

CUS600M

RELIABILITY DATA

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※ Test results are typical data. Nevertheless the following results are considered to be reference data because all units have nearly the same characteristics.

1. Calculated Values of MTBF

Parts stress reliability prediction MTBF

MODEL : CUS600M-12

Calculating Method

Calculated based on parts stress reliability prediction of Telcordia (*1).

Individual failure rate λ_{SS} is calculated by the electric stress and temperature rise of the each part.

*1: Telcordia document “Reliability Prediction Procedure for Electronic Equipment”
(Document number SR-332,Issue3)

$$\langle \text{Formula} \rangle \quad MTBF = \frac{1}{\lambda_{equip}} = \frac{1}{\pi_E \sum_{i=1}^m (N_i \cdot \lambda_{ssi})} \times 10^9 \quad \text{時間 (Hours)}$$

$$\lambda_{ssi} = \lambda_{Gi} \cdot \pi_{Qi} \cdot \pi_{Si} \cdot \pi_{Ti}$$

λ_{equip} : Total equipment failure rate (FITs = Failures in 10^9 hours)

λ_{Gi} : Generic failure rate for the i th part

π_{Qi} : Quality factor for the i th part

π_{Si} : Stress factor for the i th part

π_{Ti} : Temperature factor for the i th part

m : Number of different part types

N_i : Quantity of i th part type

π_E : Equipment environmental factor

MTBF Values

Conditions

- Input voltage : 115VAC
- Output voltage & current : 12VDC, 33.4A
- Standby voltage & current : 5VDC, 2A
- Environmental factor : GB (Ground, Benign)
- Mounting method : Standard mounting A
- Cooling : Convection

SR-332,Issue3

MTBF(Ta=25°C) ≒ 424,280 時間 (Hours)

MTBF(Ta=35°C) ≒ 287,004 時間 (Hours)

2. Components Derating

MODEL : CUS600M-12

(1) Calculating Method

(a) Measuring method

· Mounting method	: Standard mounting A	· Ambient temperature	: 35°C/40°C
· Input voltage	: 115, 230VAC	· Output voltage & current	: 12V, 33.4A
· Cooling	: Convection	· Standby voltage & current	: 5V, 2A

(b) Semiconductors

Compared with maximum junction temperature and actual one which is calculated based on case temperature, power dissipation and thermal impedance.

(c) IC, Resistors, Capacitors, etc.

Ambient temperature, operating condition, power dissipation and so on are within derating criteria.

(d) Calculating method of thermal impedance

$$\theta_{j-c} = \frac{T_{j(max)} - T_c}{P_{ch(max)}} \quad \theta_{j-a} = \frac{T_{j(max)} - T_a}{P_{ch(max)}} \quad \theta_{j-l} = \frac{T_{j(max)} - T_l}{P_{ch(max)}}$$

T_c : Case Temperature at Start Point of Derating; 25°C in General

T_a : Ambient Temperature at Start Point of Derating; 25°C in General

T_l : Lead Temperature at Start Point of Derating; 25°C in General

P_{ch(max)} : Maximum Channel Dissipation

T_{j(max)} : Maximum Junction (channel) Temperature
(T_{ch(max)})

θ_{j-c} : Thermal Impedance between Junction (channel) and Case
(θ_{ch-c})

θ_{j-a} : Thermal Impedance between Junction and air

θ_{j-l} : Thermal Impedance between Junction and Lead

(2) Component Derating List

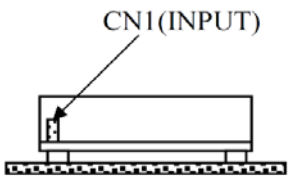
Location No.	Vin = 115VAC Istb = 2A	Load = 33.4A Convection cooling	Ta = 35°C
BD1 D25XB60-7000 SHINDENGEN	Tch (max) = 150 °C Pch= 5.4 W Tch = Tc + ((θch-c) × Pch) = 127.7 °C D.F. = 85.1 %	θch-c = 1 °C/W ΔTc = 87.3 °C	Tc = 122.3 °C
SCR1 TN1605H-6FP STMICRO	Tch (max) = 150 °C Pch = 1.2 W Tch = Tc + ((θch-c) × Pch) = 125.2 °C D.F. = 83.5 %	θch-c = 4.5 °C/W ΔTc = 84.8 °C	Tc = 119.8 °C
D1 TRS6A65F,S1Q TOSHIBA	Tch (max) = 175 °C Pch= 1.3 W Tch = Tc + ((θch-c) × Pch) = 128.7 °C D.F. = 73.5 %	θch-c = 4.24 °C/W ΔTc = 88.2 °C	Tc = 123.2 °C
Q1 IPA60R060P7 INFINEON	Tj (max) = 150 °C Pd = 2.8 W Tj = Tc + ((θj-c) × Pd) = 137.4 °C D.F. = 91.6 %	θj-c = 4.24 °C/W ΔTc = 90.5 °C	Tc = 125.5 °C
Q2A,Q2B TK20A60W5 TOSHIBA	Tj (max) = 150 °C Pd = 0.6 W Tj = Tc + ((θj-c) × Pd) = 122.4 °C D.F. = 81.6 %	θj-c = 2.78 °C/W ΔTc = 85.7°C	Tc = 120.7 °C
D61 SB360-E3/73 VISHAY	Tj (max) = 150 °C Pd = 0.9 W Tj = Tc + ((θj-c) × Pd) = 130.3 °C D.F. = 86.9 %	θj-c = 10 °C/W ΔTc = 86.3 °C	Tc = 121.3 °C
Q201,Q202 TPW1R005PL,L1Q TOSHIBA	Tj (max) = 175 °C Pd = 0.7 W Tj = Tc + ((θj-c) × Pd) = 113.5 °C D.F. = 64.8%	θj-c = 0.93 °C/W ΔTc = 77.8 °C	Tc = 112.8 °C

Location No.	Vin = 230VAC Istb = 2A	Load = 33.4A Convection cooling	Ta = 40°C
BD1 D25XB60-7000 SHINDENGEN	Tch (max) = 150 °C Pch= 2.7 W Tch = Tc + ((θch-c) × Pch) = 102.2 °C D.F. = 68.1 %	θch-c = 1 °C/W ΔTc = 59.5 °C	Tc = 99.5 °C
SCR1 TN1605H-6FP STMICRO	Tch (max) = 150 °C Pch = 1.2 W Tch = Tc + ((θch-c) × Pch) = 107 °C D.F. = 71.3 %	θch-c = 4.5 °C/W ΔTc = 61.6 °C	Tc = 101.6 °C
D1 TRS6A65F,S1Q TOSHIBA	Tch (max) = 175 °C Pch= 1.3 W Tch = Tc + ((θch-c) × Pch) = 109.2 °C D.F. = 62.4 %	θch-c = 4.24 °C/W ΔTc = 63.7 °C	Tc = 103.7 °C
Q1 IPA60R060P7 INFINEON	Tj (max) = 150 °C Pd = 1.3 W Tj = Tc + ((θj-c) × Pd) = 106.9 °C D.F. = 71.3 %	θj-c = 4.24 °C/W ΔTc = 61.4 °C	Tc = 101.4 °C
Q2A,Q2B TK20A60W5 TOSHIBA	Tj (max) = 150 °C Pd = 0.6 W Tj = Tc + ((θj-c) × Pd) = 105.1 °C D.F. = 70 %	θj-c = 2.78 °C/W ΔTc = 63.4°C	Tc = 103.4 °C
D61 SB360-E3/73 VISHAY	Tj (max) = 150 °C Pd = 0.9 W Tj = Tc + ((θj-c) × Pd) = 133.8 °C D.F. = 89.2 %	θj-c = 10 °C/W ΔTc = 84.8 °C	Tc = 124.8 °C
Q201,Q202 TPW1R005PL,L1Q TOSHIBA	Tj (max) = 175 °C Pd = 0.7 W Tj = Tc + ((θj-c) × Pd) = 116.5 °C D.F. = 66.5%	θj-c = 0.93 °C/W ΔTc = 75.8 °C	Tc = 115.8 °C

3. Main Components Temperature Rise ΔT List

MODEL : CUS600M-12

(1) Measuring Conditions

Mounting Method (Standard Mounting : A)	Mounting A	
		
Input Voltage	115VAC	230VAC
Output Voltage	12V	
Output Current	33.4A	
Standby Current	2A	
Cooling	Convect cooling	

(2) Measuring Results

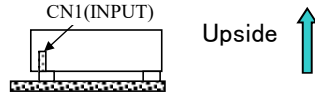
Input Voltage		ΔT Temperature Rise ($^{\circ}C$)	
		115VAC	230VAC
Location No.	Part name	Mounting A	
A101	IC	74.8	53.4
A102	IC	68.2	47.9
A103	IC	79.8	65.6
A104	IPD	89.2	78.9
A201	IC	69.9	68.5
BD1	Diode Bridge	87.3	59.5
C51B	E.CAP.	60.1	58.1
C51C	E.CAP.	58.8	57.4
C51D	E.CAP.	58.5	57.1
C6	E.CAP.	56.6	46.1
C61	E.CAP.	61.2	59.7
D1	SBD	88.2	63.7
D61	SBD	86.3	84.8
L2	CHOKE COIL	71.7	44
L4	CHOKE COIL	84.5	55.4
Q1	MOS FET	90.5	61.4
Q2A	MOS FET	85.7	63.4
Q2B	MOS FET	83.4	61.9
Q201	MOS FET	77.8	75.8
Q202	MOS FET	75.8	73.8
R108	RESISTOR	86.5	57
SCR1	Thyristor	84.8	61.6
T1	TRANS	89.3	85.8
T2	TRANS	62.7	59.5

4. Electrolytic Capacitor Lifetime

MODEL : CUS600M-12

Cooling condition : Convection cooling

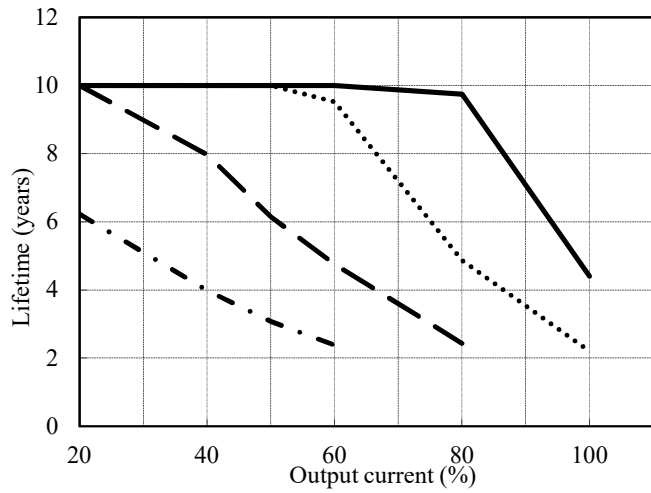
Mounting A



Conditions Istb : 0A
 Ta 30°C : ———
 40°C :
 50°C : - - - -
 60°C : - . - . -

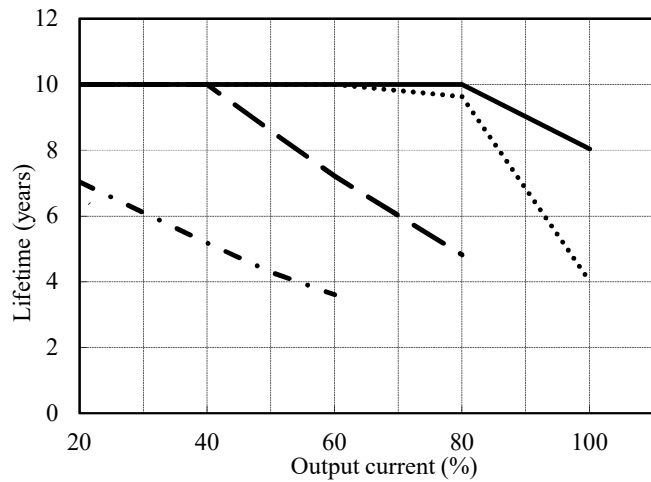
V_{in}=115VAC

Load (%)	Lifetime (years)			
	Ta= 30°C	Ta= 40°C	Ta= 50°C	Ta= 60°C
20	10.0	10.0	10.0	6.2
40	10.0	10.0	8.0	4.0
50	10.0	10.0	6.1	3.1
60	10.0	9.5	4.8	2.4
80	9.7	4.9	2.4	-
100	4.4	2.2	-	-



V_{in}=230VAC

Load (%)	Lifetime (years)			
	Ta= 30°C	Ta= 40°C	Ta= 50°C	Ta= 60°C
20	10.0	10.0	10.0	7.0
40	10.0	10.0	10.0	5.2
50	10.0	10.0	8.6	4.3
60	10.0	10.0	7.2	3.6
80	10.0	9.6	4.8	-
100	8.0	4.0	-	-

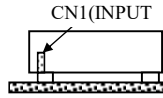


4. Electrolytic Capacitor Lifetime

MODEL : CUS600M-12

Cooling condition : Convection cooling

Mounting A



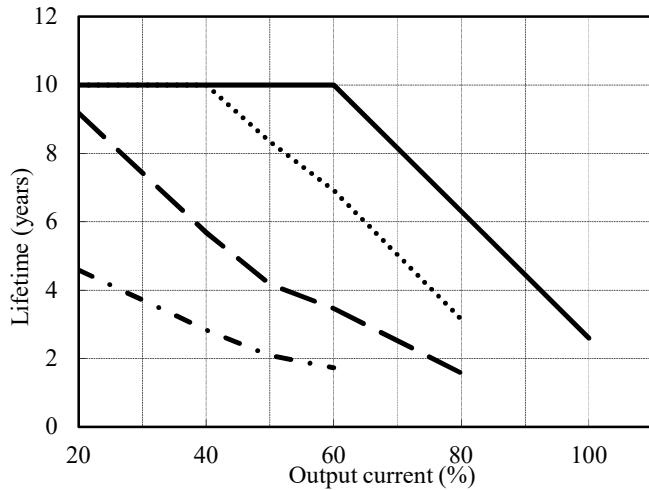
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Conditions Istb : Follow main output derating

Ta 30°C : ———
 40°C :
 50°C : - - - -
 60°C : - · - · -

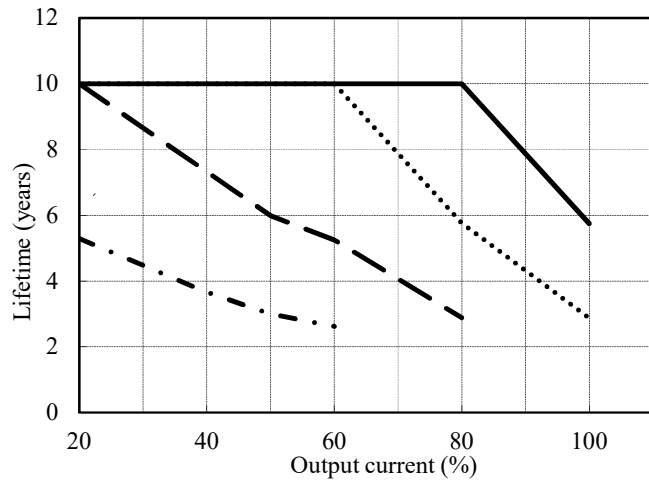
Vin=115VAC

Load (%)	Lifetime (years)			
	Ta= 30°C	Ta= 40°C	Ta= 50°C	Ta= 60°C
20	10.0	10.0	9.2	4.6
40	10.0	10.0	5.7	2.8
50	10.0	8.3	4.2	2.1
60	10.0	6.9	3.5	1.7
80	6.3	3.1	1.6	-
100	2.6	-	-	-



