

ZWS30C

RELIABILITY DATA

信頼性データ

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* 試験結果は、代表データではありますが、全ての製品はほぼ同等な特性を示します。

従いまして、以下の結果は参考値とお考え願います。

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

1. MTBF計算値 Calculated Values of MTBF

MODEL : ZWS30C-24

(1) 算出方法 Calculating Method

JEITA (RCR-9102B)の部品点数法で算出されています。

それぞれの部品ごとに、部品故障率 λ_G が与えられ、各々の点数によって決定されます。

Calculated based on part count reliability projection of JEITA (RCR-9102B).

Individual failure rates λ_G is given to each part and MTBF is calculated by the count of each part.

<算出式>

$$MTBF = \frac{1}{\lambda_{equip}} \times 10^6 = \frac{1}{\sum_{i=1}^n n_i (\lambda_G \pi_Q)_i} \times 10^6 \quad \text{時間 (Hours)}$$

λ_{equip} : 全機器故障率 (故障数 / 10^6 時間)
Total Equipment Failure Rate (Failure / 10^6 Hours)

λ_G : i 番目の同属部品に対する故障率 (故障数 / 10^6 時間)
Generic Failure Rate for The ith Generic Part (Failure / 10^6 Hours)

n_i : i 番目の同属部品の個数
Quantity of ith Generic Part

n : 異なった同属部品のカテゴリの数
Number of Different Generic Part Categories

π_Q : i 番目の同属部品に対する品質ファクタ ($\pi_Q=1$)
Generic Quality Factor for The ith Generic Part ($\pi_Q=1$)

(2) MTBF値 MTBF Values

GF : 地上、固定 (Ground, Fixed)

RCR-9102B

MTBF \doteq 371,311 時間 (Hours)

2. 部品ディレーティング Components Derating

MODEL : ZWS30C-5, ZWS30C-24

(1) 算出方法 Calculating Method

(a) 測定方法 Measuring method

取付方法 : 標準取付 : A Mounting method Standard mounting : A	周囲温度 : 50°C Ambient temperature
入力電圧 : 100, 200VAC Input voltage	出力電圧、電流 : 5V, Full load Output voltage & current

取付方法 : 標準取付 : A Mounting method Standard mounting : A	周囲温度 : 50°C Ambient temperature
入力電圧 : 100, 200VAC Input voltage	出力電圧、電流 : 24V, Full load Output voltage & current

(b) 半導体 Semiconductors

ケース温度、消費電力、熱抵抗より使用状態の接合点温度を求め最大定格、接合点温度との比較を求めました。

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

(c) IC、抵抗、コンデンサ等 IC, Resistors, Capacitors, etc.

周囲温度、使用状態、消費電力など、個々の値は設計基準内に入っています。

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

(d) 熱抵抗算出方法 Calculating method of thermal impedance

$$\theta_{j-c} = \frac{T_j(\max) - T_c}{P_j(\max)}$$

T_c : ディレーティングの始まるケース温度 一般に25°C
Case Temperature at Start Point of Derating ; 25°C in General

P_j(max): 最大接合点(チャンネル)損失
(P_{ch}(max)) Maximum Junction (channel) Dissipation

T_j(max): 最大接合点(チャンネル)温度
ch(max)) Maximum Junction (channel) Temperature

θ_{j-c} : 接合点(チャンネル)からケースまでの熱抵抗
(θ_{ch-c}) Thermal Impedance between Junction (channel) and Case

(2) 部品デレーティング表 Component Derating List

部品番号 Location No.	$V_{in} = 100VAC$ $T_a = 50^{\circ}C$	$V_{out} = 5VDC$ Convection cooling	Load = 100%
D1 DF06M_HF DIODES	$T_j(\max) = 150^{\circ}C$ $P_d = 0.73 W$ $T_j = T_c + ((\theta_{j-c}) \times P_d) = 95.0^{\circ}C$ D.F. = 63.3 %	$\theta_{j-c} = 14.871^{\circ}C/W$ $\Delta T_c = 34^{\circ}C$	$T_c = 84^{\circ}C$
D101 S1JLW TAIWAN SEMI	$T_j(\max) = 175^{\circ}C$ $P_d = 0.38 W$ $T_j = T_c + ((\theta_{j-c}) \times P_d) = 97.3^{\circ}C$ D.F. = 55.6 %	$\theta_{j-c} = 16.6^{\circ}C/W$ $\Delta T_c = 41^{\circ}C$	$T_c = 91^{\circ}C$
D103 S1JLW TAIWAN SEMI	$T_j(\max) = 175^{\circ}C$ $P_d = 0.13 W$ $T_j = T_c + ((\theta_{j-c}) \times P_d) = 92.3^{\circ}C$ D.F. = 52.7 %	$\theta_{j-c} = 16.6^{\circ}C/W$ $\Delta T_c = 40^{\circ}C$	$T_c = 90^{\circ}C$
D51 SG30SC6M-5600 SHINDENGEN	$T_j(\max) = 150^{\circ}C$ $P_d = 1.57 W$ $T_j = T_c + ((\theta_{j-c}) \times P_d) = 127.2^{\circ}C$ D.F. = 84.8 %	$\theta_{j-c} = 2^{\circ}C/W$ $\Delta T_c = 74^{\circ}C$	$T_c = 124^{\circ}C$
A1 ICE5AR0680BZS INFINEON	$T_j(\max) = 150^{\circ}C$ $P_d = 0.45 W$ $T_j = T_c + ((\theta_{j-c}) \times P_d) = 94.6^{\circ}C$ D.F. = 63.1 %	$\theta_{j-c} = 10.06^{\circ}C/W$ $\Delta T_c = 40^{\circ}C$	$T_c = 90^{\circ}C$
PC101 EL1018(TA)-VG EVERLIGHT	$T_j(\max) = 110^{\circ}C$ $P_d = 3 mW$ $T_j = T_c + ((\theta_{j-c}) \times P_d) = 74.6^{\circ}C$ D.F. = 67.8 %	$\theta_{j-c} = 178.65^{\circ}C/W$ $\Delta T_c = 24^{\circ}C$	$T_c = 74^{\circ}C$

部品番号 Location No.	$V_{in} = 200VAC$ $T_a = 50^{\circ}C$	$V_{out} = 5VDC$ Convection cooling	Load = 100%
D1 DF06M_HF DIODES	$T_j(\max) = 150^{\circ}C$ $P_d = 0.42 W$ $T_j = T_c + ((\theta_{j-c}) \times P_d) = 80.3^{\circ}C$ D.F. = 53.6 %	$\theta_{j-c} = 14.871^{\circ}C/W$ $\Delta T_c = 24^{\circ}C$	$T_c = 74^{\circ}C$
D101 S1JLW TAIWAN SEMI	$T_j(\max) = 175^{\circ}C$ $P_d = 0.39 W$ $T_j = T_c + ((\theta_{j-c}) \times P_d) = 96.6^{\circ}C$ D.F. = 55.2 %	$\theta_{j-c} = 16.6^{\circ}C/W$ $\Delta T_c = 40^{\circ}C$	$T_c = 90^{\circ}C$
D103 S1JLW TAIWAN SEMI	$T_j(\max) = 175^{\circ}C$ $P_d = 0.13 W$ $T_j = T_c + ((\theta_{j-c}) \times P_d) = 90.3^{\circ}C$ D.F. = 51.6 %	$\theta_{j-c} = 16.6^{\circ}C/W$ $\Delta T_c = 38^{\circ}C$	$T_c = 88^{\circ}C$
D51 SG30SC6M-5600 SHINDENGEN	$T_j(\max) = 150^{\circ}C$ $P_d = 1.57 W$ $T_j = T_c + ((\theta_{j-c}) \times P_d) = 128.2^{\circ}C$ D.F. = 85.5 %	$\theta_{j-c} = 2^{\circ}C/W$ $\Delta T_c = 75^{\circ}C$	$T_c = 125^{\circ}C$
A1 ICE5AR0680BZS INFINEON	$T_j(\max) = 150^{\circ}C$ $P_d = 0.76 W$ $T_j = T_c + ((\theta_{j-c}) \times P_d) = 102.7^{\circ}C$ D.F. = 68.5 %	$\theta_{j-c} = 10.06^{\circ}C/W$ $\Delta T_c = 45^{\circ}C$	$T_c = 95^{\circ}C$
PC101 EL1018(TA)-VG EVERLIGHT	$T_j(\max) = 110^{\circ}C$ $P_d = 3 mW$ $T_j = T_c + ((\theta_{j-c}) \times P_d) = 71.6^{\circ}C$ D.F. = 65.1 %	$\theta_{j-c} = 178.65^{\circ}C/W$ $\Delta T_c = 21^{\circ}C$	$T_c = 71^{\circ}C$

部品番号 Location No.	$V_{in} = 100VAC$ $T_a = 70^{\circ}C$	$V_{out} = 5VDC$ Force air cooling	Load = 100%
D1 DF06M_HF DIODES	$T_j(\max) = 150^{\circ}C$ $P_d = 0.73 W$ $T_j = T_c + ((\theta_{j-c}) \times P_d) = 100.0^{\circ}C$ D.F. = 66.7 %	$\theta_{j-c} = 14.871^{\circ}C/W$ $\Delta T_c = 19^{\circ}C$	$T_c = 89^{\circ}C$
D101 S1JLW TAIWAN SEMI	$T_j(\max) = 175^{\circ}C$ $P_d = 0.38 W$ $T_j = T_c + ((\theta_{j-c}) \times P_d) = 96.3^{\circ}C$ D.F. = 55.0 %	$\theta_{j-c} = 16.6^{\circ}C/W$ $\Delta T_c = 20^{\circ}C$	$T_c = 90^{\circ}C$
D103 S1JLW TAIWAN SEMI	$T_j(\max) = 175^{\circ}C$ $P_d = 0.13 W$ $T_j = T_c + ((\theta_{j-c}) \times P_d) = 89.3^{\circ}C$ D.F. = 51.0 %	$\theta_{j-c} = 16.6^{\circ}C/W$ $\Delta T_c = 17^{\circ}C$	$T_c = 87^{\circ}C$
D51 SG30SC6M-5600 SHINDENGEN	$T_j(\max) = 150^{\circ}C$ $P_d = 1.57 W$ $T_j = T_c + ((\theta_{j-c}) \times P_d) = 116.2^{\circ}C$ D.F. = 77.5 %	$\theta_{j-c} = 2^{\circ}C/W$ $\Delta T_c = 43^{\circ}C$	$T_c = 113^{\circ}C$
A1 ICE5AR0680BZS INFINEON	$T_j(\max) = 150^{\circ}C$ $P_d = 0.45 W$ $T_j = T_c + ((\theta_{j-c}) \times P_d) = 100.6^{\circ}C$ D.F. = 67.1 %	$\theta_{j-c} = 10.06^{\circ}C/W$ $\Delta T_c = 26^{\circ}C$	$T_c = 96^{\circ}C$
PC101 EL1018(TA)-VG EVERLIGHT	$T_j(\max) = 110^{\circ}C$ $P_d = 3 mW$ $T_j = T_c + ((\theta_{j-c}) \times P_d) = 75.6^{\circ}C$ D.F. = 68.7 %	$\theta_{j-c} = 178.65^{\circ}C/W$ $\Delta T_c = 5^{\circ}C$	$T_c = 75^{\circ}C$

