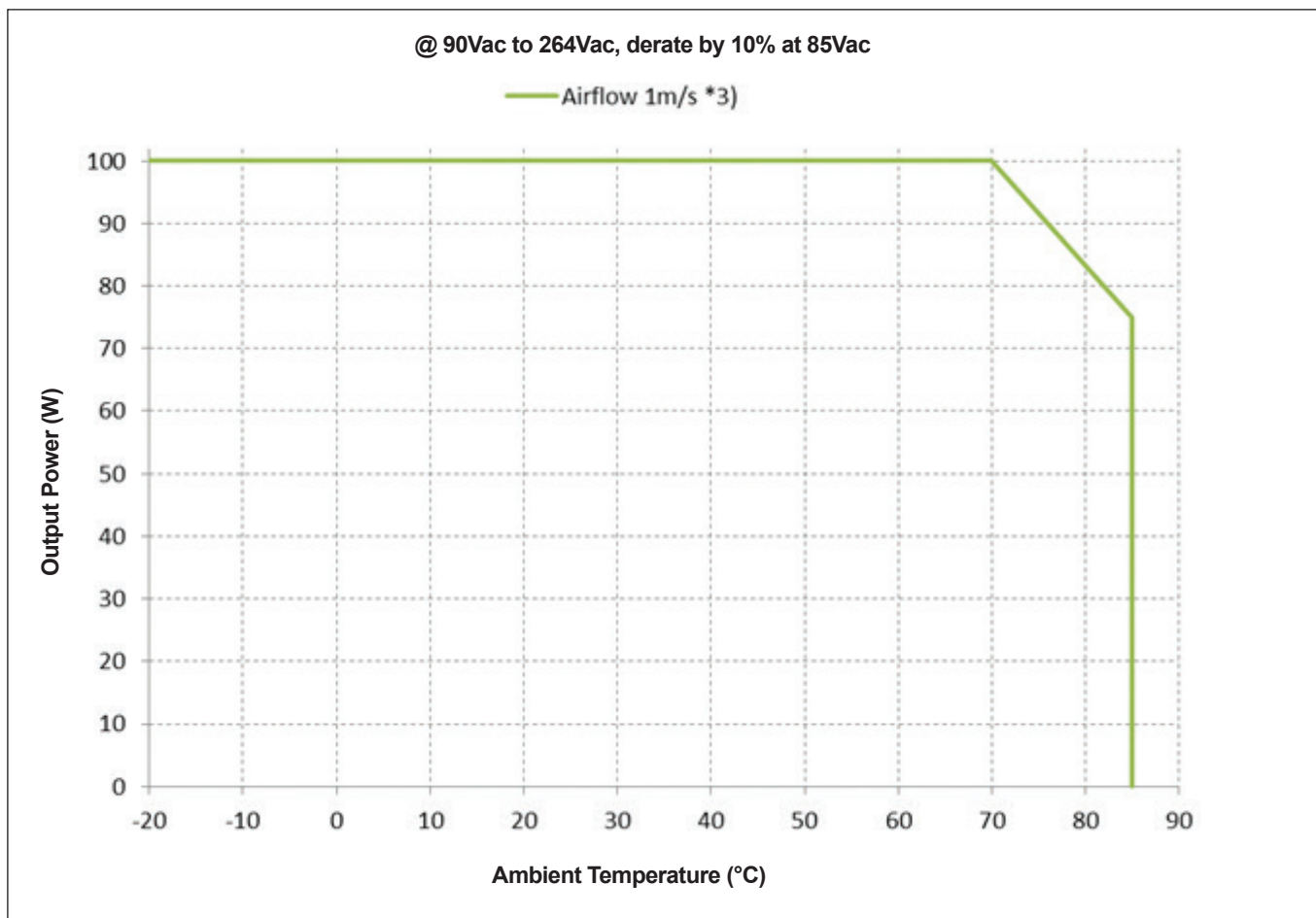
NOTE: B - 4 OFF M3 FIXING - max thread penetration 4.25 mm

RECOMMENDED TORQUE - M3 - 0.5 - 0.6 Nm

Output Power vs Ambient Temperature (Convection/Conduction Cooled)



## Output Power vs Ambient Temperature (Forced Air Cooled)



### Notes:

- 1) 50mm above surface
  - 2) Not applicable
  - 3) Tested with airflow direction G (see Application Note)
  - 4) 50mm above surface, orientation A (see Application Note) no additional coldplate
  - 5) U chassis or Baseplate fixed on a coldplate (system chassis), orientation A (see Application Note)
- /B baseplate option performance is the same as with the U chassis option for coldplate cooling



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