Vin=230VAC

Load (%)	Lifetime (years)			
	Ta= 30°C	Ta= 40°C	Ta= 50°C	Ta= 60°C
20	10.0	10.0	10.0	5.3
40	10.0	10.0	7.3	3.7
50	10.0	10.0	6.0	3.0
60	10.0	10.0	5.2	2.6
80	10.0	5.8	2.9	-
100	5.7	2.9	-	-

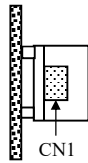


4. Electrolytic Capacitor Lifetime

MODEL : CUS600M-12

Cooling condition : Convection cooling

Mounting B

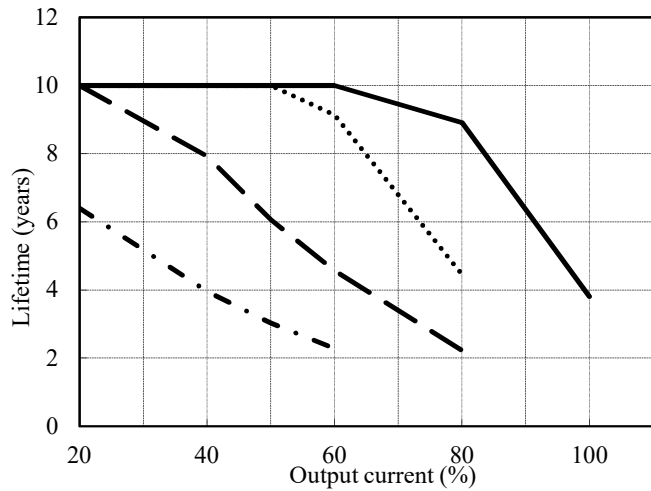


Upside ↑

Conditions Istb : 0A
 Ta 30°C : ———
 40°C : ······
 50°C : - - - -
 60°C : - . - . -

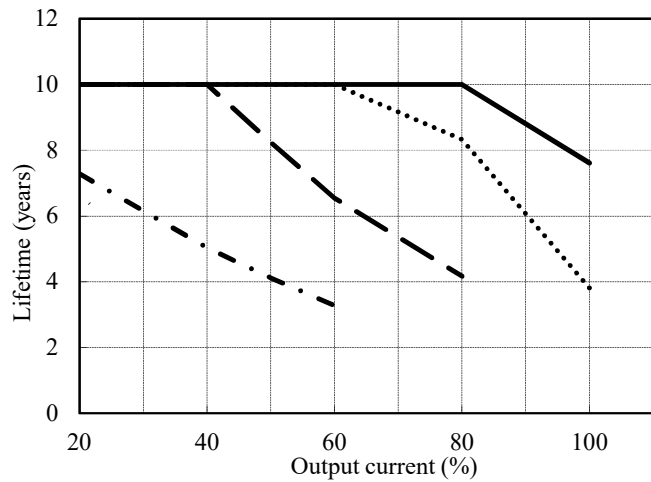
Vin=115VAC

Load (%)	Lifetime (years)			
	Ta= 30°C	Ta= 40°C	Ta= 50°C	Ta= 60°C
20	10.0	10.0	10.0	6.4
40	10.0	10.0	7.9	4.0
50	10.0	10.0	6.1	3.0
60	10.0	9.1	4.6	2.3
80	8.9	4.5	2.2	-
100	3.8	-	-	-



Vin=230VAC

Load (%)	Lifetime (years)			
	Ta= 30°C	Ta= 40°C	Ta= 50°C	Ta= 60°C
20	10.0	10.0	10.0	7.3
40	10.0	10.0	10.0	5.0
50	10.0	10.0	8.2	4.1
60	10.0	10.0	6.5	3.3
80	10.0	8.3	4.2	-
100	7.6	3.8	-	-

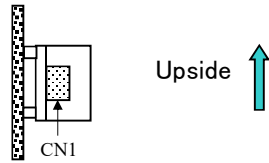


4. Electrolytic Capacitor Lifetime

MODEL : CUS600M-12

Cooling condition : Convection cooling

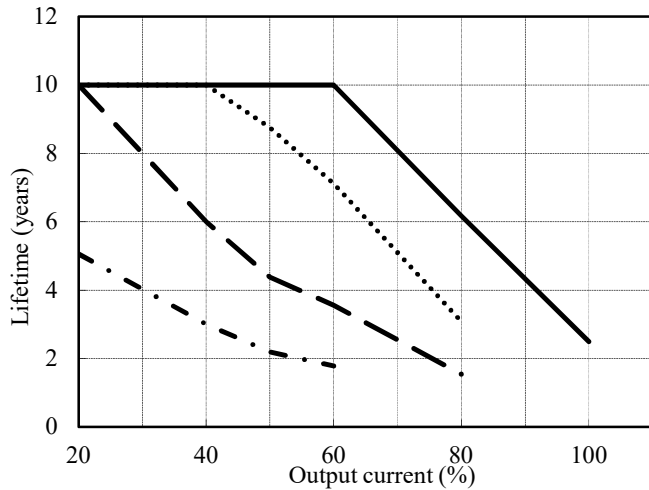
Mounting B



Conditions Istb : Follow main output derating
 Ta 30°C : ———
 40°C :
 50°C : - - - -
 60°C : - . - . -

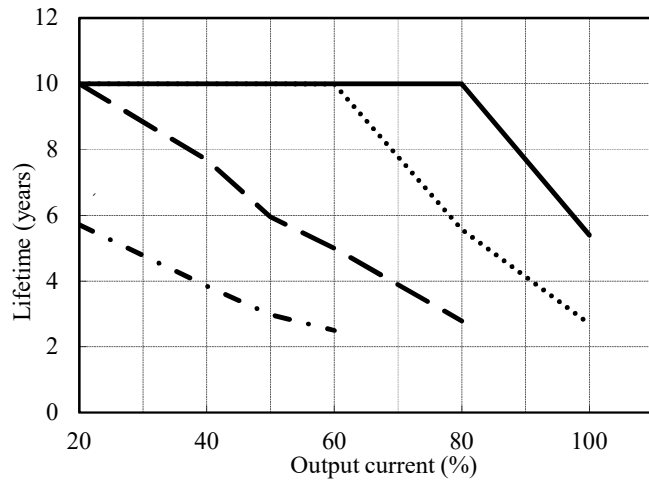
V_{in}=115VAC

Load (%)	Lifetime (years)			
	Ta= 30°C	Ta= 40°C	Ta= 50°C	Ta= 60°C
20	10.0	10.0	10.0	5.1
40	10.0	10.0	6.0	3.0
50	10.0	8.8	4.4	2.2
60	10.0	7.1	3.6	1.8
80	6.2	3.1	1.5	-
100	2.5	-	-	-



V_{in}=230VAC

Load (%)	Lifetime (years)			
	Ta= 30°C	Ta= 40°C	Ta= 50°C	Ta= 60°C
20	10.0	10.0	10.0	5.7
40	10.0	10.0	7.7	3.8
50	10.0	10.0	5.9	3.0
60	10.0	10.0	5.0	2.5
80	10.0	5.6	2.8	-
100	5.4	2.7	-	-

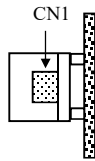


4. Electrolytic Capacitor Lifetime

MODEL : CUS600M-12

Cooling condition : Convection cooling

Mounting C



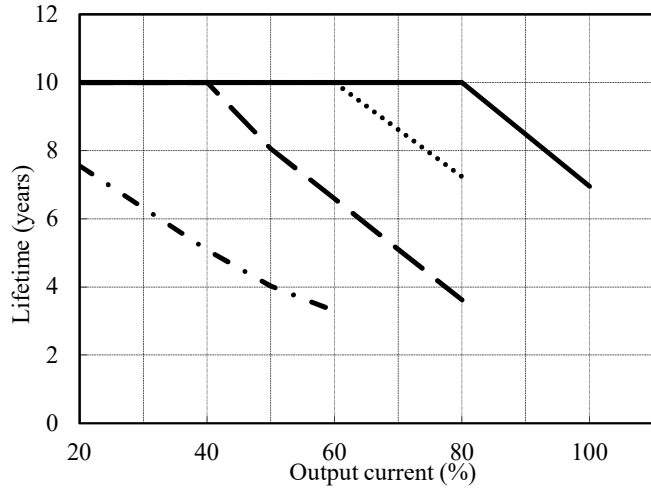
Conditions

Istb : 0A

Ta 30°C : ———
 40°C : ······
 50°C : - - - -
 60°C : - . - . -

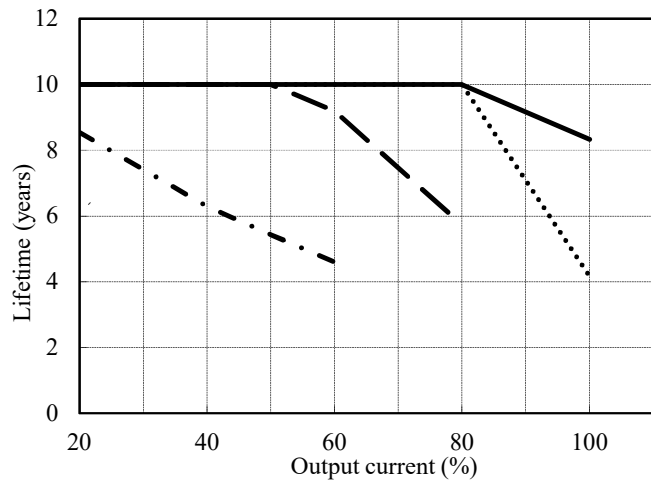
Vin=115VAC

Load (%)	Lifetime (years)			
	Ta= 30°C	Ta= 40°C	Ta= 50°C	Ta= 60°C
20	10.0	10.0	10.0	7.6
40	10.0	10.0	10.0	5.1
50	10.0	10.0	8.1	4.0
60	10.0	10.0	6.6	3.3
80	10.0	7.2	3.6	-
100	7.0	-	-	-



Vin=230VAC

Load (%)	Lifetime (years)			
	Ta= 30°C	Ta= 40°C	Ta= 50°C	Ta= 60°C
20	10.0	10.0	10.0	8.5
40	10.0	10.0	10.0	6.3
50	10.0	10.0	10.0	5.4
60	10.0	10.0	9.2	4.6
80	10.0	10.0	5.7	-
100	8.3	4.2	-	-

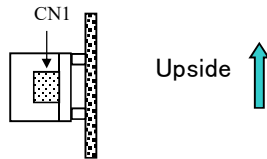


4. Electrolytic Capacitor Lifetime

MODEL : CUS600M-12

Cooling condition : Convection cooling

Mounting C

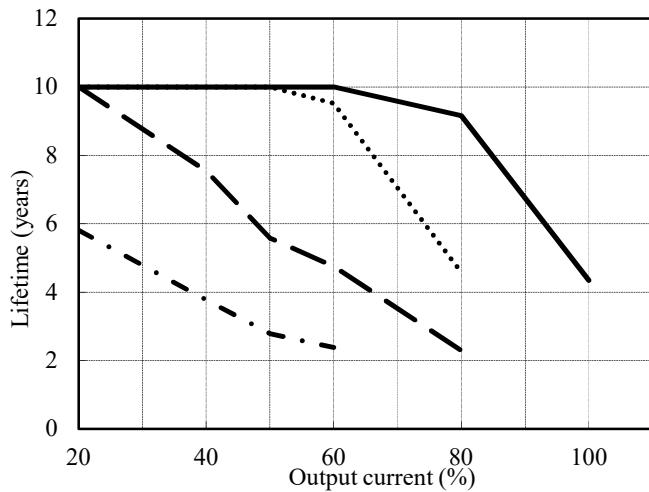


Conditions Istb : Follow main output derating

Ta 30°C : ———
 40°C :
 50°C : - - - -
 60°C : - . - . -

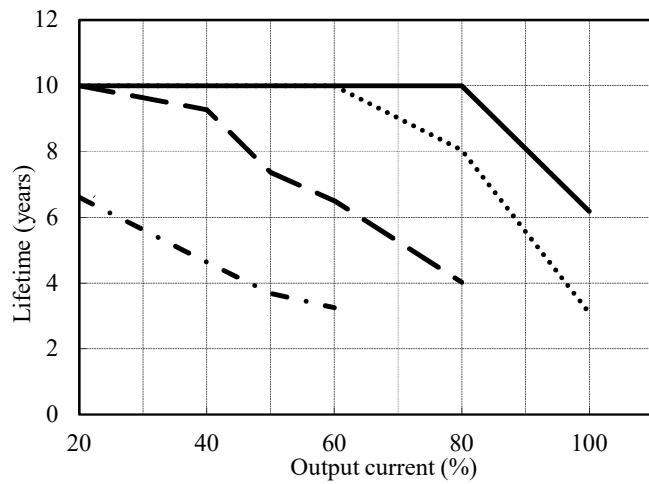
V_{in}=115VAC

Load (%)	Lifetime (years)			
	Ta= 30°C	Ta= 40°C	Ta= 50°C	Ta= 60°C
20	10.0	10.0	10.0	5.8
40	10.0	10.0	7.5	3.8
50	10.0	10.0	5.6	2.8
60	10.0	9.5	4.8	2.4
80	9.2	4.6	2.3	-
100	4.3	-	-	-



V_{in}=230VAC

Load (%)	Lifetime (years)			
	Ta= 30°C	Ta= 40°C	Ta= 50°C	Ta= 60°C
20	10.0	10.0	10.0	6.6
40	10.0	10.0	9.3	4.6
50	10.0	10.0	7.4	3.7
60	10.0	10.0	6.5	3.3
80	10.0	8.0	4.0	-
100	6.2	3.1	-	-

