TDK

CUS Series

High Reliability, Ultra Low Profile, High Efficiency, Industrial Power Supply

TDK·Lambda

TDK-Lambda introduces CUS Series

*Ultra Low Profile
*High Efficiency
*High Reliability

Switching Power Supply

CUS Series

High Reliability,
Ultra Low Profile,
High Efficiency,
Industrial Power Supply

CUS Series

TDK·Lambda

Development Background

For low environmental burden and promoting nature protection activities, TDK-Lambda introduces Ultra Low Profile, High Efficiency, High Reliability Power Supply-CUS Series.

Wide Range Input Industrial Power Supply

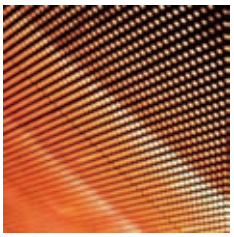
The most cost effective, reliable power supply solutions.

Key Market Segment & Application


Medical


Electric Power


Industrial


LED


COMM

Instruction for your safety

Please be sure to pay attention to following all cautions and warnings before using the unit.
Incorrect usage could lead to an electrical shock, damage to the unit or a fire hazard.

Warning

- Do not modify, disassemble or remove the cover. These actions could cause electrical shock. We shall never be responsible for any problems caused by your reconstruction or modification.
- Do not touch the internal components. They may have high voltage or high temperature. You may get electrical shock or burnt.
- When the unit is operating, keep your hands and face away from it. Otherwise, you may get injured by an accident.

Caution

- Please read catalogue and instruction manual carefully before use.
- Cut off the input when proceeding connection of input power and/or output power.
- Use the products within the specified input voltage, input current, temperature and humidity. Use of products in non-specified condition may damage the product.
- Connect the frame ground terminal to the ground terminal of the device for safety and noise reduction. Use of the products without ground connection may cause an electrical shock.
- In case the internal fuse is blown out, do not replace the fuse as some components may be damaged. Contact our repair service.
- Built-in fan and electrolysis condenser need periodical maintenance. Please set the overhaul period and do the maintenance periodically.
- Product may be damaged by accident or unexpected situation. Please secure the fail-safe function for application with the device which requires high reliability concerned with nuclear power, aerospace or aviation, traffic control, medical instruments and so on.
- Do not use the product in the environment with water, moisture, dust, strong electromagnetic field, erosive (including vulcanization) gas etc, or any environment where conductive foreign substance may enter.
- Export the products, should follow all applicable export related laws and procedures.

* Stated value of noise terminal voltage, noise electric field strength &immunity are taken under our measurement standard condition. Therefore, please be sure that this value could differ under the different conditions. It is recommended that the evaluation will be done by you with your actual condition.
* The contents of this catalogue are subject to change without notice. If necessary, please obtain the latest product specifications before ordering.

CUS Series Single Output 100W, 250W

2~3 years warranty

According to different Models

Feature

- Wide Range Input High Reliability Power Supply
- High Power Density, Effiency up to 90%
- No Fan, no noise
- Flexible thermal design, easy to increase Power
- CUS100M series guarantee to start up at -30°C, CUS250 series can be started at -40°C
- CUS100M series approved by Medical Safety Certificate
- 2 Years Warranty: CUS250LD
- 3 Years Warranty: CUS100M, CUS250

Part Numbering

CUS250□-5

- Output Voltage
- Option Feature:
  - M - Medical Safety Certificate
  - E - Input Voltage 88~370VDC (The Input Voltage for Electrical Application)
  - P - Peak Power
  - LD - LED Application
  - Blank - Standard Model
- Output Power
- Series

Key Market Segment & Application

Industrial LED Test Semiconductor Medical Others

In accordance with ROHS Directive

According to EU DIRECTIVE 2002/95/EC, the declare did not use Lead, Cadmium, Mercury, Hexavalent Chromium and specific Bromide Fireproofing Agents PBB, PBDEs (Except specified exempt purposes).