部品番号 Location No.	$V_{in} = 200VAC$ $T_a = 70^{\circ}C$	$V_{out} = 5VDC$ Force air cooling	Load = 100%
D1 DF06M_HF DIODES	$T_j(\max) = 150^{\circ}C$ $P_d = 0.42 W$ $T_j = T_c + ((\theta_{j-c}) \times P_d) = 88.3^{\circ}C$ D.F. = 58.9 %	$\theta_{j-c} = 14.871^{\circ}C/W$ $\Delta T_c = 12^{\circ}C$	$T_c = 82^{\circ}C$
D101 S1JLW TAIWAN SEMI	$T_j(\max) = 175^{\circ}C$ $P_d = 0.39 W$ $T_j = T_c + ((\theta_{j-c}) \times P_d) = 96.6^{\circ}C$ D.F. = 55.2 %	$\theta_{j-c} = 16.6^{\circ}C/W$ $\Delta T_c = 20^{\circ}C$	$T_c = 90^{\circ}C$
D103 S1JLW TAIWAN SEMI	$T_j(\max) = 175^{\circ}C$ $P_d = 0.13 W$ $T_j = T_c + ((\theta_{j-c}) \times P_d) = 88.2^{\circ}C$ D.F. = 50.4 %	$\theta_{j-c} = 16.6^{\circ}C/W$ $\Delta T_c = 16^{\circ}C$	$T_c = 86^{\circ}C$
D51 SG30SC6M-5600 SHINDENGEN	$T_j(\max) = 150^{\circ}C$ $P_d = 1.57 W$ $T_j = T_c + ((\theta_{j-c}) \times P_d) = 117.2^{\circ}C$ D.F. = 78.1 %	$\theta_{j-c} = 2^{\circ}C/W$ $\Delta T_c = 44^{\circ}C$	$T_c = 114^{\circ}C$
A1 ICE5AR0680BZS INFINEON	$T_j(\max) = 150^{\circ}C$ $P_d = 0.76 W$ $T_j = T_c + ((\theta_{j-c}) \times P_d) = 108.7^{\circ}C$ D.F. = 72.5 %	$\theta_{j-c} = 10.06^{\circ}C/W$ $\Delta T_c = 31^{\circ}C$	$T_c = 101^{\circ}C$
PC101 EL1018(TA)-VG EVERLIGHT	$T_j(\max) = 110^{\circ}C$ $P_d = 3 mW$ $T_j = T_c + ((\theta_{j-c}) \times P_d) = 74.6^{\circ}C$ D.F. = 67.8 %	$\theta_{j-c} = 178.65^{\circ}C/W$ $\Delta T_c = 4^{\circ}C$	$T_c = 74^{\circ}C$

部品番号 Location No.	$V_{in} = 100VAC$ $T_a = 50^{\circ}C$	$V_{out} = 24VDC$ Convection cooling	Load = 100%
D1 DF06M_HF DIODES	$T_j(\max) = 150^{\circ}C$ $P_d = 1.05 W$ $T_j = T_c + ((\theta_{j-c}) \times P_d) = 111.6^{\circ}C$ D.F. = 74.4 %	$\theta_{j-c} = 14.871^{\circ}C/W$ $\Delta T_c = 46^{\circ}C$	$T_c = 96^{\circ}C$
D101 S1JLW TAIWAN SEMI	$T_j(\max) = 175^{\circ}C$ $P_d = 2.6 mW$ $T_j = T_c + ((\theta_{j-c}) \times P_d) = 94.5^{\circ}C$ D.F. = 54.0 %	$\theta_{j-c} = 16.6^{\circ}C/W$ $\Delta T_c = 45^{\circ}C$	$T_c = 95^{\circ}C$
D103 S1JLW TAIWAN SEMI	$T_j(\max) = 175^{\circ}C$ $P_d = 65 mW$ $T_j = T_c + ((\theta_{j-c}) \times P_d) = 91.1^{\circ}C$ D.F. = 52.1 %	$\theta_{j-c} = 16.6^{\circ}C/W$ $\Delta T_c = 40^{\circ}C$	$T_c = 90^{\circ}C$
D51 SF20LC30M-5600 SHINDENGEN	$T_j(\max) = 150^{\circ}C$ $P_d = 1.00 W$ $T_j = T_c + ((\theta_{j-c}) \times P_d) = 115.8^{\circ}C$ D.F. = 77.2 %	$\theta_{j-c} = 1.7^{\circ}C/W$ $\Delta T_c = 64^{\circ}C$	$T_c = 114^{\circ}C$
A1 ICE5AR0680BZS INFINEON	$T_j(\max) = 150^{\circ}C$ $P_d = 0.72 W$ $T_j = T_c + ((\theta_{j-c}) \times P_d) = 93.3^{\circ}C$ D.F. = 62.2 %	$\theta_{j-c} = 10.06^{\circ}C/W$ $\Delta T_c = 36^{\circ}C$	$T_c = 86^{\circ}C$
PC101 EL1018(TA)-VG EVERLIGHT	$T_j(\max) = 110^{\circ}C$ $P_d = 2 mW$ $T_j = T_c + ((\theta_{j-c}) \times P_d) = 78.4^{\circ}C$ D.F. = 71.3 %	$\theta_{j-c} = 178.65^{\circ}C/W$ $\Delta T_c = 28^{\circ}C$	$T_c = 78^{\circ}C$

部品番号 Location No.	$V_{in} = 200VAC$ $T_a = 50^{\circ}C$	$V_{out} = 24VDC$ Convection cooling	Load = 100%
D1 DF06M_HF DIODES	$T_j(\max) = 150^{\circ}C$ $P_d = 0.71 W$ $T_j = T_c + ((\theta_{j-c}) \times P_d) = 94.6^{\circ}C$ D.F. = 63.1 %	$\theta_{j-c} = 14.871^{\circ}C/W$ $\Delta T_c = 34^{\circ}C$	$T_c = 84^{\circ}C$
D101 S1JLW TAIWAN SEMI	$T_j(\max) = 175^{\circ}C$ $P_j = 2.3 mW$ $T_j = T_c + ((\theta_{j-c}) \times P_d) = 96.1^{\circ}C$ D.F. = 54.9 %	$\theta_{j-c} = 16.6^{\circ}C/W$ $\Delta T_c = 46^{\circ}C$	$T_c = 96^{\circ}C$
D103 S1JLW TAIWAN SEMI	$T_j(\max) = 175^{\circ}C$ $P_d = 65 mW$ $T_j = T_c + ((\theta_{j-c}) \times P_{ch}) = 91.1^{\circ}C$ D.F. = 52.1 %	$\theta_{j-c} = 16.6^{\circ}C/W$ $\Delta T_c = 40^{\circ}C$	$T_c = 90^{\circ}C$
D51 SF20LC30M-5600 SHINDENGEN	$T_j(\max) = 150^{\circ}C$ $P_d = 1.21 W$ $T_j = T_c + ((\theta_{j-c}) \times P_d) = 119.1^{\circ}C$ D.F. = 79.4 %	$\theta_{j-c} = 1.7^{\circ}C/W$ $\Delta T_c = 67^{\circ}C$	$T_c = 117^{\circ}C$
A1 ICE5AR0680BZS INFINEON	$T_j(\max) = 150^{\circ}C$ $P_d = 1.15 W$ $T_j = T_c + ((\theta_{j-c}) \times P_d) = 103.6^{\circ}C$ D.F. = 69.1 %	$\theta_{j-c} = 10.06^{\circ}C/W$ $\Delta T_c = 42^{\circ}C$	$T_c = 92^{\circ}C$
PC101 EL1018(TA)-VG EVERLIGHT	$T_j(\max) = 110^{\circ}C$ $P_d = 2 mW$ $T_j = T_c + ((\theta_{j-c}) \times P_d) = 76.4^{\circ}C$ D.F. = 69.5 %	$\theta_{j-c} = 178.65^{\circ}C/W$ $\Delta T_c = 26^{\circ}C$	$T_c = 76^{\circ}C$

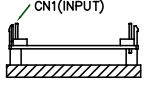
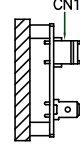
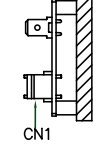
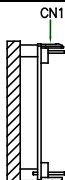
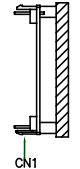
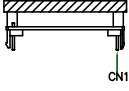
部品番号 Location No.	$V_{in} = 100VAC$ $T_a = 70^{\circ}C$	$V_{out} = 24VDC$ Force air cooling	Load = 100%
D1 DF06M_HF DIODES	$T_j(\max) = 150^{\circ}C$ $P_d = 1.05\text{ W}$ $T_j = T_c + ((\theta_{j-c}) \times P_d) = 112.6^{\circ}C$ D.F. = 75.1 %	$\theta_{j-c} = 14.871^{\circ}C/W$ $\Delta T_c = 27^{\circ}C$	$T_c = 97^{\circ}C$
D101 S1JLW TAIWAN SEMI	$T_j(\max) = 175^{\circ}C$ $P_d = 2.6\text{ mW}$ $T_j = T_c + ((\theta_{j-c}) \times P_d) = 86.1^{\circ}C$ D.F. = 49.2 %	$\theta_{j-c} = 16.6^{\circ}C/W$ $\Delta T_c = 16^{\circ}C$	$T_c = 86^{\circ}C$
D103 S1JLW TAIWAN SEMI	$T_j(\max) = 175^{\circ}C$ $P_d = 65\text{ mW}$ $T_j = T_c + ((\theta_{j-c}) \times P_d) = 80.1^{\circ}C$ D.F. = 45.8 %	$\theta_{j-c} = 16.6^{\circ}C/W$ $\Delta T_c = 9^{\circ}C$	$T_c = 79^{\circ}C$
D51 SF20LC30M-5600 SHINDENGEN	$T_j(\max) = 150^{\circ}C$ $P_d = 1.00\text{ W}$ $T_j = T_c + ((\theta_{j-c}) \times P_d) = 101.8^{\circ}C$ D.F. = 67.9 %	$\theta_{j-c} = 1.7^{\circ}C/W$ $\Delta T_c = 30^{\circ}C$	$T_c = 100^{\circ}C$
A1 ICE5AR0680BZS INFINEON	$T_j(\max) = 150^{\circ}C$ $P_d = 0.73\text{ W}$ $T_j = T_c + ((\theta_{j-c}) \times P_d) = 112.3^{\circ}C$ D.F. = 74.9 %	$\theta_{j-c} = 10.06^{\circ}C/W$ $\Delta T_c = 35^{\circ}C$	$T_c = 105^{\circ}C$
PC101 EL1018(TA)-VG EVERLIGHT	$T_j(\max) = 110^{\circ}C$ $P_d = 2\text{ mW}$ $T_j = T_c + ((\theta_{j-c}) \times P_d) = 75.4^{\circ}C$ D.F. = 68.6 %	$\theta_{j-c} = 178.65^{\circ}C/W$ $\Delta T_c = 5^{\circ}C$	$T_c = 75^{\circ}C$

