# CUS100MB/B

SPECIFICATIONS

CA833-01-01/B-A

| | ITEMS / MODEL | | CUS100 MB-5/B | CUS100 MB-12/B | CUS100 MB-15/B | CUS100 MB-18/B | CUS100 MB-24/B | CUS100 MB-28/B | CUS100 MB-36/B | CUS100 MB-48/B |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Nominal Output Voltage | V | 5 | 12 | 15 | 18 | 24 | 28 | 36 | 48 |
| 2 | Maximum Output Current @ Convection cooling | A | 12 | 6.7 | 5.4 | 4.5 | 4.2 | 3.6 | 2.8 | 2.1 |
| | Maximum Output Current @ Force air cooling | A | 16 | 8.4 | 6.7 | 5.6 | | | | |
| 3 | Maximum Output Power @ Convection cooling | W | 60.0 | 80.4 | 81.0 | 81.0 | 100.8 | 100.8 | 100.8 | 100.8 |
| | Maximum Output Power @ Force air cooling | W | 80.0 | 100.8 | 100.5 | 100.8 | | | | |
| 4 | Efficiency @ Convection cooling (Typ.) 115/230 VAC (*1) | % | 83 / 84 | 87 / 89 | 88 / 89 | 88 / 89 | 88 / 90 | 88 / 90 | 88 / 90 | 88 / 90 |
| | Efficiency @ Force air cooling (Typ.) 115/230 VAC (*1) | % | 81 / 83 | 87 / 88 | 87 / 89 | 87 / 89 | | | | |
| 5 | Input Voltage Range (*2) | - | 85 - 265 VAC (47-63Hz) | | | | | | | |
| 6 | Input Current @ Convection cooling (Typ.) 115/230 VAC (*1) | A | 1.2 / 0.8 | 1.5 / 0.9 | | | 1.8 / 1.1 | | | |
| | Input Current @ Force air cooling (Typ.) 115/230 VAC (*1) | A | 1.5 / 0.9 | 1.8 / 1.1 | | | | | | |
| 7 | In-rush Current (Typ.) (*1)(*3) | A | 30 / 60 at Cold Start | | | | | | | |
| 8 | Output Voltage Range | % | -10 / +10 | | | | | | | |
| 9 | Maximum Ripple & Noise (*1)(*4)(*5) | mV | 120 | 120 | 150 | 150 | 150 | 200 | 200 | 200 |
| 10 | Maximum Ripple & Noise (0%~35% Load) (*4)(*5) | mV | 240 | 280 | 280 | 280 | 280 | 400 | 400 | 480 |
| 11 | Maximum Line Regulation (*4)(*6) | mV | 20 | 48 | 60 | 72 | 96 | 112 | 144 | 192 |
| 12 | Maximum Load Regulation (*4)(*7) | mV | 40 | 96 | 120 | 144 | 192 | 224 | 288 | 384 |
| 13 | No Load Power Consumption | W | < 0.5 @ 230VAC , Ta=25°C, Nominal Output Voltage | | | | | | | |
| 14 | Temperature Coefficient (*4) | - | Less than 0.02% / °C | | | | | | | |
| 15 | Over Current Protection (*8) | A | >16.9 | > 8.7 | > 7.0 | > 5.8 | > 4.4 | > 3.7 | > 2.9 | > 2.2 |
| 16 | Over Voltage Protection (*9) | V | 5.75 - 7.25 | 13.8 - 17.4 | 17.25 - 21.75 | 20.7 - 26.1 | 27.6 - 34.8 | 32.2 - 40.6 | 41.4 - 52.2 | 55.2 - 69.6 |
| 17 | Hold-up time (Typ.) (*1) | ms | 10 / 60 | | | | | | | |
| 18 | Leakage Current (*10) | - | 0.3mA max @265VAC,60Hz | | | | | | | |
| 19 | Parallel Operation | - | No | | | | | | | |
| 20 | Series Operation | - | Possible | | | | | | | |
| 21 | Operating Temperature (*11) | - | -20°C ~ +70°C, start up at -30°C | | | | | | | |
| 22 | Operating Humidity | - | 10 - 90%RH (No condensing) | | | | | | | |
| 23 | Storage Temperature | - | -40°C ~ +85°C | | | | | | | |
| 24 | Storage Humidity | - | 10 - 90%RH (No condensing) | | | | | | | |
| 25 | Cooling (*12) | - | Convection or Force Air Cooling | | | | | | | |
| 26 | Withstand Voltage | - | Input-FG : 2kVAC (20mA) 1xMOPP,<br>Input-Output : 4kVAC (20mA) 2xMOPP,<br>Output-FG : 1.5kVAC (20mA) 1xMOPP | | | | | | | |
| 27 | Isolation Resistance | - | More than 100MΩ at 25°C,70%RH, Output - FG : 500VDC | | | | | | | |
| 28 | Vibration | - | At no operating, 10-500Hz (Sweep for 1min.)<br>Maximum 19.6m/s$^2$ X,Y,Z 1 hour each | | | | | | | |
| 29 | Shock | - | Less than 196m/s$^2$, MIL-STD-810F | | | | | | | |
| 30 | Safety | - | Approved by IEC/ES/CSA/EN 60601-1(cTUVus),<br>IEC/UL/CSA/EN 62368-1(cURus),<br>Designed to meet GB4943.1 | | | | | | | |
| 31 | EMI (*1) | - | Designed to meet EN55011-B, EN55032-B, FCC-Class B | | | | | | | |
| 32 | Immunity | - | Designed to meet IEC61000-4-2 (Level 2,3), IEC61000-4-3 (Level 3)<br>IEC61000-4-4 (Level 3), IEC61000-4-5 (Level 3,4),<br>IEC61000-4-6 (Level 3), IEC61000-4-8 (Level 4), IEC61000-4-11 | | | | | | | |
| 33 | Weight (Typ.) | g | 220 | | | | | | | |
| 34 | Size ( L x W x H ) | mm | 122 x 56.5 x 27.9 (Refer to Outline Drawing) | | | | | | | |