Model Selector

Output Voltage	CUS100M		CUS250		CUS250LD	
	(Convection cooling/Forced air cooling) Output Current	Model	Output Current	Model	Output Current	Model
3.3V	-	-	50A	CUS250-3	50A	CUS250LD-3
4.2V	-	-	50A	CUS250-4	50A	CUS250LD-4
5V	12A/16A	CUS100M-5	50A	CUS250-5	50A	CUS250LD-5
12V	6.7A/8.4A	CUS100M-12	21A	CUS250-12	21A	CUS250LD-12
15V	5.4A/6.7A	CUS100M-15	-	-	-	-
24V	3.4/4.2A	CUS100M-24	10.5A	CUS250-24	10.5A	CUS250LD-24

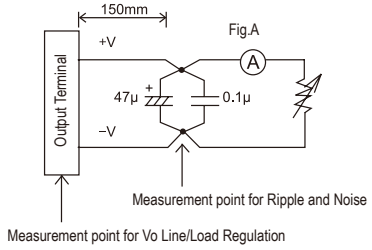
CUS100M SPECIFICATIONS

ITEMS / MODEL			CUS100M-5	CUS100M-12	CUS100M-15	CUS100M-24
1 Nominal Output Voltage		V	5	12	15	24
2 Maximum Output Current @ Convection cooling		A	12	6.7	5.4	3.4
Maximum Output Current @ Force air cooling		A	16	8.4	6.7	4.2
3 Maximum Output Power @ Convection cooling		W	60	80.4	81	81.6
Maximum Output Power @ Force air cooling		W	80	100.8	100.5	100.8
4 Efficiency @ Convection cooling (Typ) (115/230VAC)	(* 1)	%	83/84	88/90	88/90	89/90
Efficiency @ Force air cooling (Typ) (115/230VAC)	(* 1)	%	81/83	87/88	88/89	88/90
5 Input Voltage Range	(* 2)	-	85 ~ 265VAC (47-440Hz) or 120 ~ 370VDC			
6 Input Current @ Convection cooling (Typ) (115/230VAC)	(* 1)	A	1.2 / 0.7	1.5 / 0.9		
Input Current @ Force air cooling (Typ) (115/230VAC)	(* 1)	A	1.5 / 0.9	1.8 / 1.2		
7 Inrush Current (Typ)	(* 1, 3)	-	30A / 60A at Cold Start			
8 Output Voltage Range		%	-10 / +10			
9 Maximum Ripple and Noise	(* 1, 4, 5)	mV	120	120	150	150
10 Maximum Line Regulation	(* 4, 6)	mV	20	48	60	96
11 Maximum Load Regulation	(* 4, 7)	mV	40	96	120	192
12 No Load Power Consumption		W	< 0.5 @ 230VAC, Nominal Output Voltage			
13 Temperature Coefficient	(* 4)	-	Less than 0.02%/°C			
14 Over Current Protection	(* 8)	-	> 16.9	> 8.7	> 6.9	> 4.4
15 Over Voltage Protection	(* 9)	V	115% - 145%			
16 Hold-Up Time (Typ)	(* 1)	ms	10ms / 20ms			
17 Leakage current	(* 10)	-	Less than 0.25mA at 265VAC			
18 Parallel Operation		-	No			
19 Series Operation		-	Possible			
20 Operating Temperature	(* 11)	-	- 25 ~ + 70°C, star up at -30°C			
21 Operating Humidity		-	10 ~ 90 %RH (No dewdrop)			
22 Storage Temperature		-	- 40 ~ +85°C			
23 Storage Humidity		-	10 ~ 95%RH (No dewdrop)			
24 Cooling	(* 12)	-	Convection or Force Air cooling			
25 Withstand Voltage		-	Input - FG : 2kVAC (20mA), Input - Output : 4kVAC (20mA) Output - FG : 1.5kVAC (100mA) for 1min.			
26 Isolation Resistance		-	More than 100MΩ at 25°C and 70%RH, Output - FG : 500VDC			
27 Vibration		-	At no operating, 10 - 500Hz (sweep for 1min) 19.6m/s^2 Constant, X, Y, Z 1hour each			
28 Shock		-	Less than 196.1m/s^2 MIL-STD-810F			
29 Safety		-	Designed to meet UL60601-1 (cTUVus); EN60601-1; IEC 60601-1 2nd Edition; IEC60601-1 3rd Edition; IEC 60950-1 2nd Edition CB Designed to meet EN60950-1; UL60950-1; CSA60950-1 (cTUVus)			
30 Conductive Emission	(* 1)	-	Designed to meet EN55011-B, EN55022-B, FCC-Class B			
31 Radiated Emission @ Convection cooling	(* 1)	-	Designed to meet EN55011-B, EN55022-B, FCC-Class B			
Radiated Emission @ Force air cooling	(* 1)	-	Designed to meet EN55011-A, EN55022-A, FCC-Class A			
32 Immunity		-	Designed to meet IEC61000-4-2(Level 2,3), -3(Level 3), -4(Level 3), -5(Level 3,4), -6(Level 3), -8(Level 4), -11			
33 Harmonic Current		-	Designed to meet IEC61000-3-2, Class A @ 80W Output			
34 Weight (Typ)		g	150			
35 Size (LxWxH)		mm	101.6 x 50.8 x 25.4 (Refer to Outline Drawing)			