部品番号 Location No.	$V_{in} = 200VAC$ $T_a = 70^{\circ}C$	$V_{out} = 24VDC$ Force air cooling	Load = 100%
D1 DF06M_HF DIODES	$T_j(\max) = 150^{\circ}C$ $P_d = 0.71\text{ W}$ $T_j = T_c + ((\theta_{j-c}) \times P_d) = 98.6^{\circ}C$ D.F. = 65.7 %	$\theta_{j-c} = 14.871^{\circ}C/W$ $\Delta T_c = 18^{\circ}C$	$T_c = 88^{\circ}C$
D101 S1JLW TAIWAN SEMI	$T_j(\max) = 175^{\circ}C$ $P_d = 2.3\text{ mW}$ $T_j = T_c + ((\theta_{j-c}) \times P_d) = 86.1^{\circ}C$ D.F. = 49.2 %	$\theta_{j-c} = 16.6^{\circ}C/W$ $\Delta T_c = 16^{\circ}C$	$T_c = 86^{\circ}C$
D103 S1JLW TAIWAN SEMI	$T_j(\max) = 175^{\circ}C$ $P_d = 65\text{ mW}$ $T_j = T_c + ((\theta_{j-c}) \times P_d) = 80.1^{\circ}C$ D.F. = 45.8 %	$\theta_{j-c} = 16.6^{\circ}C/W$ $\Delta T_c = 9^{\circ}C$	$T_c = 79^{\circ}C$
D51 SF20LC30M-5600 SHINDENGEN	$T_j(\max) = 150^{\circ}C$ $P_d = 1.21\text{ W}$ $T_j = T_c + ((\theta_{j-c}) \times P_d) = 105.1^{\circ}C$ D.F. = 70.1 %	$\theta_{j-c} = 1.7^{\circ}C/W$ $\Delta T_c = 33^{\circ}C$	$T_c = 103^{\circ}C$
A1 ICE5AR0680BZS INFINEON	$T_j(\max) = 150^{\circ}C$ $P_d = 1.15\text{ W}$ $T_j = T_c + ((\theta_{j-c}) \times P_d) = 122.6^{\circ}C$ D.F. = 81.8 %	$\theta_{j-c} = 10.06^{\circ}C/W$ $\Delta T_c = 41^{\circ}C$	$T_c = 111^{\circ}C$
PC101 EL1018(TA)-VG EVERLIGHT	$T_j(\max) = 110^{\circ}C$ $P_d = 2\text{ mW}$ $T_j = T_c + ((\theta_{j-c}) \times P_d) = 74.1^{\circ}C$ D.F. = 67.6 %	$\theta_{j-c} = 178.65^{\circ}C/W$ $\Delta T_c = 4^{\circ}C$	$T_c = 74^{\circ}C$

3. 主要部品温度上昇値 Main Components Temperature Rise ΔT List

MODEL : ZWS30C-5

(1) 測定条件 Measuring Conditions

取付方法 Mounting Method (標準取付 : A) (Standard Mounting : A)	Mounting A	Mounting B	Mounting C	Mounting D	Mounting E	Mounting F
						
入力電圧 V_{in} Input Voltage	100VAC / 200VAC					
出力電圧 V_{out} Output Voltage	5V					
出力電流 I_{out} Output Current	4A					

(2) 測定結果 Measuring Results

出力ディレーティング Output Derating		ΔT Temperature Rise ($^{\circ}C$)					
		100VAC					
		$T_a=50^{\circ}C$ Convection cooling					
部品番号 Location No.	部品名 Part name	取付方向					
		Mounting A	Mounting B	Mounting C	Mounting D	Mounting E	Mounting F
A1	IPD	40	33	30	25	22	44
C4	E.CAP.	22	21	12	15	11	24
C5	E.CAP.	30	23	18	19	15	32
C53	E.CAP.	38	37	20	18	18	40
C54	E.CAP.	24	28	12	12	13	30
D1	BRIDGE DIODE	34	29	20	21	15	36
D101	DIODE	41	29	28	22	22	47
D103	DIODE	40	34	22	22	19	44
D51	S.B.D	74	68	44	38	38	73
T1	TRANSFORMER	48	40	28	24	24	49
L1	BALUN COIL	21	19	11	13	8	21
L51	CHOKE COIL	40	40	19	18	18	46
PC101	PHOTO COUPLER	24	21	12	14	11	27

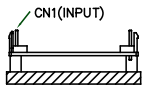
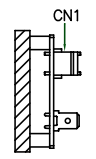
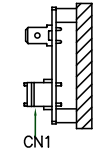
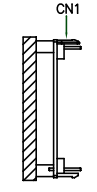
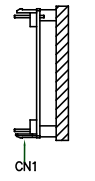
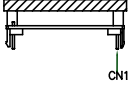
出力ディレーティング Output Derating		ΔT Temperature Rise ($^{\circ}C$)					
		200VAC					
		$T_a=50^{\circ}C$ Convection cooling					
部品番号 Location No.	部品名 Part name	取付方向					
		Mounting A	Mounting B	Mounting C	Mounting D	Mounting E	Mounting F
A1	IPD	45	39	31	33	30	48
C4	E.CAP.	18	18	10	14	10	21
C5	E.CAP.	28	23	17	20	16	31
C53	E.CAP.	38	38	20	18	18	40
C54	E.CAP.	24	29	12	12	13	30
D1	BRIDGE DIODE	24	21	14	19	12	27
D101	DIODE	40	30	27	24	24	47
D103	DIODE	38	33	21	23	20	42
D51	S.B.D	75	73	44	39	39	74
T1	TRANSFORMER	49	41	28	25	25	50
L1	BALUN COIL	15	13	8	12	6	15
L51	CHOKE COIL	40	42	19	18	18	46
PC101	PHOTO COUPLER	21	20	11	15	11	25

出力ディレーティング Output Derating		ΔT Temperature Rise ($^{\circ}C$)					
		100VAC					
		Ta=70 $^{\circ}C$ Force air cooling					
部品番号 Location No.	部品名 Part name	取付方向					
		Mounting A	Mounting B	Mounting C	Mounting D	Mounting E	Mounting F
A1	IPD	26	20	22	26	24	27
C4	E.CAP.	6	12	12	7	6	6
C5	E.CAP.	10	13	15	10	9	13
C53	E.CAP.	13	19	19	13	12	16
C54	E.CAP.	6	14	13	6	5	8
D1	BRIDGE DIODE	19	20	21	22	19	20
D101	DIODE	20	15	17	19	18	23
D103	DIODE	17	19	21	17	15	18
D51	S.B.D	43	41	40	41	43	44
T1	TRANSFORMER	24	19	23	21	23	26
L1	BALUN COIL	8	11	12	9	8	8
L51	CHOKER COIL	14	23	24	15	14	20
PC101	PHOTO COUPLER	5	9	10	6	5	6

出力ディレーティング Output Derating		ΔT Temperature Rise ($^{\circ}C$)					
		200VAC					
		Ta=70 $^{\circ}C$ Force air cooling					
部品番号 Location No.	部品名 Part name	取付方向					
		Mounting A	Mounting B	Mounting C	Mounting D	Mounting E	Mounting F
A1	IPD	31	25	27	31	30	33
C4	E.CAP.	4	10	9	5	4	5
C5	E.CAP.	10	13	14	10	9	13
C53	E.CAP.	13	20	19	13	12	16
C54	E.CAP.	6	14	13	6	5	9
D1	BRIDGE DIODE	12	13	14	13	12	13
D101	DIODE	20	15	17	20	19	24
D103	DIODE	16	19	20	16	15	18
D51	S.B.D	44	42	40	42	43	43
T1	TRANSFORMER	25	20	23	22	24	27
L1	BALUN COIL	5	7	8	5	5	5
L51	CHOKER COIL	14	24	24	15	14	20
PC101	PHOTO COUPLER	4	9	9	5	4	6

MODEL : ZWS30C-24

(1) 測定条件 Measuring Conditions

取付方法 Mounting Method (標準取付 : A) (Standard Mounting : A)	Mounting A	Mounting B	Mounting C	Mounting D	Mounting E	Mounting F
						
入力電圧 V_{in} Input Voltage	100VAC / 200VAC					
出力電圧 V_{out} Output Voltage	24V					
出力電流 I_{out} Output Current	1.25A / 1.46A					

(2) 測定結果 Measuring Results

出力ディレーティング Output Derating		ΔT Temperature Rise ($^{\circ}C$)					
		100VAC					
		$T_a=50^{\circ}C$ Convection cooling					
部品番号 Location No.	部品名 Part name	取付方向					
		Mounting A	Mounting B	Mounting C	Mounting D	Mounting E	Mounting F
A1	IPD	36	47	58	57	47	40
C4	E.CAP.	27	25	22	28	25	27
C5	E.CAP.	34	27	27	35	31	35
C53	E.CAP.	28	28	20	22	25	28
C54	E.CAP.	18	22	13	15	18	21
D1	BRIDGE DIODE	46	39	40	49	39	48
D101	DIODE	45	33	40	40	44	51
D103	DIODE	40	33	30	37	36	43
D51	S.B.D	64	58	56	55	61	63
T1	TRANSFORMER	53	40	44	43	49	49
L1	BALUN COIL	28	25	23	30	22	27
L51	CHOKE COIL	27	29	20	23	25	29
PC101	PHOTO COUPLER	28	26	20	25	24	30

出力ディレーティング Output Derating		ΔT Temperature Rise ($^{\circ}C$)					
		200VAC					
		$T_a=50^{\circ}C$ Convection cooling					
部品番号 Location No.	部品名 Part name	取付方向					
		Mounting A	Mounting B	Mounting C	Mounting D	Mounting E	Mounting F
A1	IPD	42	56	66	66	53	45
C4	E.CAP.	24	23	18	26	21	25
C5	E.CAP.	34	28	27	37	30	36
C53	E.CAP.	30	30	21	24	25	29
C54	E.CAP.	19	24	13	16	18	22
D1	BRIDGE DIODE	34	29	29	41	28	37
D101	DIODE	46	34	41	41	45	53
D103	DIODE	40	34	29	38	34	44
D51	S.B.D	67	62	59	58	63	66
T1	TRANSFORMER	59	46	48	49	53	54
L1	BALUN COIL	21	18	16	24	15	20
L51	CHOKE COIL	28	31	21	25	26	31
PC101	PHOTO COUPLER	26	25	18	25	21	29

出力ディレーティング Output Derating		ΔT Temperature Rise ($^{\circ}C$)					
		100VAC					
		Ta=70 $^{\circ}C$ Force air cooling					
部品番号 Location No.	部品名 Part name	取付方向					
		Mounting A	Mounting B	Mounting C	Mounting D	Mounting E	Mounting F
A1	IPD	35	37	33	35	34	38
C4	E.CAP.	7	12	11	7	6	9
C5	E.CAP.	9	14	14	8	9	15
C53	E.CAP.	6	6	8	5	5	7
C54	E.CAP.	3	4	4	3	3	3
D1	BRIDGE DIODE	27	29	30	28	25	31
D101	DIODE	16	18	15	15	15	20
D103	DIODE	9	14	13	9	10	15
D51	S.B.D	30	30	32	31	31	32
T1	TRANSFORMER	20	18	20	20	21	28
L1	BALUN COIL	12	14	16	12	11	13
L51	CHOKE COIL	6	8	8	6	5	7
PC101	PHOTO COUPLER	5	8	8	5	5	9