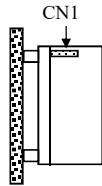


4. Electrolytic Capacitor Lifetime

MODEL : CUS600M-12

Cooling condition : Convection cooling

Mounting D



Upside ↑

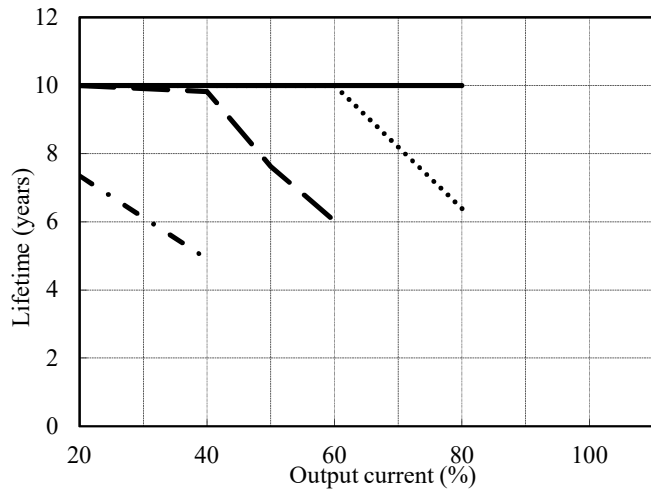
V_{in}=115VAC

Load (%)	Lifetime (years)			
	Ta= 30°C	Ta= 40°C	Ta= 50°C	Ta= 60°C
20	10.0	10.0	10.0	7.4
40	10.0	10.0	9.8	4.9
50	10.0	10.0	7.6	-
60	10.0	10.0	6.0	-
80	10.0	6.4	-	-
100	-	-	-	-

Conditions

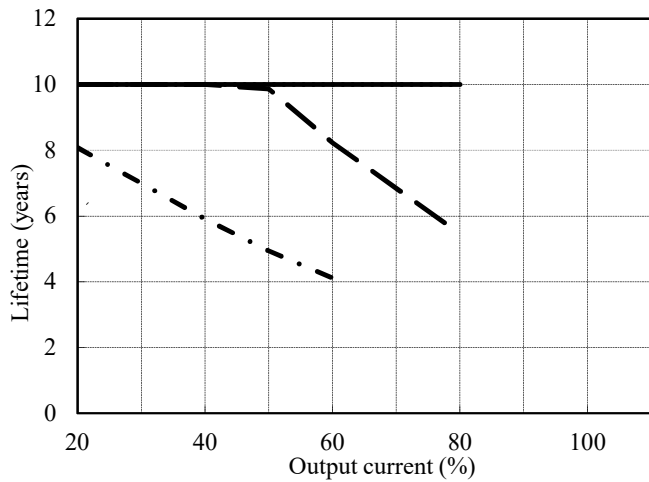
I_{stb} : 0A

Ta 30°C : ———
 40°C :
 50°C : - - - -
 60°C : - . - . -



V_{in}=230VAC

Load (%)	Lifetime (years)			
	Ta= 30°C	Ta= 40°C	Ta= 50°C	Ta= 60°C
20	10.0	10.0	10.0	8.1
40	10.0	10.0	10.0	5.9
50	10.0	10.0	9.9	4.9
60	10.0	10.0	8.2	4.1
80	10.0	10.0	5.5	-
100	-	-	-	-

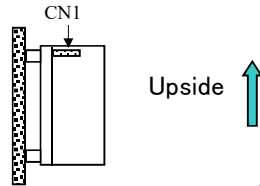


4. Electrolytic Capacitor Lifetime

MODEL : CUS600M-12

Cooling condition : Convection cooling

Mounting D



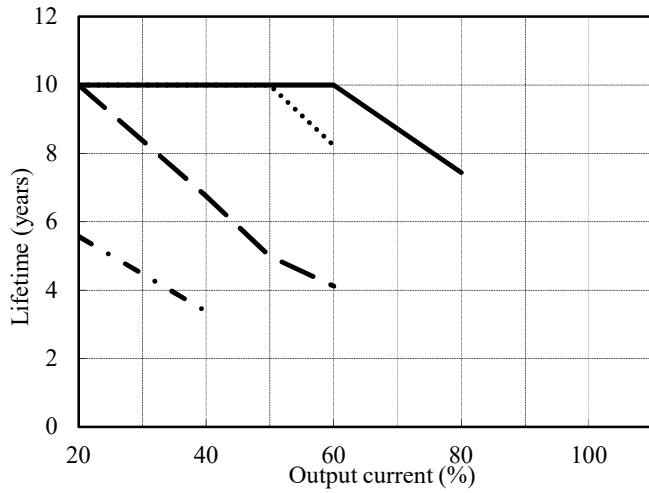
V_{in}=115VAC

Load (%)	Lifetime (years)			
	Ta= 30°C	Ta= 40°C	Ta= 50°C	Ta= 60°C
20	10.0	10.0	10.0	5.6
40	10.0	10.0	6.8	3.4
50	10.0	10.0	5.0	-
60	10.0	8.2	4.1	-
80	7.4	-	-	-
100	-	-	-	-

Conditions

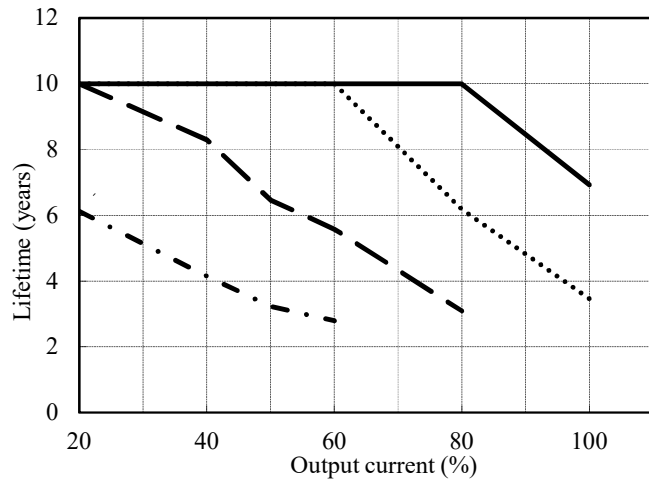
I_{stb} : Follow main output derating

Ta 30°C : ———
 40°C :
 50°C : - - - -
 60°C : - · - · -



V_{in}=230VAC

Load (%)	Lifetime (years)			
	Ta= 30°C	Ta= 40°C	Ta= 50°C	Ta= 60°C
20	10.0	10.0	10.0	6.1
40	10.0	10.0	8.3	4.1
50	10.0	10.0	6.5	3.2
60	10.0	10.0	5.6	2.8
80	10.0	6.2	3.1	-
100	6.9	3.5	-	-

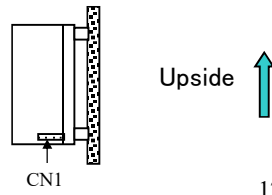


4. Electrolytic Capacitor Lifetime

MODEL : CUS600M-12

Cooling condition : Convection cooling

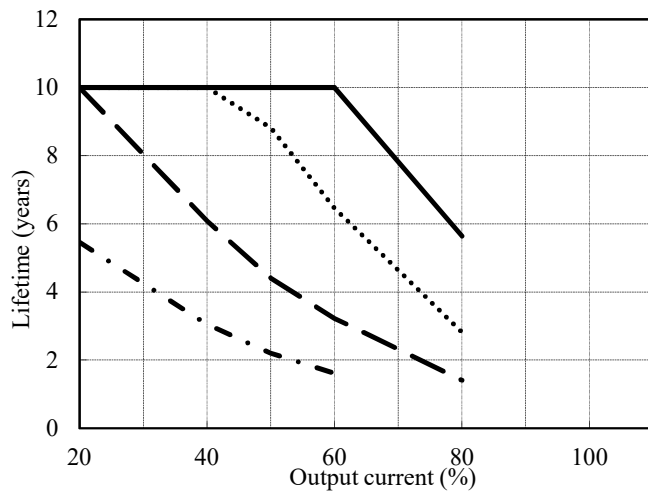
Mounting E



V_{in}=115VAC

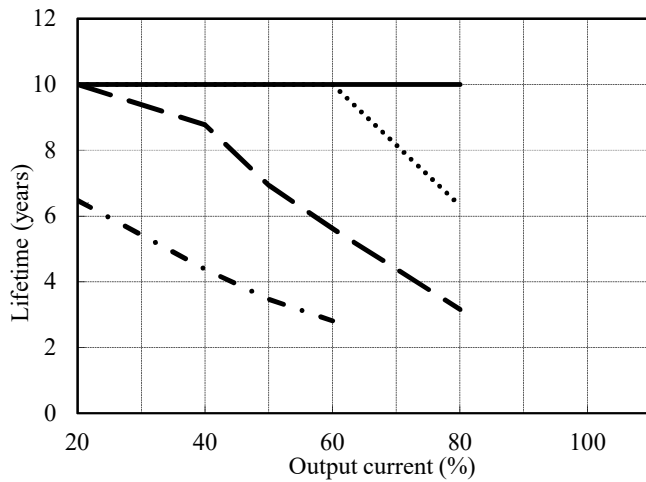
Load (%)	Lifetime (years)			
	Ta= 30°C	Ta= 40°C	Ta= 50°C	Ta= 60°C
20	10.0	10.0	10.0	5.5
40	10.0	10.0	6.1	3.0
50	10.0	8.8	4.4	2.2
60	10.0	6.5	3.2	1.6
80	5.6	2.8	1.4	-
100	-	-	-	-

Conditions Istb : 0A
 Ta 30°C : ———
 40°C :
 50°C : - - - -
 60°C : - . - . -



V_{in}=230VAC

Load (%)	Lifetime (years)			
	Ta= 30°C	Ta= 40°C	Ta= 50°C	Ta= 60°C
20	10.0	10.0	10.0	6.5
40	10.0	10.0	8.8	4.4
50	10.0	10.0	6.9	3.5
60	10.0	10.0	5.6	2.8
80	10.0	6.3	3.2	-
100	-	-	-	-

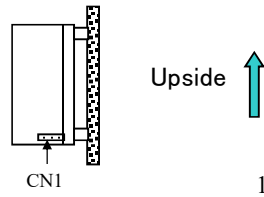


4. Electrolytic Capacitor Lifetime

MODEL : CUS600M-12

Cooling condition : Convection cooling

Mounting E

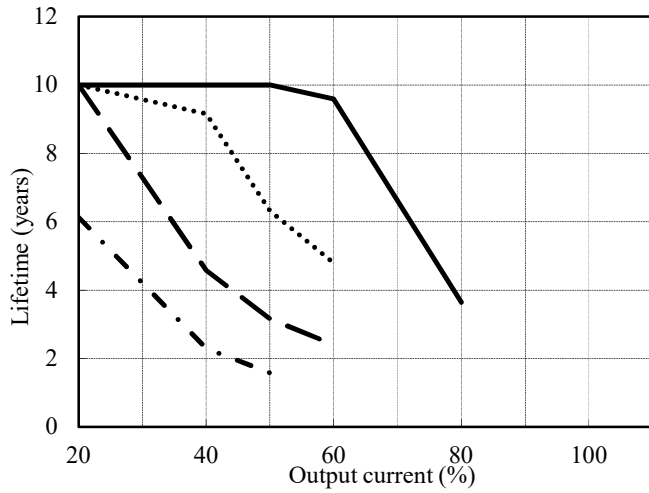


V_{in}=115VAC

Load (%)	Lifetime (years)			
	Ta= 30°C	Ta= 40°C	Ta= 50°C	Ta= 60°C
20	10.0	10.0	10.0	6.1
40	10.0	9.2	4.6	2.3
50	10.0	6.3	3.2	1.6
60	9.6	4.8	2.4	-
80	3.6	-	-	-
100	-	-	-	-

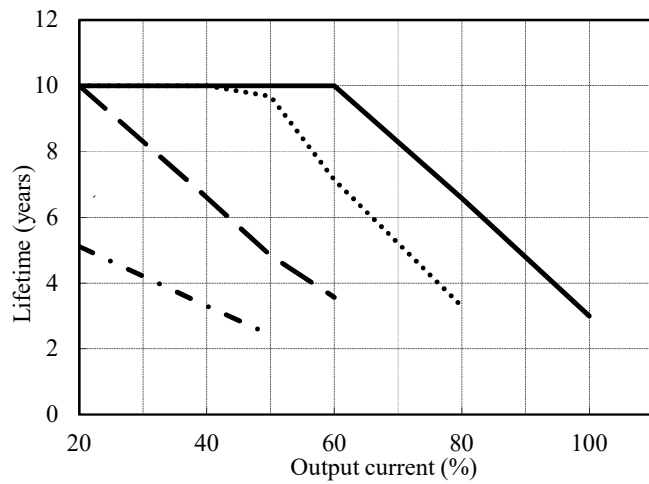
Conditions Istb : Follow main output derating

Ta 30°C : ———
 40°C :
 50°C : - - - -
 60°C : - · - · -



V_{in}=230VAC

Load (%)	Lifetime (years)			
	Ta= 30°C	Ta= 40°C	Ta= 50°C	Ta= 60°C
20	10.0	10.0	10.0	5.1
40	10.0	10.0	6.6	3.3
50	10.0	9.7	4.8	2.4
60	10.0	7.1	3.6	-
80	6.6	3.3	-	-
100	3.0	-	-	-

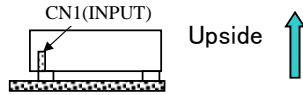


4. Electrolytic Capacitor Lifetime

MODEL : CUS600M-24

Cooling condition : Convection cooling

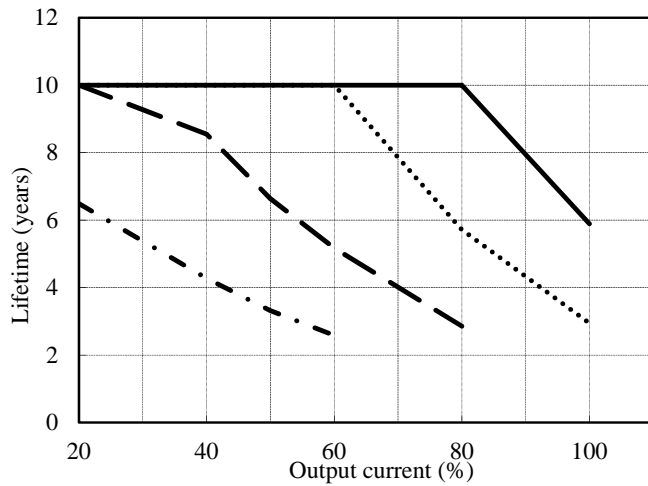
Mounting A



Conditions Istb : 0A
 Ta 30°C : ———
 40°C :
 50°C : - - - -
 60°C : - · - · -

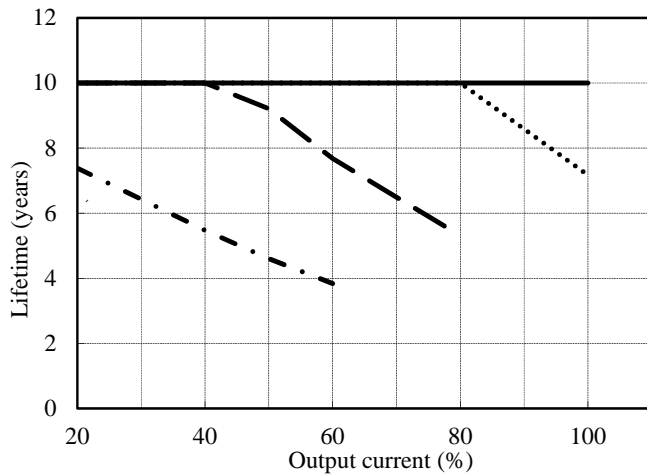
Vin=115VAC

Load (%)	Lifetime (years)			
	Ta= 30°C	Ta= 40°C	Ta= 50°C	Ta= 60°C
20	10.0	10.0	10.0	6.5
40	10.0	10.0	8.5	4.3
50	10.0	10.0	6.6	3.3
60	10.0	10.0	5.2	2.6
80	10.0	5.7	2.9	-
100	5.9	2.9	-	-