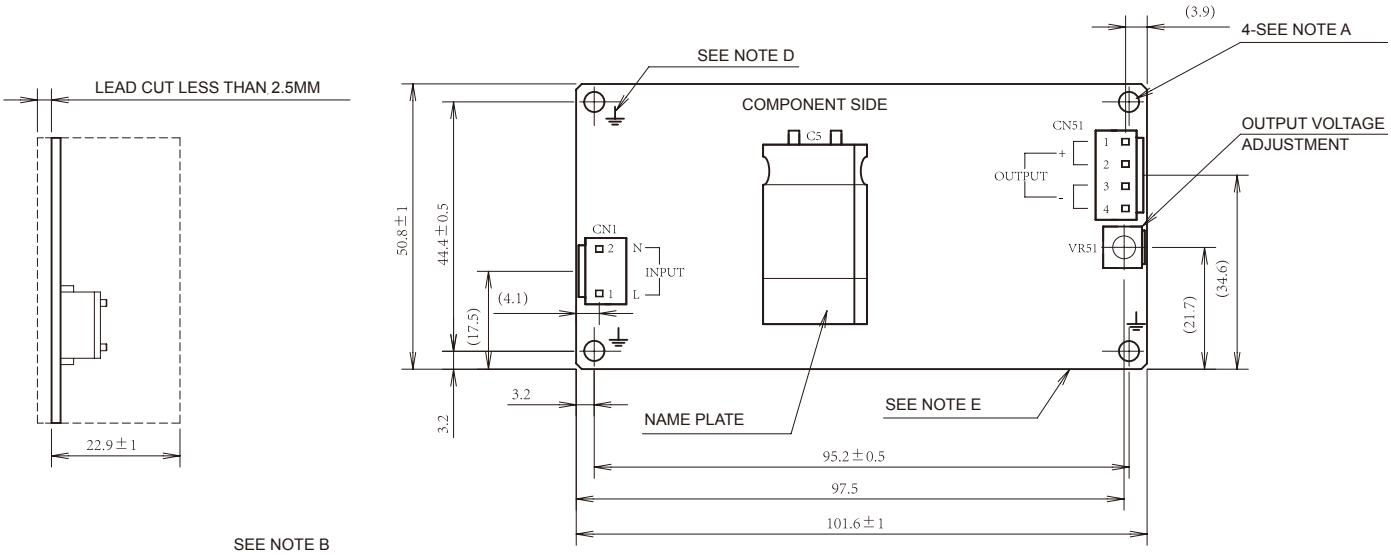
*** Read instruction manual carefully , before using the power supply unit.**