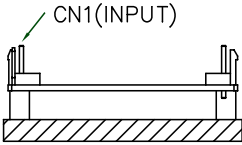
出力ディレーティング Output Derating		ΔT Temperature Rise ($^{\circ}C$)					
		200VAC					
		Ta=70 $^{\circ}C$ Force air cooling					
部品番号 Location No.	部品名 Part name	取付方向					
		Mounting A	Mounting B	Mounting C	Mounting D	Mounting E	Mounting F
A1	IPD	41	44	39	42	40	41
C4	E.CAP.	5	10	9	5	4	5
C5	E.CAP.	8	15	14	8	9	8
C53	E.CAP.	6	7	9	6	6	6
C54	E.CAP.	3	5	4	3	3	3
D1	BRIDGE DIODE	18	22	21	18	17	17
D101	DIODE	16	19	15	16	16	16
D103	DIODE	9	15	13	9	9	9
D51	S.B.D	33	33	36	34	34	34
T1	TRANSFORMER	24	22	24	24	25	24
L1	BALUN COIL	7	11	11	8	7	7
L51	CHOKE COIL	6	10	9	6	6	6
PC101	PHOTO COUPLER	4	8	8	4	4	4

4. 電解コンデンサ推定寿命計算値 Electrolytic Capacitor Lifetime

MODEL : ZWS30C

空冷条件: 自然空冷 Cooling condition: Convection cooling

取付方向 A
Mounting A



Conditions Ta 40°C : —
50°C : - - -
60°C : - - -

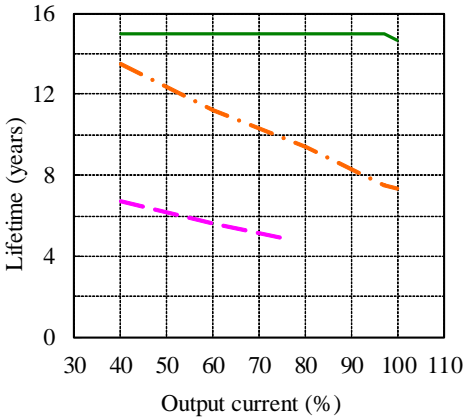
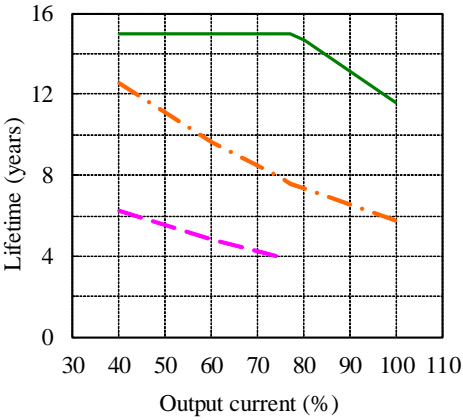
5V

Vin = 100VAC

Load	Ta	Lifetime (years)		
		40°C	50°C	60°C
40%		15.0	12.6	6.3
60%		15.0	9.6	4.8
80%		14.7	7.3	-
100%		11.6	5.8	-

Vin = 200VAC

Load	Ta	Lifetime (years)		
		40°C	50°C	60°C
40%		15.0	13.5	6.7
60%		15.0	11.2	5.6
80%		15.0	9.4	-
100%		14.6	7.3	-



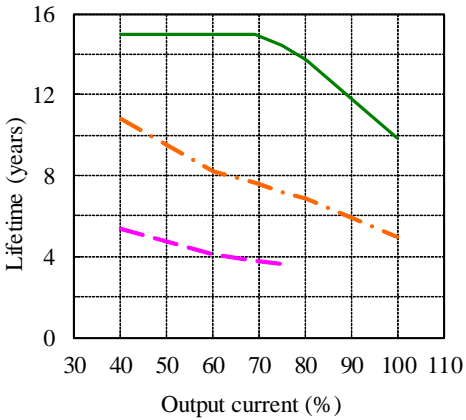
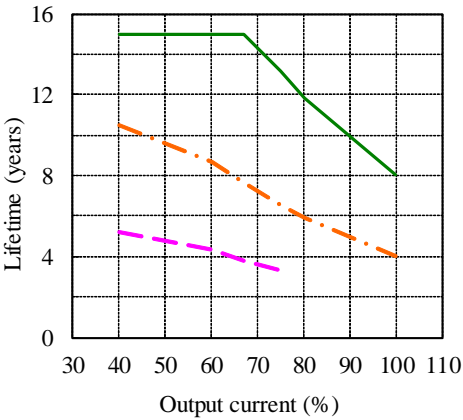
24V

Vin = 100VAC

Load	Ta	Lifetime (years)		
		40°C	50°C	60°C
40%		15.0	10.5	5.2
60%		15.0	8.6	4.3
80%		11.8	5.9	-
100%		8.1	4.0	-

Vin = 200VAC

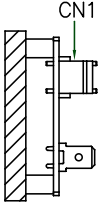
Load	Ta	Lifetime (years)		
		40°C	50°C	60°C
40%		15.0	10.8	5.4
60%		15.0	8.2	4.1
80%		13.7	6.9	-
100%		9.9	4.9	-



MODEL : ZWS30C

空冷条件：自然空冷 Cooling condition: Convection cooling

取付方向 B
Mounting B



Conditions Ta 40°C : ———
50°C : - - - -
60°C : - - - -

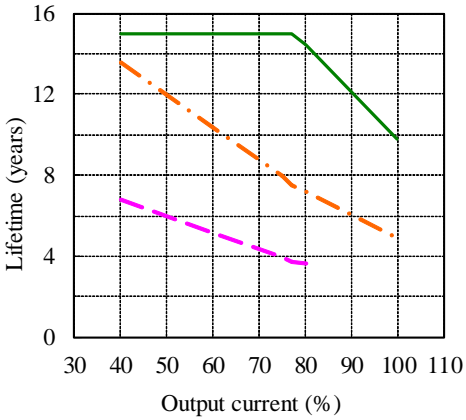
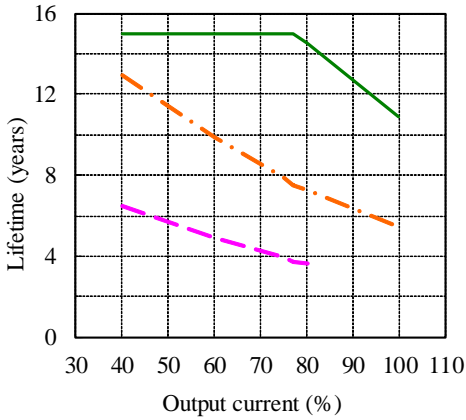
5V

Vin = 100VAC

Load	Ta	Lifetime (years)		
		40°C	50°C	60°C
40%		15.0	12.9	6.5
60%		15.0	9.9	4.9
80%		14.5	7.3	3.6
100%		10.9	5.4	-

Vin = 200VAC

Load	Ta	Lifetime (years)		
		40°C	50°C	60°C
40%		15.0	13.6	6.8
60%		15.0	10.3	5.2
80%		14.4	7.2	3.6
100%		9.8	4.9	-



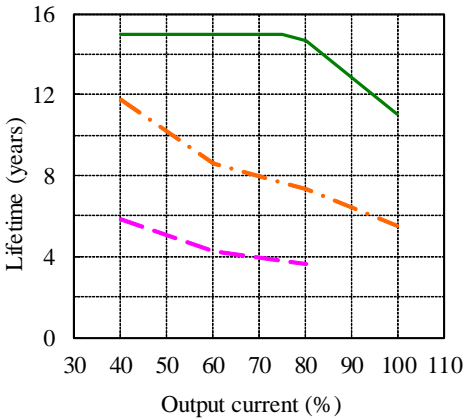
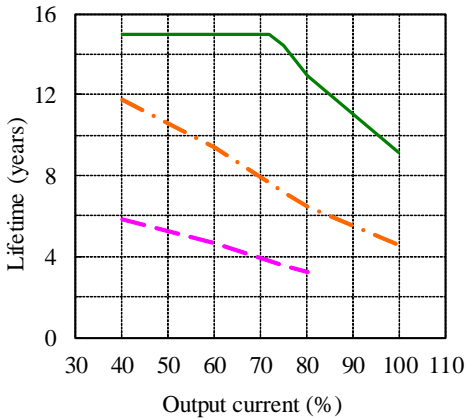
24V

Vin = 100VAC

Load	Ta	Lifetime (years)		
		40°C	50°C	60°C
40%		15.0	11.7	5.9
60%		15.0	9.4	4.7
80%		12.9	6.5	3.2
100%		9.1	4.6	-

Vin = 200VAC

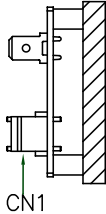
Load	Ta	Lifetime (years)		
		40°C	50°C	60°C
40%		15.0	11.8	5.9
60%		15.0	8.6	4.3
80%		14.7	7.3	3.7
100%		11.0	5.5	-



MODEL : ZWS30C

空冷条件：自然空冷 Cooling condition: Convection cooling

取付方向 C
Mounting C



Conditions Ta 40°C : ———
50°C : - - - -
60°C : - - - -

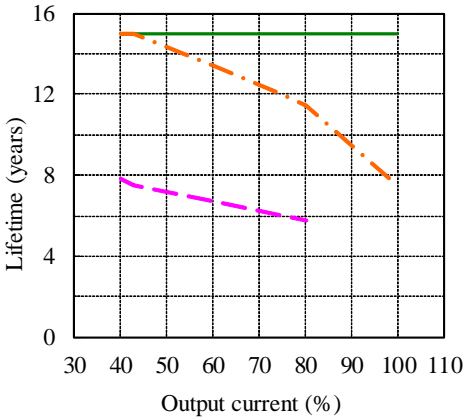
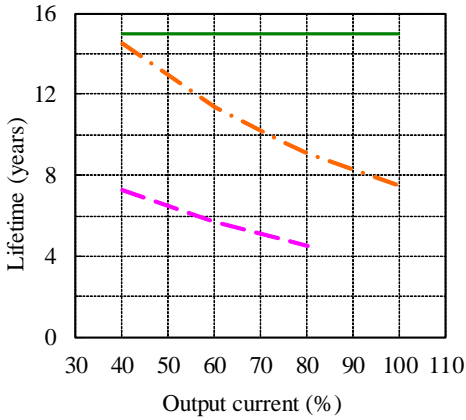
5V

Vin = 100VAC

Load	Ta	Lifetime (years)		
		40°C	50°C	60°C
40%		15.0	14.5	7.2
60%		15.0	11.4	5.7
80%		15.0	9.1	4.5
100%		15.0	7.5	-

Vin = 200VAC

Load	Ta	Lifetime (years)		
		40°C	50°C	60°C
40%		15.0	15.0	7.8
60%		15.0	13.4	6.7
80%		15.0	11.5	5.7
100%		15.0	7.5	-



