

CUS600M1

SPECIFICATIONS

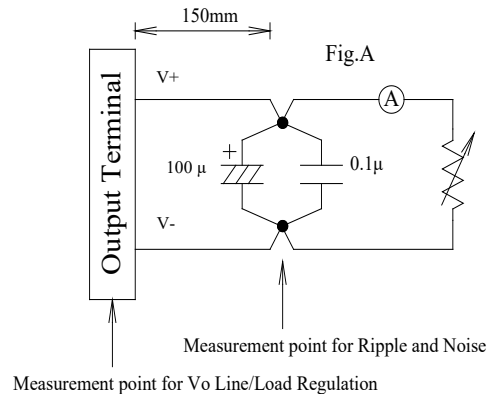
CA917-01-01B

ITEMS		MODEL	CUS600M1-12	CUS600M1-19	CUS600M1-24	CUS600M1-28	CUS600M1-32	CUS600M1-36	CUS600M1-48
1	Nominal Output Voltage	V	12	19	24	28	32	36	48
2	Maximum Output Current @ Convection cooling	A	33.4	21.1	16.7	14.3	12.5	11.1	8.4
	Maximum Output Current @ Forced air cooling (*12)	A	50.0	31.6	25.0	21.5	18.8	16.7	12.6
	Peak Output Current (*13)	A	50.0	31.6	25.0	21.5	18.8	16.7	12.6
3	Maximum Output Power @ Convection cooling	W	400.8	400.9	400.8	400.4	400.0	399.6	403.2
	Maximum Output Power @ Forced air cooling (*12)	W	600.0	600.4	600.0	602.0	601.6	601.2	604.8
	Peak Output Power (*13)	W	600.0	600.4	600.0	602.0	601.6	601.2	604.8
4	Efficiency @ Convection cooling (Typ.) (*1)	%	93.9 / 95.5	93.9 / 95.5	94.5 / 96.0	94.5 / 96.0	94.5 / 96.0	94.5 / 96.0	94.5 / 96.0
	Efficiency @ Forced air cooling (Typ.) (*1)	%	93.0 / 95.0	93.0 / 95.0	93.5 / 95.5	93.7 / 95.7	93.7 / 95.7	93.7 / 95.7	93.7 / 95.7
5	Input Voltage Range (*2)	-	85 - 265 VAC (47-63Hz)						
6	Input Current @ Convection cooling (Typ.) (*1)	A	4.0 / 2.0						
	Input Current @ Forced air cooling (Typ.) (*1)	A	6.0 / 3.0						
7	In-rush Current (Typ.) (*1)(*3)	-	25A / 50A at Cold Start						
8	PFHC	-	Built to meet IEC61000-3-2,Class A						
9	Power Factor (Typ.) (*1)	-	0.99/0.95						
10	Output Voltage Range (*1)(*4)	V	Fixed (Shipment condition: ±2.5%)						
11	Maximum Ripple & Noise @ Convection cooling (*1)(*4)(*5)	mV	240	360	360	360	480	480	480
	Maximum Ripple & Noise @ Forced air cooling (*1)(*4)(*5)	mV	240	360	360	360	480	480	480
12	Maximum Line Regulation (*4)(*6)	mV	60	90	120	140	160	180	240
13	Maximum Load Regulation (*4)(*7)	mV	120	180	240	280	320	360	480
14	Temperature Coefficient (*4)	-	Less than 0.02% / °C						
15	Over Current Protection (*8)	A	>52.5	>33.2	> 26.3	>22.6	>19.7	>17.5	>13.2
16	Over Voltage Protection (*9)	V	13.8 ~ 16.2	21.8 ~ 25.7	27.6 ~ 32.4	32.2 ~ 37.8	36.8 ~ 43.2	41.4 ~ 48.6	55.2 ~ 64.8
17	Hold-up time (Typ.) (*1)	-	22ms @ 400W, 14ms @ 600W						
18	Leakage Current (*10)	-	0.2mA max @ 265VAC, 60Hz						
19	Parallel Operation	-	-						
20	Series Operation (*13)	-	Possible						
21	Operating Temperature (*11)	-	-20°C - +70°C						
22	Operating Humidity	-	10 - 95%RH (No condensing)						
23	Storage Temperature	-	-40°C - +85°C						
24	Storage Humidity	-	10 - 95%RH (No condensing)						
25	Cooling (*12)	-	Convection or Forced Air Cooling						
26	Withstand Voltage	-	Input-FG : 2kVAC (20mA) 1x MOPP Input-Output : 4kVAC (20mA) 2x MOPP Output-FG : 1.5kVAC (20mA) 1x MOPP						
27	Isolation Resistance	-	More than 100MΩ at 25°C,70%RH, Output - FG : 500VDC						
28	Vibration	-	At no operating, 10-55Hz (Sweep for 1min.) Maximum 19.6m/s ² X,Y,Z 1 hour each						
29	Shock	-	Less than 196m/s ²						
30	Safety	-	Approved by IEC/EN62368-1,UL62368-1,CSA62368-1 Approved by IEC/EN60601-1,ES60601-1,CSA-C22.2 No.60601-1						
31	EMI (*1)	-	Designed to meet EN55011-B, EN55032-B, FCC-Class B						
32	Immunity (*14)	-	Designed to meet IEC60601-1-2 Ed.4.1 , IEC61000-4-2, -3, -4, -5, -6, -8, -11						
33	Weight (Typ.)	g	470						
34	Size (L x W x H)	mm	127 x 76.2 x 37 (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 to 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, however power supply may be latched for protection when output is shorted and manual reset is required (Repower on) .
Avoid to operate at over load or short circuit condition.
- *9. OVP circuit shut down the output, manual reset (Repower on) to resume 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 for Output Channel.
- *12. Forced air cooling with air velocity more than 2.7m/s, measured at component side, The entire components must be cooled.
- *13. Refer to Instruction Manual for details.
- *14. Refer to Immunity Test Data for details.