*Read instruction manual carefully, before using the power supply unit

=NOTES=

*1. At 115VAC/230VAC, Ta=25°C, nominal output voltage and maximum output power

*2. For cases where conformance to various safety specs (UL, CSA, EN) are required input voltage range will be 100 ~ 240VAC (50-60Hz).
Output derating required when Vin is less than 115VAC, refer output derating curve for details

*3. Not applicable for the in-rush current to noise filter for less than 0.2ms

*4. Please refer to Fig. A for measurement of Vo, line and load regulation and ripple voltage

*5. Ripple & noise are measured at 20MHz by using a 150mm twisted pair of load wires terminated with a 0.1uF and 100uF capacitor.

*6. 85~265VAC, constant load.

*7. No load - full load, constant input voltage

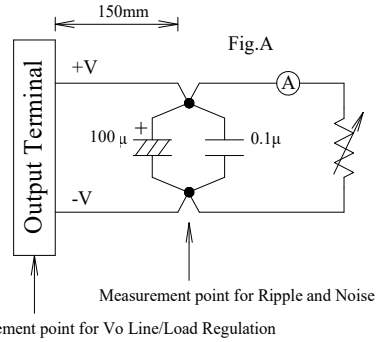
*8. Hiccup with automatic recovery.
Avoid operating at over load or short circuit condition

*9. OVP circuit shut down the output, manual reset (Re power on) to get output voltage

*10. Measured by the each measuring method of UL, CSA, and EN (at 60Hz), Ta=25°C.

*11. Refer to output derating curve for details of output derating versus input voltage, ambient temperature and mounting method
- Load (%) is percent of maximum output power or maximum output current. Do not exceed its derating of maximum Loac
- Maximum load start up at -30°C is possible. However, it may not fulfill all the specifications

*12. Force air cooling with air velocity more than 1.2m/s (measured at component side of PCB, air must flow through component side)