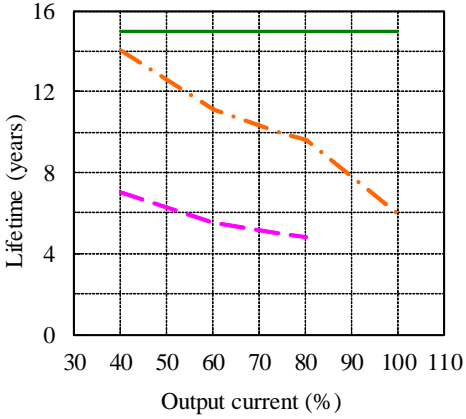
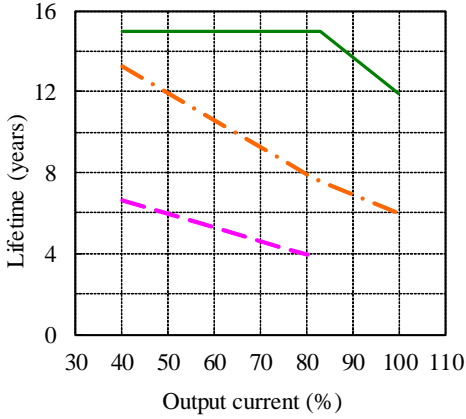
24V

Vin = 100VAC

Load	Ta	Lifetime (years)		
		40°C	50°C	60°C
40%		15.0	13.2	6.6
60%		15.0	10.6	5.3
80%		15.0	7.9	3.9
100%		11.9	6.0	-

Vin = 200VAC

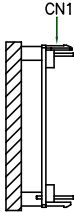
Load	Ta	Lifetime (years)		
		40°C	50°C	60°C
40%		15.0	14.0	7.0
60%		15.0	11.1	5.6
80%		15.0	9.6	4.8
100%		15.0	6.0	-



MODEL : ZWS30C

空冷条件：自然空冷 Cooling condition: Convection cooling

取付方向 D
Mounting D



Conditions Ta 40°C : ———
50°C : - - - -
60°C : - - - -

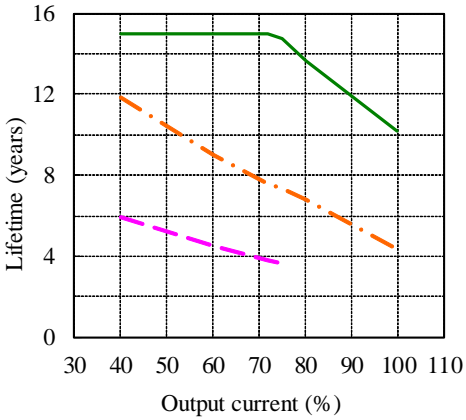
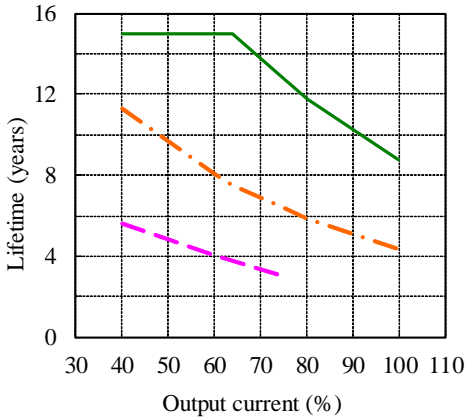
5V

Vin = 100VAC

Load	Ta	Lifetime (years)		
		40°C	50°C	60°C
40%		15.0	11.3	5.6
60%		15.0	8.1	4.0
80%		11.7	5.9	-
100%		8.7	4.4	-

Vin = 200VAC

Load	Ta	Lifetime (years)		
		40°C	50°C	60°C
40%		15.0	11.8	5.9
60%		15.0	9.0	4.5
80%		13.7	6.8	-
100%		10.2	4.4	-



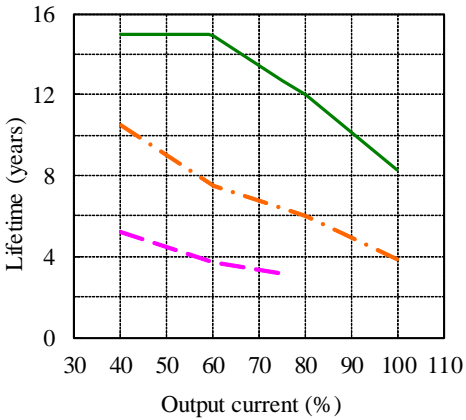
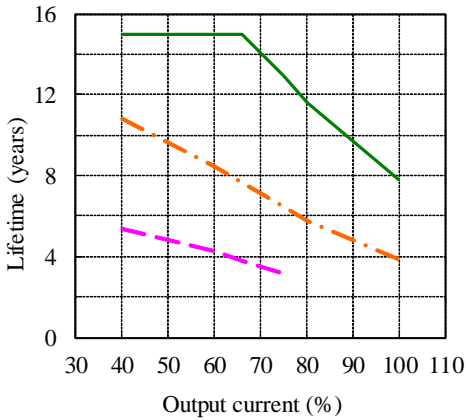
24V

Vin = 100VAC

Load	Ta	Lifetime (years)		
		40°C	50°C	60°C
40%		15.0	10.8	5.4
60%		15.0	8.5	4.2
80%		11.6	5.8	-
100%		7.8	3.9	-

Vin = 200VAC

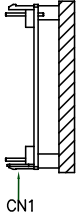
Load	Ta	Lifetime (years)		
		40°C	50°C	60°C
40%		15.0	10.5	5.2
60%		14.9	7.5	3.7
80%		12.0	6.0	-
100%		8.3	3.9	-



MODEL : ZWS30C

空冷条件：自然空冷 Cooling condition: Convection cooling

取付方向 E
Mounting E



Conditions Ta 40°C : —
50°C : - - -
60°C : - - -

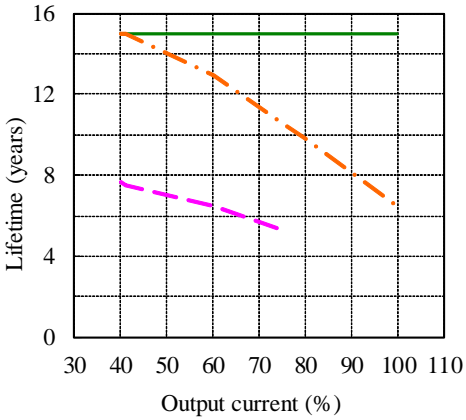
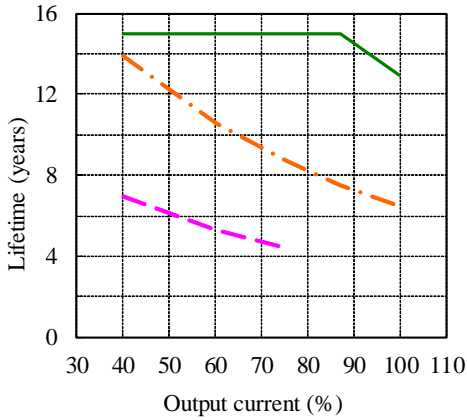
5V

Vin = 100VAC

Load	Ta	Lifetime (years)		
		40°C	50°C	60°C
40%		15.0	13.9	6.9
60%		15.0	10.6	5.3
80%		15.0	8.2	-
100%		13.0	6.5	-

Vin = 200VAC

Load	Ta	Lifetime (years)		
		40°C	50°C	60°C
40%		15.0	15.0	7.7
60%		15.0	12.9	6.5
80%		15.0	9.8	-
100%		15.0	6.5	-



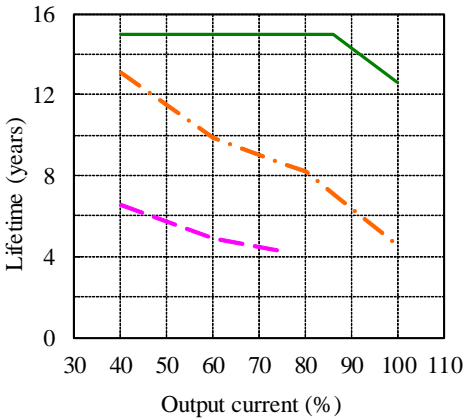
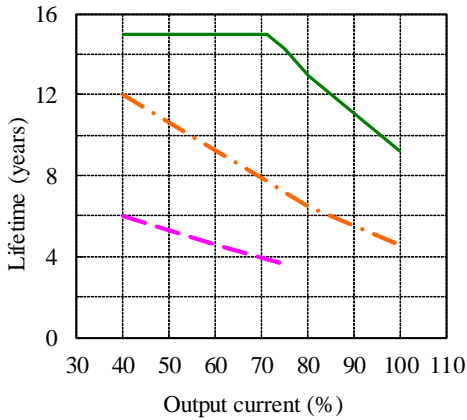
24V

Vin = 100VAC

Load	Ta	Lifetime (years)		
		40°C	50°C	60°C
40%		15.0	12.0	6.0
60%		15.0	9.2	4.6
80%		12.9	6.5	-
100%		9.2	4.6	-

Vin = 200VAC

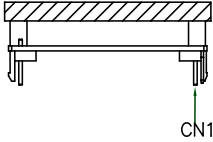
Load	Ta	Lifetime (years)		
		40°C	50°C	60°C
40%		15.0	13.1	6.5
60%		15.0	9.8	4.9
80%		15.0	8.2	-
100%		12.6	4.6	-



MODEL : ZWS30C

空冷条件：自然空冷 Cooling condition: Convection cooling

取付方向 F
Mounting F



Conditions Ta 40°C : —
50°C : - - -
60°C : - - -

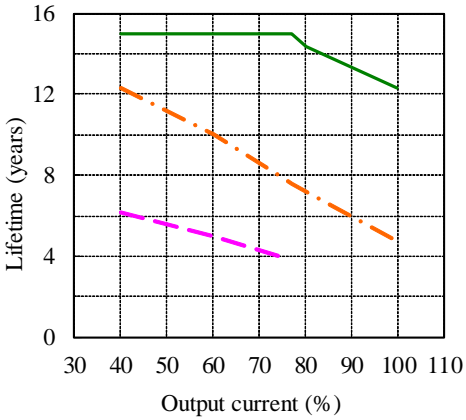
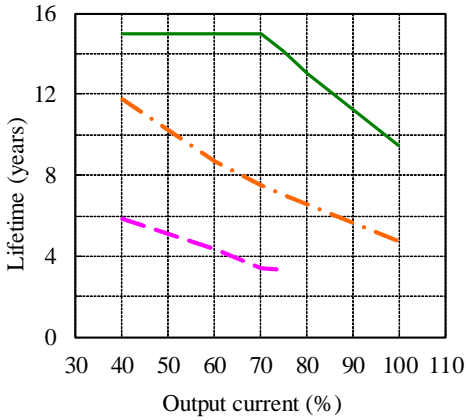
5V

Vin = 100VAC

Load	Ta	Lifetime (years)		
		40°C	50°C	60°C
40%		15.0	11.8	5.9
60%		15.0	8.7	4.3
80%		13.1	6.5	-
100%		9.5	4.7	-

