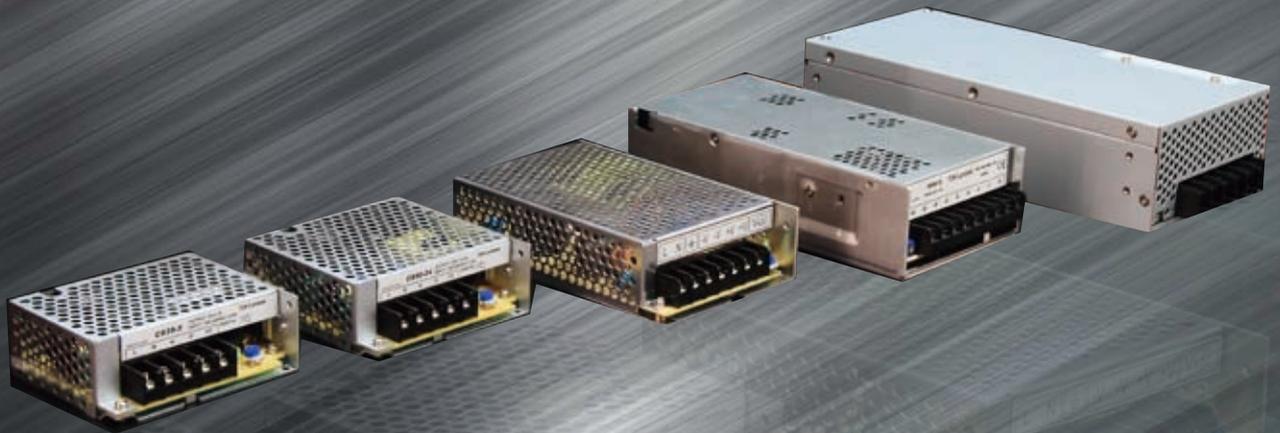


CS Series

High Reliability, High Cost-Effective, Industrial Power Supply

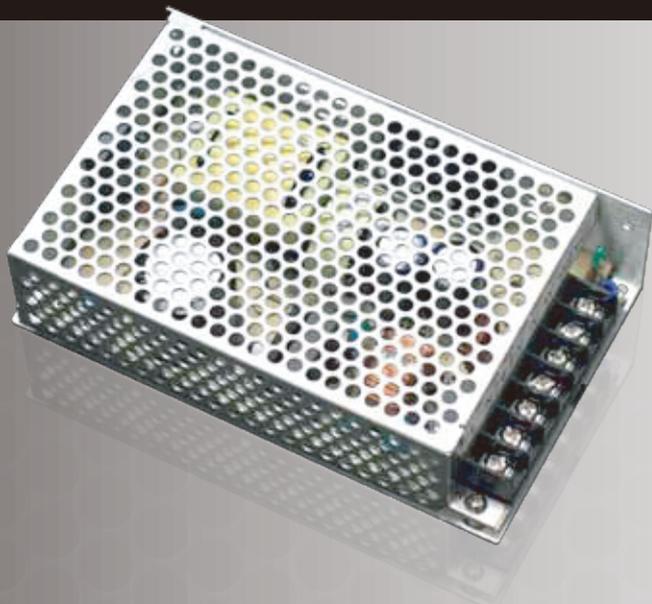


TDK-Lambda

TDK-Lambda Introduces CS series

Compact, Cost-effective, High Reliability

Switching Power Supply



CS Series

High Reliability,
Industrial AC-DC Power Supply

CS Series

■ HIGH RELIABILITY

For the requirements of high reliability of industrial devices, CS series use high-temperature, long-life electrolytic capacitors.

It can operate stably for long time, the actual average life is up to 5 years.

The fail rate is reduced as much as possible by strict components evaluation, and perfect process of R&D, manufacture and quality control.

■ COST-EFFECTIVE

By optimize circuit design and components selection, rational function configuration, and effective automated SMD manufacturing, CS series is high cost-effective for common industrial usage.

The most cost effective power supply solutions.

Adaptability to Environment

CS series can operate at critical environments. The operating temperature is **-20~70°C**, it is guaranteed to startup at **-30°C** at full load condition.

And, it can withstand **300VAC** input voltage without damage.

Safety Approval

CS series is designed to meet: **UL60950-1, CSA60950-1, EN50178, GB4943.**

It can also meet **EMI FCC-Class B, EN55011/EN55022-B,** and **EMC EN61000-4-2, -3, -4, -5, -6, -8, -11.**

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.

CS Series Single Output 35~600W

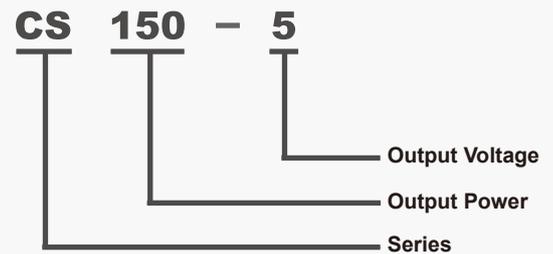
2 years
Warranty



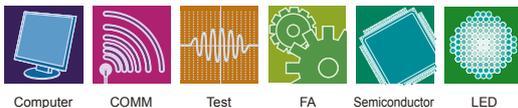
Feature

- High Reliability, High Cost-Effective Power Supply
- Wide operating temperature range: -20°C~70°C, low temperature start up at -30°C
- Operating Input up to 280Vac, No damage at 300Vac
- Protection Functions: OVP, OCP, OTP(Only for 300W)
- EMI designed to meet:
FCC-Class B, EN55011/EN55022-B
- EMC designed to EN61000-4-2,-3,-4,-5,-6,-8,-11

Part Numbering



Key Market Segment & Application



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	CS35		CS50		CS100	
	Output Current	MODEL	Output Current	MODEL	Output Current	MODEL
5V	7A	CS35-5	10A	CS50-5	20A	CS100-5
12V	3A	CS35-12	4.2A	CS50-12	8.5A	CS100-12
24V	1.5A	CS35-24	2.2A	CS50-24	4.5A	CS100-24

Output Voltage	CS150		CS300		CS600	
	Peak Output Current	MODEL	Peak Output Current	MODEL	Output Current	MODEL
5V	26A(30A)	CS150-5	55A(60A)	CS300-5	100A(110A)	CS600-5
12V	12.5A	CS150-12	26A	CS300-12	50A	CS600-12
24V	6.5A	CS150-24	13A	CS300-24	25A	CS600-24

