UNA350P＊

RELIABILITY DATA

信頼性データ

DWG No. DA003-57-01		
APPD	CHK	DWG
K. Asano	K. Sakita	Y. Takara
13.Oct.2004	17. Oct. 2004	8. Oct. 2004

I N D E X

※ 信頼性試験は、代表データであり、全ての製品は、ほぼ同等な特性を示します。
従いましてこの値は実力値とお考え願います。

The above data is typical value. As all units have nearly the same characteristics, the data to be considered as ability value.

１．ＭＴＢＦ計算値　CALCULATED　VALUES　OF　MTBF

ＭＯＤＥＬ　：　ＵＮＡ３５０ＰＢ

(1)　算出方法　Calculating method

ＪＥＩＴＡ　（ＲＣＲ－９１０２）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-9102).
Individual failure rates λ_G is given to each part and MTBF is calculated
by the count of each part.

＜算出式＞

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

λ equip　：全機器故障率（故障数／10^6時間）
Total Equipment Failure Rate　（Failure／10^6hours）

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 *i*th Generic Part　（Failure／10^6hours）

N*i*　：*i* 番目の同属部品の個数
Quantity of *i*th 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　（π_Q=1）
Generic Quality Factor for The *i*th Generic Part　（π_Q=1）

(2)　ＭＴＢＦ値　MTBF Values

G_F：地上固定　(GROUND, FIXED)

ＭＴＢＦ≒　１１０、７１１　時間　(hours)
(但し、MTBFにファンは含まれておりません。)
However MTBF Calculation for FAN isn't Included.

１．ＭＴＢＦ計算値　CALCULATED　VALUES　OF　MTBF

ＭＯＤＥＬ　：　ＵＮＡ３５０ＰＮ

(1)　算出方法　Calculating method

ＪＥＩＴＡ（ＲＣＲ－９１０２）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-9102).
Individual failure rates λ_G is given to each part and MTBF is calculated
by the count of each part.

＜算出式＞

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

λ equip　：全機器故障率（故障数／10^6時間）
Total Equipment Failure Rate　(Failure／10^6hours)

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 *i*th Generic Part　(Failure／10^6hours)

N*i*　：*i* 番目の同属部品の個数
Quantity of *i*th 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　(π_Q=1)
Generic Quality Factor for The *i*th Generic Part　(π_Q=1)

(2)　ＭＴＢＦ値　MTBF Values

G_F：地上固定　(GROUND, FIXED)

ＭＴＢＦ≒　１３１、９５４　時間　(hours)
(但し、MTBFにファンは含まれておりません。)
However MTBF Calculation for FAN isn't Included.

2．部品ディレーティング　COMPONENT　DERATING

MODEL　：　UNA３５０P＊

(1)　算出方法　Calculating Method

・入力 Input　：100, 230VAC, UNA-BT242R3

・周囲温度 Ambient temperature　：　45℃ (100V)　：　50℃ (230V)

・出力 Output　：100% (FL＊: 180sec⇔PK＊: 5sec) / Backup 83% (250W)

FL1	5V/19.5A, 3.3V/16A,12V/11.2A -12V/0.5A,+5VSB/2A	PL1： 5V/20.6A, 3.3V/28A, 12V/11.1A -12V/0.5A,+5VSB/2A
FL2	5V/25A,3.3V/7.6A,12V/11.2A -12V/0.5A,+5VSB/2A	PL2： 5V/30A, 3.3V/13.7A, 12V/11.1A -12V/0.5A,+5VSB/2A
FL3	5V/14.2A,3.3V/10A,12V/15A -12V/0.5A,+5VSB/2A	PL3： 5V/12.2A, 3.3V/10A, 12V/19.5A -12V/0.5A,+5VSB/2A

(a)　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.

(b)　ＩＣ、抵抗、コンデンサー等　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.