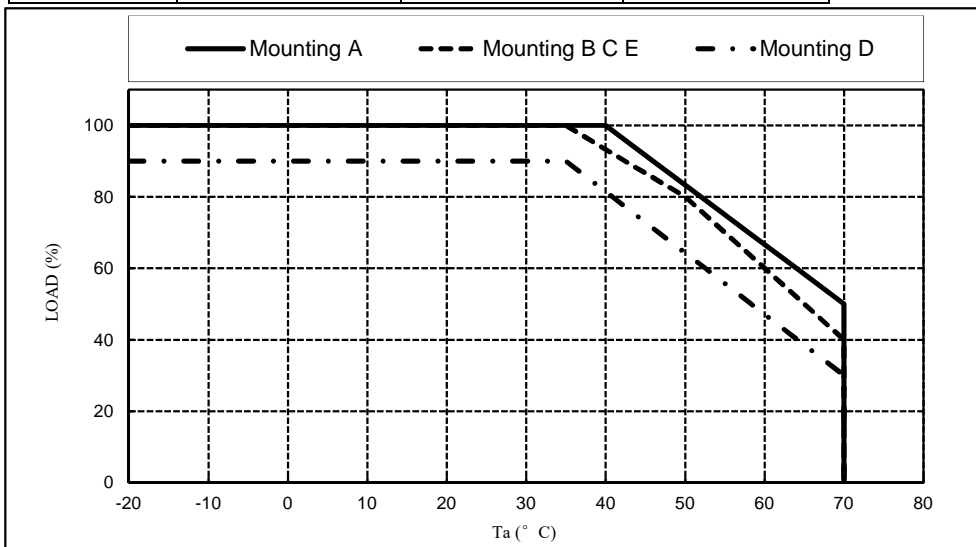
OUTPUT DERATING VERSUS OPERATING AMBIENT TEMPERATURE (Ta)

1. CONVECTION COOLING @ UNIVERSAL INPUT (85-265Vac)

CONDITION : Output derating versus input voltage should be considered. Please refer to the output derating versus input voltage curve for detail.