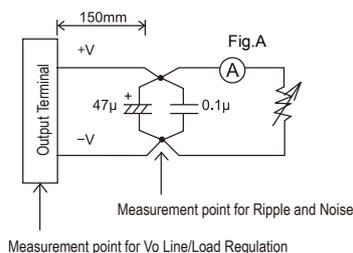
CS35 SPECIFICATIONS

ITEMS		MODEL	CS35-5	CS35-12	CS35-24
1	Nominal Output Voltage	V	5	12	24
2	Maximum Output Current	A	7	3	1.5
3	Maximum Output Power	W	35	36	36
4	Efficiency (Typ) (115VAC)	(* 1) %	78	83	87
	(230VAC)	(* 1) -	80	85	88
5	Input Voltage Range	(* 3, 11) -	85 ~ 265VAC (47 - 63Hz) or 120 ~ 370VDC		
6	Input Current (Typ)	(* 1) A	0.7 / 0.4		
7	Inrush Current (Typ)	(* 4) -	45A at 230VAC, Ta = 25°C, Cold Start		
8	No load power consumption (230VAC)	(* 2) W	< 0.3		
9	Output Voltage Range	V	4.5 ~ 6.0	9.6 ~ 13.2	20 ~ 28.8
10	Ripple and Noise	(* 1, 5) mV	80	120	150
11	Line Regulation	(* 5, 6) mV	20	48	96
12	Load Regulation	(* 5, 7) mV	40	96	192
13	Temperature Coefficient	-	Less than 0.02%/°C		
14	Over Current Protection	(* 8) A	7.4 ~	3.2 ~	1.6 ~
15	Over Voltage Protection	(* 9) V	6.25 ~ 7.5	13.8 ~ 16.8	30.0 ~ 34.8
16	Hold-Up Time (Typ) (115VAC)	(* 1) -	10ms		
	(Typ) (230VAC)	(* 1) -	50ms		
17	Leakage current	(* 10) -	0.5mA(Typ) at 230VAC, 0.75mA max at 265VAC,60Hz		
18	Series Operation	-	Possible		
19	Operating Temperature	(* 11) -	- 20 ~ + 70°C (Refer to Output Derating Curve)		
20	Operating Humidity	-	30 ~ 90%RH (No dewdrop)		
21	Storage Temperature	-	- 30 ~ +85°C		
22	Storage Humidity	-	10 ~ 95%RH (No dewdrop)		
23	Cooling	-	Convection cooling		
24	Withstand Voltage	-	Input - Output : 3.0kVAC (20mA), Input - FG : 2.0kVAC (20mA) Output - FG : 500VAC (100mA) for 1min.		
25	Isolation Resistance	-	Input - Output, Input - FG and Output - FG : More than 100MW (500VDC) at Ta = 25°C and 70%RH		
26	Vibration	-	At no operating, 10 - 55Hz (sweep for 1min) 19.6m/s ² Constant, X, Y, Z 1hour each		
27	Safety		Built to meet UL60950-1, CSA60950-1, EN60950-1, GB4943		
28	EMI	(* 1) -	Built to meet FCC-Class B, EN55011/EN55022-B		
29	Immunity	(* 1) -	Built to meet EN61000-4-2,-3,-4,-5,-6,-8,-11		
30	Weight (Typ)	g	300		
31	Dimension	mm	36 x 97 x 80 (Refer to Outline Drawing)		

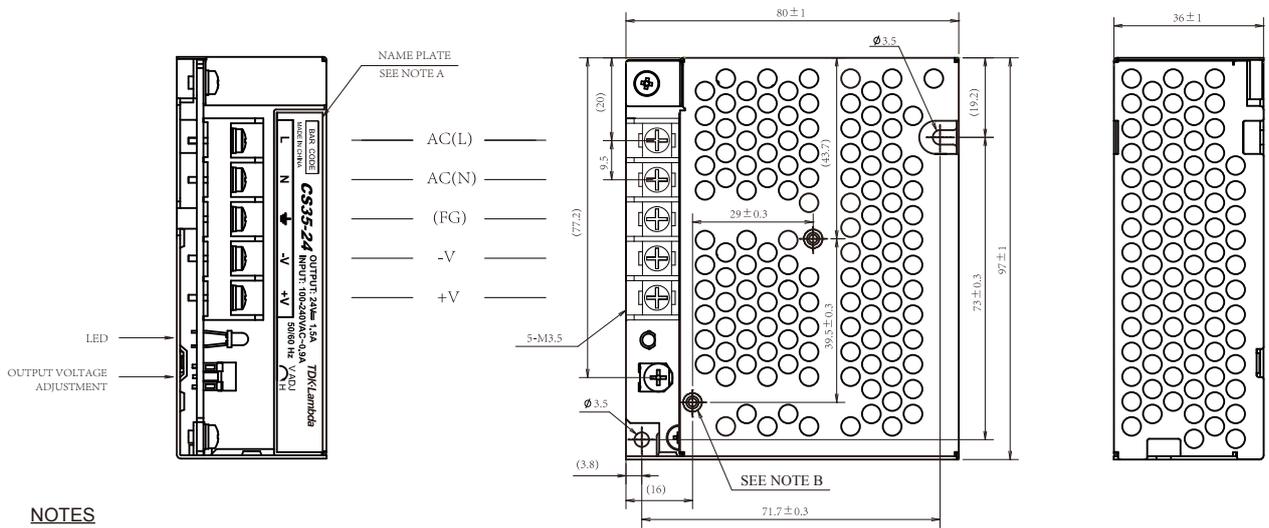
* Read instruction manual carefully , before using the power supply unit.

= NOTES=

- * 1 : At maximum output power, nominal input voltage(115VAC / 230VAC), Ta = 25°C.
- * 2 : At 230VAC Io=0% , Ta = 25°C.
- * 3 : For cases where conformance to various safety specs (EN,CQC) are required, to be described as 100 - 240VAC, 50 / 60Hz on name plate. 280VAC (max) input operation is possible.
- * 4 : Not applicable for the in-rush current to Noise Filter for less than 0.2ms.
- * 5 : Please refer to Fig A for measurement of line & load regulation, ripple and noise voltage. Ripple & noise are measured at 20MHz by using a twisted pair of load wires terminated with a 0.1uF and 47uF capacitor.
- * 6 : 85 - 265VAC, constant load.
- * 7 : No load - Full load(Maximum power), constant input voltage.
- * 8 : Hiccup current limit 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 EN,CQC.
- * 11: Refer to Output Derating Curve (next page) for details of output derating versus input voltage, ambient temperature and mounting method . 90% load start up at Vin>=100Vac at -30°C is possible. However, it may not fulfil all the specifications.

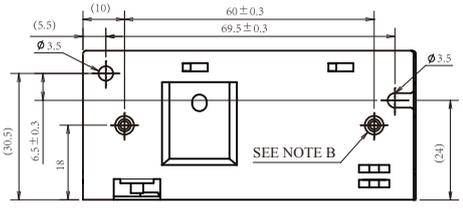


CS35 OUTLINE



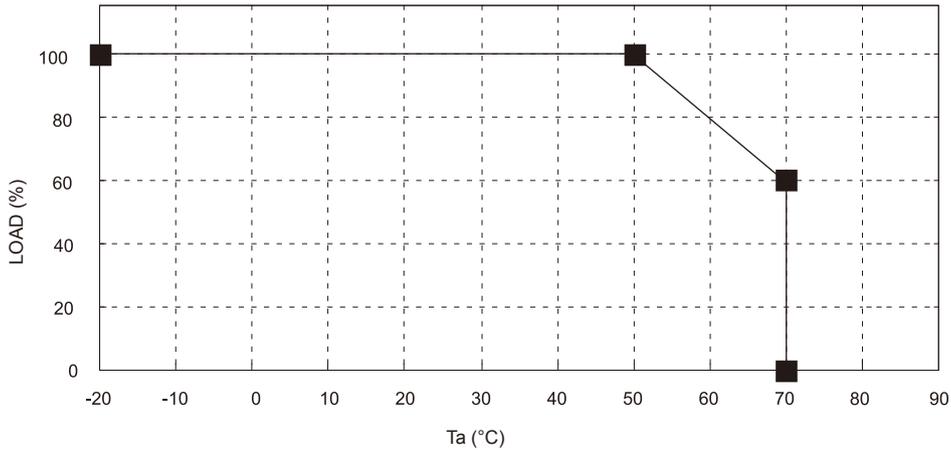
NOTES

- A: MODEL NAME NOMINAL OUTPUT VOLTAGE AND MAXIMUM OUTPUT CURRENT ARE SHOWN IN THE NAME PLATE IN ACCORDANCE WITH THE SPECIFICATION.
- B: M3 TAPPED & EMBOSSED & COUNTERSUNK HOLES(4) FOR CUSTOMER CHASSIS MOUNTING. (SCREW PENETRATION DEPTH 6MM MAX.).