Vin=230VAC

Load (%)	Lifetime (years)			
	Ta= 30°C	Ta= 40°C	Ta= 50°C	Ta= 60°C
20	10.0	10.0	10.0	7.4
40	10.0	10.0	10.0	5.5
50	10.0	10.0	9.2	4.6
60	10.0	10.0	7.7	3.8
80	10.0	10.0	5.3	-
100	10.0	7.2	-	-

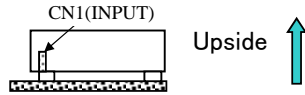


4. Electrolytic Capacitor Lifetime

MODEL : CUS600M-24

Cooling condition : Convection cooling

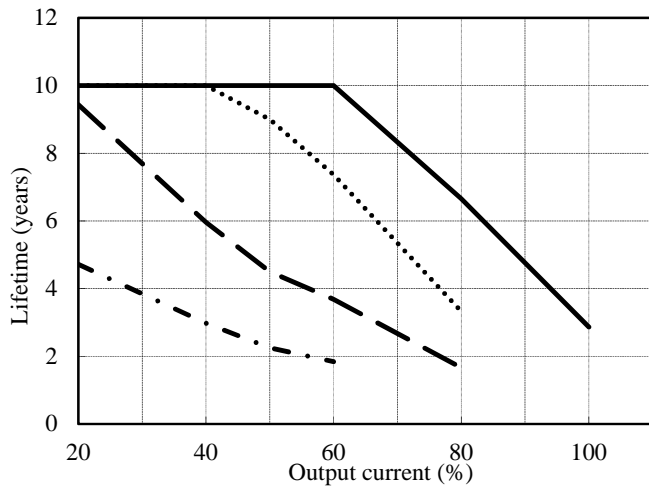
Mounting A



Conditions Istb : Follow main output derating
 Ta 30°C : ———
 40°C :
 50°C : - - - -
 60°C : - · - · -

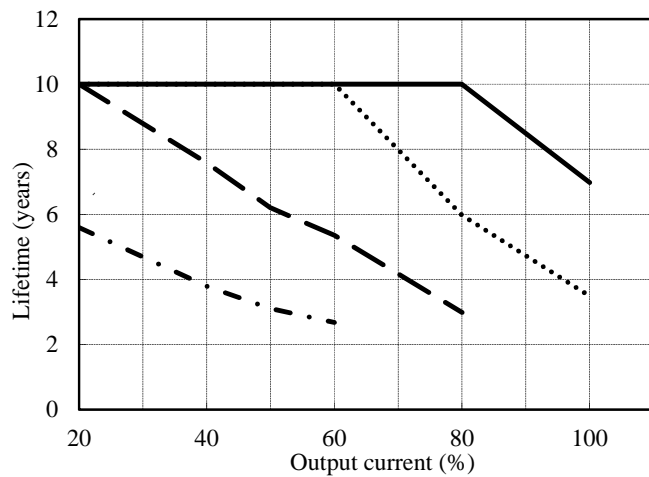
Vin=115VAC

Load (%)	Lifetime (years)			
	Ta= 30°C	Ta= 40°C	Ta= 50°C	Ta= 60°C
20	10.0	10.0	9.4	4.7
40	10.0	10.0	6.0	3.0
50	10.0	9.0	4.5	2.3
60	10.0	7.4	3.7	1.8
80	6.7	3.3	1.7	-
100	2.9	-	-	-



Vin=230VAC

Load (%)	Lifetime (years)			
	Ta= 30°C	Ta= 40°C	Ta= 50°C	Ta= 60°C
20	10.0	10.0	10.0	5.6
40	10.0	10.0	7.6	3.8
50	10.0	10.0	6.2	3.1
60	10.0	10.0	5.4	2.7
80	10.0	6.0	3.0	-
100	7.0	3.5	-	-

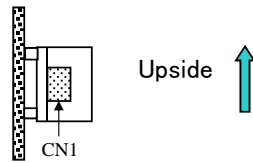


4. Electrolytic Capacitor Lifetime

MODEL : CUS600M-24

Cooling condition : Convection cooling

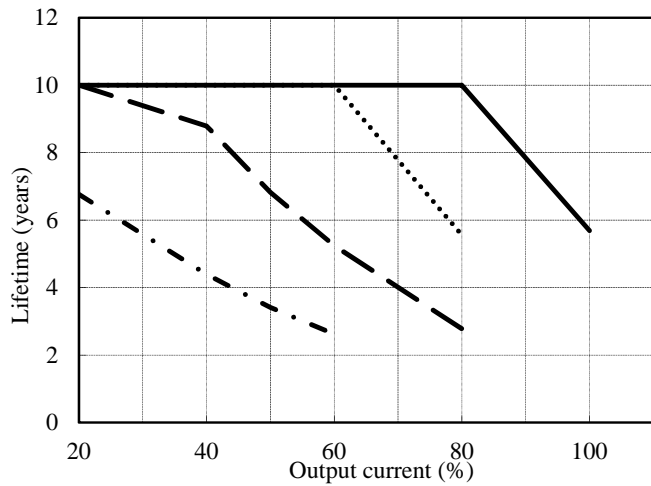
Mounting B



Conditions Istb : 0A
 Ta 30°C : ———
 40°C :
 50°C : - - - -
 60°C : - · - · -

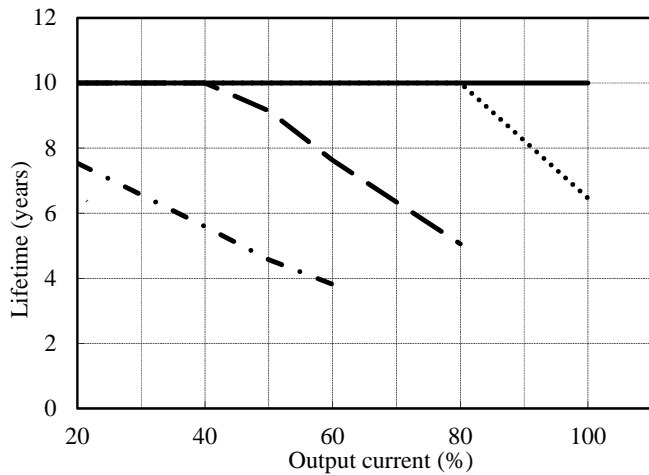
Vin=115VAC

Load (%)	Lifetime (years)			
	Ta= 30°C	Ta= 40°C	Ta= 50°C	Ta= 60°C
20	10.0	10.0	10.0	6.8
40	10.0	10.0	8.8	4.4
50	10.0	10.0	6.8	3.4
60	10.0	10.0	5.2	2.6
80	10.0	5.6	2.8	-
100	5.7	-	-	-



Vin=230VAC

Load (%)	Lifetime (years)			
	Ta= 30°C	Ta= 40°C	Ta= 50°C	Ta= 60°C
20	10.0	10.0	10.0	7.5
40	10.0	10.0	10.0	5.6
50	10.0	10.0	9.1	4.6
60	10.0	10.0	7.6	3.8
80	10.0	10.0	5.1	-
100	10.0	6.5	-	-

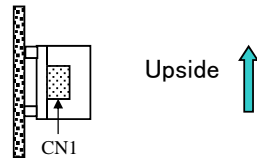


4. Electrolytic Capacitor Lifetime

MODEL : CUS600M-24

Cooling condition : Convection cooling

Mounting B

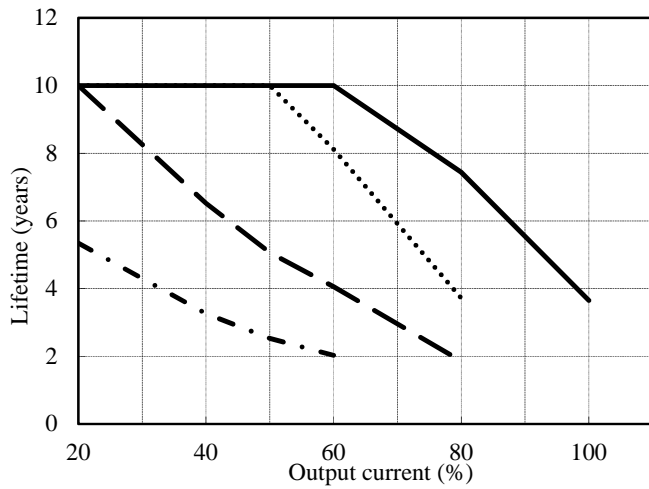


Vin=115VAC

Load (%)	Lifetime (years)			
	Ta= 30°C	Ta= 40°C	Ta= 50°C	Ta= 60°C
20	10.0	10.0	10.0	5.3
40	10.0	10.0	6.5	3.3
50	10.0	10.0	5.1	2.5
60	10.0	8.1	4.1	2.0
80	7.4	3.7	1.9	-
100	3.7	-	-	-

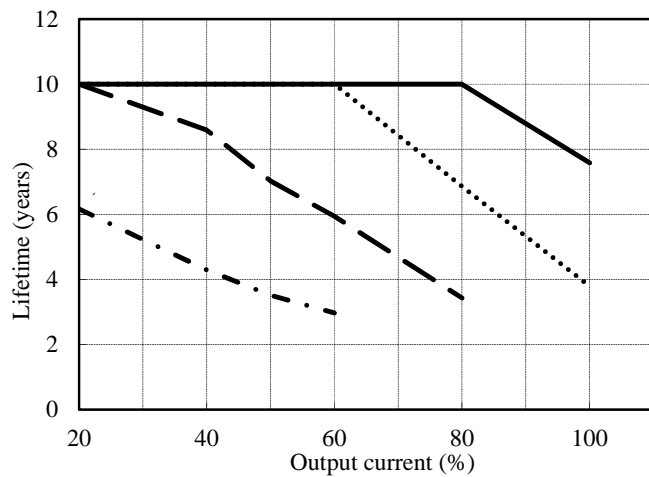
Conditions Istb : Follow main output derating

Ta 30°C : ———
 40°C :
 50°C : - - - -
 60°C : - · - · -



Vin=230VAC

Load (%)	Lifetime (years)			
	Ta= 30°C	Ta= 40°C	Ta= 50°C	Ta= 60°C
20	10.0	10.0	10.0	6.2
40	10.0	10.0	8.6	4.3
50	10.0	10.0	7.0	3.5
60	10.0	10.0	5.9	3.0
80	10.0	6.9	3.4	-
100	7.6	3.8	-	-

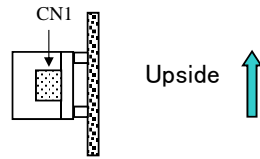


4. Electrolytic Capacitor Lifetime

MODEL : CUS600M-24

Cooling condition : Convection cooling

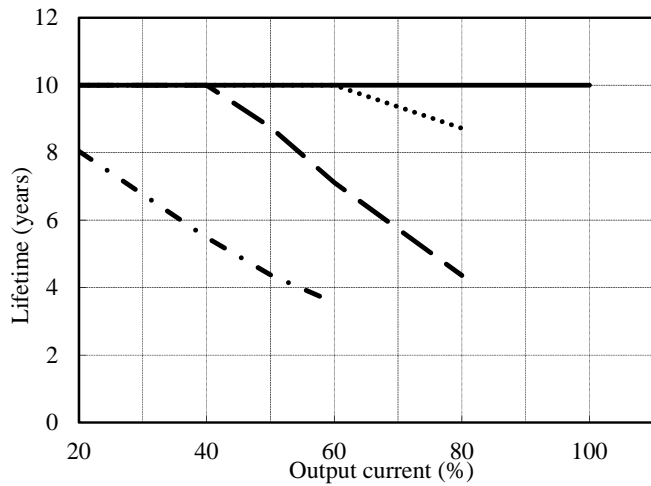
Mounting C



Conditions Istb : 0A
 Ta 30°C : ———
 40°C :
 50°C : - - - -
 60°C : - · - · -

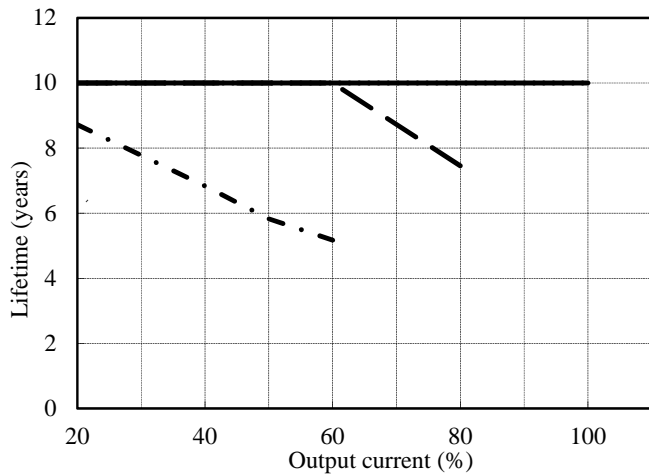
Vin=115VAC

Load (%)	Lifetime (years)			
	Ta= 30°C	Ta= 40°C	Ta= 50°C	Ta= 60°C
20	10.0	10.0	10.0	8.0
40	10.0	10.0	10.0	5.5
50	10.0	10.0	8.8	4.4
60	10.0	10.0	7.1	3.6
80	10.0	8.7	4.4	-
100	10.0	-	-	-



Vin=230VAC

Load (%)	Lifetime (years)			
	Ta= 30°C	Ta= 40°C	Ta= 50°C	Ta= 60°C
20	10.0	10.0	10.0	8.7
40	10.0	10.0	10.0	6.8
50	10.0	10.0	10.0	5.8
60	10.0	10.0	10.0	5.2
80	10.0	10.0	7.5	-
100	10.0	10.0	-	-

