


DRB50-1

RELIABILITY DATA

信頼性データ

DWG No. CA800-57-01		
APPD	CHK	DWG
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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、以下の結果は実力値とお考え願います。

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

1. MTBF計算値 Calculated Values of MTBF

MODEL : DRB50-24-1

(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>

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

λ_{equip} : 全機器故障率 (故障数/10⁶時間)
 Total Equipment Failure Rate (Failure/10⁶Hours)

λ_G : i 番目の同属部品に対する故障率 (故障数/10⁶時間)
 Generic Failure Rate for The ith Generic Part (Failure/10⁶Hours)

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ーの数
 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

G_F : 地上固定 (Ground, Fixed)

RCR-9102B

MTBF ≒ 283620 時間 (Hours)

2. 部品デイレートイング Components Derating

MODEL : DRB50-1

(1) 算出方法 Calculating Method

(a) 測定方法 Measuring method

・取付方法 Mounting method	: 標準取付 Standard mounting	・周囲温度 Ambient temperature	: 55°C
・入力電圧 Input voltage	: 115, 230VAC	・出力電圧、電流 Output voltage & current	: 100%

(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

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

T_c : デイレートイ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

T_a : デイレートイングの始まる周囲温度 一般に25°C
Ambient Temperature at Start Point of Derating; 25°C in General

T_l : デイレートイングの始まるリード温度 一般に25°C
Lead Temperature at Start Point of Derating; 25°C in General

$P_{ch}(\max)$: 最大チャネル損失
Maximum Channel Dissipation

$T_j(\max)$: 最大接合点(チャネル)温度
($T_{ch}(\max)$) Maximum Junction (channel) Temperature

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

θ_{j-a} : 接合点から周囲までの熱抵抗
Thermal Impedance between Junction and air

θ_{j-l} : 接合点からリードまでの熱抵抗
Thermal Impedance between Junction and Lead

(2) 部品デイレートイング表 Component Derating List

Model: DRB50-5-1

部品番号 Location No.	Vin = 115VAC Ta = 55°C Load = 100%(Vo: 5V, Io: 6A)		
A101 L6566ATR ST MICRO.	Tj (max) = 150 °C Pt = 98.4 mW Tj = Ta + ((θj-a) × Pt) = 94.2°C D.F. = 62.81%	θj-a = 120.0 °C/W ΔTa = 27.4°C	Pt (max) = 0.75 W Ta = 82.4 °C
A201 UPC1093T-E1-AZ RENESAS	Ta (max) = 85 °C Pt = 40.5 mW Pmax = Pt(max) + (Ta - 25°C) × ΔPc/°C = 210.2mW D.F. = 19.26%	ΔPc/°C = -3.2mW/°C (Ta>25°C) ΔTa = 29.3°C	Pt(max) = 0.4 W Ta = 84.3 °C
Q1 TK8A65D(Q) TOSHIBA	Tch (max) = 150 °C Pd = 0.79 W Tch = Tc + ((θch-c) × Pd) = 97.2°C D.F. = 64.8%	θch-c = 2.78 °C/W ΔTc = 40.0°C	Pd (max) = 45.0 W Tc = 95.0 °C
D1 GBL206 LITE ON	Tj (max) = 150 °C Pd = 1.14 W Tj = Tc + ((θj-c) × Pd) = 92.3°C D.F. = 61.55%	θj-c = 8.0 °C/W ΔTc = 28.2°C	Tc = 83.2 °C
D51 STPS30H60CFP ST MICRO.	Tj (max) = 175 °C Pd = 3.21 W Tj = Tc + ((θj-c) × Pd) = 146.1°C D.F. = 83.47%	θj-c = 3.95 °C/W ΔTc = 78.4°C	Tc = 133.4 °C
D101 CMG03(TE12L,Q) TOSHIBA	Tj (max) = 150 °C Pd = 89.1 mW Tj = Ta + ((θj-a) × Pd) = 126.3°C D.F. = 84.23%	θj-a = 180.0 °C/W ΔTa = 55.3°C	Ta = 110.3 °C
D103 CRH01(TE85L,Q) TOSHIBA	Tj (max) = 150 °C Pd = 5.9 mW Tj = Ta + ((θj-a) × Pd) = 85.9°C D.F. = 57.24%	θj-a = 130.0 °C/W ΔTa = 30.1°C	Ta = 85.1 °C
PC101 PS2861B-1Y-F3-A(L) (TRANSISTOR) RENESAS	Ta (max) = 110 °C Pc = 1.1 mW Pmax = Pc(max) + (Ta - 25°C) × ΔPc/°C = 42.8mW D.F. = 2.57%	ΔPc/°C = -1.2mW/°C (Ta>25°C) ΔTa = 34.3°C	Pc(max) = 120.0 mW Ta = 89.3 °C
PC101 PS2861B-1Y-F3-A(L) (LED) RENESAS	Ta (max) = 110 °C Pd = 2.7 mW Pmax = Pd(max) + (Ta - 25°C) × ΔPd/°C = 21.4mW D.F. = 12.61%	ΔPd/°C = -0.6mW/°C (Ta>25°C) ΔTa = 34.3°C	Pd(max) = 60.0 mW Ta = 89.3 °C
PC102 PS2861B-1Y-F3-A(L) (TRANSISTOR) RENESAS	Ta (max) = 110 °C Pc = 0.0 mW Pmax = Pc(max) + (Ta - 25°C) × ΔPc/°C = 44.4mW D.F. = 0.0%	ΔPc/°C = -1.2mW/°C (Ta>25°C) ΔTa = 33.0°C	Pc(max) = 120.0 mW Ta = 88.0 °C
PC102 PS2861B-1Y-F3-A(L) (LED) RENESAS	Ta (max) = 110 °C Pd = 0.0 mW Pmax = Pd(max) + (Ta - 25°C) × ΔPd/°C = 22.2mW D.F. = 0.0%	ΔPd/°C = -0.6mW/°C (Ta>25°C) ΔTa = 33.0°C	Pd(max) = 60.0 mW Ta = 88.0 °C
Q102 2SA1419S-TD-E SANYO	Ta (max) = 150 °C Pc = 56.0 mW Pmax = Pc(max) + (Ta - 25°C) × ΔPc/°C = 267.2mW D.F. = 21.0%	ΔPc/°C = -4.0mW/°C (Ta>25°C) ΔTa = 28.2°C	Pc(max) = 500.0 mW Ta = 83.2 °C