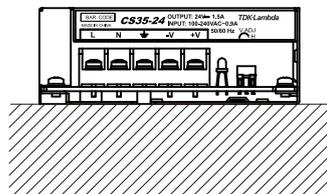


CS35 OUTPUT DERATING

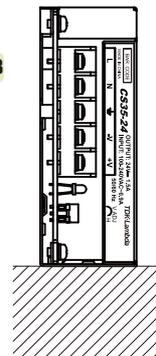
CS35 OUTPUT DERATING VS Ta CURVE



MOUNTING A



MOUNTING B



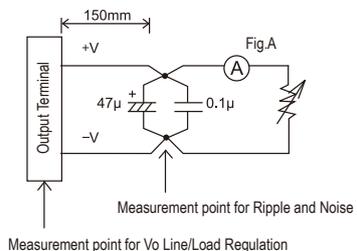
CS50 SPECIFICATIONS

ITEMS		MODEL	CS50-5	CS50-12	CS50-24
1	Nominal Output Voltage	V	5	12	24
2	Maximum Output Current	A	10	4.2	2.2
3	Maximum Output Power	W	50	50.4	52.8
4	Efficiency (Typ) (115VAC)	(* 1) %	78	83	88
	(230VAC)	(* 1) -	80	85	89
5	Input Voltage Range	(* 3, 11) -	85 ~ 265VAC (47 - 63Hz) or 120 ~ 370VDC		
6	Input Current (Typ)	(* 1) A	1.2 / 0.6		
7	Inrush Current (Typ)	(* 4) -	45A at 230VAC, Ta=25oC, Cold Start		
8	No load power consumption (230VAC)	(* 2) W	< 0.5		
9	Output Voltage Range	V	4.5 ~ 6.0	9.6 ~ 13.2	20 ~ 28.8
10	Ripple and Noise	(* 1, 5) mV	80	120	150
11	Line Regulation	(* 5, 6) mV	20	48	96
12	Load Regulation	(* 5, 7) mV	40	96	192
13	Temperature Coefficient	-	Less than 0.02%/°C		
14	Over Current Protection	(* 8) A	10.5 ~	4.4 ~	2.3 ~
15	Over Voltage Protection	(* 9) V	6.25 ~ 7.5	13.8 ~ 16.8	30.0 ~ 34.8
16	Hold-Up Time (Typ) (115VAC)	(* 1) -	10ms		
	(Typ) (230VAC)	(* 1) -	50ms		
17	Leakage current	(* 10) -	0.5mA(Typ) at 230VAC, 0.75mA max at 265VAC,60Hz		
18	Series Operation	-	Possible		
19	Operating Temperature	(* 11) -	- 20 ~ + 70°C (Refer to Output Derating Curve)		
20	Operating Humidity	-	30 ~ 90%RH (No dewdrop)		
21	Storage Temperature	-	- 30 ~ +85°C		
22	Storage Humidity	-	10 ~ 95%RH (No dewdrop)		
23	Cooling	-	Convection cooling		
24	Withstand Voltage	-	Input - Output : 3.0kVAC (20mA), Input - FG : 2.0kVAC (20mA) Output - FG : 500VAC (100mA) for 1min.		
25	Isolation Resistance	-	Input - Output, Input - FG and Output - FG : More than 100MW (500VDC) at Ta = 25°C and 70%RH		
26	Vibration	-	At no operating, 10 - 55Hz (sweep for 1min) 19.6m/s ² Constant, X, Y, Z 1hour each		
27	Safety		Built to meet UL60950-1, CSA60950-1, EN60950-1, GB4943		
28	EMI	(* 1) -	Built to meet FCC-Class B, EN55011/EN55022-B		
29	Immunity	(* 1) -	Built to meet EN61000-4-2,-3,-4,-5,-6,-8,-11		
30	Weight (Typ)	g	350		
31	Dimension	mm	36 x 97 x 99 (Refer to Outline Drawing)		

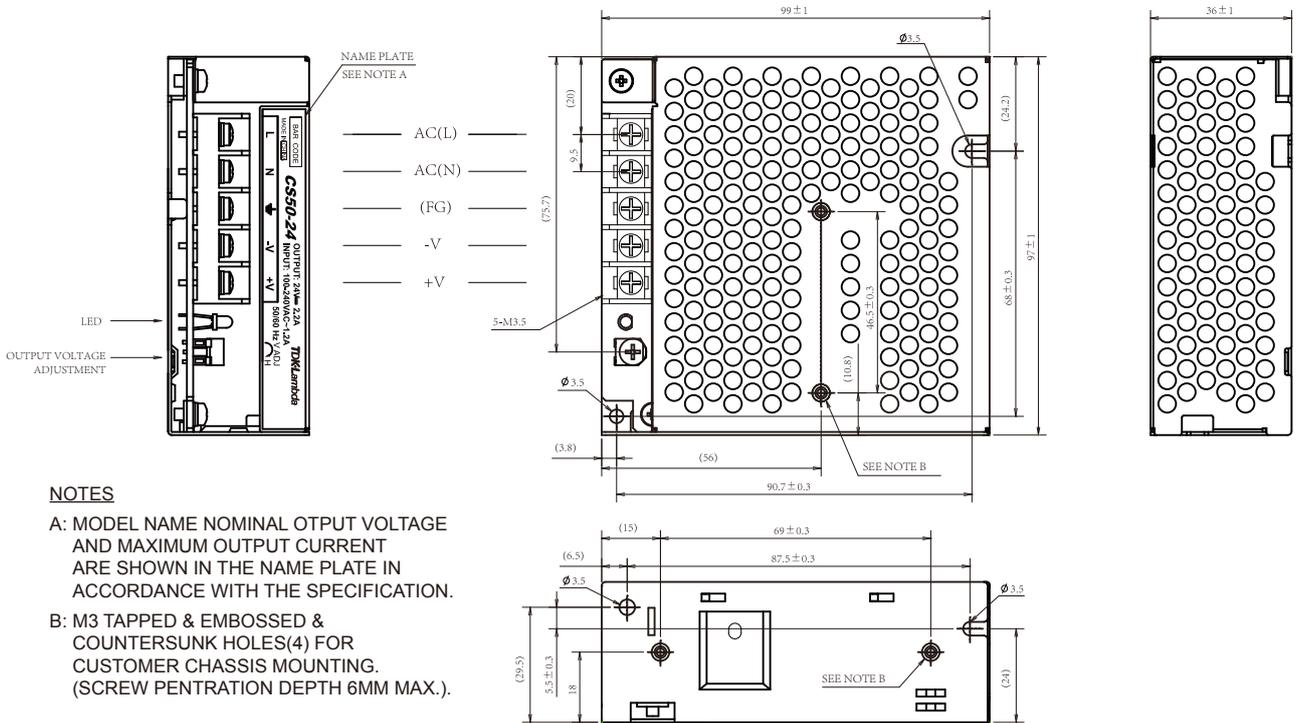
* Read instruction manual carefully , before using the power supply unit.

= NOTES=

- * 1 : At maximum output power, nominal input voltage(115VAC / 230VAC), Ta = 25°C.
- * 2 : At 230VAC Io=0% , Ta = 25°C.
- * 3 : For cases where conformance to various safety specs (EN,CQC) are required, to be described as 100 - 240VAC, 50 / 60Hz on name plate. 280VAC (max) input operation is possible.
- * 4 : Not applicable for the in-rush current to Noise Filter for less than 0.2ms.
- * 5 : Please refer to Fig A for measurement of line & load regulation, ripple and noise voltage. Ripple & noise are measured at 20MHz by using a twisted pair of load wires terminated with a 0.1uF and 47uF capacitor.
- * 6 : 85 - 265VAC, constant load.
- * 7 : No load - Full load(Maximum power), constant input voltage.
- * 8 : Hiccup current limit 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 EN,CQC.
- * 11 : Refer to Output Derating Curve (next page) for details of output derating versus input voltage, ambient temperature and mounting method . 90% load start up at Vin>=100Vac at -30°C is possible. However, it may not fulfil all the specifications.



CS50 OUTLINE

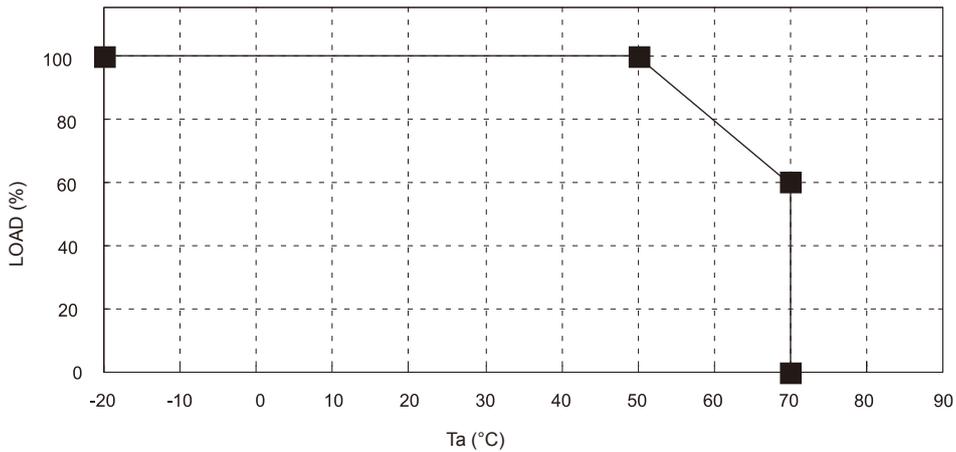


NOTES

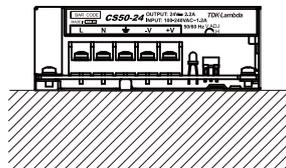
- A: MODEL NAME NOMINAL OUTPUT VOLTAGE AND MAXIMUM OUTPUT CURRENT ARE SHOWN IN THE NAME PLATE IN ACCORDANCE WITH THE SPECIFICATION.
- B: M3 TAPPED & EMBOSSED & COUNTERSUNK HOLES(4) FOR CUSTOMER CHASSIS MOUNTING. (SCREW PENETRATION DEPTH 6MM MAX.).