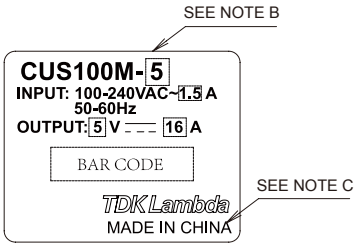
= NOTES=

* 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, to be described as 100-240VAC, 50 / 60Hz on name plate.
* 3 : Not applicable for the in-rush current to Noise Filter for less than 0.2ms.
* 4 : Ripple & noise are measured at 20MHz by using a 12" twisted pair of load wires terminated with a 0.1uF and 47uF capacitor.
* 5 : Measured line & load regulation at output terminal.
* 6 : 85 - 265VAC, constant load.
* 7 : No load - Full load (Maximum power), constant input voltage.
* 8 : Current limiting (hiccup) with automatic recovery. Avoid to operate at overload or dead short for more than 30seconds.
* 9 : OVP circuit will shutdown output, manual reset (Re power on).
* 10:Measured by each measuring method of UL, CSA, EN (at 60Hz), Ta = 25°C.
* 11:Refer to output derating curve (CA802-01-02_) for details of output derating versus ambient temperature, input voltage and mounting method.
  - Load (%) is percent of maximum output power or maximum output current.
    Do not exceed its derating of Maximum Load.
  - 100% load start up at -30°C is possible. However, it may not fulfil all the specifications.
* 12: Force air cooling with air velocity more than 1.5m/s (measured at component side of PCB, air must flow through component side)



CUS100M OUTLINE





NOTES

A: 4-Ø3.5 HOLES ARE FOR CUSTOMER'S CHASSIS MOUNTING HOLES. ALL MUST BE SCREWED IN ORDER TO CONFORM THE VIBRATION/EMI SPEC.

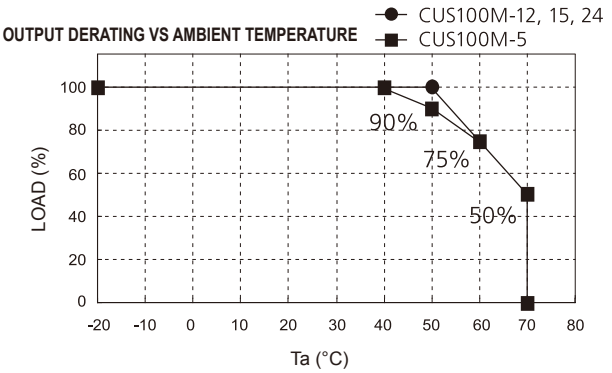
B: MODEL NAME. INPUT VOLTAGE RANGE, NOMINAL OUTPUT VOLTAGE, AND MAXIMUM OUTPUT CURRENT ARE SHOWN HERE IN ACCORDANCE WITH THE SPECIFCATIONS.

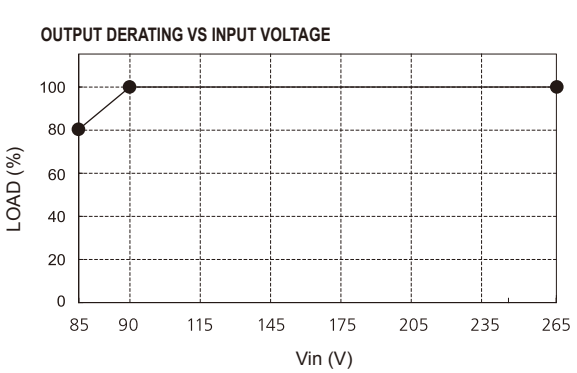
C: COUNTRY OF MANUFACTURE WILL BE SHOWN HERE.

D: ⏚ IS FOR SAFETY CROUND CONNECTION.