(2) 部品デイレートイング表 Component Derating List

Model: DRB50-5-1

部品番号 Location No.	Vin = 230VAC Ta = 55°C Load = 100%(Vo: 5V, Io: 6A)		
A101 L6566ATR ST MICRO.	Tj (max) = 150 °C Pt = 136.1 mW Tj= Ta+ ((θj-a)× Pt) =97.1°C D.F. = 64.75%	θj-a = 120.0 °C/W ΔTa= 25.8°C	Pt (max) = 0.75 W Ta= 80.8 °C
A201 UPC1093T-E1-AZ RENESAS	Ta (max) = 85 °C Pt = 52.7 mW Pmax = Pt(max) + (Ta - 25°C)×ΔPc/°C =212.5mW D.F. = 24.8%	ΔPc/°C = -3.2mW/°C(Ta>25°C) ΔTa= 28.6°C	Pt(max) = 0.4 W Ta= 83.6 °C
Q1 TK8A65D(Q) TOSHIBA	Tch (max) = 150 °C Pd = 0.93 W Tch= Tc+ ((θch-c)× Pd) =102.1°C D.F. = 68.06%	θch-c = 2.78 °C/W ΔTc= 44.5°C	Pd (max) = 45.0 W Tc= 99.5 °C
D1 GBL206 LITE ON	Tj (max) = 150 °C Pd = 0.76 W Tj= Tc+ ((θj-c)× Pd) =83.0°C D.F. = 55.32%	θj-c = 8.0 °C/W ΔTc= 21.9°C	Tc= 76.9 °C
D51 STPS30H60CFP ST MICRO.	Tj (max) = 175 °C Pd = 3.21 W Tj= Tc+ ((θj-c)× Pd) =145.1°C D.F. = 82.9%	θj-c = 3.95 °C/W ΔTc= 77.4°C	Tc= 132.4 °C
D101 CMG03(TE12L,Q) TOSHIBA	Tj (max) = 150 °C Pd = 78.1 mW Tj= Ta+ ((θj-a)× Pd) =122.6°C D.F. = 81.71%	θj-a = 180.0 °C/W ΔTa= 53.5°C	Ta= 108.5 °C
D103 CRH01(TE85L,Q) TOSHIBA	Tj (max) = 150 °C Pd = 7.8 mW Tj= Ta+ ((θj-a)× Pd) =84.6°C D.F. = 56.41%	θj-a = 130.0 °C/W ΔTa= 28.6°C	Ta= 83.6 °C
PC101 PS2861B-1Y-F3-A(L) (TRANSISTOR) RENESAS	Ta (max) = 110 °C Pc = 1.1 mW Pmax = Pc(max) + (Ta - 25°C)×ΔPc/°C =43.1mW D.F. = 2.55%	ΔPc/°C = -1.2mW/°C(Ta>25°C) ΔTa= 34.1°C	Pc(max) = 120.0 mW Ta= 89.1 °C
PC101 PS2861B-1Y-F3-A(L) (LED) RENESAS	Ta (max) = 110 °C Pd = 2.8 mW Pmax = Pd(max) + (Ta - 25°C)×ΔPd/°C =21.5mW D.F. = 13.0%	ΔPd/°C = -0.6mW/°C(Ta>25°C) ΔTa= 34.1°C	Pd(max) = 60.0 mW Ta= 89.1 °C
PC102 PS2861B-1Y-F3-A(L) (TRANSISTOR) RENESAS	Ta (max) = 110 °C Pc = 0.0 mW Pmax = Pc(max) + (Ta - 25°C)×ΔPc/°C =45.4mW D.F. = 0.0%	ΔPc/°C = -1.2mW/°C(Ta>25°C) ΔTa= 32.2°C	Pc(max) = 120.0 mW Ta= 87.2 °C
PC102 PS2861B-1Y-F3-A(L) (LED) RENESAS	Ta (max) = 110 °C Pd = 0.0 mW Pmax = Pd(max) + (Ta - 25°C)×ΔPd/°C =22.7mW D.F. = 0.0%	ΔPd/°C = -0.6mW/°C(Ta>25°C) ΔTa= 32.2°C	Pd(max) = 60.0 mW Ta= 87.2 °C
Q102 2SA1419S-TD-E SANYO	Ta (max) = 150 °C Pc = 42.0 mW Pmax = Pc(max) + (Ta - 25°C)×ΔPc/°C =273.6mW D.F. = 15.4%	ΔPc/°C = -4.0mW/°C(Ta>25°C) ΔTa= 26.6°C	Pc(max) = 500.0 mW Ta= 81.6 °C

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

Model: DRB50-12-1

部品番号 Location No.	Vin = 115VAC Ta = 55°C Load = 100%(Vo: 15V, Io: 3.4A)		
A101 L6566ATR ST MICRO.	Tj (max) = 150 °C Pt = 214.5 mW Tj = Ta + ((θj-a) × Pt) = 114.9°C D.F. = 76.63%	θj-a = 120.0 °C/W ΔTa = 34.2°C	Pt (max) = 0.75 W Ta = 89.2 °C
A201 UPC1093T-E1-AZ RENESAS	Ta (max) = 85 °C Pt = 12.0 mW Pmax = Pt(max) + (Ta - 25°C) × ΔPc/°C = 215.7mW D.F. = 5.56%	ΔPc/°C = -3.2mW/°C (Ta>25°C) ΔTa = 27.6°C	Pt(max) = 0.4 W Ta = 82.6 °C
Q1 TK8A65D(Q) TOSHIBA	Tch (max) = 150 °C Pd = 1.16 W Tch = Tc + ((θch-c) × Pd) = 102.9°C D.F. = 68.62%	θch-c = 2.78 °C/W ΔTc = 44.7°C	Pd (max) = 45.0 W Tc = 99.7 °C
D1 GBL206 LITE ON	Tj (max) = 150 °C Pd = 1.81 W Tj = Tc + ((θj-c) × Pd) = 106.7°C D.F. = 71.12%	θj-c = 8.0 °C/W ΔTc = 37.2°C	Tc = 92.2 °C
D51 STPS20H100CT ST MICRO.	Tj (max) = 175 °C Pd = 3.04 W Tj = Tc + ((θj-c) × Pd) = 122.3°C D.F. = 69.91%	θj-c = 0.9 °C/W ΔTc = 64.6°C	Tc = 119.6 °C
D101 D1F60-5053 SHINDENGEN	Tj (max) = 150 °C Pd = 83.6 mW Tj = Ta + ((θj-a) × Pd) = 123.0°C D.F. = 82.02%	θj-a = 157.0 °C/W ΔTa = 54.9°C	Ta = 109.9 °C
D103 CRH01(TE85L,Q) TOSHIBA	Tj (max) = 150 °C Pd = 10.8 mW Tj = Ta + ((θj-a) × Pd) = 93.0°C D.F. = 62.%	θj-a = 130.0 °C/W ΔTa = 36.6°C	Ta = 91.6 °C
PC101 PS2861B-1Y-F3-A(L) (TRANSISTOR) RENESAS	Ta (max) = 110 °C Pc = 0.94 mW Pmax = Pc(max) + (Ta - 25°C) × ΔPc/°C = 38.2mW D.F. = 2.46%	ΔPc/°C = -1.2mW/°C (Ta>25°C) ΔTa = 38.2°C	Pc(max) = 120.0 mW Ta = 93.2 °C
PC101 PS2861B-1Y-F3-A(L) (LED) RENESAS	Ta (max) = 110 °C Pd = 2.34 mW Pmax = Pd(max) + (Ta - 25°C) × ΔPd/°C = 19.1mW D.F. = 12.26%	ΔPd/°C = -0.6mW/°C (Ta>25°C) ΔTa = 38.2°C	Pd(max) = 60.0 mW Ta = 93.2 °C
PC102 PS2861B-1Y-F3-A(L) (TRANSISTOR) RENESAS	Ta (max) = 110 °C Pc = 0.0 mW Pmax = Pc(max) + (Ta - 25°C) × ΔPc/°C = 39.8mW D.F. = 0.0%	ΔPc/°C = -1.2mW/°C (Ta>25°C) ΔTa = 36.8°C	Pc(max) = 120.0 mW Ta = 91.8 °C
PC102 PS2861B-1Y-F3-A(L) (LED) RENESAS	Ta (max) = 110 °C Pd = 0.0 mW Pmax = Pd(max) + (Ta - 25°C) × ΔPd/°C = 19.9mW D.F. = 0.0%	ΔPd/°C = -0.6mW/°C (Ta>25°C) ΔTa = 36.8°C	Pd(max) = 60.0 mW Ta = 91.8 °C