CS50 OUTPUT DERATING

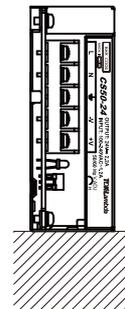
CS50 OUTPUT DERATING VS Ta CURVE



MOUNTING A



MOUNTING B



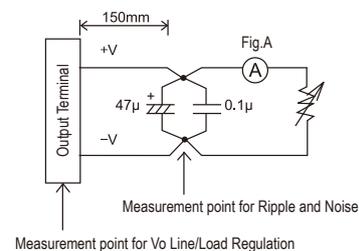
CS100 SPECIFICATIONS

ITEMS		MODEL	CS100-5	CS100-12	CS100-24
1	Nominal Output Voltage	V	5	12	24
2	Maximum Output Current	A	20	8.5	4.5
3	Maximum Output Power	W	100	102	108
4	Efficiency (Typ) (230VAC) (* 1)	%	83	85	88
5	Input Voltage Range (* 2)	-	176 ~ 265VAC (47 - 63Hz) or 240 ~ 370VDC		
6	Input Current (Typ) (230VAC) (* 1)	A	1.4		
7	Inrush Current (Typ) (* 3)	-	45A at 230VAC, Ta = 25°C, Cold Start		
8	Output Voltage Range	V	4.5~6.0	10.2~13.2	20~28.8
9	Ripple and Noise (230VAC) (* 1, 4)	mV	100	100	150
10	Line Regulation (* 4, 5)	mV	20	48	96
11	Load Regulation (* 4, 6)	mV	40	96	120
12	Temperature Coefficient	-	Less than 0.02%/°C		
13	Over Current Protection (* 7)	A	21 ~	8.9 ~	4.7 ~
14	Over Voltage Protection (* 8)	V	6.25 ~ 7.5	13.8 ~ 16.8	30.0 ~ 34.8
15	Hold-Up Time (Typ) (230VAC) (* 1)	-	20ms		
16	Leakage current (* 9)	-	0.5mA(Typ) at 230VAC, 0.75mA max @ 265VAC,60Hz		
17	Series Operation	-	Possible		
18	Operating Temperature (* 10)	-	- 20 ~ + 70°C (Refer to Output Derating Curve)		
19	Operating Humidity	-	30 ~ 90%RH (No dewdrop)		
20	Storage Temperature	-	- 30 ~ +85°C		
21	Storage Humidity	-	10 ~ 95%RH (No dewdrop)		
22	Cooling	-	Convection cooling		
23	Withstand Voltage	-	Input - Output : 3.0kVAC (20mA), Input - FG : 2.0kVAC (20mA) Output - FG : 500VAC (100mA) for 1min.		
24	Isolation Resistance	-	More than 100MW at Ta=25°C and 70%RH, Output - FG : 500VDC		
25	Vibration	-	At no operating, 10 - 55Hz (sweep for 1min) 19.6m/s ² Constant, X, Y, Z 1hour each		
26	Safety	-	Built to meet UL60950-1, CSA60950-1, EN60950-1, EN50178, GB4943		
27	EMI (Conducted Emission) (* 1) EMI (Radiated Emission)		Built to meet FCC-Class B, EN55011/EN55022-B Built to meet FCC-Class A, EN55011/EN55023-A		
28	Immunity (* 1)	-	Built to meet EN61000-4-2,-3,-4,-5,-6,-8,-11		
29	Weight (Typ)	g	500		
30	Dimension	mm	159 x 97 x 40 (Refer to Outline Drawing)		

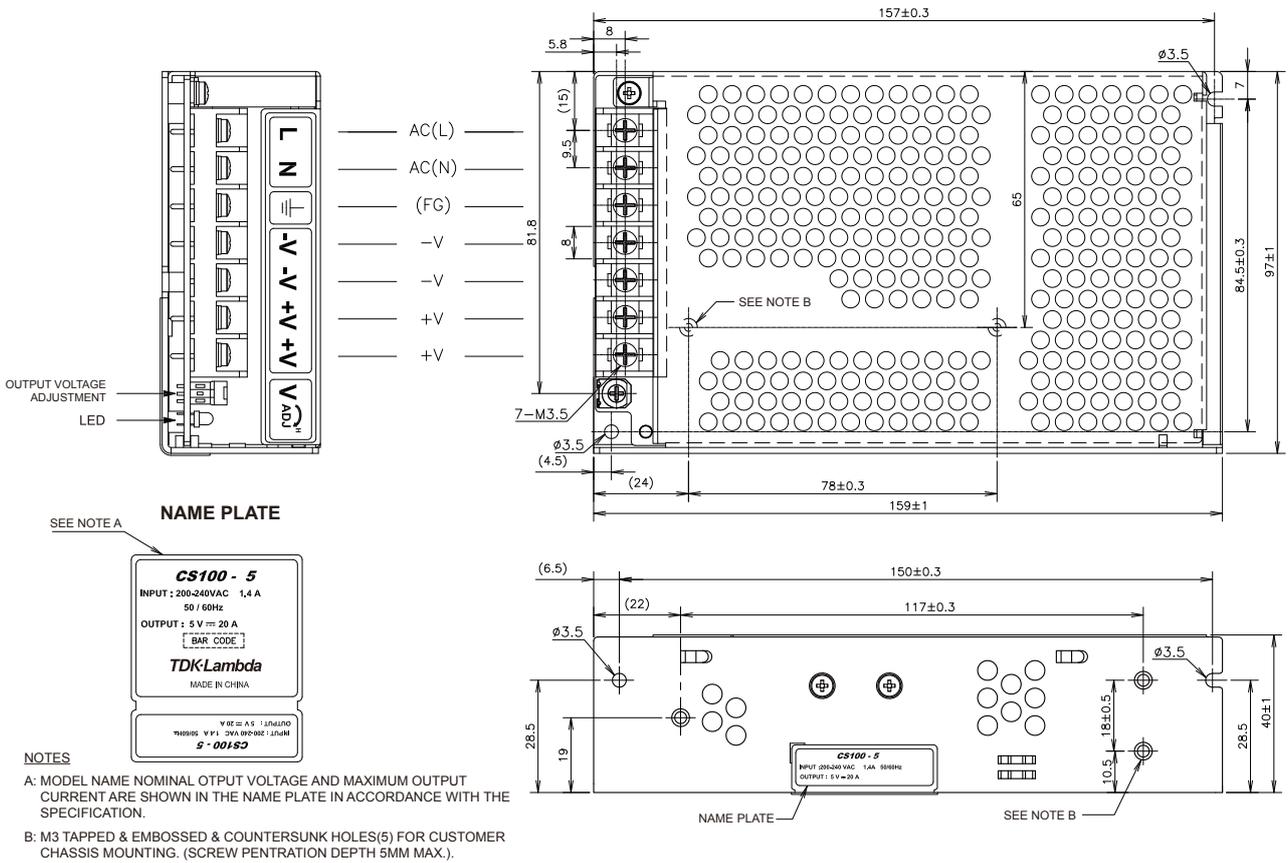
* Read instruction manual carefully , before using the power supply unit.