# CUS100MB/B

OUTPUT DERATING

CA833-01-02/B

## OUTPUT DERATING VERSUS OPERATING AMBIENT TEMPERATURE (Ta)

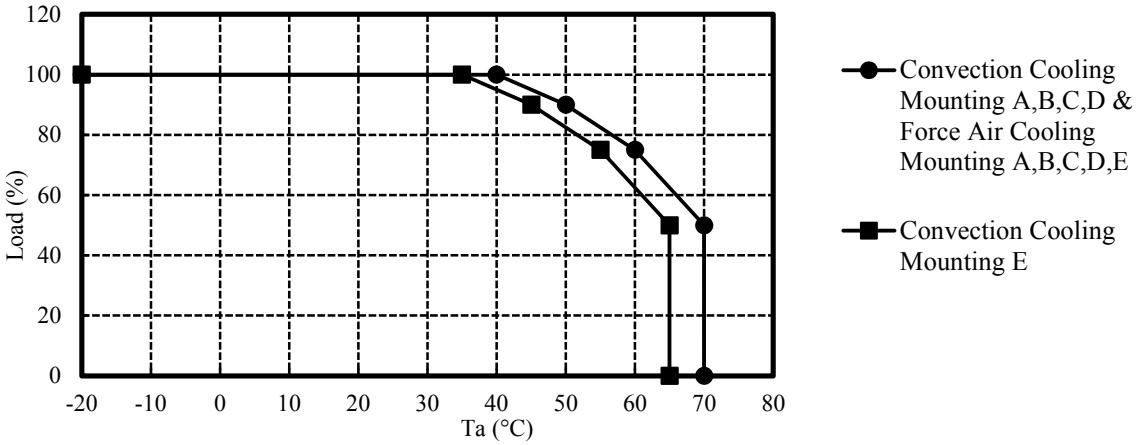
### 1. CUS100MB-5/B

Convection Cooling: Mounting A,B,C,D
& Force Air Cooling: Mounting A,B,C,D,E

| Ta (°C) | Load (%) |
|---|---|
| -20 - +40 | 100 |
| 50 | 90 |
| 60 | 75 |
| 70 | 50 |

Convection Cooling: Mounting E

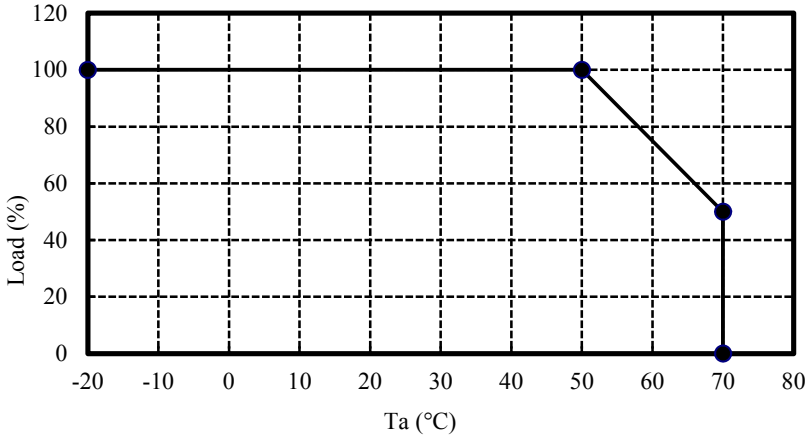
| Ta (°C) | Load (%) |
|---|---|
| -20 - +35 | 100 |
| 45 | 90 |
| 55 | 75 |
| 65 | 50 |