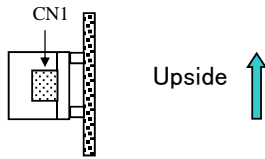


4. Electrolytic Capacitor Lifetime

MODEL : CUS600M-24

Cooling condition : Convection cooling

Mounting C

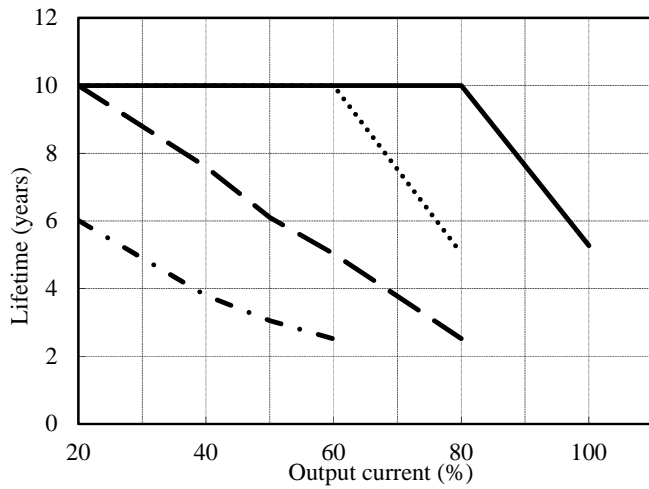


Conditions Istb : Follow main output derating

Ta 30°C : ———
 40°C :
 50°C : - - - -
 60°C : - · - · -

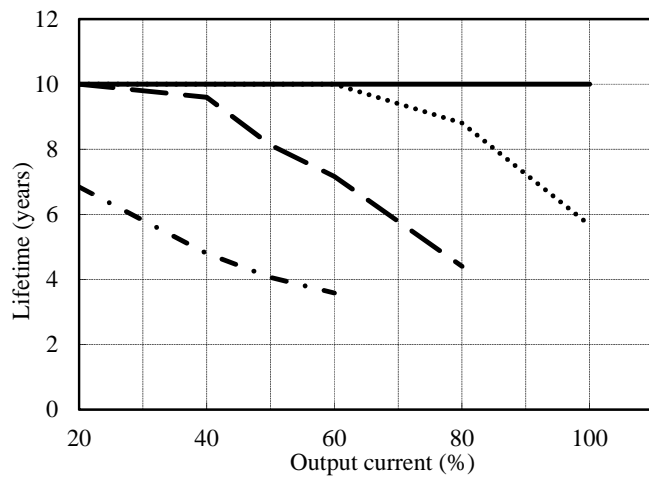
Vin=115VAC

Load (%)	Lifetime (years)			
	Ta=30°C	Ta=40°C	Ta=50°C	Ta=60°C
20	10.0	10.0	10.0	6.0
40	10.0	10.0	7.6	3.8
50	10.0	10.0	6.1	3.1
60	10.0	10.0	5.0	2.5
80	10.0	5.0	2.5	-
100	5.3	-	-	-



Vin=230VAC

Load (%)	Lifetime (years)			
	Ta=30°C	Ta=40°C	Ta=50°C	Ta=60°C
20	10.0	10.0	10.0	6.8
40	10.0	10.0	9.6	4.8
50	10.0	10.0	8.1	4.1
60	10.0	10.0	7.2	3.6
80	10.0	8.8	4.4	-
100	10.0	5.7	-	-

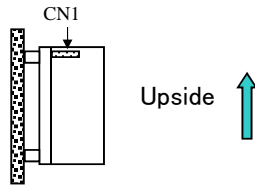


4. Electrolytic Capacitor Lifetime

MODEL : CUS600M-24

Cooling condition : Convection cooling

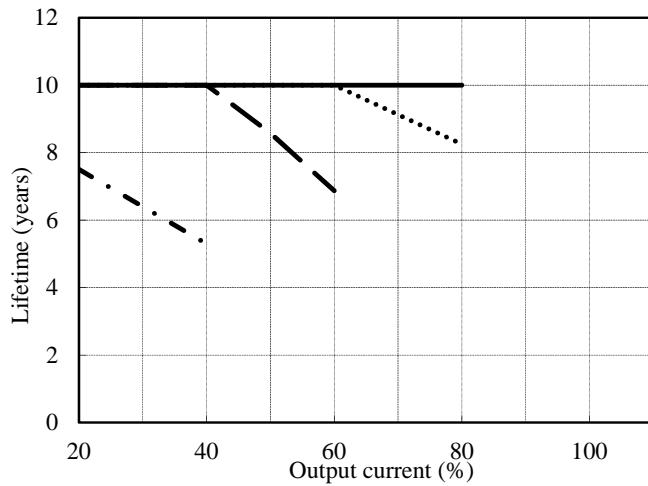
Mounting D



Conditions Istb : 0A
 Ta 30°C : ———
 40°C :
 50°C : - - - -
 60°C : - · - · -

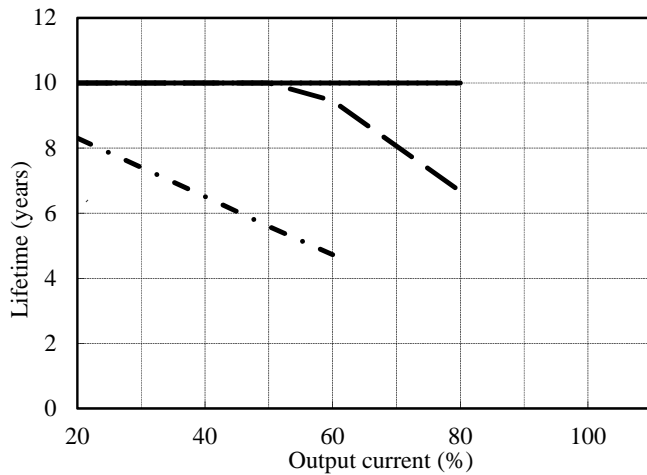
Vin=115VAC

Load (%)	Lifetime (years)			
	Ta= 30°C	Ta= 40°C	Ta= 50°C	Ta= 60°C
20	10.0	10.0	10.0	7.5
40	10.0	10.0	10.0	5.3
50	10.0	10.0	8.6	-
60	10.0	10.0	6.9	-
80	10.0	8.3	-	-
100	-	-	-	-



Vin=230VAC

Load (%)	Lifetime (years)			
	Ta= 30°C	Ta= 40°C	Ta= 50°C	Ta= 60°C
20	10.0	10.0	10.0	8.3
40	10.0	10.0	10.0	6.5
50	10.0	10.0	10.0	5.6
60	10.0	10.0	9.5	4.7
80	10.0	10.0	6.7	-
100	-	-	-	-

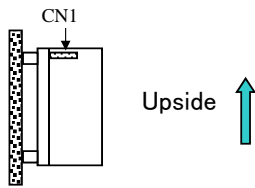


4. Electrolytic Capacitor Lifetime

MODEL : CUS600M-24

Cooling condition : Convection cooling

Mounting D

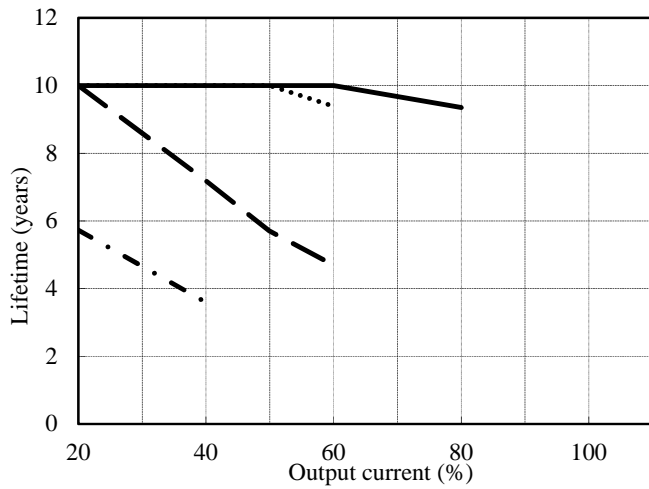


Vin=115VAC

Load (%)	Lifetime (years)			
	Ta= 30°C	Ta= 40°C	Ta= 50°C	Ta= 60°C
20	10.0	10.0	10.0	5.7
40	10.0	10.0	7.2	3.6
50	10.0	10.0	5.7	-
60	10.0	9.4	4.7	-
80	9.3	-	-	-
100	-	-	-	-

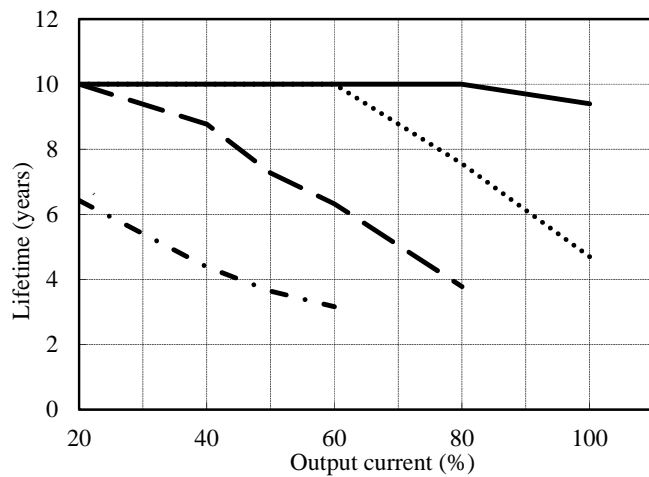
Conditions Istb : Follow main output derating

Ta 30°C : ———
 40°C :
 50°C : - - - -
 60°C : - · - · -



Vin=230VAC

Load (%)	Lifetime (years)			
	Ta= 30°C	Ta= 40°C	Ta= 50°C	Ta= 60°C
20	10.0	10.0	10.0	6.4
40	10.0	10.0	8.8	4.4
50	10.0	10.0	7.3	3.6
60	10.0	10.0	6.3	3.2
80	10.0	7.6	3.8	-
100	9.4	4.7	-	-

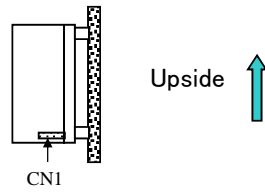


4. Electrolytic Capacitor Lifetime

MODEL : CUS600M-24

Cooling condition : Convection cooling

Mounting E



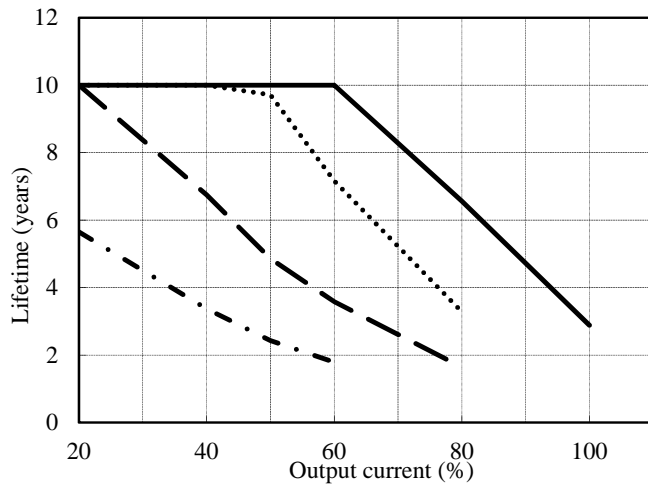
Vin=115VAC

Load (%)	Lifetime (years)			
	Ta= 30°C	Ta= 40°C	Ta= 50°C	Ta= 60°C
20	10.0	10.0	10.0	5.6
40	10.0	10.0	6.8	3.4
50	10.0	9.7	4.9	2.4
60	10.0	7.2	3.6	1.8
80	6.6	3.3	1.6	-
100	2.9	-	-	-

Conditions

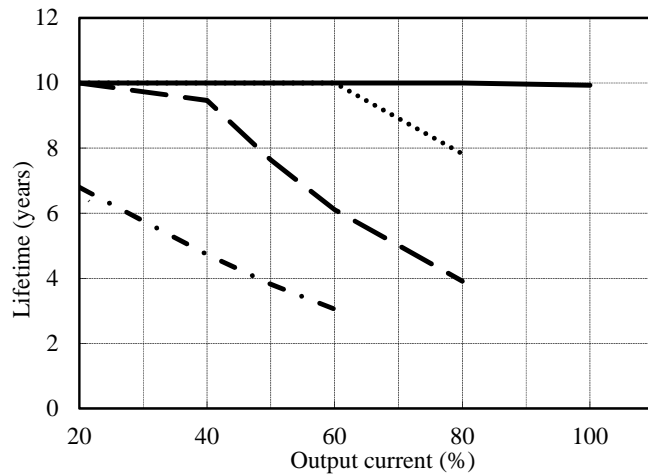
Istb : 0A

Ta 30°C : ———
 40°C :
 50°C : - - - -
 60°C : - · - · -



Vin=230VAC

Load (%)	Lifetime (years)			
	Ta= 30°C	Ta= 40°C	Ta= 50°C	Ta= 60°C
20	10.0	10.0	10.0	6.8
40	10.0	10.0	9.5	4.7
50	10.0	10.0	7.6	3.8
60	10.0	10.0	6.1	3.1
80	10.0	7.8	3.9	-
100	9.9	-	-	-

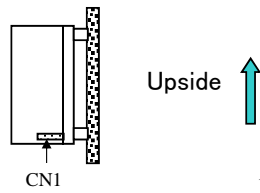


4. Electrolytic Capacitor Lifetime

MODEL : CUS600M-24

Cooling condition : Convection cooling

Mounting E

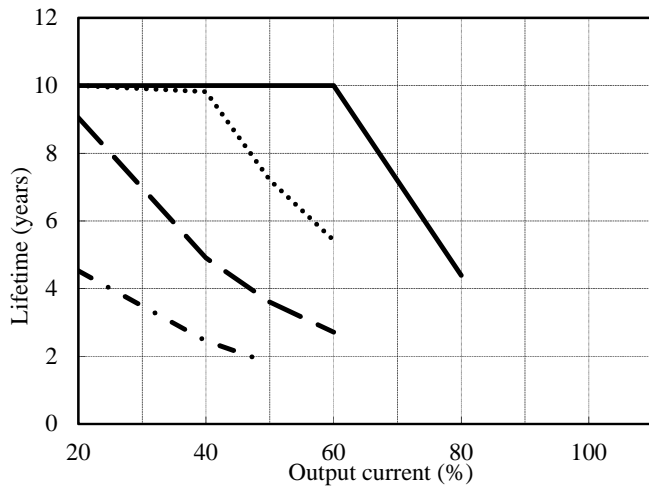


Vin=115VAC

Load (%)	Lifetime (years)			
	Ta= 30°C	Ta= 40°C	Ta= 50°C	Ta= 60°C
20	10.0	10.0	9.0	4.5
40	10.0	9.8	4.9	2.5
50	10.0	7.2	3.6	1.8
60	10.0	5.4	2.7	-
80	4.4	-	-	-
100	-	-	-	-

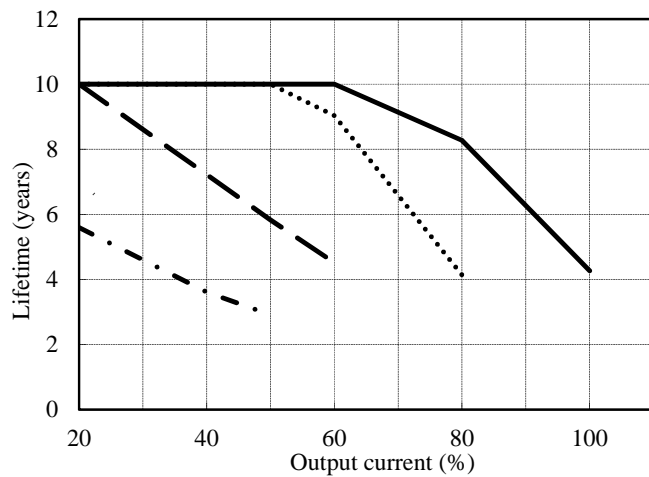
Conditions Istb : Follow main output derating