= NOTES=

- * 1 : At maximum output power, nominal input voltage, Ta = 25°C.
- * 2 : For cases where conformance to various safety specs (UL, CSA, EN) are required, to be described as 200 - 240VAC, 50 / 60Hz on name plate. 280VAC (max) input operation is possible
- * 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 line & load regulation, ripple and noise voltage. Ripple & noise are measured at 20MHz by using a twisted pair of load wires terminated with a 0.1uF and 47uF capacitor.
- * 5 : 176 - 265VAC, constant load.
- * 6 : No load - Full load(Maximum power), constant input voltage. Constant current limit with automatic recovery.
- * 7 : Avoid to operate at overload or dead short for more than 30seconds.
- * 8 : OVP circuit will shutdown output, manual reset (Re power on).
- * 9 : Measured by each measuring method of UL, CSA, EN.
- * 10: Refer to Output Derating Curve (next page) for details of output derating versus input voltage, ambient temperature and mounting method .

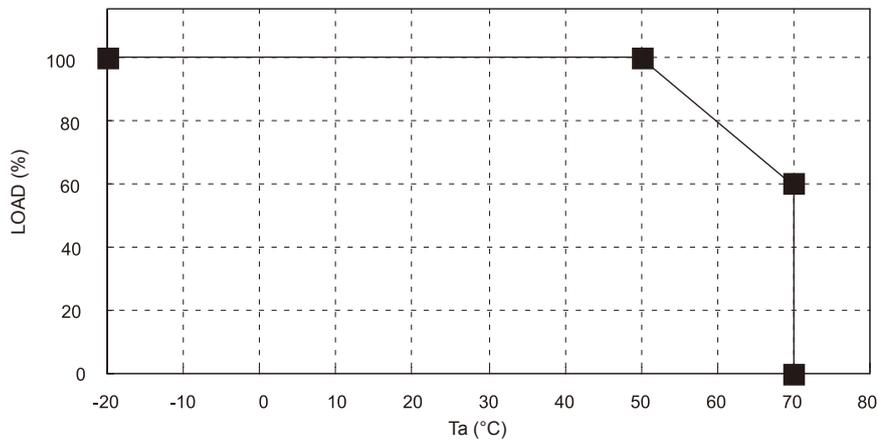


CS100 OUTLINE

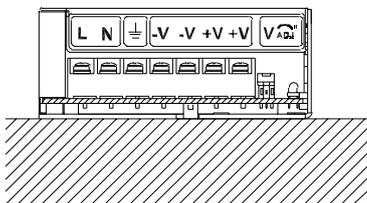


CS100 OUTPUT DERATING

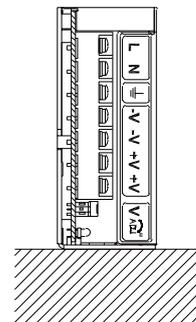
CS100 OUTPUT DERATING VS Ta CURVE



MOUNTING A



MOUNTING B



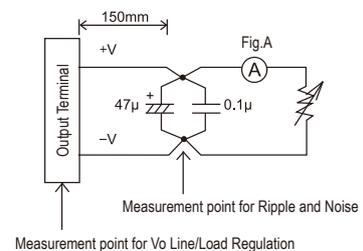
CS150 SPECIFICATIONS

ITEMS		MODEL	CS150-5	CS150-12	CS150-24
1	Nominal Output Voltage	V	5	12	24
2	Maximum Output Current (Peak Output Current) (* 1)	A	26 (30)	12.5	6.5
3	Maximum Output Power (Peak Output Power) (* 1)	W	130 (150)	150	156
4	Efficiency (Typ) (230VAC) (* 3)	%	82	86	88
5	Input Voltage Range (* 2)	-	176 ~ 265VAC (47 - 63Hz) or 240 ~ 370VDC		
6	Input Current (Typ) (230VAC) (* 3)	A	2.0		
7	Inrush Current (Typ) (* 4)	-	45A at 230VAC, Ta = 25°C, Cold Start		
8	Output Voltage Range	V	4.5 ~ 6.0	9.6 ~ 13.2	20 ~ 28.8
9	Ripple and Noise (230VAC) (* 3, 5)	mV	100	100	150
10	Line Regulation (* 5, 6)	mV	20	48	96
11	Load Regulation (* 5, 7)	mV	40	96	120
12	Temperature Coefficient	-	Less than 0.02%/°C		
13	Over Current Protection (* 8)	A	31.5 ~	13.2 ~	6.8 ~
14	Over Voltage Protection (* 9)	V	6.25 ~ 7.5	13.8 ~ 16.8	30.0 ~ 34.8
15	Hold-Up Time (Typ) (230VAC) (* 3)	-	20ms		
16	Leakage current (* 10)	-	0.5mA(Typ) at 230VAC, 0.75mA max at 265VAC,60Hz		
17	Series Operation	-	Possible		
18	Operating Temperature (* 11)	-	- 20 ~ + 70°C (Refer to Output Derating Curve)		
19	Operating Humidity	-	30 ~ 90%RH (No dewdrop)		
20	Storage Temperature	-	- 30 ~ +85°C		
21	Storage Humidity	-	10 ~ 95%RH (No dewdrop)		
22	Cooling	-	Convection cooling		
23	Withstand Voltage	-	Input - Output : 3.0kVAC (20mA), Input - FG : 2.0kVAC (20mA) Output - FG : 500VAC (100mA) for 1min.		
24	Isolation Resistance	-	More than 100MW at Ta=25°C and 70%RH, Output - FG : 500VDC		
25	Vibration	-	At no operating, 10 - 55Hz (sweep for 1min) 19.6m/s ² Constant, X, Y, Z 1hour each		
26	Safety	-	Built to meet UL60950-1, CSA60950-1, EN60950-1, EN50178, GB4943		
27	EMI (* 3)	-	Built to meet FCC-Class B, EN55011/EN55022-B		
28	Immunity (* 3)	-	Built to meet EN61000-4-2,-3,-4,-5,-6,-8,-11		
29	Weight (Typ)	g	600		
30	Dimension	mm	159 x 97 x 40 (Refer to Outline Drawing)		

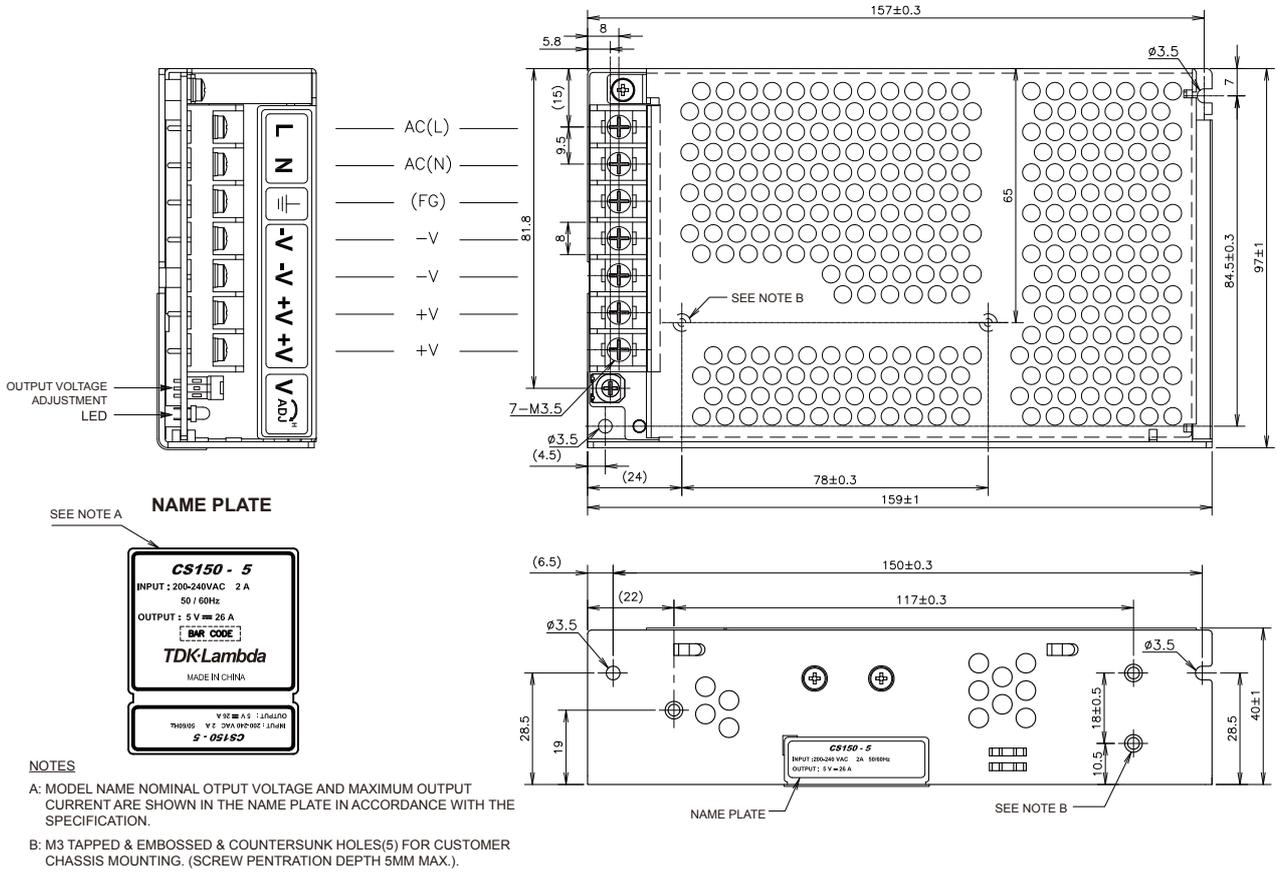
* Read instruction manual carefully , before using the power supply unit.