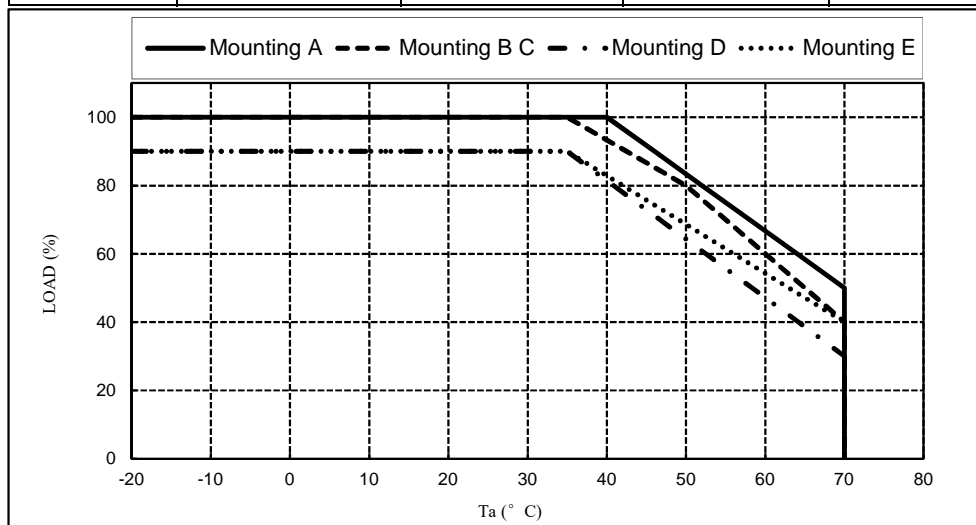
MODEL: CUS600M1-19/24/28/32/36/48

Ta (°C)	Mounting A	Mounting B C E	Mounting D
	LOAD (%)	LOAD (%)	LOAD (%)
-20 - +35	100	100	90
40	100	93.3	81.4
50	83.3	80	64.3
60	66.7	60	47.1
70	50	40	30



MODEL: CUS600M1-12

Ta (°C)	Mounting A	Mounting B C	Mounting D	Mounting E
	LOAD (%)	LOAD (%)	LOAD (%)	LOAD (%)
-20 - +35	100	100	90	90
40	100	93.3	81.4	82.9
50	83.3	80	64.3	68.6
60	66.7	60	47.1	54.3
70	50	40	30	40



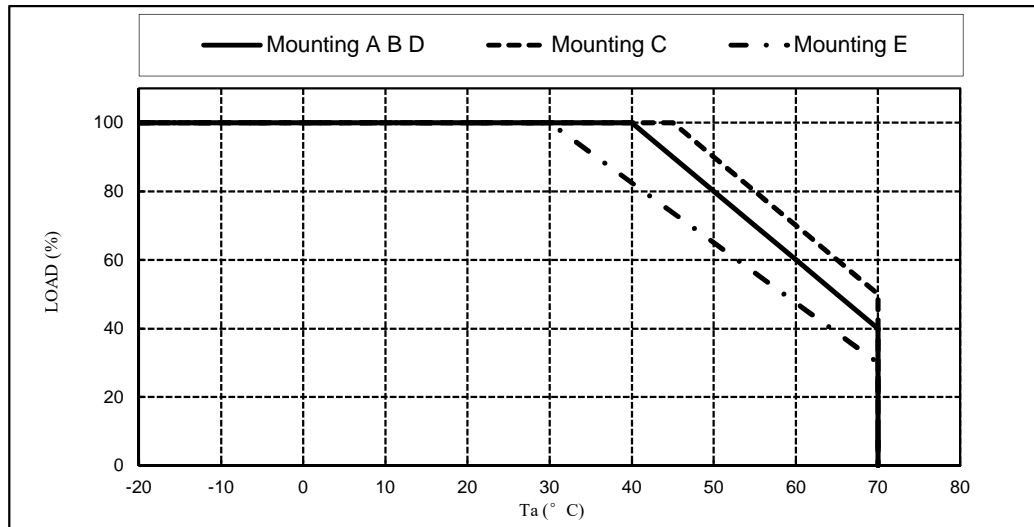
OUTPUT DERATING VERSUS OPERATING AMBIENT TEMPERATURE (Ta)

2. CONVECTION COOLING @ HIGH LINE INPUT (176-265Vac)

CONDITION : Strictly for 176 - 265V AC Input Voltage Range only.