### 2. CUS100MB-12/B, -15/B, -18/B

Convection and Force Air Cooling
Mounting: A,B,C,D,E

| Ta (°C) | Load (%) |
|---|---|
| -20 - +50 | 100 |
| 70 | 50 |



# CUS100MB/B

OUTPUT DERATING

CA833-01-03/B

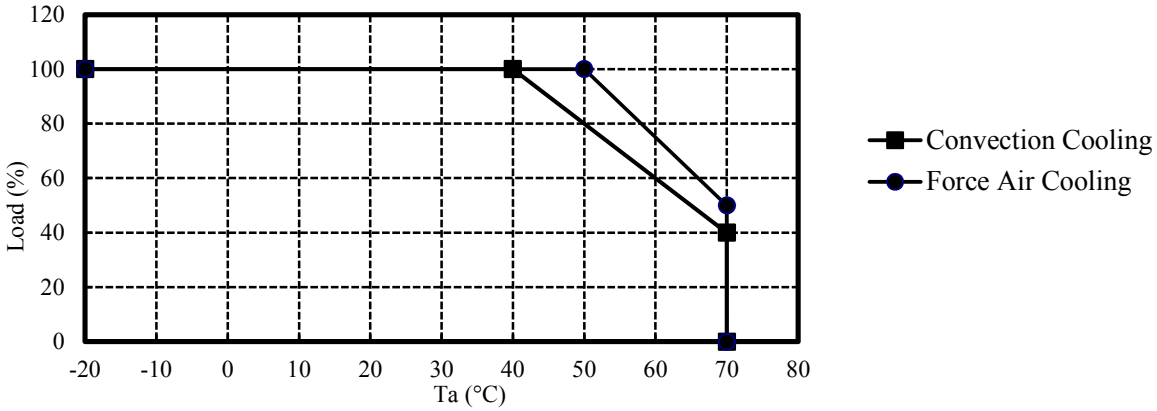
### 3. CUS100MB-24/B

Convection Cooling
Mounting: A,B,C,D,E

| Ta (°C) | Load (%) |
|---|---|
| -20 - +40 | 100 |
| 70 | 40 |

Force Air Cooling
Mounting: A,B,C,D,E

| Ta (°C) | Load (%) |
|---|---|
| -20 - +50 | 100 |
| 70 | 50 |




### 4. CUS100MB-28/B

Convection Cooling
Mounting: A,B,C,D

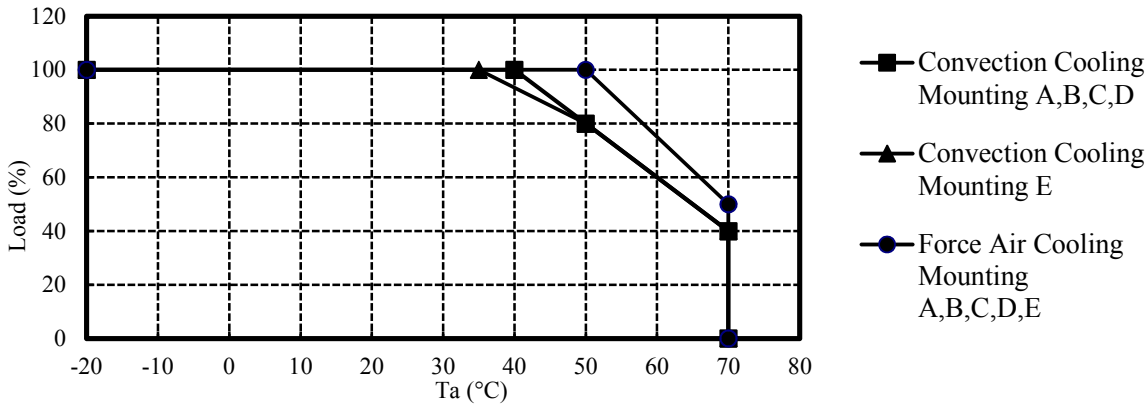
| Ta (°C) | Load (%) |
|---|---|
| -20 - +40 | 100 |
| 50 | 80 |
| 70 | 40 |