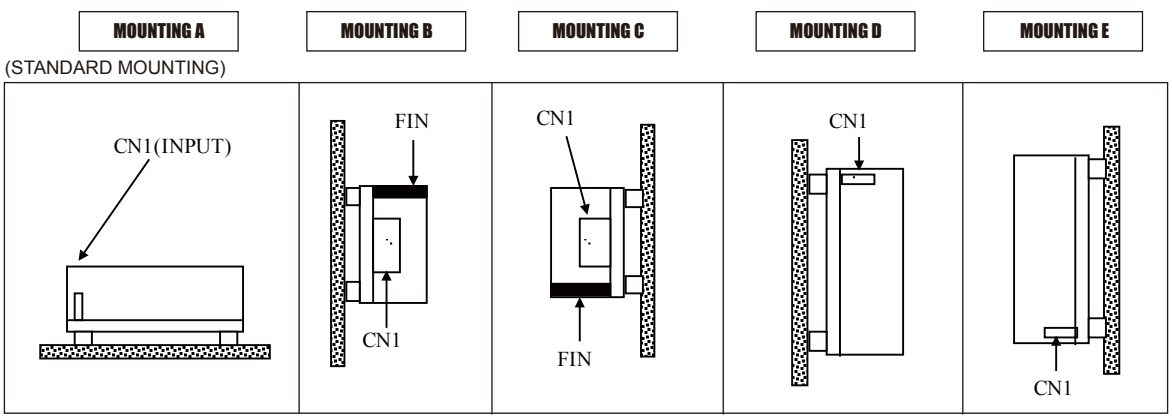
E: TO KEEP THE DISTANCE MORE THAN 5mm BETWEEN PCB EDGE AND CUSTOMER'S CHASSIS.

CUS100M OUTPUT DERATING





(STANDARD MOUNTING)