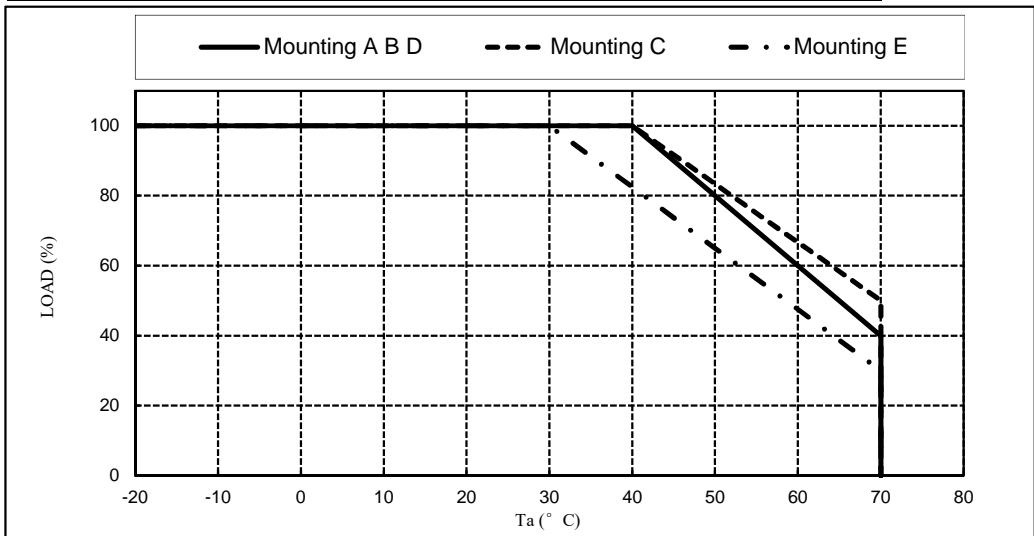
MODEL: CUS600M1-19/24/28/32/36/48

Ta (°C)	Mounting A B D	Mounting C	Mounting E
	LOAD (%)	LOAD (%)	LOAD (%)
-20 - +30	100	100	100
40	100	100	82.5
45	90	100	73.8
50	80	90	65
60	60	70	47.5
70	40	50	30



MODEL: CUS600M1-12

Ta (°C)	Mounting A B D	Mounting C	Mounting E
	LOAD (%)	LOAD (%)	LOAD (%)
-20 - +30	100	100	100
40	100	100	82.5
50	80	83.3	65
60	60	66.7	47.5
70	40	50	30



OUTPUT DERATING

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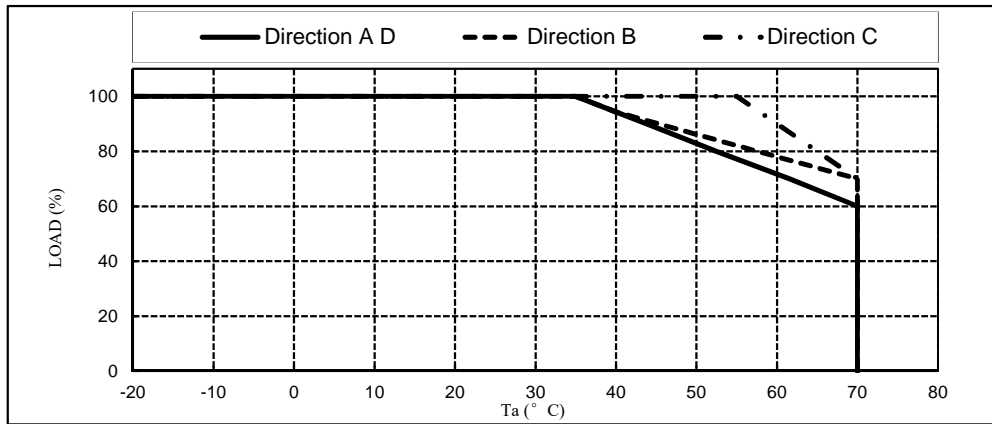
OUTPUT DERATING VERSUS OPERATING AMBIENT TEMPERATURE (Ta)

3. FORCED AIR COOLING @ UNIVERSAL INPUT (85-265Vac)

CONDITION: Forced air cooling with air velocity more than 2.7m/s, measured at component side, The entire components must be cooled. Output derating versus input voltage should be considered. Please refer to the output derating versus input voltage curve for detail.

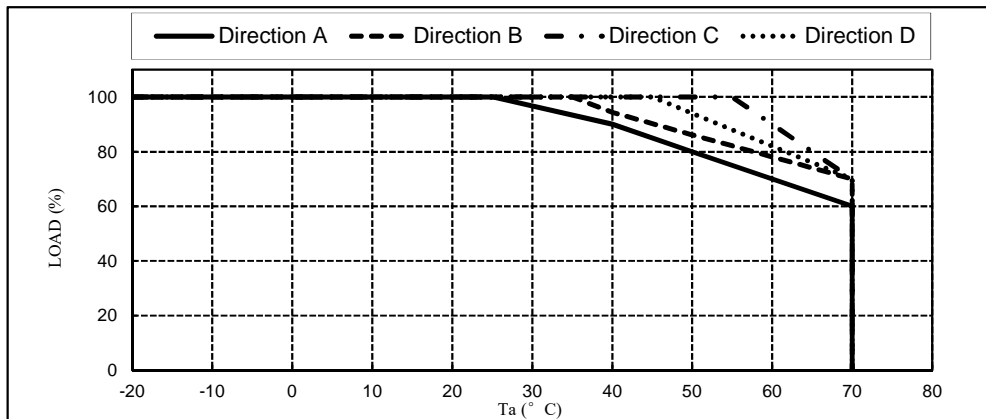
MODEL: CUS600M1-19/24/28/32/36/48

Ta (°C)	Direction A D	Direction B	Direction C
	LOAD (%)	LOAD (%)	LOAD (%)
-20 - +35	100	100	100
40	94.3	94.3	100
50	82.8	86.2	100
55	77.1	82.1	100
60	71.4	78	90
70	60	70	70



