CUS60M/A

(/A : With cover and chassis option)

CA849-01-01/A-A

SPECIFICATIONS

	ITEMS / MODEL			CUS60M -5/A	CUS60M -12/A	CUS60M -15/A	CUS60M -18/A	CUS60M -24/A	CUS60M -48/A
1	Nominal Output Voltage		V	5	12	15	18	24	48
2	Maximum Output Current		A	6	5.0	4.0	3.35	2.5	1.25
3	Maximum Output Power		W	30.0	60.0	60.0	60.3	60	60
4	Efficiency (Typ.)	115/230 VAC (*1)	%	81 / 81	87 / 88	87.5 / 87	88 / 88	89 / 90	90 / 91
5	Active Average Efficiency related to Erp	115/230 VAC (*1)	-	81 / 79.5	87 / 86	87 / 86.5	87 / 87	88 / 87	90 / 89
6	No Load Power Consumption		W	< 0.5 @ 265VAC , Ta=25°C, Nominal Output Voltage					
7	Input Voltage Range	(*2)	-	85 - 265 VAC (47-63Hz)					
8	Input Current (Typ.)	115/230 VAC (*1)	A	0.7/ 0.5	1.2 / 0.8				
9	Inrush Current (Typ.)	(*1)(*3)	A	30 / 60 at Cold Start					
10	Output Voltage		-	Fixed Shipment condition: 5V: ±3%; 12V,15V,18V,24V,48V: ±2.5%					
11	Maximum Ripple & Noise(Ta>0°C/Ta<=0°C)	(*1)(*4)(*5)	mV	120 / 200	120 / 200	150 / 500	150 / 500	150 / 500	200 / 500
12	Maximum Ripple & Noise (0%~35% Load)	(*4)(*5)	mV	240	280	280	280	280	480
13	Maximum Line Regulation	(*4)(*6)	mV	20	48	60	72	96	192
14	Maximum Load Regulation	(*4)(*7)	mV	100	120	120	144	192	384
15	Temperature Coefficient	(*4)	-	Less than 0.02% / °C					
16	Over Current Protection	(*8)	-	>105% of Maximum Output Current . 12V,15V,18V,24V Class 2 limited power source					
17	Over Voltage Protection	(*9)	-	Above 120% ~ , shutdown					
18	Hold-up time (Typ.)	115/230 VAC (*1)	ms	20 / 100					
19	Earth Leakage Current	(*10)	-	0.2mA max @265VAC,60Hz					
20	Patient Leakage Current		-	60uA max @265VAC , 60Hz , Input to Output					
21	Parallel Operation		-	No					
22	Series Operation		-	Possible					
23	Operating Temperature	(*11)	-	-20°C ~ +70°C					
24	Operating Humidity		-	10 - 90%RH (No condensing)					
25	Storage Temperature		-	-40°C ~ +85°C					
26	Storage Humidity		-	10 - 90%RH (No condensing)					
27	Operating Altitude		-	5000m, derating 5°C/1000m above 3000m					
28	Isolation Class / Class of Protection		-	Class I (L,N,FG)					
29	Cooling		-	Convection Cooling					
30	Withstand Voltage		-	Input-Output : 4kVAC (20mA) 2xMOPP, Input-FG : 2kVAC (20mA) 1xMOPP, Output-FG : 1.5kVAC (20mA) 1xMOPP					
31	Isolation Resistance		-	More than 100MΩ at 25°C,70%RH, Output - FG : 500VDC					
32	Vibration		-	At no operating, 10-500Hz (Sweep for 1min.) Maximum 19.6m/s^2 X,Y,Z 1 hour each					
33	Shock		-	Less than 196m/s^2					
34	Safety		-	Approved by IEC/EN62368-1, UL62368-1, CSA62368-1 Approved by IEC/EN60601-1, ES60601-1, CSA-C22.2 No.60601-1					
35	Pollution		-	Degree 2, material group 3					
36	EMI	(*1)	-	Designed to meet EN55011-B, EN55032-B, FCC-Class B					
37	Immunity		-	Designed to meet IEC61000-4-2 (Level 4,3), IEC61000-4-3 (Level 3), IEC61000-4-4 (Level 3), IEC61000-4-5 (Level 3,4),IEC61000-4-6 (Level 3), IEC61000-4-8 (Level 4) , IEC60601-1-2 Ed.4 , Criteria A					
38	Line voltage dip		-	SEMI47 (Input Voltage: 200VAC ~ 240VAC)					
			-	Designed to meet IEC61000-4-11(Class 3)： Criteria A: 200VAC~240VAC Criteria B: 100VAC~120VAC					
			-	Designed to meet IEC61000-4-11 (Class 2) : IEC60601-1-2 Ed.4 Criteria A： Input Voltage above 120VAC or output below 70% of Maximum Output Current Criteria B： Input Voltage below 120VAC and Output Current more than 70%					
39	Weight (Typ.)		g	255					
40	Size (L x W x H)		inch	3.48 x 2.52 x 1.60 (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 100VAC, 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 47uF capacitor.

*6. 85~265VAC, constant load.