(2) 部品デイレージング表 Component Derating List

Model: DRB50-12-1

部品番号 Location No.	Vin = 230VAC Ta = 55°C Load = 100%(Vo: 15V, Io: 3.4A)		
A101 L6566ATR ST MICRO.	Tj (max) = 150 °C Pt = 205.7 mW Tj= Ta+ ((θj-a)× Pt) =109.3°C D.F. = 72.86%	θj-a = 120.0 °C/W ΔTa= 29.6°C	Pt (max) = 0.75 W Ta= 84.6 °C
A201 UPC1093T-E1-AZ RENESAS	Ta (max) = 85 °C Pt = 12.0 mW Pmax = Pt(max) + (Ta - 25°C)×ΔPc/°C =219.2mW D.F. = 5.47%	ΔPc/°C = -3.2mW/°C(Ta>25°C) ΔTa= 26.5°C	Pt(max) = 0.4 W Ta= 81.5 °C
Q1 TK8A65D(Q) TOSHIBA	Tch (max) = 150 °C Pd = 1.0 W Tch= Tc+ ((θch-c)× Pd) =98.5°C D.F. = 65.65%	θch-c = 2.78 °C/W ΔTc= 40.7°C	Pd (max) = 45.0 W Tc= 95.7 °C
D1 GBL206 LITE ON	Tj (max) = 150 °C Pd = 1.08 W Tj= Tc+ ((θj-c)× Pd) =89.4°C D.F. = 59.63%	θj-c = 8.0 °C/W ΔTc= 25.8°C	Tc= 80.8 °C
D51 STPS20H100CT ST MICRO.	Tj (max) = 175 °C Pd = 3.12 W Tj= Tc+ ((θj-c)× Pd) =120.8°C D.F. = 69.03%	θj-c = 0.9 °C/W ΔTc= 63.0°C	Tc= 118.0 °C
D101 D1F60-5053 SHINDENGEN	Tj (max) = 150 °C Pd = 83.6 mW Tj= Ta+ ((θj-a)× Pd) =115.9°C D.F. = 77.28%	θj-a = 157.0 °C/W ΔTa= 47.8°C	Ta= 102.8 °C
D103 CRH01(TE85L,Q) TOSHIBA	Tj (max) = 150 °C Pd = 11.0 mW Tj= Ta+ ((θj-a)× Pd) =88.4°C D.F. = 58.95%	θj-a = 130.0 °C/W ΔTa= 32.0°C	Ta= 87.0 °C
PC101 PS2861B-1Y-F3-A(L) (TRANSISTOR) RENESAS	Ta (max) = 110 °C Pc = 0.94 mW Pmax = Pc(max) + (Ta - 25°C)×ΔPc/°C =43.7mW D.F. = 2.15%	ΔPc/°C = -1.2mW/°C(Ta>25°C) ΔTa= 33.6°C	Pc(max) = 120.0 mW Ta= 88.6 °C
PC101 PS2861B-1Y-F3-A(L) (LED) RENESAS	Ta (max) = 110 °C Pd = 2.16 mW Pmax = Pd(max) + (Ta - 25°C)×ΔPd/°C =21.8mW D.F. = 9.89%	ΔPd/°C = -0.6mW/°C(Ta>25°C) ΔTa= 33.6°C	Pd(max) = 60.0 mW Ta= 88.6 °C
PC102 PS2861B-1Y-F3-A(L) (TRANSISTOR) RENESAS	Ta (max) = 110 °C Pc = 0.0 mW Pmax = Pc(max) + (Ta - 25°C)×ΔPc/°C =45.4mW D.F. = 0.0%	ΔPc/°C = -1.2mW/°C(Ta>25°C) ΔTa= 32.2°C	Pc(max) = 120.0 mW Ta= 87.2 °C
PC102 PS2861B-1Y-F3-A(L) (LED) RENESAS	Ta (max) = 110 °C Pd = 0.0 mW Pmax = Pd(max) + (Ta - 25°C)×ΔPd/°C =22.7mW D.F. = 0.0%	ΔPd/°C = -0.6mW/°C(Ta>25°C) ΔTa= 32.2°C	Pd(max) = 60.0 mW Ta= 87.2 °C

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

Model: DRB50-24-1

部品番号 Location No.	Vin = 115VAC Ta = 55°C Load = 100%(Vo: 24V, Io: 2.1A)		
A101 L6566ATR ST MICRO.	Tj (max) = 150 °C Pt = 107.27 mW Tj = Ta + ((θj-a) × Pt) = 98.8 °C D.F. = 65.85%	θj-a = 120.0 °C/W ΔTa = 30.9 °C	Pt (max) = 0.75 W Ta = 85.9 °C
A201 UPC1093T-E1-AZ RENESAS	Ta (max) = 85 °C Pt = 20.96 mW Pmax = Pt(max) + (Ta - 25 °C) × ΔPc/°C = 220.8 mW D.F. = 9.49%	ΔPc/°C = -3.2 mW/°C (Ta > 25 °C) ΔTa = 26.0 °C	Pt(max) = 0.4 W Ta = 81.0 °C
Q1 TK8A65D(Q) TOSHIBA	Tch (max) = 150 °C Pd = 0.99 W Tch = Tc + ((θch-c) × Pd) = 102.1 °C D.F. = 68.03%	θch-c = 2.78 °C/W ΔTc = 44.3 °C	Pd (max) = 45.0 W Tc = 99.3 °C
D1 GBL206 LITE ON	Tj (max) = 150 °C Pd = 1.84 W Tj = Tc + ((θj-c) × Pd) = 107.4 °C D.F. = 71.61%	θj-c = 8.0 °C/W ΔTc = 37.7 °C	Tc = 92.7 °C
D51 FCH10A15 NIHON INTER	Tj (max) = 150 °C Pd = 1.85 W Tj = Tc + ((θj-c) × Pd) = 114.0 °C D.F. = 75.97%	θj-c = 3.0 °C/W ΔTc = 53.4 °C	Tc = 108.4 °C
D101 D1F60-5053 SHINDENGEN	Tj (max) = 150 °C Pd = 5.1 mW Tj = Ta + ((θj-a) × Pd) = 103.0 °C D.F. = 68.67%	θj-a = 157.0 °C/W ΔTa = 47.2 °C	Ta = 102.2 °C
D103 CRH01(TE85L,Q) TOSHIBA	Tj (max) = 150 °C Pd = 8.2 mW Tj = Ta + ((θj-a) × Pd) = 88.2 °C D.F. = 58.78%	θj-a = 130.0 °C/W ΔTa = 32.1 °C	Ta = 87.1 °C
PC101 PS2861B-1Y-F3-A(L) (TRANSISTOR) RENESAS	Ta (max) = 110 °C Pc = 0.94 mW Pmax = Pc(max) + (Ta - 25 °C) × ΔPc/°C = 41.6 mW D.F. = 2.26%	ΔPc/°C = -1.2 mW/°C (Ta > 25 °C) ΔTa = 35.3 °C	Pc(max) = 120.0 mW Ta = 90.3 °C
PC101 PS2861B-1Y-F3-A(L) (LED) RENESAS	Ta (max) = 110 °C Pd = 1.42 mW Pmax = Pd(max) + (Ta - 25 °C) × ΔPd/°C = 20.8 mW D.F. = 6.82%	ΔPd/°C = -0.6 mW/°C (Ta > 25 °C) ΔTa = 35.3 °C	Pd(max) = 60.0 mW Ta = 90.3 °C
PC102 PS2861B-1Y-F3-A(L) (TRANSISTOR) RENESAS	Ta (max) = 110 °C Pc = 0.0 mW Pmax = Pc(max) + (Ta - 25 °C) × ΔPc/°C = 44.2 mW D.F. = 0.0%	ΔPc/°C = -1.2 mW/°C (Ta > 25 °C) ΔTa = 33.2 °C	Pc(max) = 120.0 mW Ta = 88.2 °C
PC102 PS2861B-1Y-F3-A(L) (LED) RENESAS	Ta (max) = 110 °C Pd = 0.0 mW Pmax = Pd(max) + (Ta - 25 °C) × ΔPd/°C = 22.1 mW D.F. = 0.0%	ΔPd/°C = -0.6 mW/°C (Ta > 25 °C) ΔTa = 33.2 °C	Pd(max) = 60.0 mW Ta = 88.2 °C

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

Model: DRB50-24-1

部品番号 Location No.	Vin = 230VAC Ta = 55°C Load = 100%(Vo: 24V, Io: 2.1A)		
A101 L6566ATR ST MICRO.	Tj (max) = 150 °C Pt = 123.32 mW Tj = Ta + ((θj-a) × Pt) = 96.5°C D.F. = 64.33%	θj-a = 120.0 °C/W ΔTa = 26.7°C	Pt (max) = 0.75 W Ta = 81.7 °C
A201 UPC1093T-E1-AZ RENESAS	Ta (max) = 85 °C Pt = 20.96 mW Pmax = Pt(max) + (Ta - 25°C) × ΔPc/°C = 225.0mW D.F. = 9.32%	ΔPc/°C = -3.2mW/°C(Ta>25°C) ΔTa = 24.7°C	Pt(max) = 0.4 W Ta = 79.7 °C
Q1 TK8A65D(Q) TOSHIBA	Tch (max) = 150 °C Pd = 1.61 W Tch = Tc + ((θch-c) × Pd) = 100.3°C D.F. = 66.85%	θch-c = 2.78 °C/W ΔTc = 40.8°C	Pd (max) = 45.0 W Tc = 95.8 °C
D1 GBL206 LITE ON	Tj (max) = 150 °C Pd = 1.2 W Tj = Tc + ((θj-c) × Pd) = 89.9°C D.F. = 59.93%	θj-c = 8.0 °C/W ΔTc = 25.3°C	Tc = 80.3 °C
D51 FCH10A15 NIHON INTER	Tj (max) = 150 °C Pd = 1.85 W Tj = Tc + ((θj-c) × Pd) = 112.1°C D.F. = 74.7%	θj-c = 3.0 °C/W ΔTc = 51.5°C	Tc = 106.5 °C
D101 D1F60-5053 SHINDENGEN	Tj (max) = 150 °C Pd = 4.7 mW Tj = Ta + ((θj-a) × Pd) = 97.2°C D.F. = 64.83%	θj-a = 157.0 °C/W ΔTa = 41.5°C	Ta = 96.5 °C
D103 CRH01(TE85L,Q) TOSHIBA	Tj (max) = 150 °C Pd = 8.9 mW Tj = Ta + ((θj-a) × Pd) = 84.1°C D.F. = 56.04%	θj-a = 130.0 °C/W ΔTa = 27.9°C	Ta = 82.9 °C
PC101 PS2861B-1Y-F3-A(L) (TRANSISTOR) RENESAS	Ta (max) = 110 °C Pc = 0.94 mW Pmax = Pc(max) + (Ta - 25°C) × ΔPc/°C = 45.4mW D.F. = 2.07%	ΔPc/°C = -1.2mW/°C(Ta>25°C) ΔTa = 32.2°C	Pc(max) = 120.0 mW Ta = 87.2 °C
PC101 PS2861B-1Y-F3-A(L) (LED) RENESAS	Ta (max) = 110 °C Pd = 1.36 mW Pmax = Pd(max) + (Ta - 25°C) × ΔPd/°C = 22.7mW D.F. = 6.%	ΔPd/°C = -0.6mW/°C(Ta>25°C) ΔTa = 32.2°C	Pd(max) = 60.0 mW Ta = 87.2 °C
PC102 PS2861B-1Y-F3-A(L) (TRANSISTOR) RENESAS	Ta (max) = 110 °C Pc = 0.0 mW Pmax = Pc(max) + (Ta - 25°C) × ΔPc/°C = 46.3mW D.F. = 0.0%	ΔPc/°C = -1.2mW/°C(Ta>25°C) ΔTa = 31.4°C	Pc(max) = 120.0 mW Ta = 86.4 °C
PC102 PS2861B-1Y-F3-A(L) (LED) RENESAS	Ta (max) = 110 °C Pd = 0.0 mW Pmax = Pd(max) + (Ta - 25°C) × ΔPd/°C = 23.2mW D.F. = 0.0%	ΔPd/°C = -0.6mW/°C(Ta>25°C) ΔTa = 31.4°C	Pd(max) = 60.0 mW Ta = 86.4 °C