CUS250 SPECIFICATIONS

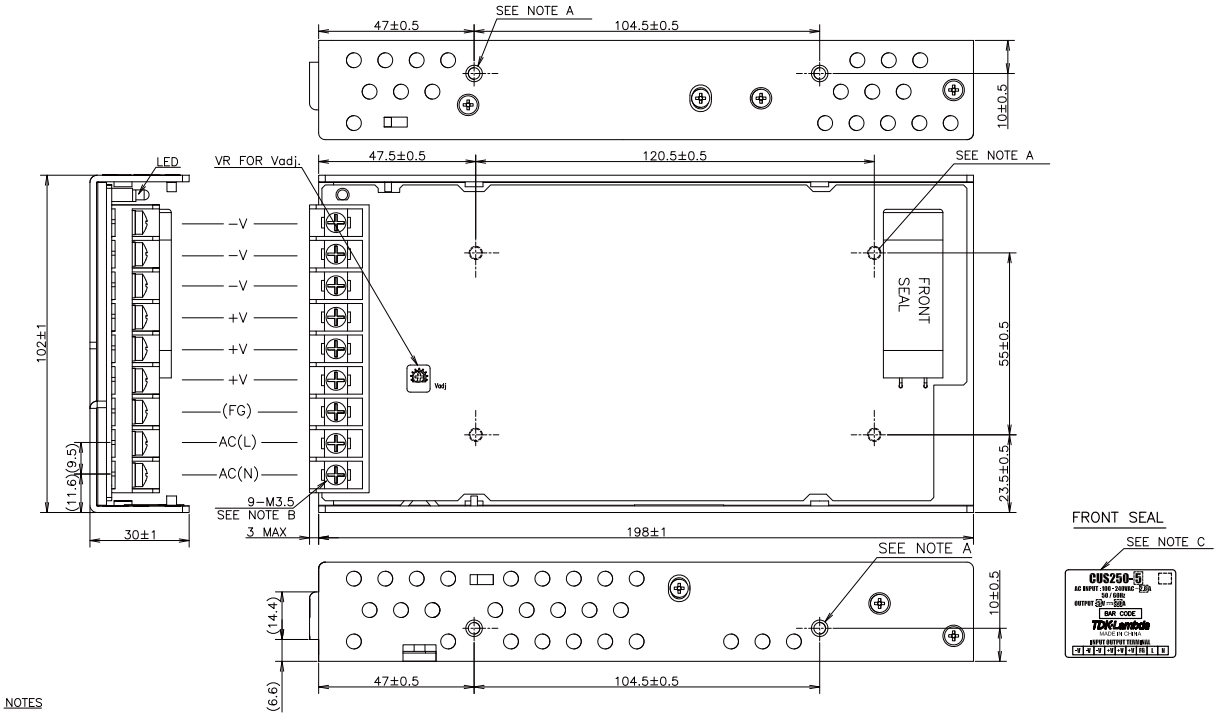
ITEMS / MODEL			CUS250-3	CUS250-4	CUS250-5	CUS250-12	CUS250-24
1 Nominal Output Voltage		V	3.3	4.2	5	12	24
2 Maximum Output Current		A	50	50	50	21	10.5
3 Maximum Output Power		W	165	210	250	252	252
4 Efficiency (Typ) (230VAC)	(* 1)	%	86/88	87/89	88/90	88/90	88/90
5 Input Voltage Range	(* 2,11)	-	85 ~ 265VAC (47-63Hz) or 120 ~ 370VDC (Withstand 300VAC Surge for 5 seconds)				
6 Input Current (Typ) (230VAC)	(* 1)	A	2.0/1.0	2.4/1.2	2.8 / 1.4	2.8 / 1.4	2.8 / 1.4
7 Inrush Current (Typ)	(* 3)	-	20A at 115VAC, 40A at 230VAC, Ta = 25°C, Cold Start				
8 PFHC		-	Designed to meet IEC61000-3-2				
9 Power Factor (Typ) (230VAC)	(* 1)	-	0.98 / 0.95				
10 Output Voltage Range		V	2.97 - 3.63	3.78 - 4.62	4.5 - 5.5	10.8 - 13.2	21.6 - 26.4
11 Ripple and Noise	(* 1, 4)	mV	120	120	120	120	150
12 Line Regulation	(* 5, 6)	mV	20	20	20	48	96
13 Load Regulation	(* 5, 7)	mV	40	40	40	96	192
14 Temperature Coefficient		-	Less than 0.02%/°C				
15 Over Current Protection		-	>105%				
16 Over Voltage Protection	(* 9)	V	4.00 - 5.25	5.00 - 6.50	5.75 - 7.50	13.8 - 16.2	27.6 - 32.4
17 Hold-Up Time (Typ)	(* 1)	ms	20				
18 Leakage current	(* 10)	-	Less than 0.75mA at 240VAC				
19 Parallel Operation		-	---				
20 Series Operation		-	Possible				
21 Operating Temperature	(* 11)	-	- 25 ~ + 70°C (Refer to Output Derating Curve)				
22 Operating Humidity		-	30 ~ 90 %RH (No dewdrop)				
23 Storage Temperature		-	- 30 ~ +75°C				
24 Storage Humidity		-	10 ~ 95%RH (No dewdrop)				
25 Cooling		-	Convection cooling				
26 Withstand Voltage		-	Input - Output : 3kVAC (20mA), Input - FG : 2kVAC (20mA) Output - FG : 500VAC (100mA) for 1min.				
27 Isolation Resistance		-	More than 100MΩ at Ta = 25°C and 70%RH, Output - FG : 500VDC				
28 Vibration		-	At no operating, 10 - 55Hz (sweep for 1min) 19.6m/s^2 Constant, X, Y, Z 1hour each				
29 Shock		-	Less than 196.1m/s^2				
30 Safety			Aproved by UL60950-1, CSA60950-1(cTUVus), EN60950-1, EN50178				
31 EMI			Designed to meet EN55022-B, CISPR22-B				
32 Immunity		-	Designed to meet EN61000-4-2(Level 2,3), -3(Level 3), -4(Level 3), -5(Level 3,4), -6(Level 3), -8(Level 4), -11				
33 Weight (Typ)		g	700				
34 Size (LxWxH)		mm	198 x 102 x 30 (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, to be described as 100-240VAC, 50 / 60Hz on name plate.
* 3 : Not applicable for the in-rush current to Noise Filter for less than 0.2ms.
* 4 : Ripple & noise are measured at 20MHz by using a 12" twisted pair of load wires terminated with a 0.1uF and 47uF capacitor.
* 5 : Measured line & load regulation at output terminal.
* 6 : 85 - 265VAC, constant load.
* 7 : No load - Full load (Maximum power), constant input voltage.
* 8 : Current limiting (hiccup) with automatic recovery. Avoid to operate at overload or dead short for more than 30seconds.
* 9 : OVP circuit will shutdown output, manual reset (Re power on).
* 10:Measured by each measuring method of UL, CSA, EN (at 60Hz), Ta = 25ºC.
* 11:Refer to output derating curve (CA802-01-02) for details of output derating versus ambient temperature, input voltage and mounting method.
  Load (%) is percent of maximum output power or maximum output current.
  Do not exceed its derating of Maximum Load.