Ta 30°C : ———
 40°C :
 50°C : - - - -
 60°C : - · - · -



Vin=230VAC

Load (%)	Lifetime (years)			
	Ta= 30°C	Ta= 40°C	Ta= 50°C	Ta= 60°C
20	10.0	10.0	10.0	5.6
40	10.0	10.0	7.2	3.6
50	10.0	10.0	5.8	2.9
60	10.0	9.0	4.5	-
80	8.3	4.1	-	-
100	4.3	-	-	-

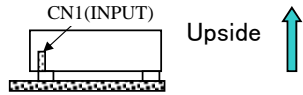


4. Electrolytic Capacitor Lifetime

MODEL : CUS600M-48

Cooling condition : Convection cooling

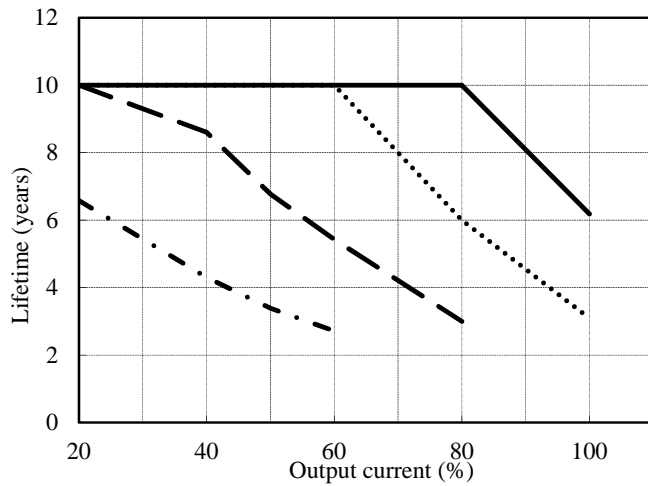
Mounting A



Conditions Istb : 0A
 Ta 30°C : ———
 40°C :
 50°C : - - - -
 60°C : - · - · -

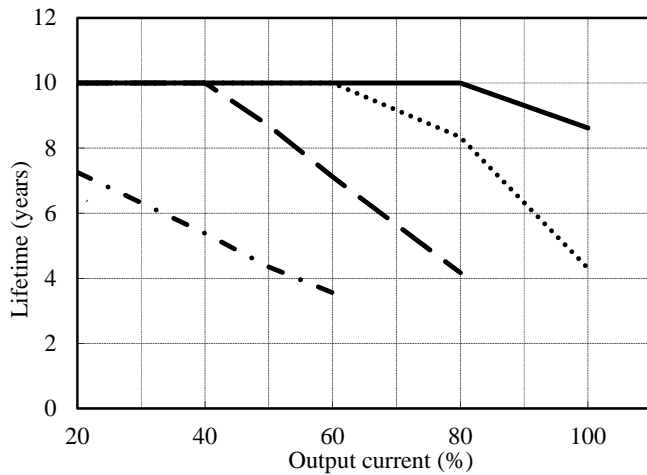
Vin=115VAC

Load (%)	Lifetime (years)			
	Ta= 30°C	Ta= 40°C	Ta= 50°C	Ta= 60°C
20	10.0	10.0	10.0	6.6
40	10.0	10.0	8.6	4.3
50	10.0	10.0	6.8	3.4
60	10.0	10.0	5.4	2.7
80	10.0	6.0	3.0	-
100	6.2	3.1	-	-



Vin=230VAC

Load (%)	Lifetime (years)			
	Ta= 30°C	Ta= 40°C	Ta= 50°C	Ta= 60°C
20	10.0	10.0	10.0	7.3
40	10.0	10.0	10.0	5.4
50	10.0	10.0	8.7	4.3
60	10.0	10.0	7.1	3.6
80	10.0	8.3	4.2	-
100	8.6	4.3	-	-

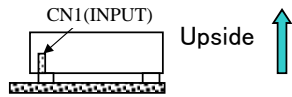


4. Electrolytic Capacitor Lifetime

MODEL : CUS600M-48

Cooling condition : Convection cooling

Mounting A

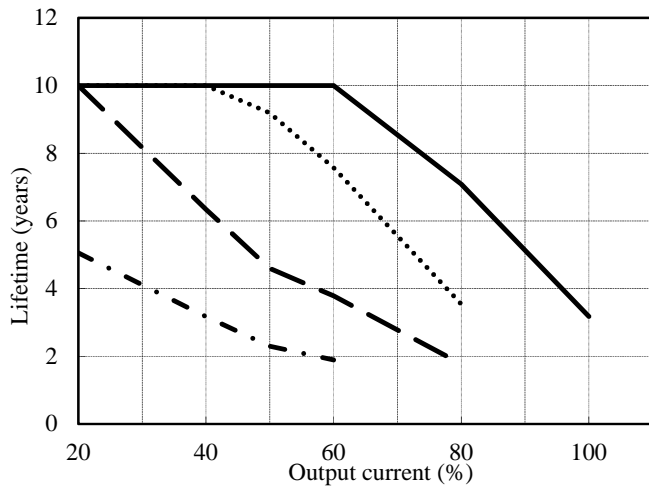


Conditions Istb : Follow main output derating

Ta 30°C : ———
 40°C :
 50°C : - - - -
 60°C : - · - · -

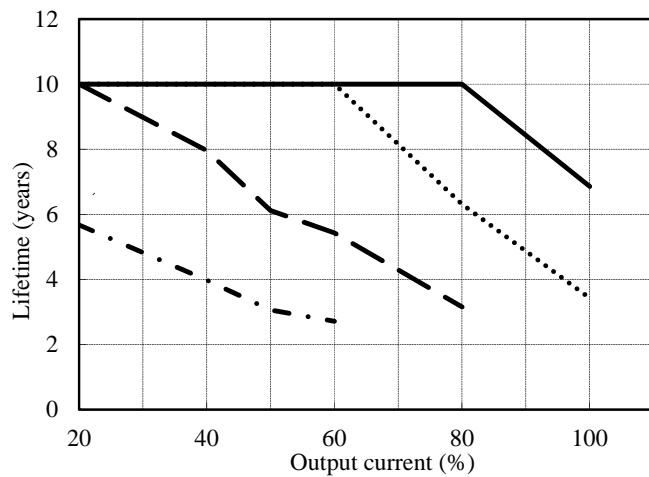
Vin=115VAC

Load (%)	Lifetime (years)			
	Ta= 30°C	Ta= 40°C	Ta= 50°C	Ta= 60°C
20	10.0	10.0	10.0	5.1
40	10.0	10.0	6.3	3.2
50	10.0	9.2	4.6	2.3
60	10.0	7.6	3.8	1.9
80	7.1	3.5	1.8	-
100	3.2	-	-	-



Vin=230VAC

Load (%)	Lifetime (years)			
	Ta= 30°C	Ta= 40°C	Ta= 50°C	Ta= 60°C
20	10.0	10.0	10.0	5.7
40	10.0	10.0	8.0	4.0
50	10.0	10.0	6.1	3.1
60	10.0	10.0	5.4	2.7
80	10.0	6.3	3.2	-
100	6.9	3.4	-	-

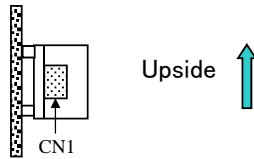


4. Electrolytic Capacitor Lifetime

MODEL : CUS600M-48

Cooling condition : Convection cooling

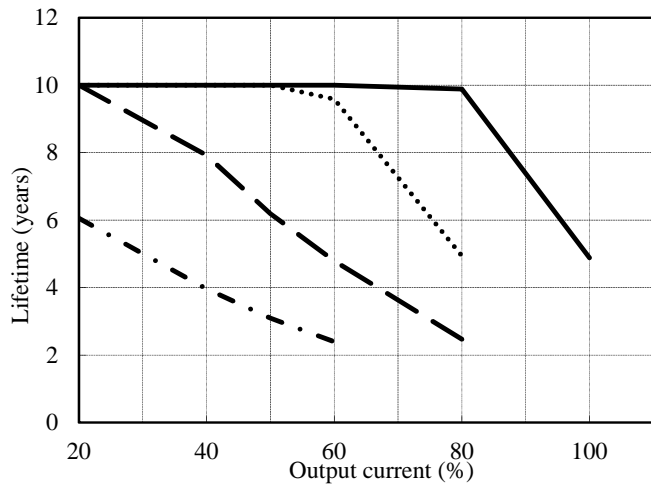
Mounting B



Conditions Istb : 0A
 Ta 30°C : ———
 40°C :
 50°C : - - - -
 60°C : - · - · -

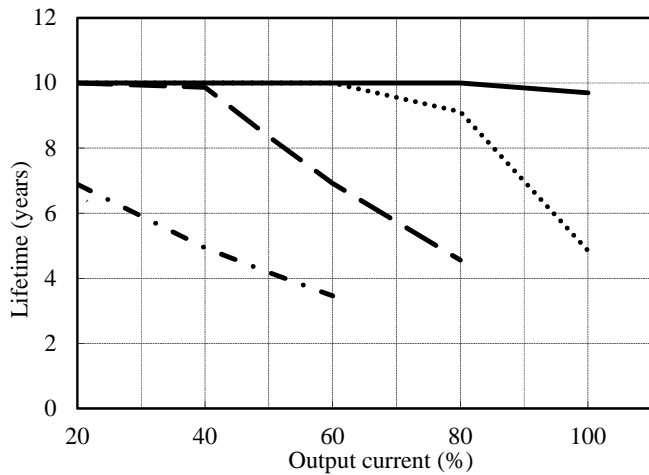
Vin=115VAC

Load (%)	Lifetime (years)			
	Ta= 30°C	Ta= 40°C	Ta= 50°C	Ta= 60°C
20	10.0	10.0	10.0	6.1
40	10.0	10.0	7.9	4.0
50	10.0	10.0	6.2	3.1
60	10.0	9.6	4.8	2.4
80	9.9	4.9	2.5	-
100	4.9	-	-	-



Vin=230VAC

Load (%)	Lifetime (years)			
	Ta= 30°C	Ta= 40°C	Ta= 50°C	Ta= 60°C
20	10.0	10.0	10.0	6.9
40	10.0	10.0	9.9	4.9
50	10.0	10.0	8.4	4.2
60	10.0	10.0	6.9	3.5
80	10.0	9.1	4.6	-
100	9.7	4.8	-	-

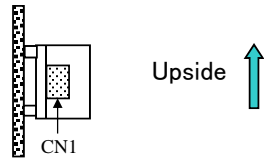


4. Electrolytic Capacitor Lifetime

MODEL : CUS600M-48

Cooling condition : Convection cooling

Mounting B

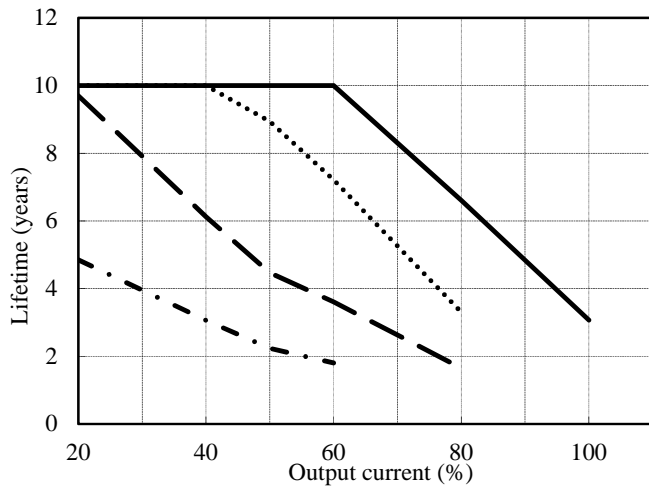


Vin=115VAC

Load (%)	Lifetime (years)			
	Ta= 30°C	Ta= 40°C	Ta= 50°C	Ta= 60°C
20	10.0	10.0	9.7	4.8
40	10.0	10.0	6.1	3.1
50	10.0	8.9	4.5	2.2
60	10.0	7.2	3.6	1.8
80	6.6	3.3	1.7	-
100	3.1	-	-	-

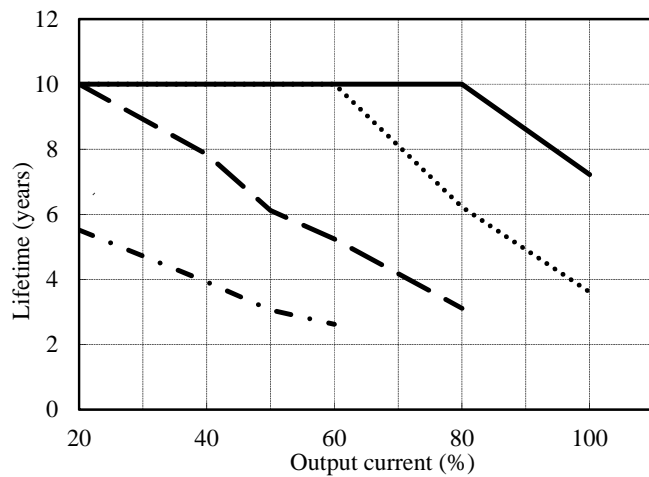
Conditions Istb : Follow main output derating

Ta 30°C : ———
 40°C :
 50°C : - - - -
 60°C : - · - · -



Vin=230VAC

Load (%)	Lifetime (years)			
	Ta= 30°C	Ta= 40°C	Ta= 50°C	Ta= 60°C
20	10.0	10.0	10.0	5.5
40	10.0	10.0	7.8	3.9
50	10.0	10.0	6.1	3.1
60	10.0	10.0	5.2	2.6
80	10.0	6.2	3.1	-
100	7.2	3.6	-	-