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

Model: DRB50-48-1

部品番号 Location No.	Vin = 115VAC Ta = 55°C Load = 100%(Vo: 48V, Io: 1.05A)		
A101 L6566ATR ST MICRO.	Tj (max) = 150 °C Pt = 126.4 mW Tj = Ta + ((θj-a) × Pt) = 99.8°C D.F. = 66.51%	θj-a = 120.0 °C/W ΔTa = 29.6°C	Pt (max) = 0.75 W Ta = 84.6 °C
A201 UPC1093T-E1-AZ RENESAS	Ta (max) = 85 °C Pt = 16.5 mW Pmax = Pt(max) + (Ta - 25°C) × ΔPc/°C = 225.9mW D.F. = 7.3%	ΔPc/°C = -3.2mW/°C (Ta > 25°C) ΔTa = 24.4°C	Pt(max) = 0.4 W Ta = 79.4 °C
Q1 TK8A65D(Q) TOSHIBA	Tch (max) = 150 °C Pd = 0.93 W Tch = Tc + ((θch-c) × Pd) = 102.1 °C D.F. = 68.06%	θch-c = 2.78 °C/W ΔTc = 44.5°C	Pd (max) = 45.0 W Tc = 99.5 °C
D1 GBL206 LITE ON	Tj (max) = 150 °C Pd = 1.78 W Tj = Tc + ((θj-c) × Pd) = 105.4°C D.F. = 70.29%	θj-c = 8.0 °C/W ΔTc = 36.2°C	Tc = 91.2 °C
D51 YG982C4R FUJI ELECTRIC	Tj (max) = 150 °C Pd = 1.2 W Tj = Tc + ((θj-c) × Pd) = 101.1°C D.F. = 67.4%	θj-c = 3.0 °C/W ΔTc = 42.5°C	Tc = 97.5 °C
D101 D1F60-5053 SHINDENGEN	Tj (max) = 150 °C Pd = 5.0 mW Tj = Ta + ((θj-a) × Pd) = 98.5°C D.F. = 65.66%	θj-a = 157.0 °C/W ΔTa = 42.7°C	Ta = 97.7 °C
D103 CRH01(TE85L,Q) TOSHIBA	Tj (max) = 150 °C Pd = 8.8 mW Tj = Ta + ((θj-a) × Pd) = 85.4°C D.F. = 56.96%	θj-a = 130.0 °C/W ΔTa = 29.3°C	Ta = 84.3 °C
PC101 PS2861B-1Y-F3-A(L) (TRANSISTOR) RENESAS	Ta (max) = 110 °C Pc = 1.4 mW Pmax = Pc(max) + (Ta - 25°C) × ΔPc/°C = 46.3mW D.F. = 3.02%	ΔPc/°C = -1.2mW/°C (Ta > 25°C) ΔTa = 31.4°C	Pc(max) = 120.0 mW Ta = 86.4 °C
PC101 PS2861B-1Y-F3-A(L) (LED) RENESAS	Ta (max) = 110 °C Pd = 1.2 mW Pmax = Pd(max) + (Ta - 25°C) × ΔPd/°C = 23.2mW D.F. = 5.18%	ΔPd/°C = -0.6mW/°C (Ta > 25°C) ΔTa = 31.4°C	Pd(max) = 60.0 mW Ta = 86.4 °C
PC102 PS2861B-1Y-F3-A(L) (TRANSISTOR) RENESAS	Ta (max) = 110 °C Pc = 0.0 mW Pmax = Pc(max) + (Ta - 25°C) × ΔPc/°C = 47.8mW D.F. = 0.0%	ΔPc/°C = -1.2mW/°C (Ta > 25°C) ΔTa = 30.2°C	Pc(max) = 120.0 mW Ta = 85.2 °C
PC102 PS2861B-1Y-F3-A(L) (LED) RENESAS	Ta (max) = 110 °C Pd = 0.0 mW Pmax = Pd(max) + (Ta - 25°C) × ΔPd/°C = 23.9mW D.F. = 0.0%	ΔPd/°C = -0.6mW/°C (Ta > 25°C) ΔTa = 30.2°C	Pd(max) = 60.0 mW Ta = 85.2 °C