Vin = 200VAC

Load	Ta	Lifetime (years)		
		40°C	50°C	60°C
40%		15.0	12.3	6.2
60%		15.0	10.0	5.0
80%		14.3	7.2	-
100%		12.3	4.7	-



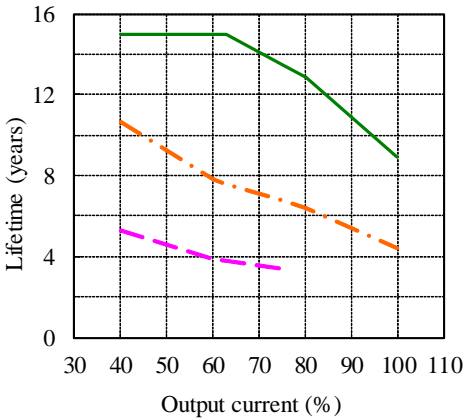
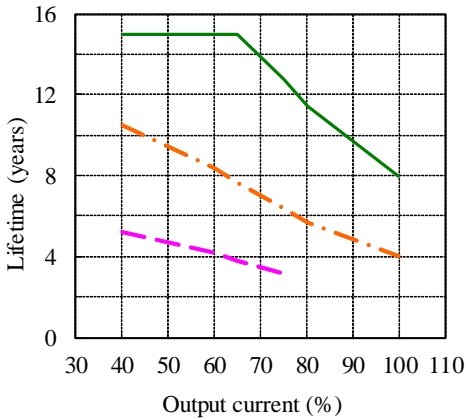
24V

Vin = 100VAC

Load	Ta	Lifetime (years)		
		40°C	50°C	60°C
40%		15.0	10.5	5.2
60%		15.0	8.3	4.2
80%		11.4	5.7	-
100%		8.0	4.0	-

Vin = 200VAC

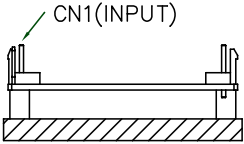
Load	Ta	Lifetime (years)		
		40°C	50°C	60°C
40%		15.0	10.6	5.3
60%		15.0	7.8	3.9
80%		12.8	6.4	-
100%		8.9	4.4	-



MODEL : ZWS30C

空冷条件：強制空冷 Cooling condition: Force air cooling

取付方向 A
Mounting A



Conditions Ta 40°C : —
50°C : - - -
60°C : - - -

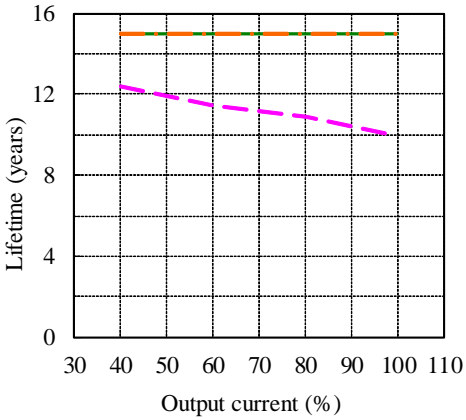
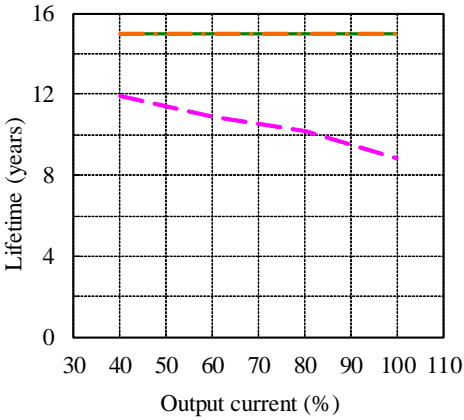
5V

Vin = 100VAC

Load	Ta	Lifetime (years)		
		40°C	50°C	60°C
40%		15.0	15.0	11.9
60%		15.0	15.0	10.9
80%		15.0	15.0	10.2
100%		15.0	15.0	8.9

Vin = 200VAC

Load	Ta	Lifetime (years)		
		40°C	50°C	60°C
40%		15.0	15.0	12.4
60%		15.0	15.0	11.4
80%		15.0	15.0	10.9
100%		15.0	15.0	10.0



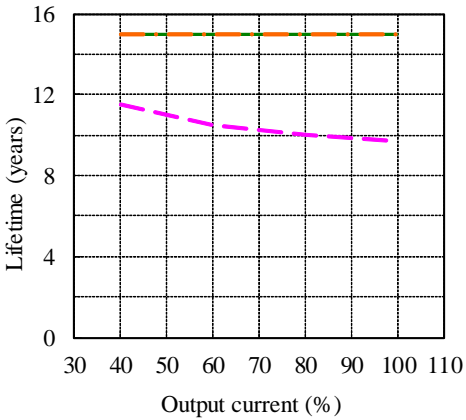
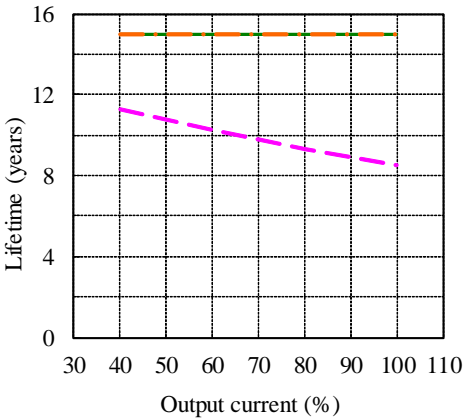
24V

Vin = 100VAC

Load	Ta	Lifetime (years)		
		40°C	50°C	60°C
40%		15.0	15.0	11.3
60%		15.0	15.0	10.3
80%		15.0	15.0	9.3
100%		15.0	15.0	8.5

Vin = 200VAC

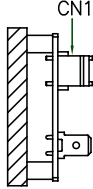
Load	Ta	Lifetime (years)		
		40°C	50°C	60°C
40%		15.0	15.0	11.5
60%		15.0	15.0	10.5
80%		15.0	15.0	10.0
100%		15.0	15.0	9.7



MODEL : ZWS30C

空冷条件：強制空冷 Cooling condition: Force air cooling

取付方向 B
Mounting B

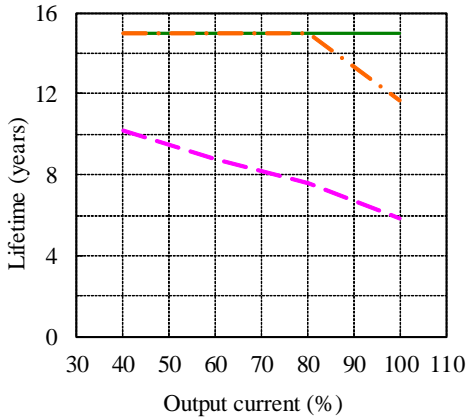


Conditions Ta 40°C : ———
50°C : - - -
60°C : - · -

5V

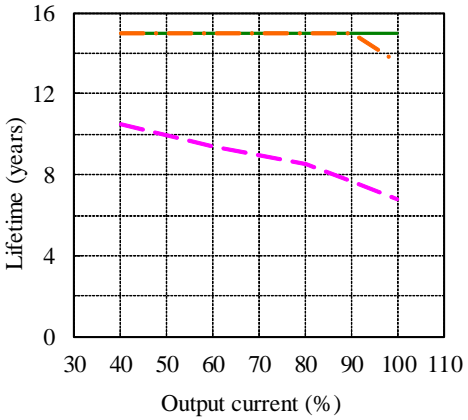
Vin = 100VAC

Load	Ta	Lifetime (years)		
		40°C	50°C	60°C
40%		15.0	15.0	10.2
60%		15.0	15.0	8.8
80%		15.0	15.0	7.5
100%		15.0	11.7	5.8



Vin = 200VAC

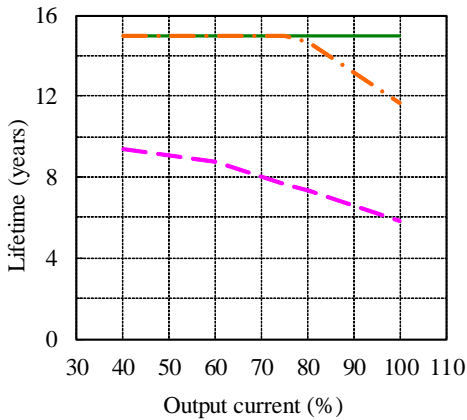
Load	Ta	Lifetime (years)		
		40°C	50°C	60°C
40%		15.0	15.0	10.5
60%		15.0	15.0	9.4
80%		15.0	15.0	8.5
100%		15.0	13.6	6.8



24V

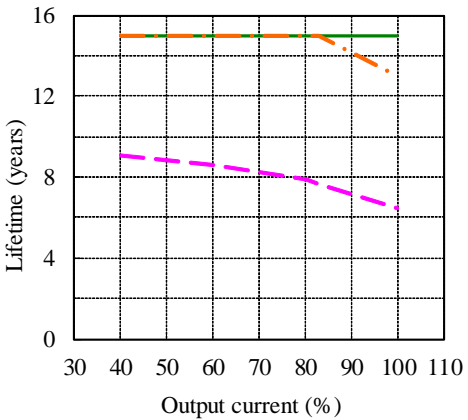
Vin = 100VAC

Load	Ta	Lifetime (years)		
		40°C	50°C	60°C
40%		15.0	15.0	9.4
60%		15.0	15.0	8.7
80%		15.0	14.6	7.3
100%		15.0	11.7	5.8



Vin = 200VAC

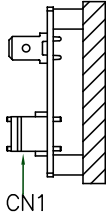
Load	Ta	Lifetime (years)		
		40°C	50°C	60°C
40%		15.0	15.0	9.0
60%		15.0	15.0	8.6
80%		15.0	15.0	7.9
100%		15.0	13.0	6.5



MODEL : ZWS30C

空冷条件：強制空冷 Cooling condition: Force air cooling

取付方向 C
Mounting C



Conditions Ta 40°C : ———
50°C : - - - -
60°C : - - - -

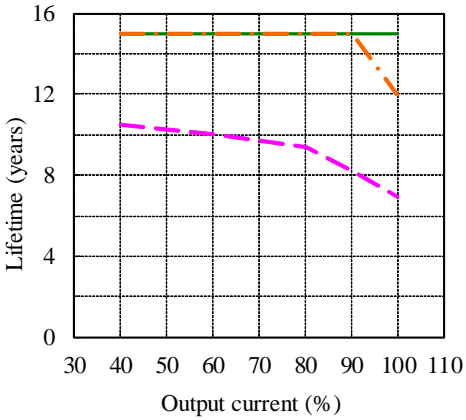
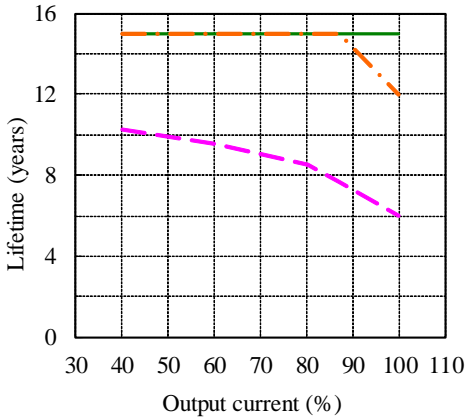
5V