CS250 OUTLINE

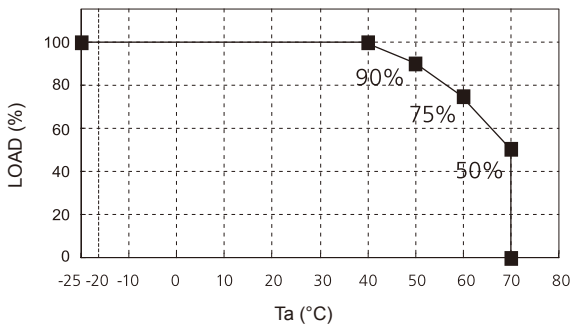


NOTES

A: M3.5 EMBOSSED, TAPPED AND COUNTERSUNK HOLES (8) FOR CUSTOMER CHASSIS MOUNTING. SCREWS MUST NOT PROTRUDE INTO POWER SUPPLY BY MORE THAN 6mm.
B: RECOMMENDED SCREW TORQUE (M3.5 SCREW) < 0.75N·m
C: MODEL NAME, MAXIMUM OUTPUT POWER, NOMINAL OUTPUT VOLTAGE, MAXIMUM OUTPUT CURRENT,ARE SHOWN HERE IN ACCORDANCE WITH THE SPECIFICATIONS.

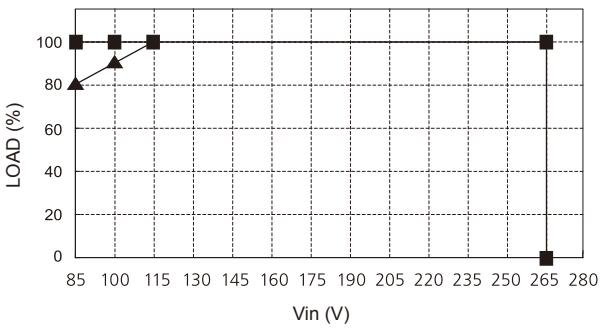
CS250 OUTPUT DERATING

OUTPUT DERATING VS AMBIENT TEMPERATURE



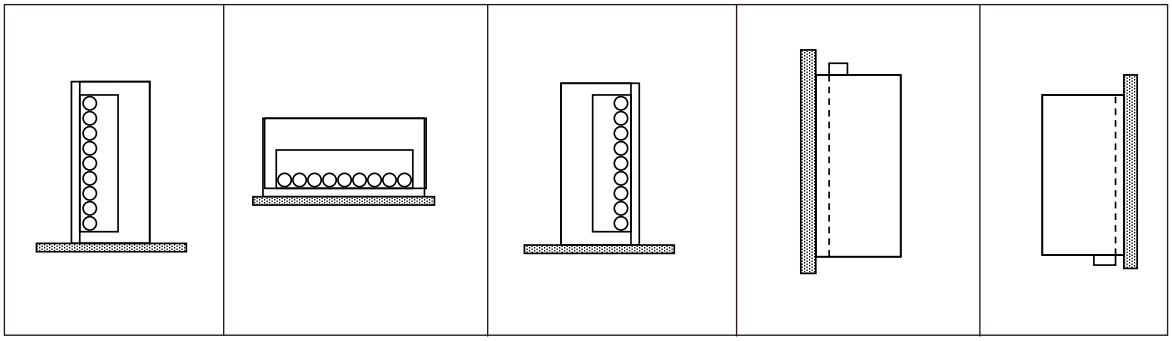
OUTPUT DERATING VS INPUT VOLTAGE

■ CUS250-3,
▲ CUS250-4, 5, 12, 24



MOUNTING A | MOUNTING B | MOUNTING C | MOUNTING D | MOUNTING E

(STANDARD MOUNTING)



Service network

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Factory

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