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

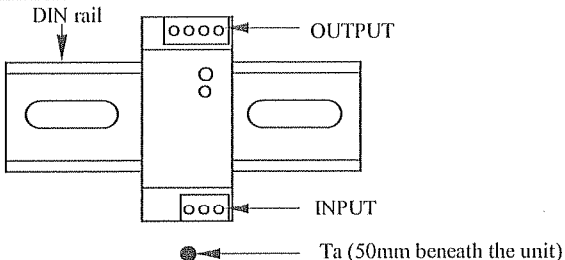
Model: DRB50-48-1

部品番号 Location No.	Vin = 230VAC Ta = 55°C Load = 100%(Vo: 48V, Io: 1.05A)		
A101 L6566ATR ST MICRO.	Tj (max) = 150 °C Pt = 130.31 mW Tj = Ta + ((θj-a) × Pt) = 96.4°C D.F. = 64.29%	θj-a = 120.0 °C/W ΔTa = 25.8°C	Pt (max) = 0.75 W Ta = 80.8 °C
A201 UPC1093T-E1-AZ RENESAS	Ta (max) = 85 °C Pt = 16.6 mW Pmax = Pt(max) + (Ta - 25°C) × ΔPc/°C = 230.1mW D.F. = 7.21%	ΔPc/°C = -3.2mW/°C (Ta>25°C) ΔTa = 23.1°C	Pt(max) = 0.4 W Ta = 78.1 °C
Q1 TK8A65D(Q) TOSHIBA	Tch (max) = 150 °C Pd = 1.51 W Tch = Tc + ((θch-c) × Pd) = 100.2°C D.F. = 66.8%	θch-c = 2.78 °C/W ΔTc = 41.0°C	Pd (max) = 45.0 W Tc = 96.0 °C
D1 GBL206 LITE ON	Tj (max) = 150 °C Pd = 1.04 W Tj = Tc + ((θj-c) × Pd) = 86.8°C D.F. = 57.88%	θj-c = 8.0 °C/W ΔTc = 23.5°C	Tc = 78.5 °C
D51 YG982C4R FUJI ELECTRIC	Tj (max) = 150 °C Pd = 1.16 W Tj = Tc + ((θj-c) × Pd) = 102.1°C D.F. = 68.05%	θj-c = 3.0 °C/W ΔTc = 43.6°C	Tc = 98.6 °C
D101 D1F60-5053 SHINDENGEN	Tj (max) = 150 °C Pd = 5.9 mW Tj = Ta + ((θj-a) × Pd) = 93.6°C D.F. = 62.42%	θj-a = 157.0 °C/W ΔTa = 37.7°C	Ta = 92.7 °C
D103 CRH01(TE85L,Q) TOSHIBA	Tj (max) = 150 °C Pd = 9.3 mW Tj = Ta + ((θj-a) × Pd) = 82.0°C D.F. = 54.67%	θj-a = 130.0 °C/W ΔTa = 25.8°C	Ta = 80.8 °C
PC101 PS2861B-1Y-F3-A(L) (TRANSISTOR) RENESAS	Ta (max) = 110 °C Pc = 1.4 mW Pmax = Pc(max) + (Ta - 25°C) × ΔPc/°C = 49.2mW D.F. = 2.85%	ΔPc/°C = -1.2mW/°C (Ta>25°C) ΔTa = 29.0°C	Pc(max) = 120.0 mW Ta = 84.0 °C
PC101 PS2861B-1Y-F3-A(L) (LED) RENESAS	Ta (max) = 110 °C Pd = 1.2 mW Pmax = Pd(max) + (Ta - 25°C) × ΔPd/°C = 24.6mW D.F. = 4.88%	ΔPd/°C = -0.6mW/°C (Ta>25°C) ΔTa = 29.0°C	Pd(max) = 60.0 mW Ta = 84.0 °C
PC102 PS2861B-1Y-F3-A(L) (TRANSISTOR) RENESAS	Ta (max) = 110 °C Pc = 0.0 mW Pmax = Pc(max) + (Ta - 25°C) × ΔPc/°C = 50.6mW D.F. = 0.0%	ΔPc/°C = -1.2mW/°C (Ta>25°C) ΔTa = 27.8°C	Pc(max) = 120.0 mW Ta = 82.8 °C
PC102 PS2861B-1Y-F3-A(L) (LED) RENESAS	Ta (max) = 110 °C Pd = 0.0 mW Pmax = Pd(max) + (Ta - 25°C) × ΔPd/°C = 25.3mW D.F. = 0.0%	ΔPd/°C = -0.6mW/°C (Ta>25°C) ΔTa = 27.8°C	Pd(max) = 60.0 mW Ta = 82.8 °C

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

MODEL : DRB50-1

(1) 測定条件 Measuring Conditions

取付方法 Mounting Method (標準取付) (Standard Mounting)	Standard Mounting			
				
入力電圧 V_{in} Input Voltage	115VAC			
出力電圧 V_o Output Voltage	5VDC	15VDC	24VDC	48VDC
出力電流 I_o Output Current	6A(100%)	3.4A(100%)	2.1A(100%)	1.05A(100%)

(2) 測定結果 Measuring Results

出力デレーティング Output Derating		ΔT Temperature Rise ($^{\circ}C$)			
		$I_o=100\%$			
		$T_a=55^{\circ}C$			
		取付方向			
部品番号 Location No.	部品名 Part name	Standard Mounting			
		5VDC	15VDC	24VDC	48VDC
A101	IC	27.4	34.2	30.9	29.6
A201	CHIP IC	29.3	27.6	26.0	24.4
C5	E.CAP.	25.9	29.6	26.6	25.0
C6	E.CAP.	26.2	32.2	29.2	24.8
C51	E.CAP.	57.1	48.9	39.8	32.1
C52	E.CAP.	44.7	39.0	29.9	25.3
C53	E.CAP.	48.9	42.3	35.1	28.5
C54	E.CAP.	39.4	30.0	22.8	21.0
D1	BRIDGE DIODE	28.2	37.2	37.7	36.2
D51	S.B.D	78.4	64.6	53.4	42.5
L1	BALUN COIL	24.6	36.7	35.6	30.1
L52	CHOKE COIL	60.5	46.1	35.0	26.6
PC101	PHOTO COUPLER	34.3	38.2	35.3	31.4
PC102	PHOTO COUPLER	33.0	36.8	33.2	30.2
Q1	MOSFET	40.0	44.7	44.3	44.5
T1	TRANSFORMER	55.8	57.0	52.5	49.6

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

MODEL : DRB50-1

(1) 測定条件 Measuring Conditions

取付方法 Mounting Method (標準取付) (Standard Mounting)	Standard Mounting			
入力電圧 V_{in} Input Voltage	230VAC			
出力電圧 V_o Output Voltage	5VDC	15VDC	24VDC	48VDC
出力電流 I_o Output Current	6A(100%)	3.4A(100%)	2.1A(100%)	1.05A(100%)

(2) 測定結果 Measuring Results

出力デレーティング Output Derating		ΔT Temperature Rise ($^{\circ}C$)			
		$I_o=100\%$			
		$T_a=55^{\circ}C$			
		取付方向			
部品番号 Location No.	部品名 Part name	Standard Mounting			
		5VDC	15VDC	24VDC	48VDC
A101	IC	25.8	29.6	26.7	25.8
A201	CHIP IC	28.6	26.5	24.7	23.1
C5	E.CAP.	24.6	24.8	22.5	21.2
C6	E.CAP.	24.2	27.1	24.6	20.8
C51	E.CAP.	55.9	44.0	37.3	31.0
C52	E.CAP.	42.8	33.6	26.4	23.0
C53	E.CAP.	47.3	37.0	31.6	26.2
C54	E.CAP.	38.0	26.3	20.8	20.1
D1	BRIDGE DIODE	21.9	25.8	25.3	23.5
D51	S.B.D	77.4	63.0	51.5	43.6
L1	BALUN COIL	18.1	23.5	22.0	17.0
L52	CHOKE COIL	58.9	42.0	32.7	25.6
PC101	PHOTO COUPLER	34.1	33.6	32.2	29.0
PC102	PHOTO COUPLER	32.2	32.2	31.4	27.8
Q1	MOSFET	44.5	40.7	40.8	41.0
T1	TRANSFORMER	57.2	53.0	51.2	49.2

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

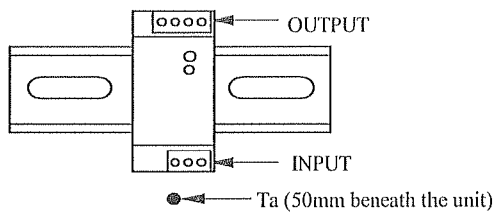
MODEL : DRB50-5-1

空冷条件 : 自然空冷

Cooling condition : Convection cooling

標準取付

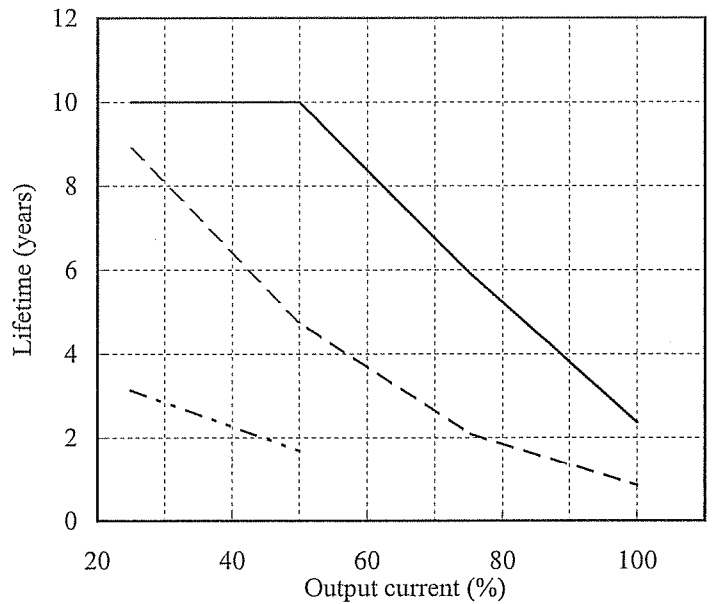
Standard Mounting



Conditions T_a 40°C : ———
 55°C : - - - -
 70°C : ·····

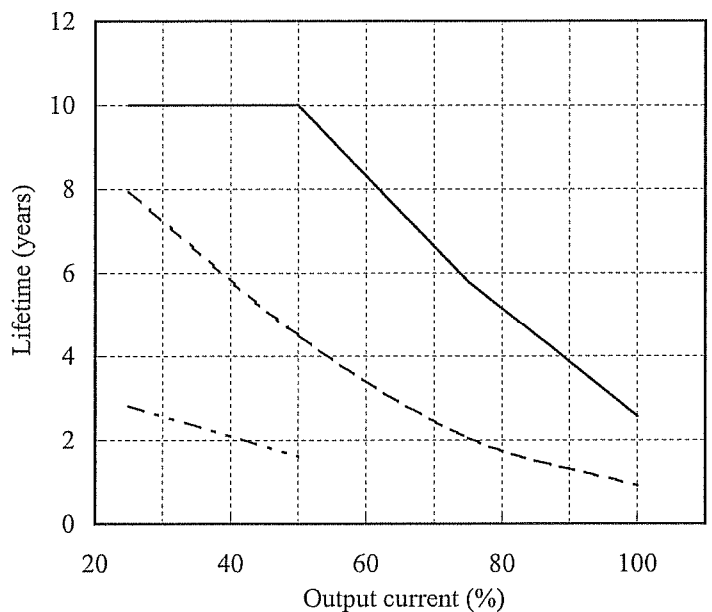
Vin=115VAC

Load (%)	Lifetime (years)		
	$T_a=$ 40°C	$T_a=$ 55°C	$T_a=$ 70°C
25	10.0	8.9	3.1
50	10.0	4.8	1.7
75	6.0	2.1	-
100	2.4	0.8	-