= NOTES=

- * 1 : () : Peak Output Current is possible, operating period at Peak Output Current is less than 5 sec, duty less than 35%. Average output power and current is less than Maximum Output Power and Maximum Output Current.
- * 2 : For cases where conformance to various safety specs (UL, CSA, EN) are required, to be described as 200 - 240VAC, 50 / 60Hz on name plate. 280VAC (max) input operation is possible.
- * 3 : At maximum output power, nominal input voltage, Ta = 25°C.
- * 4 : Not applicable for the in-rush current to Noise Filter for less than 0.2ms.
- * 5 : Please refer to Fig A for measurement of line & load regulation, ripple and noise voltage. Ripple & noise are measured at 20MHz by using a twisted pair of load wires terminated with a 0.1uF and 47uF capacitor.
- * 6 : 176 - 265VAC, constant load.
- * 7 : No load - Full load(Maximum power), constant input voltage. Constant current limit with automatic recovery.
- * 8 : 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.
- * 11 : Refer to Output Derating Curve (next page) for details of output derating versus input voltage, ambient temperature and mounting method .

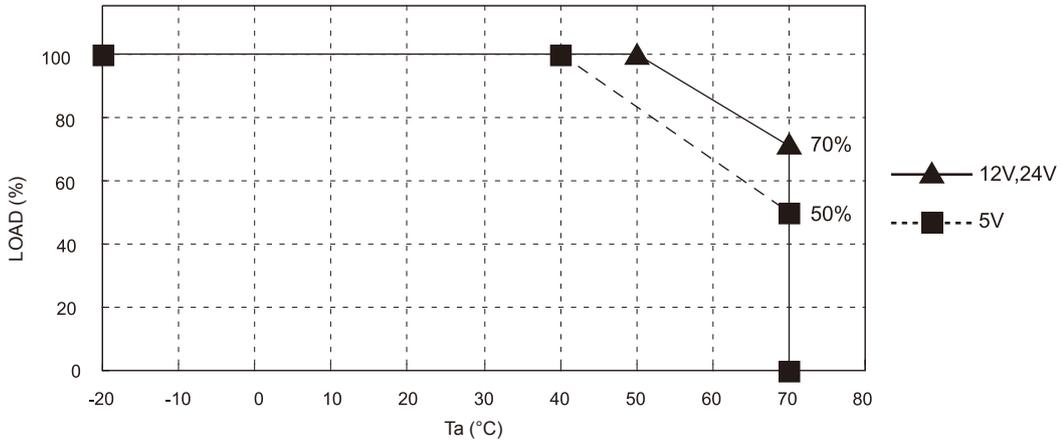


CS150 OUTLINE

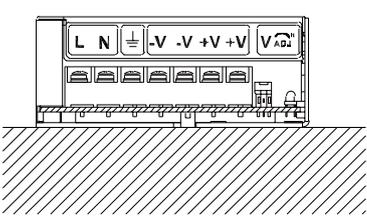


CS150 OUTPUT DERATING

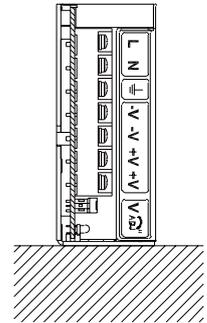
CS150 OUTPUT DERATING VS Ta CURVE



MOUNTING A



MOUNTING B



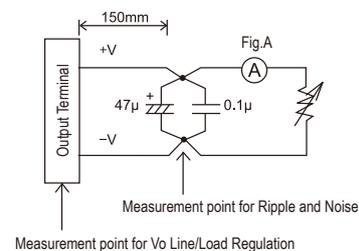
CS300 SPECIFICATIONS

ITEMS		MODEL	CS300-5	CS300-12	CS300-24
1	Nominal Output Voltage	V	5	12	24
2	Maximum Output Current (Peak Output Current) (* 1)	A	55 (60)	26	13
3	Maximum Output Power (Peak Output Power) (* 1)	W	275 (300)	312	312
4	Efficiency (Typ) (230VAC) (* 2)	%	77	83	85
5	Input Voltage Range (* 3,11)	-	176 ~ 265VAC (47 - 63Hz) or 240 ~ 370VDC		
6	Input Current (Typ) (230VAC) (* 2)	A	4.0		
7	Inrush Current (Typ) (* 4)	-	55A at 230VAC, Ta = 25°C, Cold Start		
8	Output Voltage Range	V	4.5 ~ 6.0	9.6 ~ 13.2	20 ~ 28.8
9	Ripple and Noise (230VAC) (* 2, 5)	mV	100	100	150
10	Line Regulation (* 5, 6)	mV	20	48	96
11	Load Regulation (* 5, 7)	mV	40	96	120
12	Temperature Coefficient	-	Less than 0.02%/°C		
13	Over Current Protection (* 8)	A	63 ~	27.3 ~	13.7 ~
14	Over Voltage Protection (* 9)	V	6.25 ~ 7.5	13.8 ~ 16.8	30.0 ~ 34.8
13	Over Temperature Protection (* 9)	-	Yes		
15	Hold-Up Time (Typ) (230VAC) (* 2)	-	20ms		
16	Leakage current (* 10)	-	0.5mA(Typ) at 230VAC, 0.75mA max at 265VAC,60Hz		
17	Series Operation	-	Possible		
18	Operating Temperature (* 11)	-	- 20 ~ + 70°C		
19	Operating Humidity	-	30 ~ 90%RH (No dewdrop)		
20	Storage Temperature	-	- 30 ~ + 85°C		
21	Storage Humidity	-	10 ~ 95%RH (No dewdrop)		
22	Cooling	-	Forced Air By Blower Fan		
23	Withstand Voltage	-	Input - Output : 3.0kVAC (20mA), Input - FG : 2.0kVAC (20mA) Output - FG : 500VAC (100mA) for 1min.		
24	Isolation Resistance	-	More than 100MW at Ta = 25°C and 70%RH, Output - FG : 500VDC		
25	Vibration	-	At no operating, 10 - 55Hz (sweep for 1min) 19.6m/s ² Constant, X, Y, Z 1hour each		
26	Safety	-	Built to meet UL60950-1, CSA60950-1, EN60950-1, EN50178, GB4943		
27	EMI (* 2)	-	Built to meet FCC-Class B, EN55011/EN55022-B		
28	Immunity (* 2)	-	Built to meet EN61000-4-2,-3,-4,-5,-6,-8,-11		
29	Weight (Typ)	g	900		
30	Dimension	mm	52 x 102 x 198 (Refer to Outline Drawing)		