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

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

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

Ta　：ディレーティングの始まる周囲温度　一般に２５℃
Ambient Temperature at Start Point of Derating；25℃ in General

Tl　：ディレーティングの始まるリード温度　一般に２５℃
Lead Temperature at Start Point of Derating；25℃ in General

Pc(max) (Pch(max))　：最大コレクタ(チャネル)損失
Maximum Collector(channel) Dissipation

Tj(max) (Tch(max))　：最大接合点温度
Maximum Junction(channel) Temperature

θ j-c　：接合点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) 部品ディレーティング表 Component Derating List

部品番号 Location No.	Vin = 100VAC	Load = 100%	Ta = 45℃
Q1 2SK2837 TOSHIBA	Tchmax = 150℃, Pd = 31.91W, Tch = Tc + ((θ ch - c) × Pd) = 123.9℃ D.F. = 82.6%	θ ch-c = 0.833℃/W, Δ Tc = 52.3℃,	Pch(max) = 150W Tc = 97.3℃
Q2 2SK2543 TOSHIBA	Tchmax = 150℃, Pd = 8.73W, Tch = Tc + ((θ ch - c) × Pd) = 110.6℃ D.F. = 73.7%	θ ch-c = 3.125℃/W, Δ Tc = 38.3℃,	Pch(max) = 40W Tc = 83.3℃
Q3 2SK2543 TOSHIBA	Tchmax = 150℃, Pd = 8.73W, Tch = Tc + ((θ ch - c) × Pd) = 114.5℃ D.F. = 76.3%	θ ch-c = 3.125℃/W, Δ Tc = 42.2℃,	Pch(max) = 40W Tc = 87.2℃
Q109 2SK2615 TOSHIBA	Tchmax = 150℃, Pd = 0.008W, Tch = Tc + ((θ ch - c) × Pd) = 57.6℃ D.F. = 38.4%	θ ch-c = 250℃/W, Δ Tc = 10.6℃,	Pch(max) = 0.5W Tc = 55.6℃
Q652 2SK2865 TOSHIBA	Tchmax = 150℃, Pd = 1.079W, Tch = Tc + ((θ ch - c) × Pd) = 76.6℃ D.F. = 51.1%	θ ch-c = 6.25℃/W, Δ Tc = 24.9℃,	Pch(max) = 20W Tc = 69.9℃
Q801 2SK3435 NEC	Tchmax = 150℃, Pd = 13.49W, Tch = Tc + ((θ ch - c) × Pd) = 87.7℃ D.F. = 58.4%	θ ch-c = 1.488℃/W, Δ Tc = 22.6℃,	Pch(max) = 84W Tc = 67.6℃
Q802 2SK3435 NEC	Tchmax = 150℃, Pd =13.49W, Tch = Tc + ((θ ch - c) × Pd) = 88.8℃ D.F. = 59.2%	θ ch-c = 1.488℃/W, Δ Tc = 23.7℃,	Pch(max) = 84W Tc = 68.7℃
D1 D10XB60H SHINDENGEN	Tjmax = 150℃, Pd = 11.8W, Tj = Tc + ((θ j - c) × Pd) = 109.9℃ D.F. = 73.3%	θ j-c = 1.9℃/W, Δ Tc = 42.5℃,	P(max) = - Tc = 87.5℃
D2 10JL2CZ47A TOSHIBA	Tjmax = 150℃, Pd = 6.33W, Tj = Tc + ((θ j - c) × Pd) = 100.9℃ D.F. = 67.3%	θ j-c = 3.6℃/W, Δ Tc = 33.1℃,	P(max) = - Tc = 78.1℃