Vin=230VAC

Load (%)	Lifetime (years)		
	$T_a=$ 40°C	$T_a=$ 55°C	$T_a=$ 70°C
25	10.0	8.0	2.8
50	10.0	4.5	1.6
75	5.8	2.1	-
100	2.6	0.9	-



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

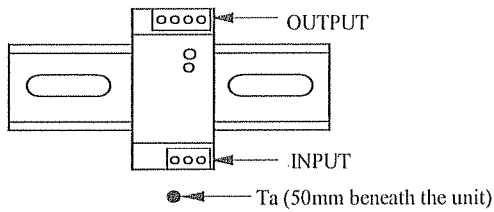
MODEL : DRB50-12-1

空冷条件 : 自然空冷

Cooling condition : Convection cooling

標準取付

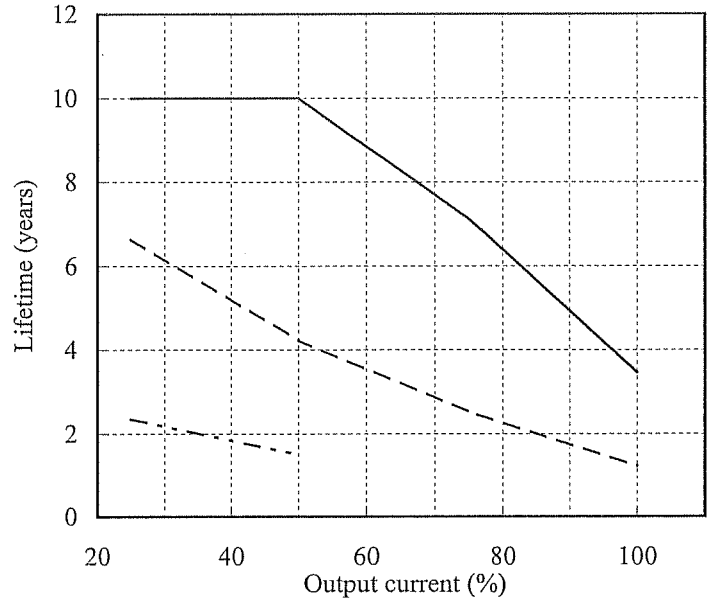
Standard Mounting



Conditions Ta 40°C : ———
 55°C : - - - -
 70°C : ·····

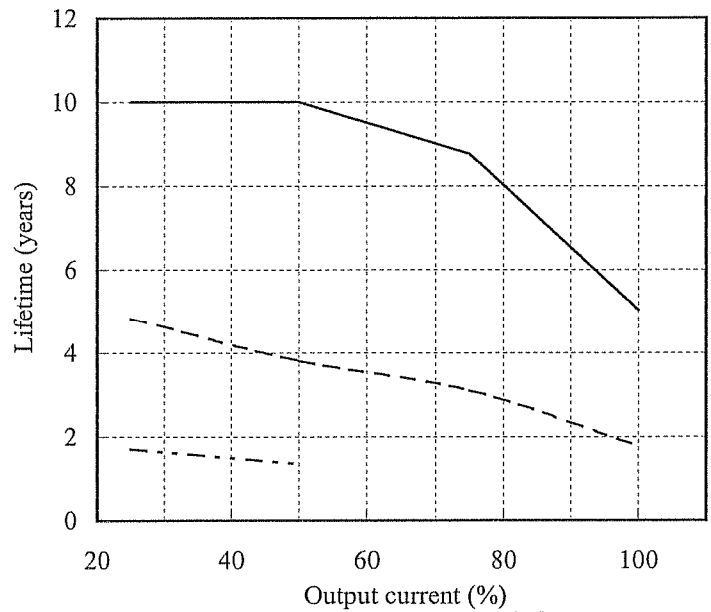
Vin=115VAC

Load (%)	Lifetime (years)		
	Ta=40°C	Ta=55°C	Ta=70°C
25	10.0	6.6	2.4
50	10.0	4.2	1.5
75	7.1	2.5	-
100	3.5	1.2	-



Vin=230VAC

Load (%)	Lifetime (years)		
	Ta=40°C	Ta=55°C	Ta=70°C
25	10.0	4.8	1.7
50	10.0	3.8	1.4
75	8.8	3.1	-
100	5.0	1.8	-



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

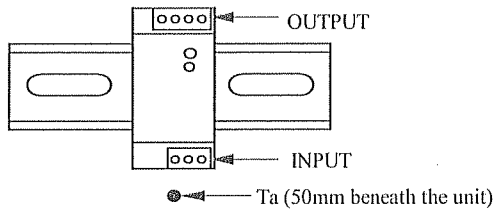
MODEL : DRB50-24-1

空冷条件 : 自然空冷

Cooling condition : Convection cooling

標準取付

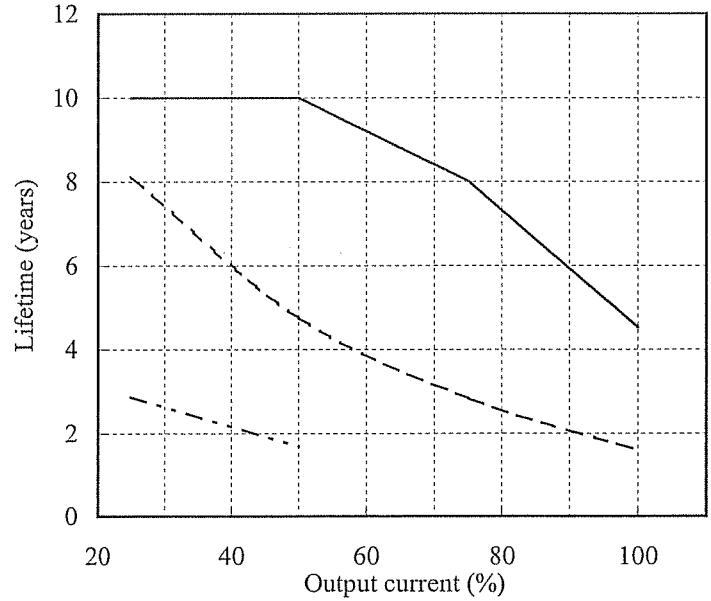
Standard Mounting



Conditions T_a 40°C : ———
 55°C : - - - -
 70°C : - · - · -

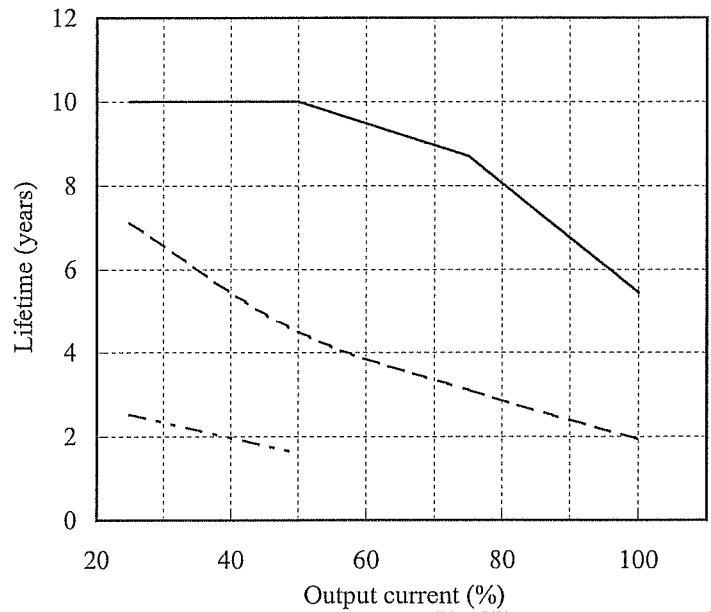
Vin=115VAC

Load (%)	Lifetime (years)		
	$T_a=40^\circ\text{C}$	$T_a=55^\circ\text{C}$	$T_a=70^\circ\text{C}$
25	10.0	8.1	2.9
50	10.0	4.8	1.7
75	8.0	2.8	-
100	4.5	1.6	-