MODEL: CUS600M1-12

Ta (°C)	Direction A	Direction B	Direction C	Direction D
	LOAD (%)	LOAD (%)	LOAD (%)	LOAD (%)
-20 - +25	100	100	100	100
35	93.3	100	100	100
40	90	94.3	100	100
45	85	90.2	100	100
50	80	86.2	100	94
55	75	82.1	100	88
60	70	78	90	82
70	60	70	70	70



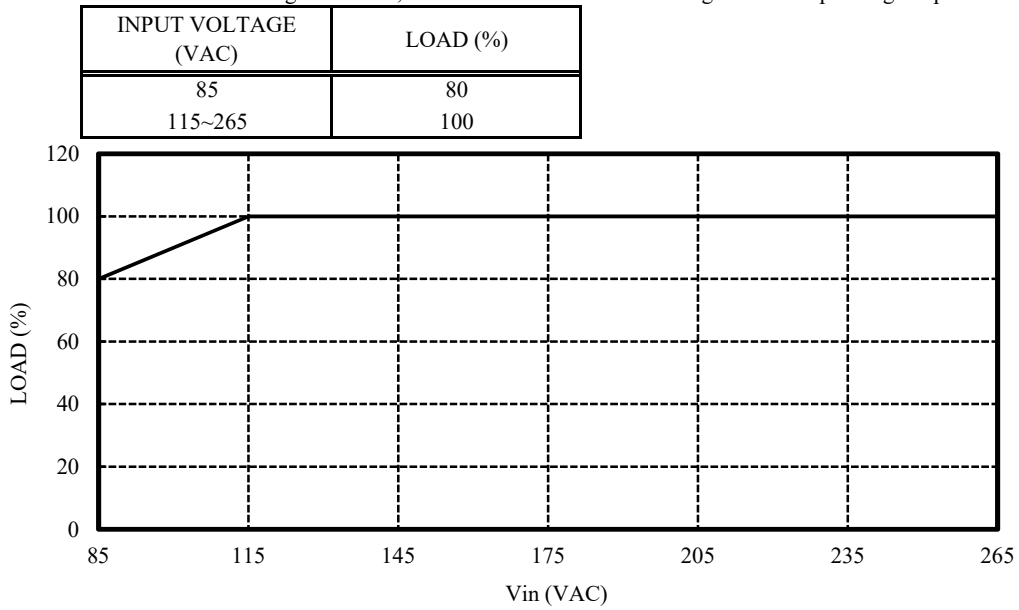
CUS600M1

OUTPUT DERATING

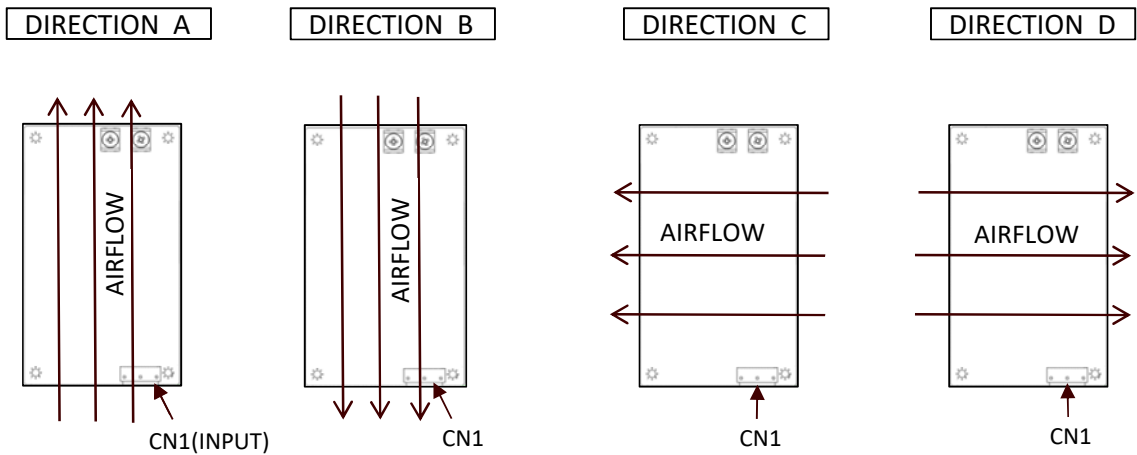
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OUTPUT DERATING VERSUS INPUT VOLTAGE

CONDITION: Output Derating versus Input Voltage Must be Considered as per following curve for all models, all mounting conditions, convection and forced air cooling for entire operating temperature range.



AIR FLOW DIRECTION



MOUNTING METHOD