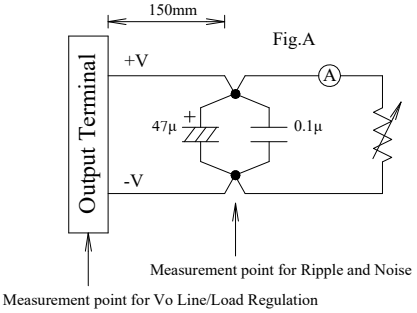
*7. No load - full load, constant input voltage.

*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 Load.
- Maximum load start up at -30°C is possible. However, it may not fulfill all the specifications.



CUS60M/A

OUTPUT DERATING

CA849-01-02/A

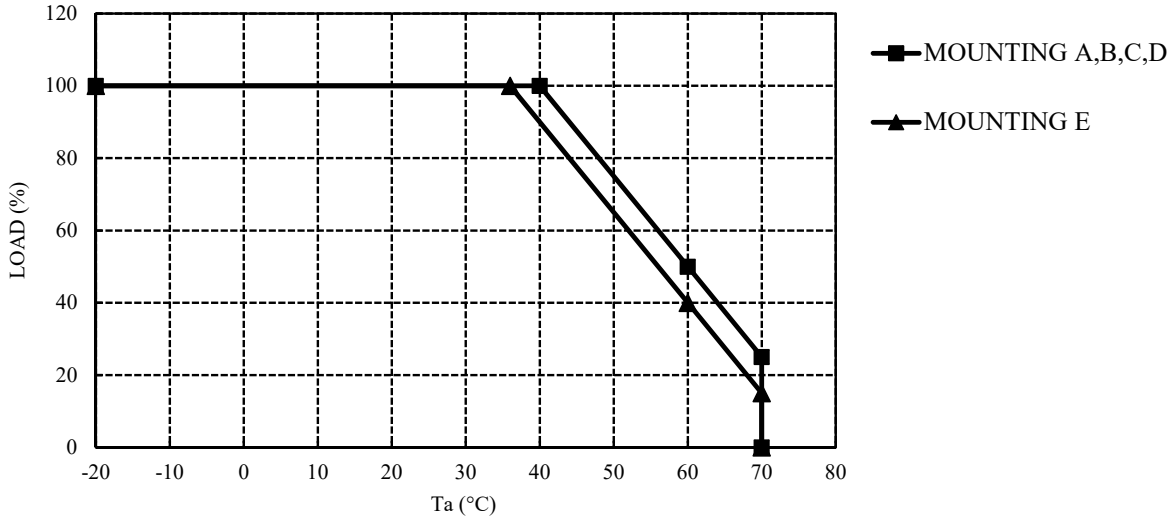
OUTPUT DERATING VERSUS OPERATING AMBIENT TEMPERATURE (Ta)

* COOLING: CONVECTION COOLING

1. CUS60M-5/A,18/A,24/A,48/A

Ta(°C)	LOAD(%)
	MOUNTING A,B,C,D
-20~40	100
60	50
70	25

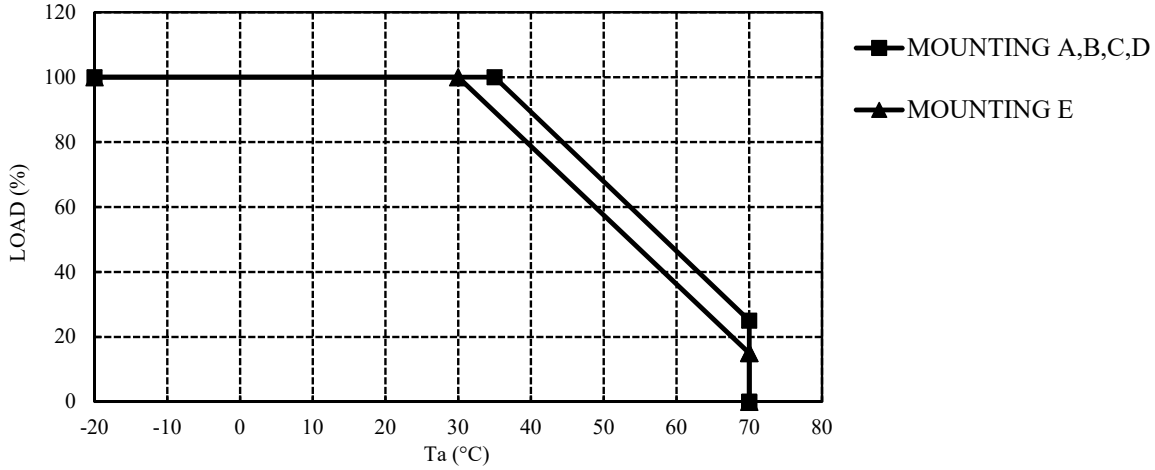
Ta(°C)	LOAD(%)
	MOUNTING E
-20~36	100
60	40
70	15