Vin = 100VAC

Load	Ta	Lifetime (years)		
		40°C	50°C	60°C
40%		15.0	15.0	10.2
60%		15.0	15.0	9.6
80%		15.0	15.0	8.5
100%		15.0	12.0	6.0

Vin = 200VAC

Load	Ta	Lifetime (years)		
		40°C	50°C	60°C
40%		15.0	15.0	10.5
60%		15.0	15.0	10.1
80%		15.0	15.0	9.4
100%		15.0	12.0	7.0



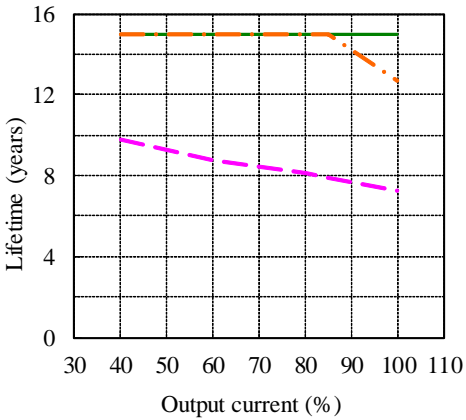
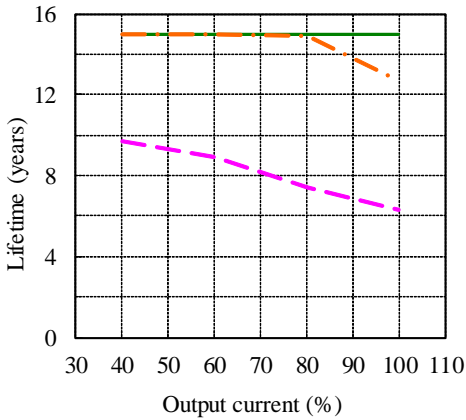
24V

Vin = 100VAC

Load	Ta	Lifetime (years)		
		40°C	50°C	60°C
40%		15.0	15.0	9.7
60%		15.0	15.0	8.9
80%		15.0	14.9	7.4
100%		15.0	12.7	6.3

Vin = 200VAC

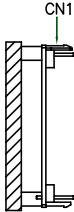
Load	Ta	Lifetime (years)		
		40°C	50°C	60°C
40%		15.0	15.0	9.8
60%		15.0	15.0	8.8
80%		15.0	15.0	8.1
100%		15.0	12.7	7.2



MODEL : ZWS30C

空冷条件：強制空冷 Cooling condition: Force air cooling

取付方向 D
Mounting D



Conditions Ta 40°C : ———
50°C : - - -
60°C : - - -

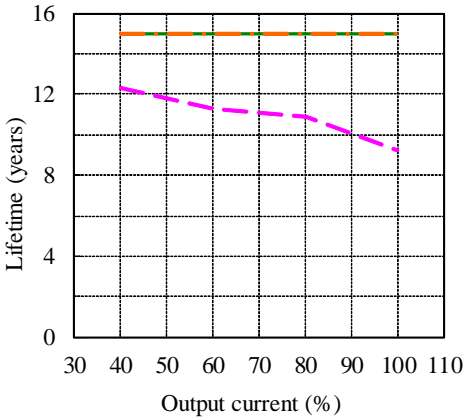
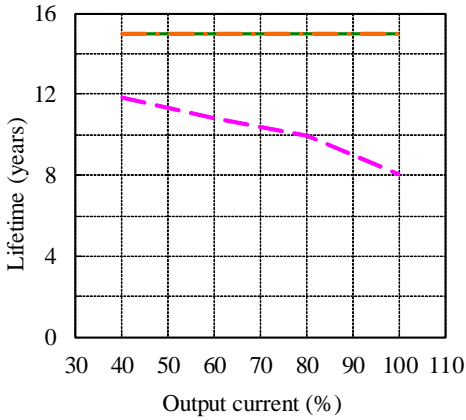
5V

Vin = 100VAC

Load	Ta	Lifetime (years)		
		40°C	50°C	60°C
40%		15.0	15.0	11.8
60%		15.0	15.0	10.8
80%		15.0	15.0	10.0
100%		15.0	15.0	8.1

Vin = 200VAC

Load	Ta	Lifetime (years)		
		40°C	50°C	60°C
40%		15.0	15.0	12.3
60%		15.0	15.0	11.3
80%		15.0	15.0	10.9
100%		15.0	15.0	9.3



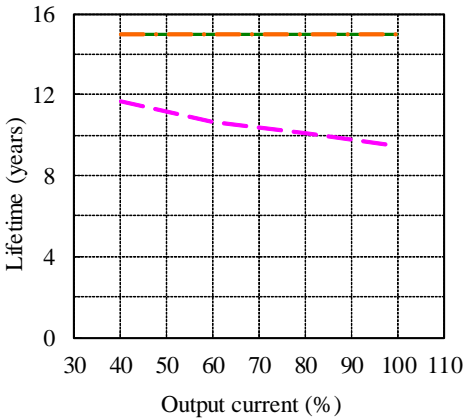
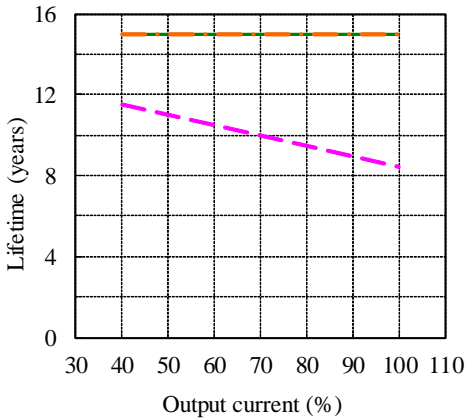
24V

Vin = 100VAC

Load	Ta	Lifetime (years)		
		40°C	50°C	60°C
40%		15.0	15.0	11.5
60%		15.0	15.0	10.5
80%		15.0	15.0	9.5
100%		15.0	15.0	8.4

Vin = 200VAC

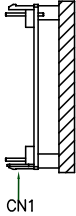
Load	Ta	Lifetime (years)		
		40°C	50°C	60°C
40%		15.0	15.0	11.7
60%		15.0	15.0	10.7
80%		15.0	15.0	10.1
100%		15.0	15.0	9.5



MODEL : ZWS30C

空冷条件：強制空冷 Cooling condition: Force air cooling

取付方向 E
Mounting E



Conditions Ta 40°C : ———
50°C : - - - -
60°C : - - - -

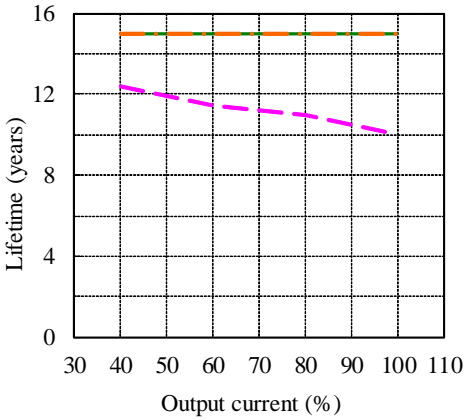
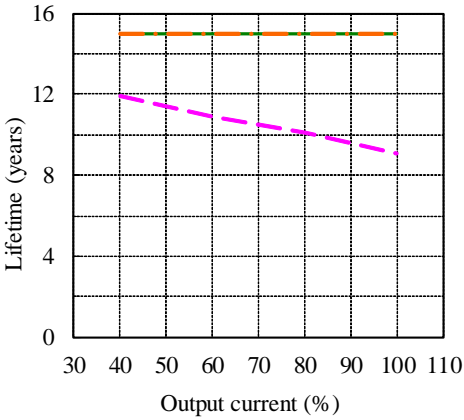
5V

Vin = 100VAC

Load	Ta	Lifetime (years)		
		40°C	50°C	60°C
40%		15.0	15.0	11.8
60%		15.0	15.0	10.8
80%		15.0	15.0	10.0
100%		15.0	15.0	8.1

Vin = 200VAC

Load	Ta	Lifetime (years)		
		40°C	50°C	60°C
40%		15.0	15.0	12.3
60%		15.0	15.0	11.3
80%		15.0	15.0	10.9
100%		15.0	15.0	9.3



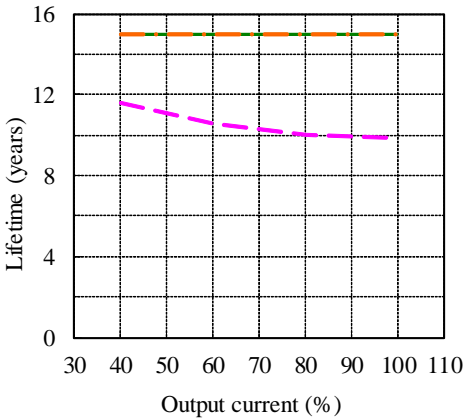
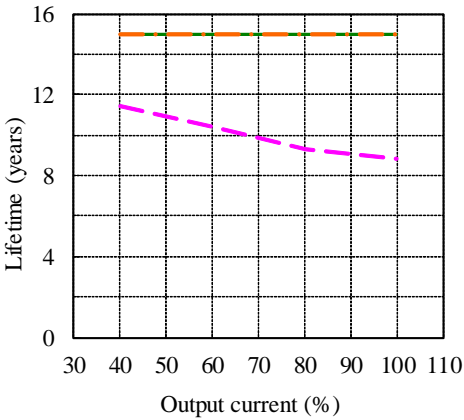
24V

Vin = 100VAC

Load	Ta	Lifetime (years)		
		40°C	50°C	60°C
40%		15.0	15.0	11.5
60%		15.0	15.0	10.5
80%		15.0	15.0	9.5
100%		15.0	15.0	8.4

Vin = 200VAC

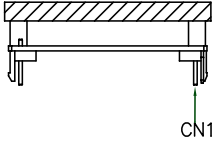
Load	Ta	Lifetime (years)		
		40°C	50°C	60°C
40%		15.0	15.0	11.7
60%		15.0	15.0	10.7
80%		15.0	15.0	10.1
100%		15.0	15.0	9.5



MODEL : ZWS30C

空冷条件：強制空冷 Cooling condition: Force air cooling

取付方向 F
Mounting F



Conditions Ta 40°C : ———
50°C : - - - -
60°C : - - - -

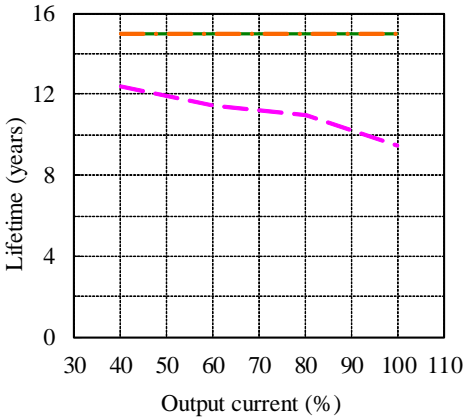
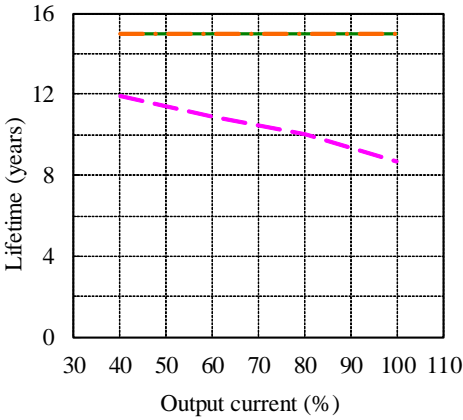
5V