Vin=230VAC

Load (%)	Lifetime (years)		
	$T_a=40^\circ\text{C}$	$T_a=55^\circ\text{C}$	$T_a=70^\circ\text{C}$
25	10.0	7.1	2.5
50	10.0	4.5	1.6
75	8.7	3.1	-
100	5.5	1.9	-



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

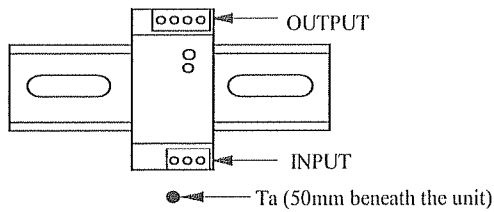
MODEL : DRB50-48-1

空冷条件 : 自然空冷

Cooling condition : Convection cooling

標準取付

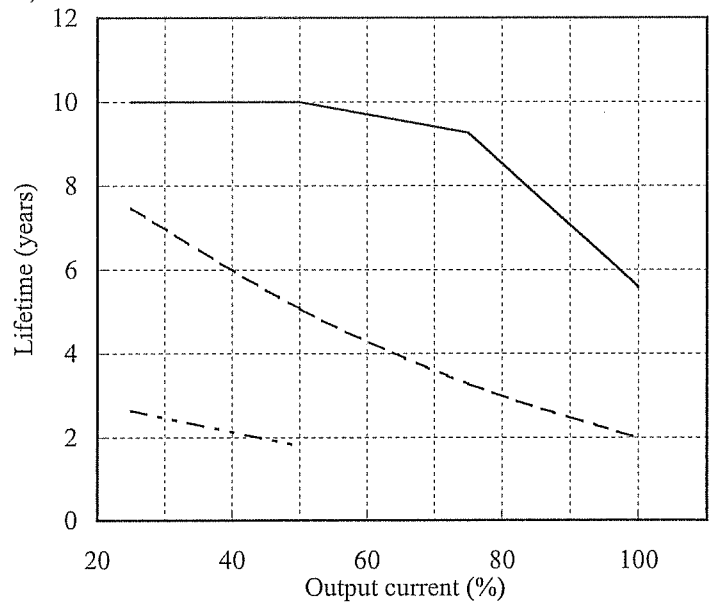
Standard Mounting



Conditions Ta 40°C : ———
 55°C : - - - -
 70°C : ·····

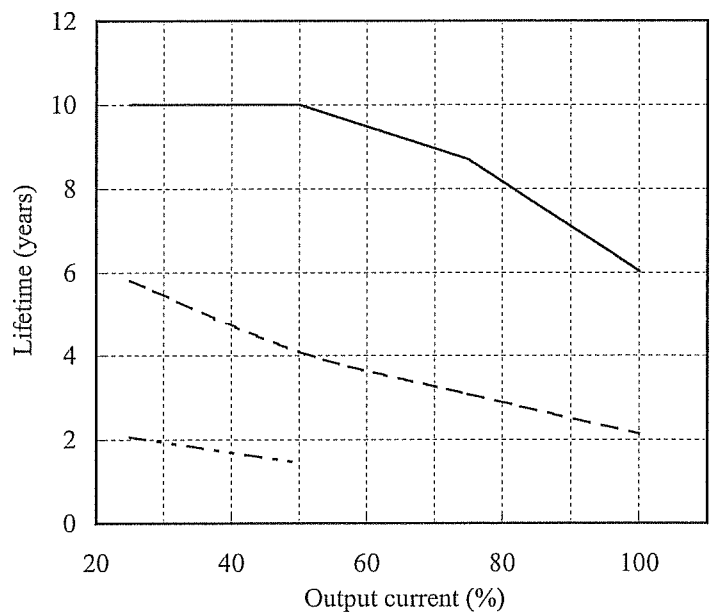
Vin=115VAC

Load (%)	Lifetime (years)		
	Ta= 40°C	Ta= 55°C	Ta= 70°C
25	10.0	7.5	2.6
50	10.0	5.1	1.8
75	9.3	3.3	-
100	5.6	2.0	-



Vin=230VAC

Load (%)	Lifetime (years)		
	Ta= 40°C	Ta= 55°C	Ta= 70°C
25	10.0	5.8	2.1
50	10.0	4.1	1.4
75	8.7	3.1	-
100	6.0	2.1	-



5. アブノーマル試験 Abnormal Test

MODEL :DRB50-24-1

(1) 試験条件 Test Conditions

Input : 230VAC Output : 24V, 2.1A 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	D1	AC-AC	O							O	O			O			Da:F1
2		DC-DC	O								O	O			O		Da:F1
3		AC-DC	O								O	O			O		Da:F1
4		AC		O											O		
5		DC		O											O		
6	Q1	D-S	O							O	O			O			Da: F1,R108,R109,Z105
7		D-G	O							O	O			O			Da: F1,Q1,R108,R109,Z105
8		G-S	O												O		
9		D		O											O		
10		S		O											O		
11	G		O											O			
12	D51	A-K	O											O			
13		A		O											O		
14		K		O											O		
15	T1	1-3	O											O			
16		3-4	O								O	O			O		Da:F1
17		4-5	O												O		
18		9-10	O												O		
19		10-11	O													O	
20		11-12	O												O		
21		1		O											O		
22		3		O											O		
23		4		O												O	Hiccup
24		5		O												O	Hiccup
25		9		O											O		
26		10		O											O		
27		11		O											O		
28	12		O											O			
29	C5	-	O								O			O			
30		-	O													O	Hiccup
31	C51	-	O											O			Hiccup
32		-	O												O		
33	C52	-	O											O			Hiccup
34		-	O												O		
35	C53	-	O											O			Hiccup
36		-	O												O		
37	C54	-	O											O			Hiccup
38		-	O												O		

(Da : Damaged)

No.	Test position		Test mode		Test result											記事 Note	
	部品No.	試験端子 Test point	ショート Short	オープン Open	a	b	c	d	e	f	g	h	i	j	k		l
					発火 Fire	発煙 Smoke	破裂 Burst	異臭 Smell	赤熱 Red hot	破損 Damaged	ヒューズ断 Fuse blown	OVP	OCP	出力断 No output	変化なし No change		その他 Others
39		1-2	O												O		
40		2-3	O												O		
41		3-4	O											O			
42		4-5	O							O	O			O		Da: F1,Q1,R108,R109,Z105	
43		5-6	O											O			
44		6-7	O											O			
45		7-8	O									O		O			
46		9-10	O												O	Hiccup	
47		10-11	O												O	Hiccup	
48		11-12	O												O	Hiccup	
49		12-13	O											O			
50		13-14	O												O	Input power 41.0W and Vout 17.1V , power have noise	
51																	
52		14-15	O												O	Input power 44.3W and Vout 18.7V	
53		15-16	O											O			
54		3-5	O											O			
55		3-6	O											O			
56		3-7	O							O	O			O		Da: F1,Q1,R108,R109,Z105	
57		3-8	O											O		OVP malfunction	
58		3-9	O												O	Hiccup	
59	A101	3-10	O											O			
60		3-11	O												O	Hiccup	
61		3-12	O											O			
62		3-13	O											O			
63		3-14	O													Hiccup	
64		3-15	O											O			
65		3-16	O											O			
66		1	O												O		
67		2	O												O		
68		3	O												O		
69		4	O											O			
70		5	O											O		Hiccup	
71		6	O											O			
72		7	O											O			
73		8	O											O		OVP malfunction	
74		9	O									O		O			
75		10	O														
76		11	O									O		O			
77		12	O											O		QR mode ==> FF mode	
78		13	O											O			
79		14	O											O			
80		15	O											O			
81		16	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
	Location No.	Test point	Short	Open	発火	発煙	破裂	異臭	赤熱	破損	ヒューズ断	OVP	OCP	出力断	変化なし	その他	
					Fire	Smoke	Burst	Smell	Red hot	Damaged	Fuse blown			No output	No change	Others	
82	A201	1-2	O													O	Hiccup
83		2-3	O										O	O			
84		1		O									O	O			
85		2		O									O	O			
86		3		O									O	O			
87	D101		O											O			Hiccup
88			O												O		
89	D201		O													O	Pin increase 0.1W
90			O												O		
91	D202		O													O	
92			O												O		
93	L51	1-2	O													O	
94		1,2	O													O	
95	C101	-	O											O			Hiccup
96		-	O												O		
97	C201	-	O											O			
98		-	O												O		
99	C202	-	O											O			
100		-	O												O		
101	C210	-	O													O	Pin increase 0.1W
102		-	O													O	
103	C211	-	O													O	Pin increase 0.1W
104		-	O													O	
105	R51	-	O													O	
106		-	O													O	
107	R104	-	O													O	Pin increase 0.1W
108		-	O													O	
109	R105	-	O													O	Pin increase 0.1W
110		-	O													O	
111	R131	-	O													O	
112		-	O													O	
113	R132	-	O													O	
114		-	O													O	
115	R133	-	O													O	
116		-	O													O	