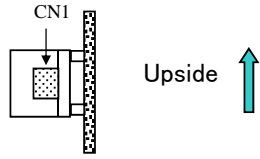


4. Electrolytic Capacitor Lifetime

MODEL : CUS600M-48

Cooling condition : Convection cooling

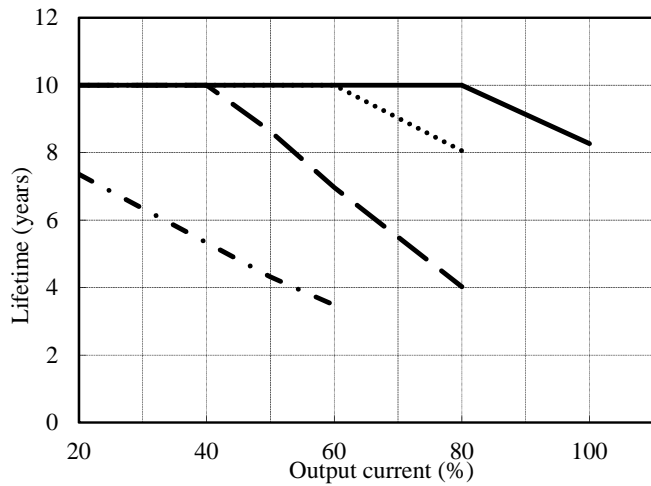
Mounting C



Conditions Istb : 0A
 Ta 30°C : ———
 40°C :
 50°C : - - - -
 60°C : - · - · -

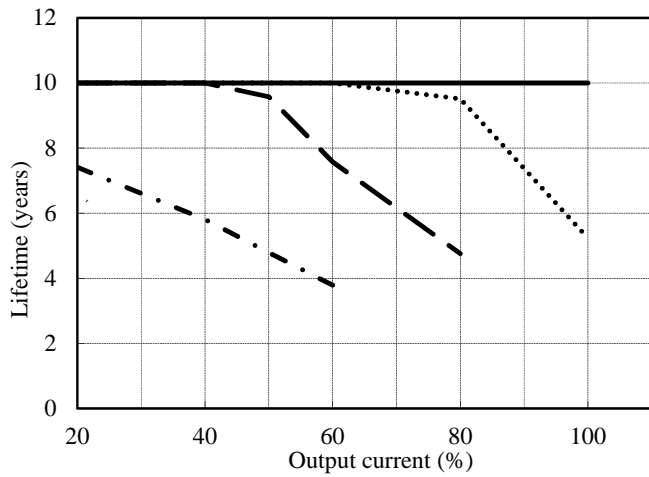
Vin=115VAC

Load (%)	Lifetime (years)			
	Ta= 30°C	Ta= 40°C	Ta= 50°C	Ta= 60°C
20	10.0	10.0	10.0	7.4
40	10.0	10.0	10.0	5.3
50	10.0	10.0	8.6	4.3
60	10.0	10.0	7.0	3.5
80	10.0	8.1	4.0	-
100	8.3	-	-	-



Vin=230VAC

Load (%)	Lifetime (years)			
	Ta= 30°C	Ta= 40°C	Ta= 50°C	Ta= 60°C
20	10.0	10.0	10.0	7.4
40	10.0	10.0	10.0	5.8
50	10.0	10.0	9.6	4.8
60	10.0	10.0	7.6	3.8
80	10.0	9.5	4.8	-
100	10.0	5.2	-	-

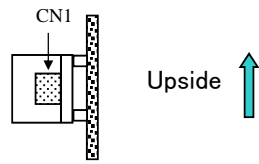


4. Electrolytic Capacitor Lifetime

MODEL : CUS600M-48

Cooling condition : Convection cooling

Mounting C

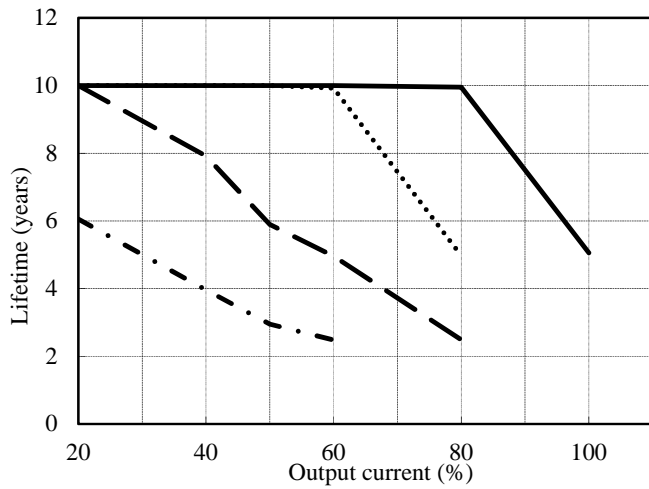


Conditions Istb : Follow main output derating

Ta 30°C : ———
 40°C :
 50°C : - - - -
 60°C : - · - · -

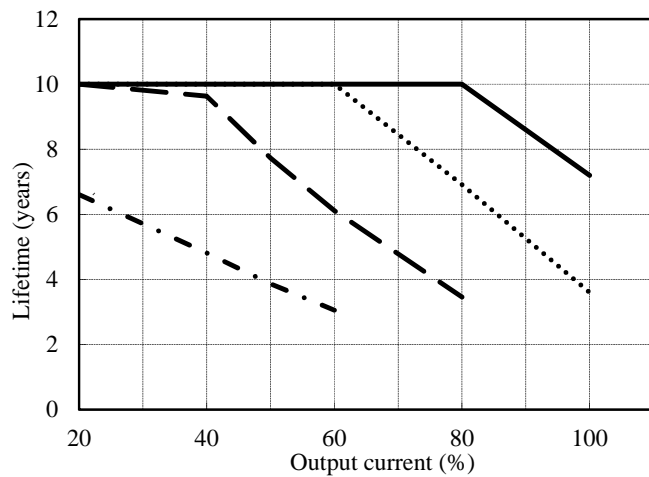
Vin=115VAC

Load (%)	Lifetime (years)			
	Ta= 30°C	Ta= 40°C	Ta= 50°C	Ta= 60°C
20	10.0	10.0	10.0	6.1
40	10.0	10.0	7.9	4.0
50	10.0	10.0	5.9	2.9
60	10.0	9.9	5.0	2.5
80	10.0	5.0	2.5	-
100	5.1	-	-	-



Vin=230VAC

Load (%)	Lifetime (years)			
	Ta= 30°C	Ta= 40°C	Ta= 50°C	Ta= 60°C
20	10.0	10.0	10.0	6.6
40	10.0	10.0	9.6	4.8
50	10.0	10.0	7.7	3.9
60	10.0	10.0	6.1	3.1
80	10.0	6.9	3.5	-
100	7.2	3.6	-	-

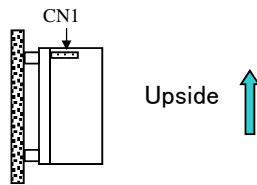


4. Electrolytic Capacitor Lifetime

MODEL : CUS600M-48

Cooling condition : Convection cooling

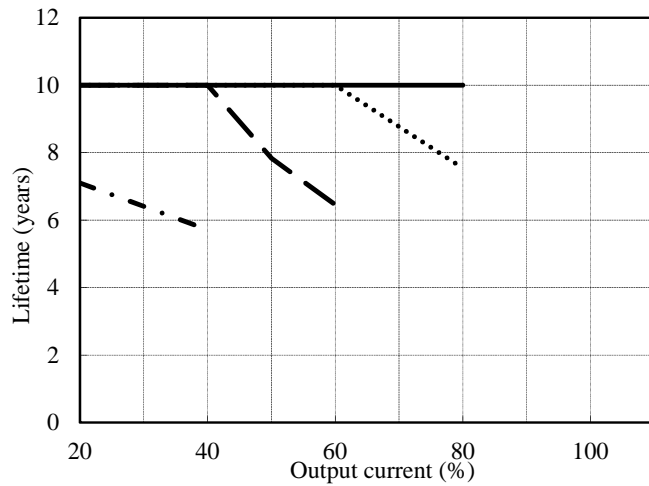
Mounting D



Conditions Istb : 0A
 Ta 30°C : ———
 40°C :
 50°C : - - - -
 60°C : - · - · -

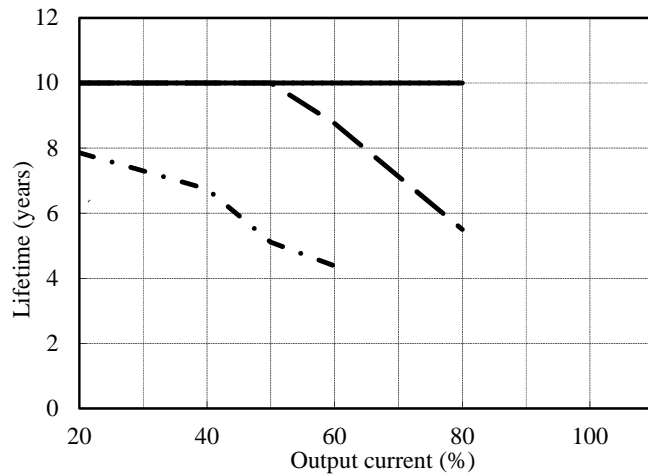
Vin=115VAC

Load (%)	Lifetime (years)			
	Ta= 30°C	Ta= 40°C	Ta= 50°C	Ta= 60°C
20	10.0	10.0	10.0	7.1
40	10.0	10.0	10.0	5.7
50	10.0	10.0	7.8	-
60	10.0	10.0	6.5	-
80	10.0	7.5	-	-
100	-	-	-	-



Vin=230VAC

Load (%)	Lifetime (years)			
	Ta= 30°C	Ta= 40°C	Ta= 50°C	Ta= 60°C
20	10.0	10.0	10.0	7.9
40	10.0	10.0	10.0	6.7
50	10.0	10.0	10.0	5.1
60	10.0	10.0	8.8	4.4
80	10.0	10.0	5.5	-
100	-	-	-	-

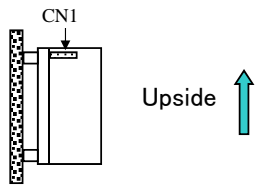


4. Electrolytic Capacitor Lifetime

MODEL : CUS600M-48

Cooling condition : Convection cooling

Mounting D

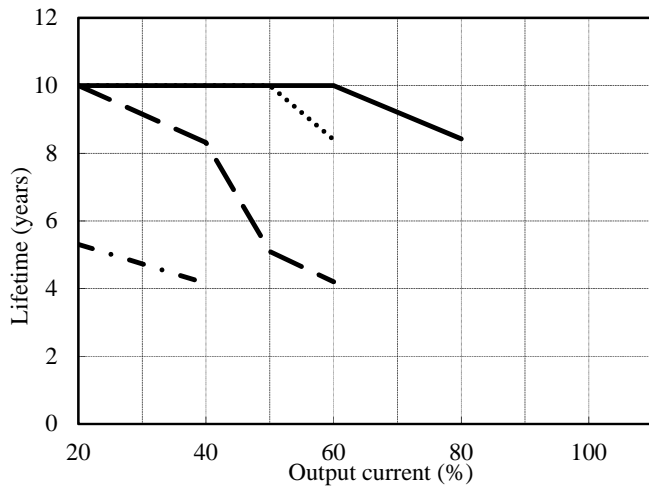


Vin=115VAC

Load (%)	Lifetime (years)			
	Ta=30°C	Ta=40°C	Ta=50°C	Ta=60°C
20	10.0	10.0	10.0	5.3
40	10.0	10.0	8.3	4.2
50	10.0	10.0	5.1	-
60	10.0	8.4	4.2	-
80	8.4	-	-	-
100	-	-	-	-

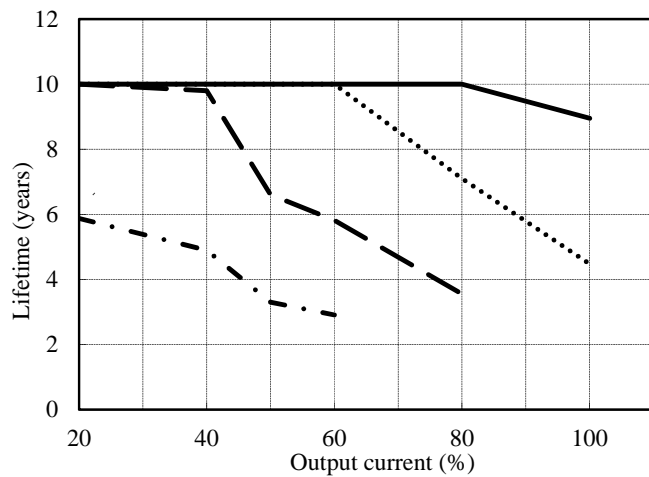
Conditions Istb : Follow main output derating

Ta 30°C : ———
 40°C :
 50°C : - - - -
 60°C : - · - · -



Vin=230VAC

Load (%)	Lifetime (years)			
	Ta=30°C	Ta=40°C	Ta=50°C	Ta=60°C
20	10.0	10.0	10.0	5.9
40	10.0	10.0	9.8	4.9
50	10.0	10.0	6.6	3.3
60	10.0	10.0	5.8	2.9
80	10.0	7.1	3.6	-
100	9.0	4.5	-	-

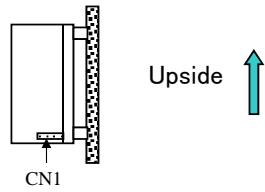


4. Electrolytic Capacitor Lifetime

MODEL : CUS600M-48

Cooling condition : Convection cooling

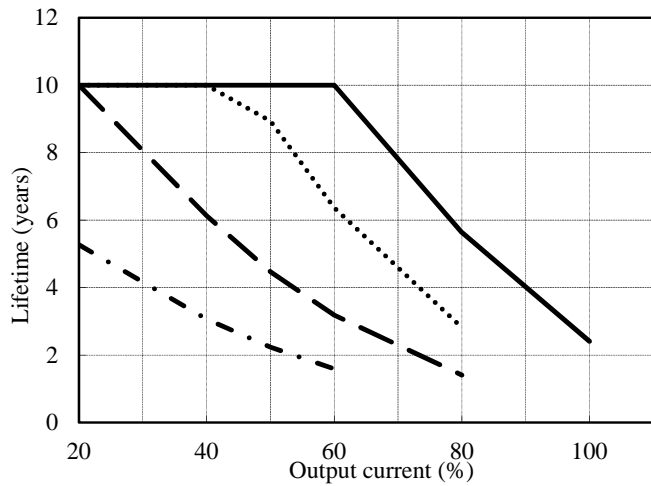
Mounting E



Vin=115VAC

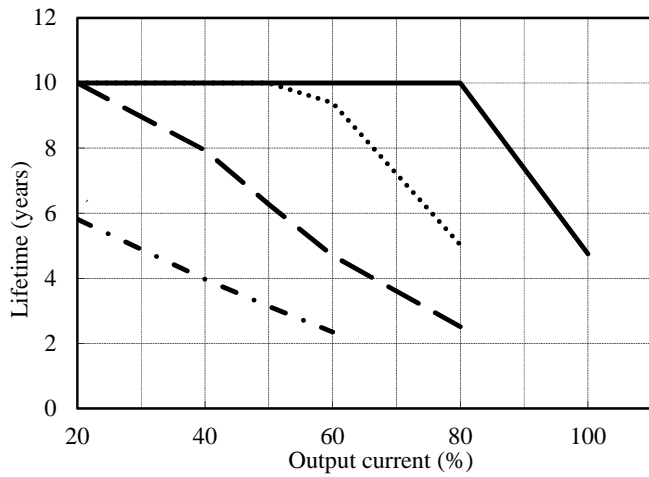
Load (%)	Lifetime (years)			
	Ta= 30°C	Ta= 40°C	Ta= 50°C	Ta= 60°C
20	10.0	10.0	10.0	5.3
40	10.0	10.0	6.1	3.1
50	10.0	8.9	4.5	2.2
60	10.0	6.4	3.2	1.6
80	5.6	2.8	1.4	-
100	2.4	-	-	-