2. CUS60M-12/A

Ta(°C)	LOAD(%)
	MOUNTING A,B,C,D
-20~35	100
70	25

Ta(°C)	LOAD(%)
	MOUNTING E
-20~30	100
70	15



CUS60M/A

OUTPUT DERATING

CA849-01-03/A

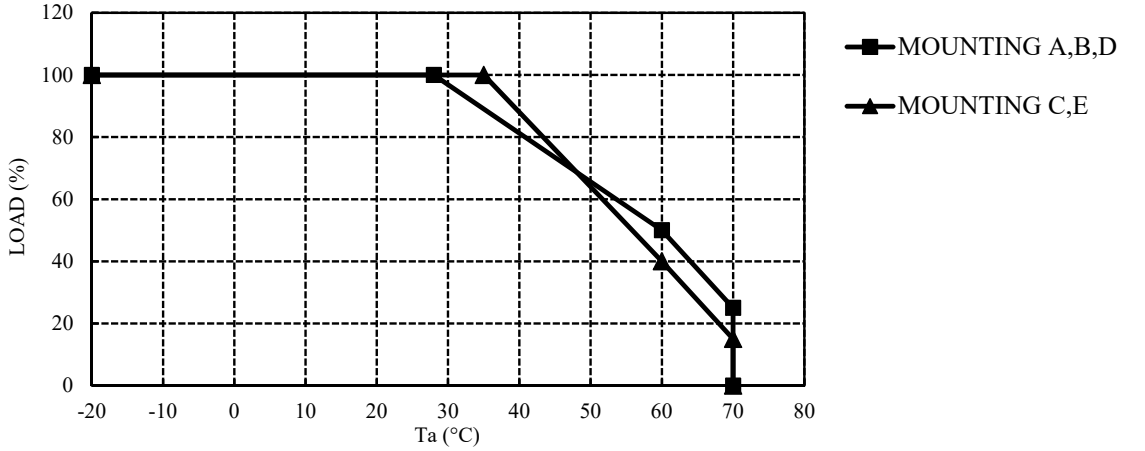
OUTPUT DERATING VERSUS OPERATING AMBIENT TEMPERATURE (Ta)

* COOLING: CONVECTION COOLING

3. CUS60M-15/A

Ta (°C)	Load (%) Mounting A,B,D
-20 - +28	100
60	50
70	25

Ta (°C)	Load (%) Mounting C,E
-20 - +35	100
60	40
70	15



OUTPUT DERATING VERSUS INPUT VOLTAGE

* COOLING: CONVECTION COOLING

CUS60M-5/A

Mounting A,B,C,D,E

INPUT VOLTAGE (VAC)	LOAD (%)
85~265	100

CUS60M-12/A,18/A,24/A,48/A

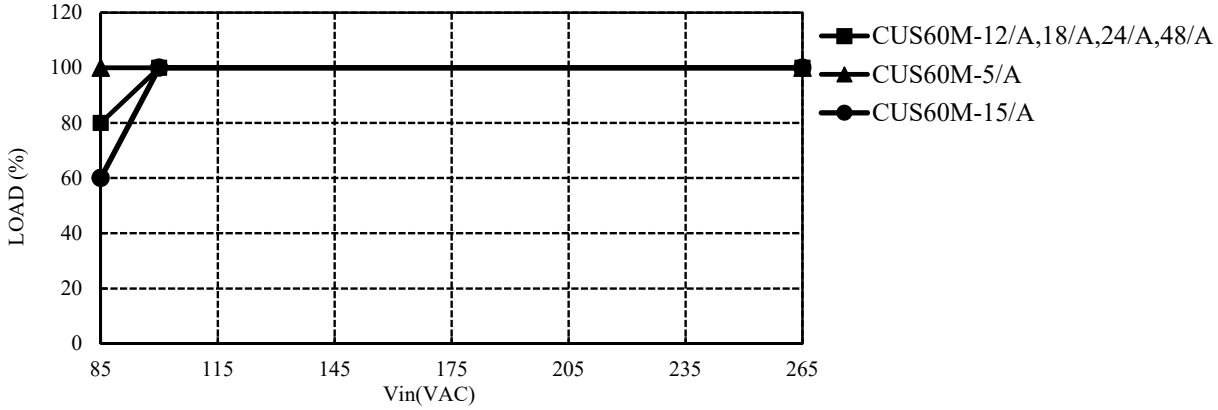
Mounting A,B,C,D,E

INPUT VOLTAGE (VAC)	LOAD (%)
85	80
100~265	100

CUS60M-15/A

Mounting A,B,C,D,E

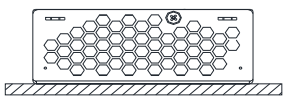
INPUT VOLTAGE (VAC)	LOAD (%)
85	60
100~265	100



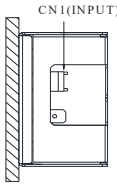
MOUNTING METHOD

MOUNTING A

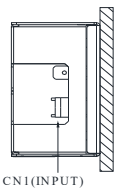
(STANDARD MOUNTING)



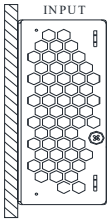
MOUNTING B



MOUNTING C



MOUNTING D



MOUNTING E