Mounting: E

| Ta (°C) | Load (%) |
|---|---|
| -20 - +35 | 100 |
| 50 | 80 |
| 70 | 40 |

Force Air Cooling
Mounting: A,B,C,D,E

| Ta (°C) | Load (%) |
|---|---|
| -20 - +50 | 100 |
| 70 | 50 |



# CUS100MB/B

OUTPUT DERATING

CA833-01-04/B

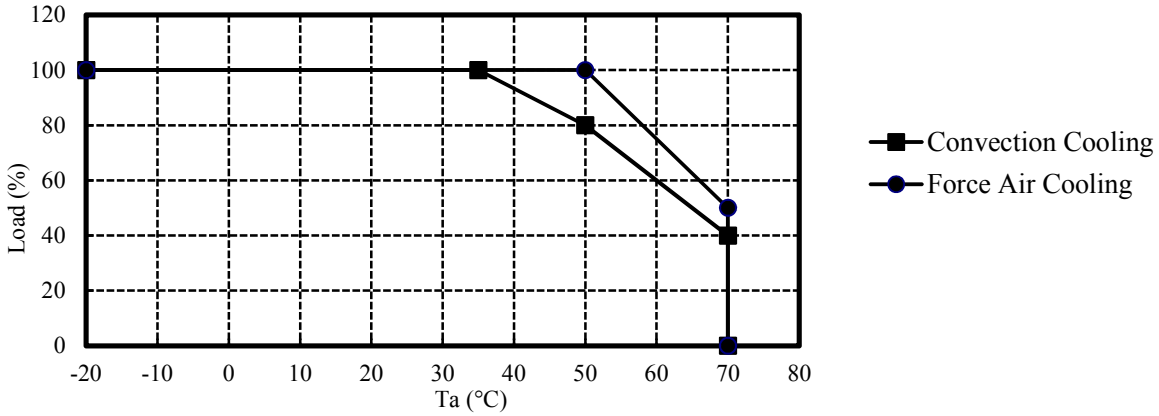
### 5. CUS100MB-36/B

Convection Cooling
Mounting: A,B,C,D,E

| Ta (°C) | Load (%) |
|---|---|
| -20 - +35 | 100 |
| 50 | 80 |
| 70 | 40 |

Force Air Cooling
Mounting: A,B,C,D,E

| Ta (°C) | Load (%) |
|---|---|
| -20 - +50 | 100 |
| 70 | 50 |



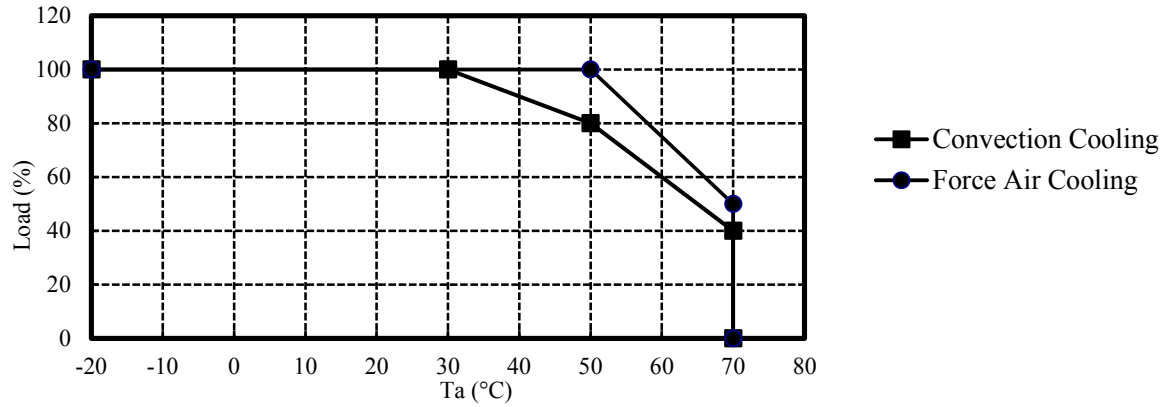

### 6. CUS100MB-48/B

Convection Cooling
Mounting: A,B,C,D,E

| Ta (°C) | Load (%) |
|---|---|
| -20 - +30 | 100 |
| 50 | 80 |
| 70 | 40 |

Force Air Cooling
Mounting: A,B,C,D,E

| Ta (°C) | Load (%) |
|---|---|
| -20 - +50 | 100 |
| 70 | 50 |



# CUS100MB/B

OUTPUT DERATING

CA833-01-05/B

## OUTPUT DERATING VERSUS INPUT VOLTAGE

CUS100MB-5/B
Mounting A,B,C,D,E

| Input Voltage (VAC) | Load (%) |
|---|---|
| 85 | 80 |
| 100~265 | 100 |

CUS100MB-12/B, -15/B, -18/B, -24/B, -28/B, -36/B, -48/B
Mounting A,B,C,D,E

| Input Voltage (VAC) | Load (%) |
|---|---|
| 85 | 80 |
| 115~265 | 100 |