Conditions Istb : 0A
 Ta 30°C : ———
 40°C :
 50°C : - - - -
 60°C : - · - · -



Vin=230VAC

Load (%)	Lifetime (years)			
	Ta= 30°C	Ta= 40°C	Ta= 50°C	Ta= 60°C
20	10.0	10.0	10.0	5.8
40	10.0	10.0	7.9	4.0
50	10.0	10.0	6.3	3.1
60	10.0	9.4	4.7	2.3
80	10.0	5.0	2.5	-
100	4.7	-	-	-

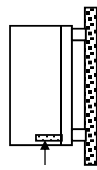


4. Electrolytic Capacitor Lifetime

MODEL : CUS600M-48

Cooling condition : Convection cooling

Mounting E



Upside ↑

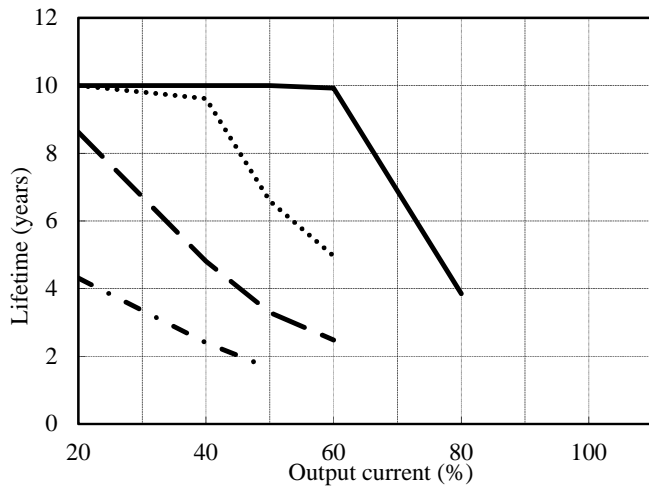
Vin=115VAC

Load (%)	Lifetime (years)			
	Ta= 30°C	Ta= 40°C	Ta= 50°C	Ta= 60°C
20	10.0	10.0	8.6	4.3
40	10.0	9.6	4.8	2.4
50	10.0	6.6	3.3	1.6
60	9.9	5.0	2.5	-
80	3.9	-	-	-
100	-	-	-	-

Conditions

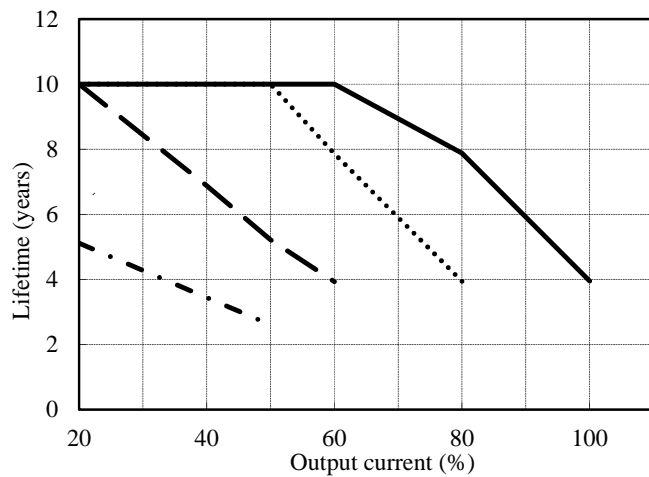
Istb : Follow main output derating

Ta 30°C : ———
 40°C :
 50°C : - - - -
 60°C : - · - · -



Vin=230VAC

Load (%)	Lifetime (years)			
	Ta= 30°C	Ta= 40°C	Ta= 50°C	Ta= 60°C
20	10.0	10.0	10.0	5.1
40	10.0	10.0	6.9	3.4
50	10.0	10.0	5.2	2.6
60	10.0	7.9	3.9	-
80	7.9	3.9	-	-
100	4.0	-	-	-



5. Abnormal Test

MODEL : CUS600M-24

(1) Test Conditions

Input : 115VAC Output : 24V, 25A Istb : 2A Ta : 25 °C

(2) Test Results

No.	Test position		Test mode		Test result													Note		
	Location No.	Test point	Short	Open	*1: Equivalent one smoke less than of a cigarette															
					a	b	c	d	e	f	g	h	i	j	k	l				
1	SCR1	A	<input type="radio"/>															<input type="radio"/>	Input Power increase	
		K	<input type="radio"/>																<input type="radio"/>	Input Power increase
		G	<input type="radio"/>															<input type="radio"/>		
		A-K	<input type="radio"/>																<input type="radio"/>	Input Power decrease
		A-G	<input type="radio"/>																<input type="radio"/>	
		G-K	<input type="radio"/>																<input type="radio"/>	
2	Q1	G	<input type="radio"/>								<input type="radio"/>	<input type="radio"/>					<input type="radio"/>		Da: F1A ,F1B,R108, D117	
		D	<input type="radio"/>														<input type="radio"/>			
		S	<input type="radio"/>														<input type="radio"/>			
		G-S	<input type="radio"/>														<input type="radio"/>			
		G-D	<input type="radio"/>								<input type="radio"/>	<input type="radio"/>					<input type="radio"/>		Da: F1A ,F1B,Q1, R108, D117, R110	
		D-S	<input type="radio"/>								<input type="radio"/>	<input type="radio"/>					<input type="radio"/>		Da: F1A ,F1B,R108, D117	
3	D1		<input type="radio"/>								<input type="radio"/>	<input type="radio"/>				<input type="radio"/>		Da: F1A ,Q1, R108, D117		
			<input type="radio"/>													<input type="radio"/>		Da: F1A ,Q1, R108, D117		
4	L4		<input type="radio"/>								<input type="radio"/>	<input type="radio"/>				<input type="radio"/>		Da: F1A ,F1B, Q1, R108, D117		
			<input type="radio"/>													<input type="radio"/>				
5	C1		<input type="radio"/>								<input type="radio"/>	<input type="radio"/>				<input type="radio"/>		Da: F1A ,F1B		
			<input type="radio"/>													<input type="radio"/>				
6	SA1		<input type="radio"/>								<input type="radio"/>	<input type="radio"/>				<input type="radio"/>		Da: F1A ,F1B		
			<input type="radio"/>													<input type="radio"/>				
7	C4		<input type="radio"/>								<input type="radio"/>	<input type="radio"/>				<input type="radio"/>		Da: F1A ,F1B		
			<input type="radio"/>													<input type="radio"/>				
8	BD1	1	<input type="radio"/>													<input type="radio"/>				
		2	<input type="radio"/>													<input type="radio"/>				
		3	<input type="radio"/>													<input type="radio"/>				
		4	<input type="radio"/>													<input type="radio"/>				
		1-2	<input type="radio"/>								<input type="radio"/>	<input type="radio"/>				<input type="radio"/>		Da: F1A ,F1B		
		2-3	<input type="radio"/>								<input type="radio"/>	<input type="radio"/>				<input type="radio"/>		Da: F1A ,F1B		
		3-4	<input type="radio"/>								<input type="radio"/>	<input type="radio"/>				<input type="radio"/>		Da: F1A ,F1B		
		1-4	<input type="radio"/>								<input type="radio"/>	<input type="radio"/>				<input type="radio"/>		Da: F1A ,F1B		
9	Q2A	d	<input type="radio"/>												<input type="radio"/>					
		s	<input type="radio"/>							<input type="radio"/>					<input type="radio"/>		Da: Q2A, A103, Z102, Q103, A101			
		g	<input type="radio"/>							<input type="radio"/>	<input type="radio"/>				<input type="radio"/>		Da: Q2A, Q2B, F1A, F1B, D117, R108			
		d~s	<input type="radio"/>							<input type="radio"/>	<input type="radio"/>				<input type="radio"/>		Da: Q2B, F1A, F1B, D117, R108			
		g~s	<input type="radio"/>												<input type="radio"/>					
		g~d	<input type="radio"/>							<input type="radio"/>	<input type="radio"/>				<input type="radio"/>		Da: Q2A, Q2B, F1A ,F1B, D117, R108			
10	Q2B	d	<input type="radio"/>												<input type="radio"/>					
		s	<input type="radio"/>												<input type="radio"/>					
		g	<input type="radio"/>							<input type="radio"/>	<input type="radio"/>				<input type="radio"/>		Da: Q2A, Q2B, F1A, F1B, D117, R108			
		d~s	<input type="radio"/>							<input type="radio"/>	<input type="radio"/>				<input type="radio"/>		Da: Q2A, F1A ,F1B, D117, R108			
		g~s	<input type="radio"/>												<input type="radio"/>					
		g~d	<input type="radio"/>							<input type="radio"/>	<input type="radio"/>				<input type="radio"/>		Da: Q2A, Q2B, F1A ,F1B, D117, R108			

5. Abnormal Test

MODEL : CUS600M-24

(1) Test Conditions

Input : 115VAC Output : 24V, 25A Istb : 2A Ta : 25°C

(2) Test Results

No.	Test position		Test mode	Test result													Note		
	Location No.	Test point		Short	Open	*1: Equivalent one smoke less than of a cigarette													
						a	b	c	d	e	f	g	h	I	j	k		l	
				Fire	Slight Smoke	Burst	Smell	Red hot	Damaged	Fuse blown	O.V.P.	O.C.P.	No output	No change	Others				
11	T2	2	○							○				○			Da: A104		
		3	○							○				○			Da: A104		
		5	○											○					
		6	○											○					
		7	○											○			Standby power hiccup		
		8	○											○			Standby power hiccup		
		2~3	○											○			Standby power OCP		
		5~6	○											○			Standby power OCP		
		6~7	○								○			○			Da: R177		
		7~8	○											○			Standby power OCP		
12	Q201	d	○										○	○					
		s	○										○	○					
		g	○							○			○				Da:Q201		
		d~s	○										○						
		g~s	○										○		○		OTP		
		g~d	○										○						
13	Q202	d	○										○	○					
		s	○										○	○					
		g	○							○			○				Da:Q202		
		d~s	○										○						
		g~s	○										○		○		OTP		
		g~d	○										○						
14	T1	1	○										○	○					
		2	○										○	○					
		3	○										○	○					
		4	○										○	○					
		5	○										○						
		8	○										○						
		3~4	○										○	○					
		2~3	○										○	○					
		5~8	○										○	○					

6. Vibration Test

MODEL : CUS600M-12/19/24/28/32/36/48

(1) Vibration Test Class

Frequency variable endurance test

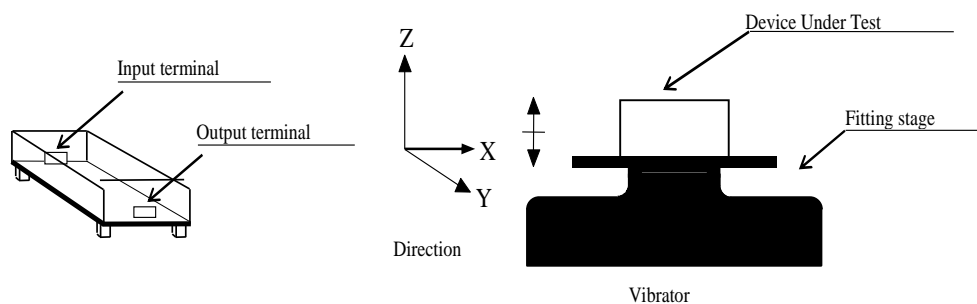
(2) Equipment Used

IMV CORP. DC-6000-65

(3) Test Conditions

· Sweep frequency	: 10~55Hz	· Direction	: X, Y, Z
· Sweep time	: 1.0min	· Sweep count	: 1 hour each
· Acceleration	: Constant 19.6m/s ² (2G)		

(4) Test Method



(5) Acceptable Conditions

1. Not to be broken
2. No abnormal output after test.

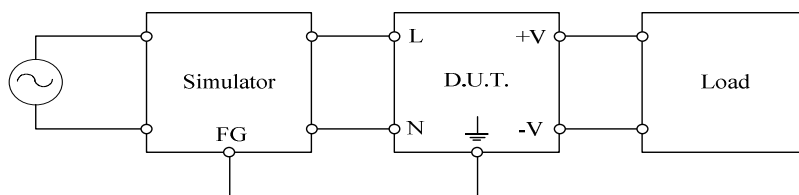
(6) Test Results

Judgement : **OK**

7. Noise Simulate Test

MODEL : CUS600M-12/19/24/28/32/36/48

(1) Test Circuit and Equipment



Simulator : INS-400L (Noise Laboratory Co.,LTD)

(2) Test Conditions

- | | | | |
|-----------------------|-----------------|------------------|------------------|
| • Input voltage | : 115, 230VAC | • Noise level | : 0~2kV |
| • Output voltage | : Rated | • Phase | : 0~360 deg |
| • Output current | : 0%, Full load | • Polarity | : +, - |
| • Ambient temperature | : 25°C | • Mode | : Common, Normal |
| • Pulse width | : 50~1000ns | • Trigger select | : Line |

(3) Acceptable Conditions

1. The regulation of output voltage must not exceed 5% of initial value during test.
2. The output voltage must be within the regulation of specification after the test.
3. Smoke and fire are not allowed.

(4) Test Results

Judgement : OK

8. Thermal Shock Test

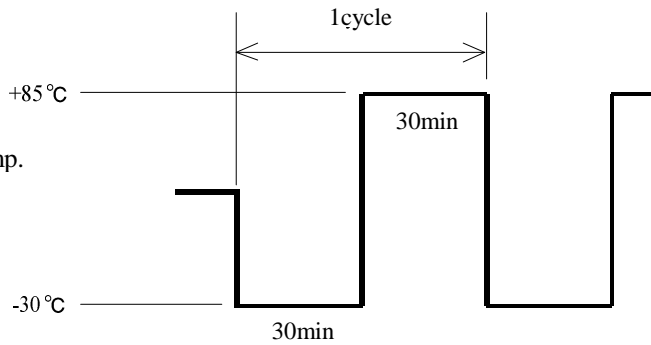
MODEL : CUS600M-12

(1) Equipment Used (Thermal Shock Chamber)

ESPEC CORP. TSA-101S-W

(2) Test Conditions

- Ambient Temperature : -40°C ⇔ 85°C +85°C
- Test Time : 30 min each temp.
- Test Cycle : 700 Cycles
- Not Operating



(3) Test Method

Before testing, check if there is no abnormal output, then put the D.U.T. in testing chamber, and test it according to the above cycle. 700 cycles later, leave it for 1 hour at the room temperature , then check if there is no abnormal output.

(4) Acceptable Conditions

No abnormal output after test.

(5) Test Results

Judgement : OK