Vin = 100VAC

Load	Ta	Lifetime (years)		
		40°C	50°C	60°C
40%		15.0	15.0	11.9
60%		15.0	15.0	10.9
80%		15.0	15.0	10.1
100%		15.0	15.0	8.7

Vin = 200VAC

Load	Ta	Lifetime (years)		
		40°C	50°C	60°C
40%		15.0	15.0	12.4
60%		15.0	15.0	11.4
80%		15.0	15.0	11.0
100%		15.0	15.0	9.5



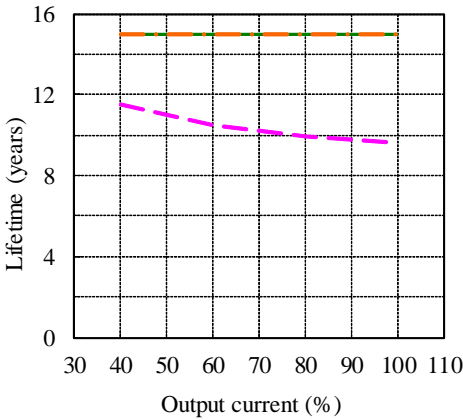
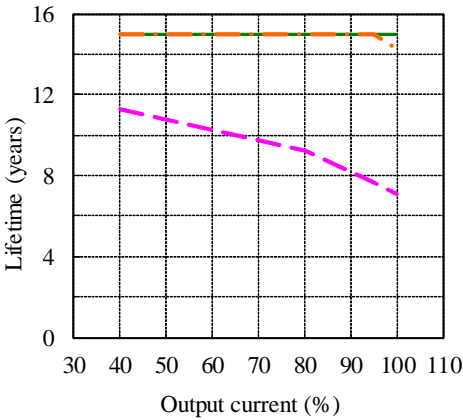
24V

Vin = 100VAC

Load	Ta	Lifetime (years)		
		40°C	50°C	60°C
40%		15.0	15.0	11.3
60%		15.0	15.0	10.3
80%		15.0	15.0	9.2
100%		15.0	14.2	7.1

Vin = 200VAC

Load	Ta	Lifetime (years)		
		40°C	50°C	60°C
40%		15.0	15.0	11.5
60%		15.0	15.0	10.5
80%		15.0	15.0	10.0
100%		15.0	15.0	9.6



5. アブノーマル試験 Abnormal Test

MODEL : ZWS30C-5

(1) 試験条件 Test Conditions

Input : 265VAC Output : 5V, Full load Ta : 25°C

(2) 試験結果 Test Results

(Da : Damaged)

No.	Test position		Test mode		Test result											記事 Note	
	部品No. Location No.	試験端子 Test point	ショート Short	オープン Open	a 発火 Fire	b 発煙 Smoke	c 破裂 Burst	d 異臭 Smell	e 赤熱 Red hot	f 破損 Damaged	g ヒューズ断 Fuse blown	h OVP	I OCP	j 出力断 No output	k 変化なし No change		l その他 Others
1	C4		O								O			O			
2				O										O			
3	C5		O											O			
4				O												O	Hiccup
5	D1	DC-DC	O								O			O			
6		AC-AC	O								O			O			
7		DC "+"		O										O			
8		DC "-"		O										O			
9		AC		O										O			
10	D101	A-K	O													O	Hiccup
11		A/K		O											O		
12	D103	A-K	O											O			
13		A/K		O												O	Hiccup
14	D51	A-K	O													O	Hiccup
15		A/K		O										O			
16	A1	1-2	O											O			
17		2-3	O											O			
18		3-4	O											O			
19		7-8	O											O			
20		1		O												O	
21		2		O											O		
22		3		O											O		
23		4		O											O		
24		5		O											O		
25		7		O											O		
26	8		O											O			

(Da : Damaged)

No.	Test position		Test mode		Test result											記事 Note	
	部品No.	試験端子	ショート	オープン	a	b	c	d	e	f	g	h	I	j	k		l
					発火	発煙	破裂	異臭	赤熱	破損	ヒューズ断	OVP	OC P	出力断	変化なし		その他
Location No.	Test point	Short	Open	Fire	Smoke	Burst	Smell	Red hot	Damaged	Fuse blown			No output	No change	Others		
27	T1	1-2	O													O	Hiccup
28		3-5	O											O			
29		6,7-8,9	O											O			
30		1		O												O	Hiccup
31		2		O												O	Hiccup
32		3		O										O			
33		5		O										O			
34		6,7		O										O			
35		8,9		O										O			
36		L1	1-3	O							O			O			
37	2-4		O							O			O				
38	1			O									O				
39	2			O									O				
40	3			O									O				
41	4			O									O				

6. 振動試験 Vibration Test

MODEL : ZWS30C-5 / ZWS30C-24

(1) 振動試験種類 Vibration Test Class

掃引振動数耐久試験 Frequency variable endurance test

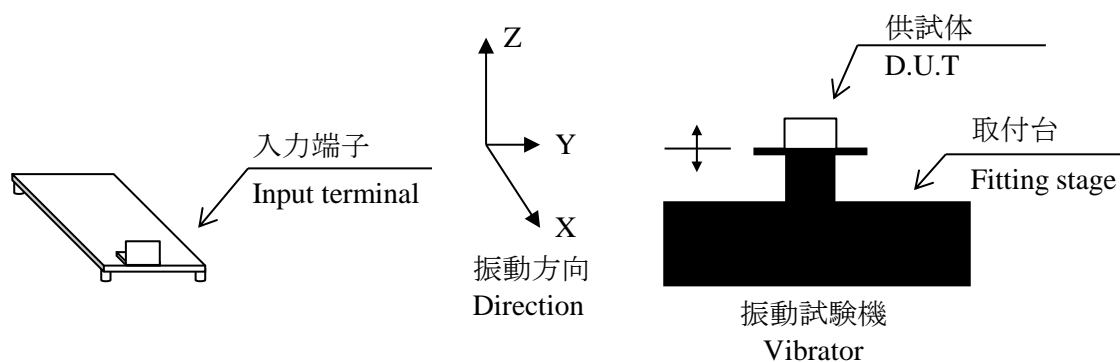
(2) 使用振動試験装置 Equipment Used

IMV (株) 製 EM2201
IMV CORP.

(3) 試験条件 Test Conditions

- | | | | |
|----------------------------|--|-----------------------|---------------------------|
| ・ 周波数範囲
Sweep frequency | : 10~55Hz | ・ 振動方向
Direction | : X, Y, Z |
| ・ 掃引時間
Sweep time | : 1.0分間
1.0min | ・ 試験時間
Sweep count | : 各方向共 1時間
1 hour each |
| ・ 加速度
Acceleration | : 一定 19.6m/s ² (2G)
Constant | | |

(4) 試験方法 Test Method



(5) 判定条件 Acceptable Conditions

1. 破損しない事
Not o be broken.
2. 試験後の出力に異常がない事
No abnormal output after test.

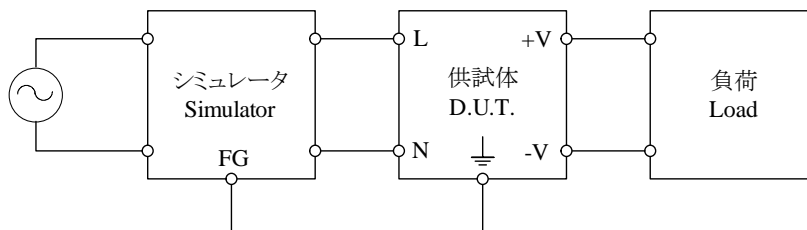
(6) 試験結果 Test Results

合格 OK

7. ノイズシミュレート試験 Noise Simulate Test

MODEL : ZWS30C-5 / ZWS30C-24

(1) 試験回路及び測定器 Test Circuit and Equipment



シミュレータ : INS-4040 (ノイズ研究所)
 Simulator (Noise Laboratory Co.,LTD)

(2) 試験条件 Test Conditions

・ 入力電圧 : 100, 230vac	・ ノイズ電圧 : 0~2kV
Input voltage	Noise level
・ 出力電圧 : 定格	・ 位相 : 0~360 deg
Output voltage Rated	Phase
・ 出力電流 : 0%, Full load	・ 極性 : +, -
Output current	Polarity
・ 周囲温度 : 25°C	・ 印加モード : コモン、ノーマル
Ambient temperature	Mode Common, Normal
・ パルス幅 : 50~1000ns	・ トリガ選択 : Line
Pulse width	Trigger select

(3) 判定条件 Acceptable Conditions

1. 試験中、5%を超える出力電圧の変動のない事
 The regulation of output voltage must not exceed 5% of initial value during test.
2. 試験後の出力電圧は初期値から変動していない事
 The output voltage must be within the regulation of specification after the test.
3. 発煙・発火のない事
 Smoke and fire are not allowed.

(4) 試験結果 Test Results

合格 OK

8. 熱衝撃試験 Thermal Shock Test

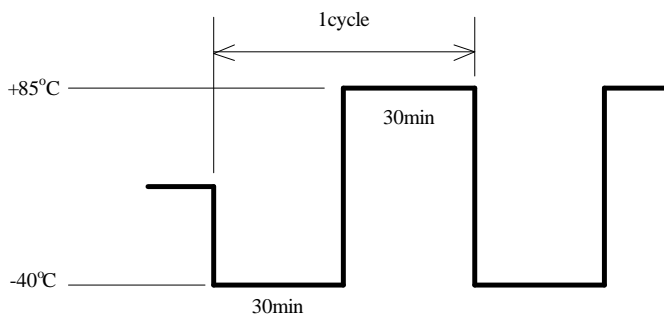
MODEL : ZWS30C-5 / ZWS30C-24

(1) 使用冷熱衝撃装置 Equipment Used (Thermal Shock Chamber)

HITACHI(株) 製 ES-71LH
HITACHI CORP.

(2) 試験条件 Test Conditions

- ・ 電源周囲温度 : -40℃ ⇔ 85℃
Ambient Temperature
- ・ 試験時間 : 図参照
Test Time Refer to Dwg.
- ・ 試験サイクル : 100 サイクル
Test Cycle 100 Cycles
- ・ 非動作
Not Operating



(3) 試験方法 Test Method

初期測定の後、供試品を試験槽に入れ、上記サイクルで試験を行う。100サイクル後に、供試品を常温常湿下に1時間放置し、出力に異常がない事を確認する。

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. 100 cycles later, leave it for 1 hour at the room temperature, then check if there is no abnormal output.

(4) 判定条件 Acceptable Conditions

試験後の出力に異常がない事

No abnormal output voltage after test.

(5) 試験結果 Test Results

合格 OK