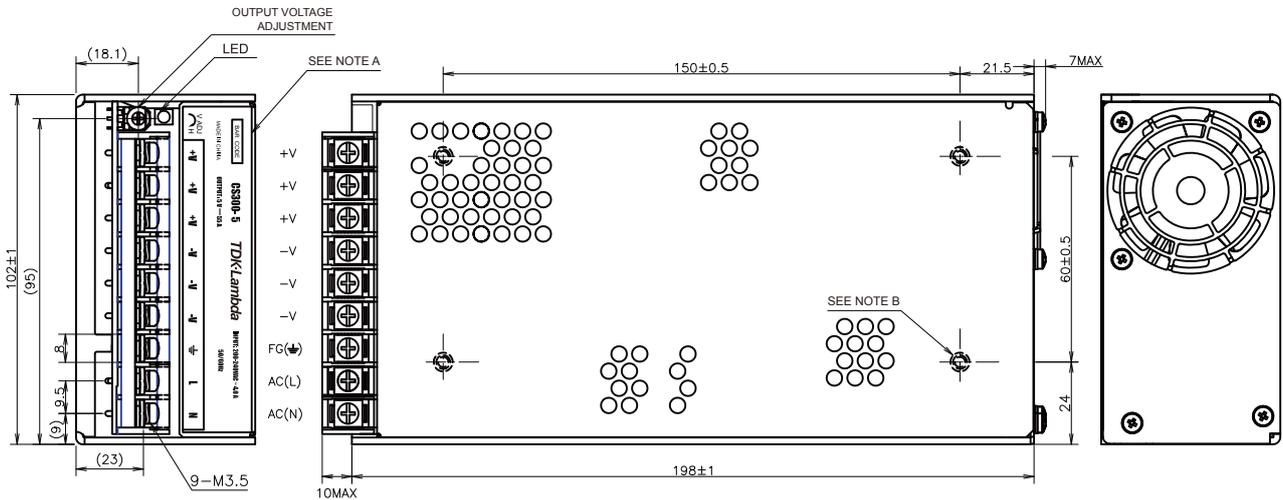
* Read instruction manual carefully , before using the power supply unit.

= NOTES=

- * 1 : () : Peak Output Current is possible, operating period at Peak Output Current is less than 5 sec, duty less than 35% . Average output power and current is less than Maximum Output Power and Maximum Output Current.
- * 2 : At maximum output power, nominal input voltage, Ta = 25°C.
- * 3 : For cases where conformance to various safety specs (UL, CSA, EN) are required, to be described as 200 - 240VAC, 50 / 60Hz on name plate. 280VAC (max) input operation is possible.
- * 4 : Not applicable for the in-rush current to Noise Filter for less than 0.2ms.
- * 5 : Please refer to Fig A for measurement of line & load regulation, ripple and noise voltage. Ripple & noise are measured at 20MHz by using a twisted pair of load wires terminated with a 0.1uF and 47uF capacitor.
- * 6 : 176 - 265VAC, constant load.
- * 7 : No load - Full load(Maximum power), constant input voltage.
- * 8 : Constant current limit with automatic recovery. Avoid to operate at overload or dead short for more than 30seconds.
- * 9 : OVP, OTP circuit will shutdown output, manual reset (Re power on).
- * 10 : Measured by each measuring method of UL, CSA, EN.
- * 11 : Refer to Output Derating Curve (next page) for details of output derating versus input voltage, ambient temperature and mounting method . 100% load start up at Vin>=200Vac at -30°C is possible. However, it may not fulfil all the specifications.



CS300 OUTLINE

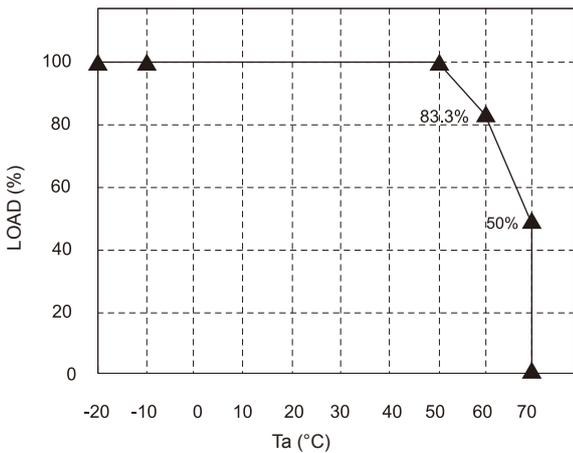


NOTES

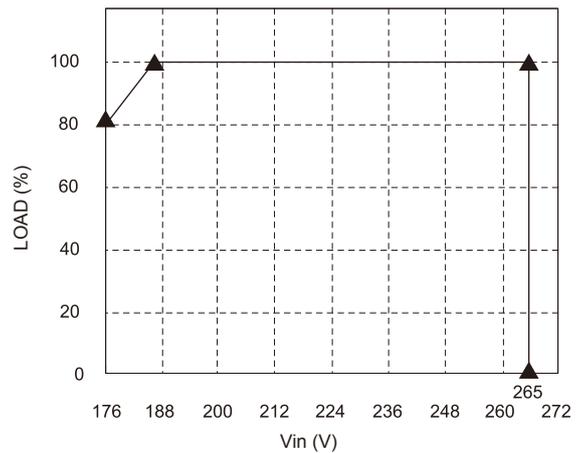
- A: MODEL NAME NOMINAL OUTPUT VOLTAGE AND MAXIMUM OUTPUT CURRENT ARE SHOWN IN THE NAME PLATE IN ACCORDANCE WITH THE SPECIFICATION.
- B: M3 TAPPED & EMBOSSED & COUNTERSUNK HOLES(8) FOR CUSTOMER CHASSIS MOUNTING. (SCREW PENETRATION DEPTH 6MM MAX.).

CS300 OUTPUT DERATING

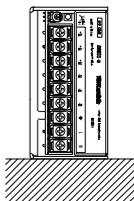
OUTPUT DERATING VS Ta



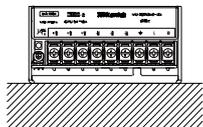
OUTPUT DERATING VS INPUT VOLTAGE



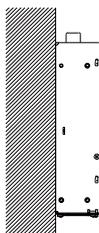
MOUNTING A



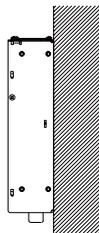
MOUNTING B



MOUNTING C



MOUNTING D



DON'T USE



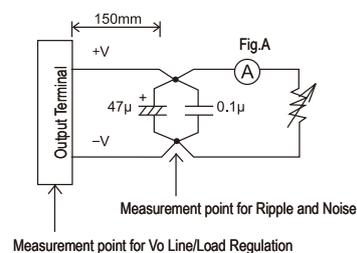
CS600 SPECIFICATIONS

ITEMS		MODEL	CS600-5	CS600-12	CS600-24
1	Nominal Output Voltage	V	5	12	24
2	Maximum Output Current (Peak Output Current) (* 1)	A	100 (110)	50	25
3	Maximum Output Power (Peak Output Power) (* 1)	W	500 (550)	600	600
4	Efficiency (Typ) (230VAC) (* 2)	%	77	83	87
5	Input Voltage Range (* 3,11)	-	176 ~ 265VAC (47 - 63Hz) or 240 ~ 370VDC		
6	Input Current (Typ) (230VAC) (* 2)	A	7.5		
7	Inrush Current (Typ) (* 4)	-	60A at 230VAC, Ta = 25°C, Cold Start		
8	Output Voltage Range	V	4.5 ~ 6.0	9.6 ~ 13.2	20 ~ 28.8
9	Ripple and Noise (230VAC) (* 2, 5)	mV	150	150	150
10	Line Regulation (* 5, 6)	mV	20	48	96
11	Load Regulation (* 5, 7)	mV	100	96	192
12	Temperature Coefficient	-	Less than 0.02%/°C		
13	Over Current Protection (* 8)	A	115 ~	52.5 ~	26.25 ~
14	Over Voltage Protection (* 9)	V	6.25 ~ 7.5	13.8 ~ 16.8	30.0 ~ 34.8
15	Over Temperature Protection (* 9)	-	Yes		
16	Hold-Up Time (Typ) (230VAC) (* 2)	-	20ms		
17	Leakage current (* 10)	-	0.5mA(Typ) at 230VAC, 0.75mA max at 265VAC,60Hz		
18	Series Operation	-	Possible		
19	Operating Temperature (* 11)	-	- 20 ~ + 70°C		
20	Operating Humidity	-	30 ~ 90%RH (No dewdrop)		
21	Storage Temperature	-	- 30 ~ + 85°C		
22	Storage Humidity	-	10 ~ 95%RH (No dewdrop)		
23	Cooling	-	Forced Air By Blower Fan		
24	Withstand Voltage	-	Input - Output : 3.0kVAC (20mA), Input - FG : 2.0kVAC (20mA) Output - FG : 500VAC (100mA) for 1min.		
25	Isolation Resistance	-	More than 100MW at Ta = 25°C and 70%RH, Output - FG : 500VDC		
26	Vibration	-	At no operating, 10 - 55Hz (sweep for 1min) 19.6m/s ² Constant, X, Y, Z 1hour each		
27	Safety	-	Built to meet UL60950-1, CSA60950-1, EN60950-1, EN50178, GB4943		
28	EMI (* 2)	-	Built to meet FCC-Class B, EN55011/EN55022-B		
29	Immunity (* 2)	-	Built to meet EN61000-4-2,-3,-4,-5,-6,-8,-11		
30	Weight (Typ)	g	2000		
31	Dimension	mm	65 x 120 x 247 (Refer to Outline Drawing)		