6. 振動試験 Vibration Test

MODEL : DRB50-1

(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

・制御部 : DP550
Controller DP CORP USA

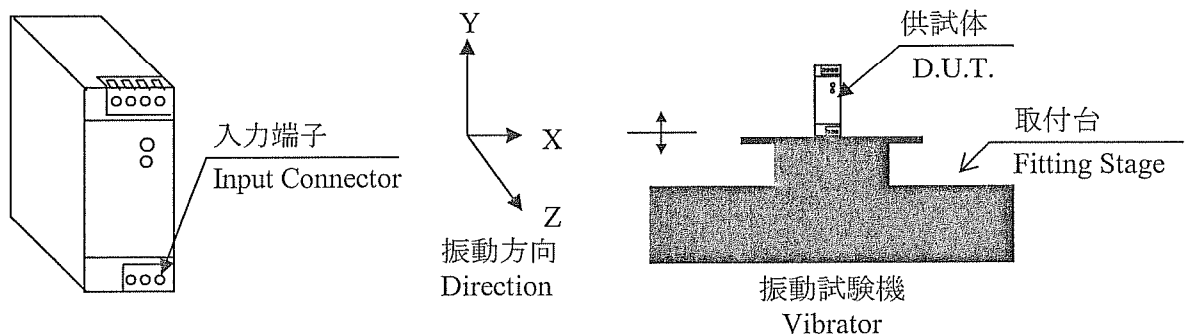
・加振部 : V870
Vibrator LDS CORP. UK

(3) 試験条件 Test Conditions

・周波数範囲 : 10~55Hz
Sweep frequency
・掃引時間 : 1.0分間
Sweep time 1.0min
・加速度 : 一定 19.6m/s^2 (2G)
Acceleration Constant

・振動方向 : X, Y, Z
Direction
・試験時間 : 各方向共 1時間
Sweep count 1 hour each

(4) 試験方法 Test Method



(5) 判定条件 Judging Conditions

- 1.破壊しない事
Not to be broken
- 2.試験後の特性は初期値から変動していない事
Characteristic to be within regulation specification after the test.

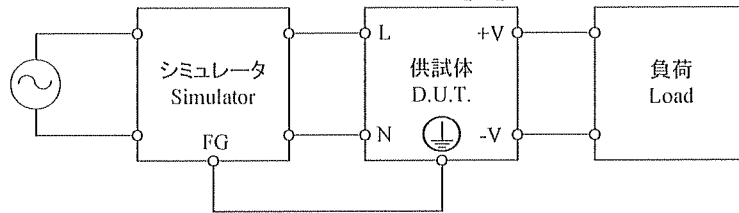
(6) 試験結果 Test Results

合格 OK

7. ノイズシミュレート試験 Noise Simulate Test

MODEL : DRB50-1

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



シミュレータ : INS-400L (ノイズ研究所)
 Simulator : (Noise Laboratory Co.,LTD)

(2) 試験条件 Test Conditions

・入力電圧 Input voltage	: 115, 230VAC	・ノイズ電圧 Noise level	: 0~2kV
・出力電圧 Output Voltage	: 定格 Rated	・位相 Phase	: 0~360 deg
・出力電流 Output current	: 0, 100%	・極性 Polarity	: +, -
・周囲温度 Ambient temperature	: 25°C	・印加モード Mode	: コモン、ノーマル Common, Normal
・パルス幅 Pulse width	: 50~1000ns	・トリガ選択 Trigger select	: Line

(3) 判定条件 Judging Conditions

1. 破壊しない事
Not to be broken
2. 出力がダウンしない事
Not to be shut down output
3. その他異常のない事
No other out of orders

(4) 試験結果 Test Results

合格 OK

8. 熱衝撃試験 Thermal Shock Test

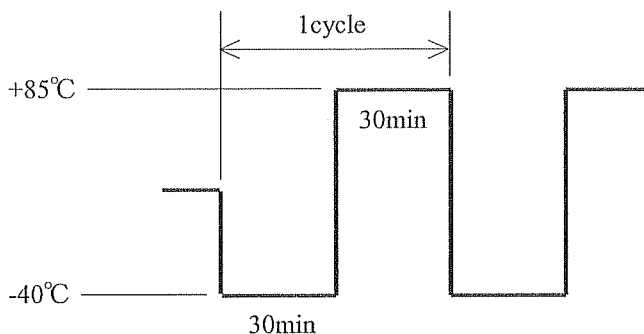
MODEL : DRB50-1

(1) 使用計測器 Equipment Used

TSA-101S-W : ESPEC

(2) 試験条件 Test Conditions

- ・電源周囲温度 : -40°C ⇔ 85°C +85°C
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 Judging Conditions

1. 破壊しない事
Not to be broken
2. 試験後の特性は初期値から変動していない事
Characteristic to be within regulation specification after the test.

(5) 試験結果 Test Results

合格 OK

9. Voltage Dips, Short Interruptions Immunity Test (SEMI-F47)

MODEL : DRB50-1

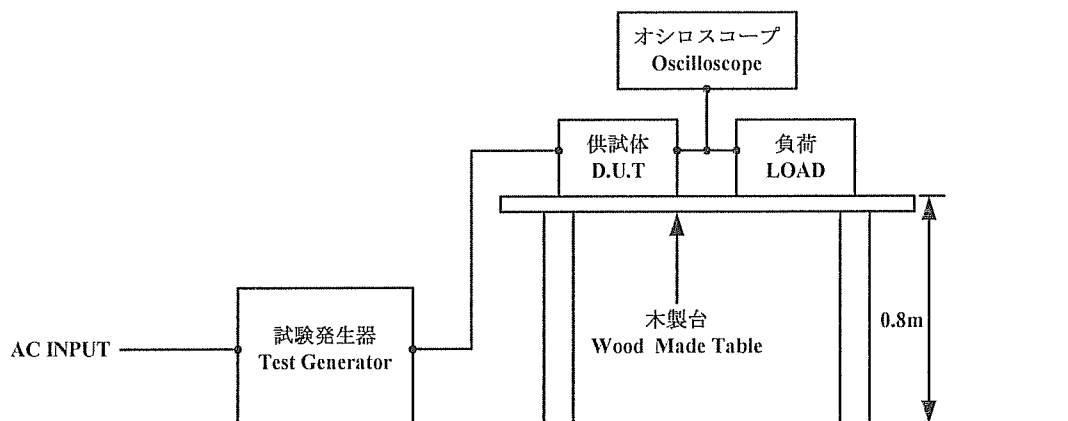
(1) 使用計測器 Equipment Used

試験発生器 : PCR2000L (KIKUSUI)
Test Generator

(2) 試験条件 Test Conditions

・入力電圧	: 200VAC	・出力電圧	: 定格
Input Voltage		Output Voltage	Rated
・出力電流	: 100%	・周囲温度	: 25°C
Output Current		Ambient Temperature	
・試験回数	: 3回	・試験間隔	: 10秒以上
Number of Tests	3 times	Test interval	More than 10 seconds

(3) 試験方法及び印加箇所 Test Method and Device Test Point



(4) 判定条件 Judging Conditions

1. 試験後の出力電圧は初期値から変動していない事。
Output voltage to be within output voltage regulation specification after the test.
2. 発煙／発火なき事。
Smoke and fire do not occur.

(5) 試験結果 Test Result

Test Level	Dip rate	Continue Time	DRB50-* -1
50%	50%	50~200ms	PASS
70%	30%	200~500ms	PASS
80%	20%	500~1000ms	PASS
50%	50%	1000ms	PASS