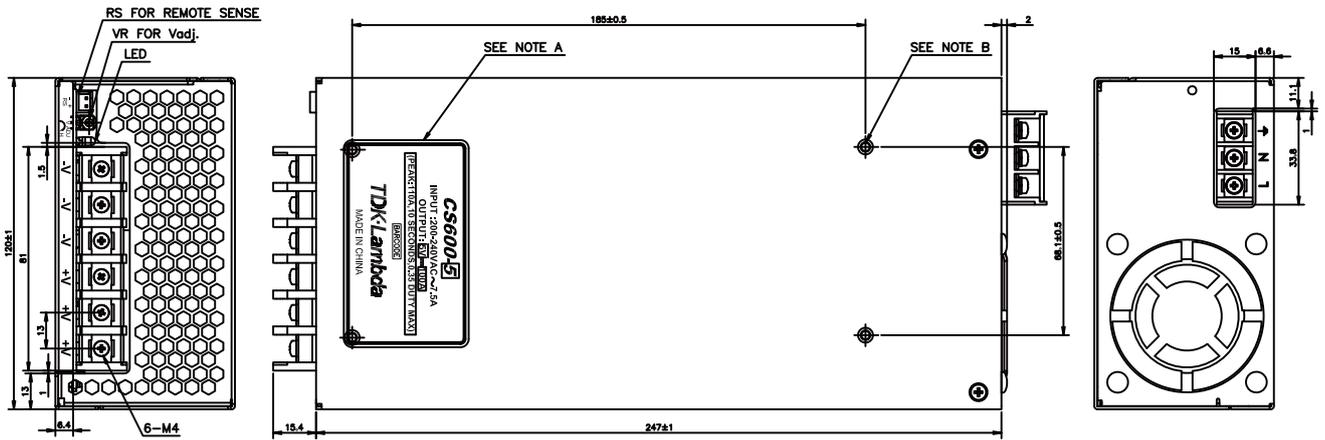
* Read instruction manual carefully , before using the power supply unit.

= NOTES=

- * 1 : () : Peak Output Current is possible, operating period at Peak Output Current is less than 5 sec, duty less than 35% . Average output power and current is less than Maximum Output Power and Maximum Output Current.
- * 2 : At maximum output power, nominal input voltage, Ta = 25°C.
- * 3 : For cases where conformance to various safety specs (UL, CSA, EN) are required, to be described as 200 - 240VAC, 50 / 60Hz on name plate. 280VAC (max) input operation is possible.
- * 4 : Not applicable for the in-rush current to Noise Filter for less than 0.2ms.
- * 5 : Please refer to Fig A for measurement of line & load regulation, ripple and noise voltage. Ripple & noise are measured at 20MHz by using a twisted pair of load wires terminated with a 0.1uF and 47uF capacitor.
- * 6 : 176 - 265VAC, constant load.
- * 7 : No load - Full load(Maximum power), constant input voltage.
- * 8 : Constant current limit with automatic recovery. Avoid to operate at overload or dead short for more than 30seconds.
- * 9 : OVP, OTP circuit will shutdown output, manual reset (Re power on).
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- * 11 : Refer to Output Derating Curve (next page) for details of output derating versus input voltage, ambient temperature and mounting method . 100% load start up at Vin>=200Vac at -30°C is possible. However, it may not fulfil all the specifications.



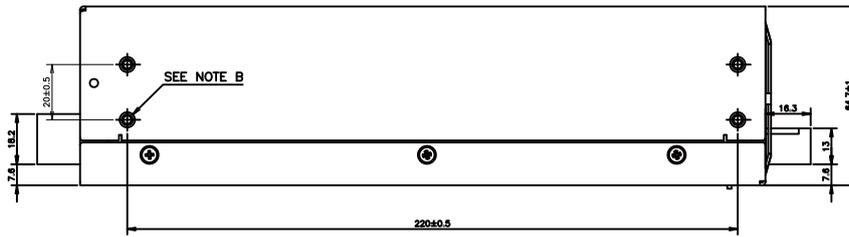
CS600 OUTLINE



NOTES

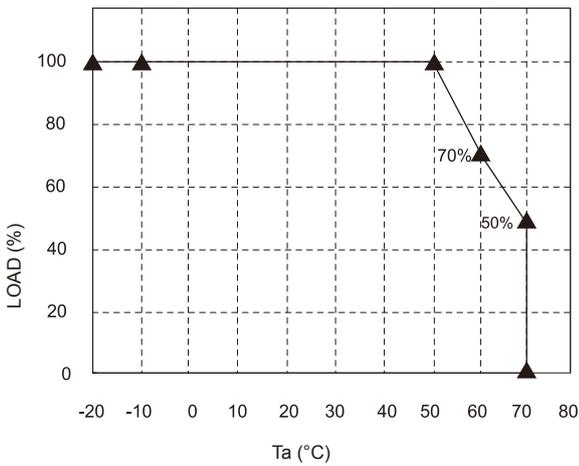
A: MODEL NAME NOMINAL OUTPUT VOLTAGE AND MAXIMUM OUTPUT CURRENT ARE SHOWN IN THE NAME PLATE IN ACCORDANCE WITH THE SPECIFICATION.

B: M3 TAPPED & EMBOSSED & COUNTERSUNK HOLES(12) FOR CUSTOMER CHASSIS MOUNTING. (SCREW PENETRATION DEPTH 4MM MAX.).

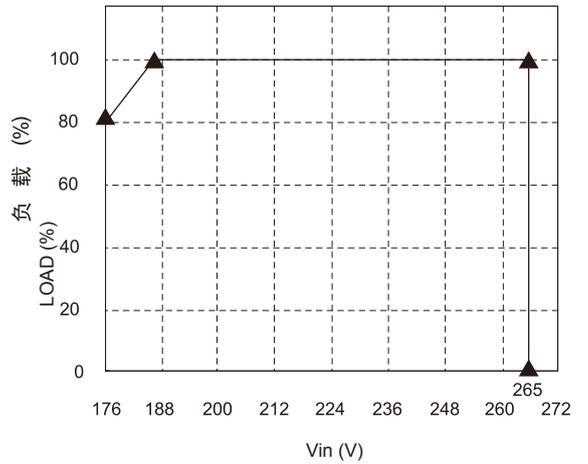


CS600 OUTPUT DERATING

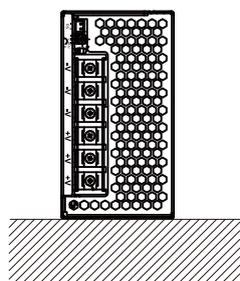
OUTPUT DERATING VS Ta



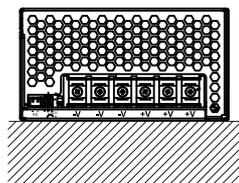
OUTPUT DERATING VS INPUT VOLTAGE



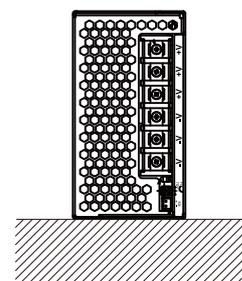
MOUNTING A



MOUNTING B



MOUNTING C



Service network

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