部品番号 Location No.	Vin = 100VAC	Load = 100%	Ta = 45℃
D201 S30SC4M SHINDENGEN	Tjmax = 150℃, Pd = 10.16W, Tj = Tc + ((θ j - c) × Pd) = 115.4℃ D.F. = 76.9%	θ j-c = 1.0℃/W, Δ Tc = 60.2℃,	P(max) = - Tc = 105.2℃
D202 S30SC4M SHINDENGEN	Tjmax = 150℃, Pd = 10.16W, Tj = Tc + ((θ j - c) × Pd) = 119.1℃ D.F. = 79.4%	θ j-c = 1.0℃/W, Δ Tc = 63.9℃,	P(max) = - Tc = 108.9℃
D301 S30SC4M SHINDENGEN	Tjmax = 150℃, Pd = 7.35W, Tj = Tc + ((θ j - c) × Pd) = 102.7℃ D.F. = 68.4%	θ j-c = 1.0℃/W, Δ Tc = 50.3℃,	P(max) = - Tc = 95.3℃
D302 S30SC4M SHINDENGEN	Tjmax = 150℃, Pd = 7.35W, Tj = Tc + ((θ j - c) × Pd) = 106.2℃ D.F. = 70.8%	θ j-c = 1.0℃/W, Δ Tc = 53.8℃,	P(max) = - Tc = 98.8℃
D401 SF30SC4 SHINDENGEN	Tjmax = 150℃, Pd = 12.1W, Tj = Tc + ((θ j – c) × Pd) = 128.8℃ D.F. = 85.9%	θ j-c = 2.0℃/W, Δ Tc = 59.6℃,	P(max) = - Tc = 104.6℃
D501 D10LC20U SHINDENGEN	Tjmax = 150℃, Pd = 0.68W, Tj = Tc + ((θ j – c) × Pd) = 56.3℃ D.F. = 37.6%	θ j-c = 3.3℃/W, Δ Tc = 9.1℃,	P(max) = - Tc = 54.1℃
D751 D10SC4M SHINDENGEN	Tjmax = 150℃, Pd = 1.14W, Tj = Tc + ((θ j - c) × Pd) = 60.3℃ D.F. = 40.2%	θ j-c = 3.3℃/W, Δ Tc = 11.5℃,	P(max) = - Tl = 56.5℃
D801 FSF05A60 NI	Tjmax = 150℃, Pd = 0.92W, Tj = Tc + ((θ j – c) × Pd) = 70.7℃ D.F. = 47.1%	θ j-c = 5.0℃/W, Δ Tc = 21.1℃,	P(max) = - Tl = 66.1℃
D3 DE5L60 SHINDENGEN	Tjmax = 150℃, Pd = 1.406W, Tj = Tc + ((θ j – c) × Pd) = 79.2℃ D.F. = 52.8%	θ j-c = 12℃/W, Δ Tc = 17.3℃,	P(max) = - Tl = 62.3℃
D653 U05NU44 TOSHIBA	Tjmax = 150℃, Pd = 0.30W, Tj = Tc + ((θ j - c) × Pd) = 103.8℃ D.F. = 69.2%	θ j-c = 100℃/W, Δ Tc = 23.8℃,	P(max) = - Tl = 73.8℃

部品番号 Location No.	Vin = 230VAC	Load = 100%	Ta = 50℃
Q1 2SK2837 TOSHIBA	Tchmax = 150℃, Pd = 7.64W, Tch = Tc + ((θ ch - c) × Pd) = 74.1℃ D.F. = 49.4%	θ ch-c = 0.833℃/W, Δ Tc = 17.7℃,	Pch(max) = 150W Tc = 67.7℃
Q2 2SK2543 TOSHIBA	Tchmax = 150℃, Pd = 8.73W, Tch = Tc + ((θ ch - c) × Pd) = 114.5℃ D.F. = 76.3%	θ ch-c = 3.125℃/W, Δ Tc = 37.2℃,	Pch(max) = 40W Tc = 87.2℃
Q3 2SK2543 TOSHIBA	Tchmax = 150℃, Pd = 8.73W, Tch = Tc + ((θ ch - c) × Pd) = 118.7℃ D.F. = 79.1%	θ ch-c = 3.125℃/W, Δ Tc = 41.4℃,	Pch(max) = 40W Tc = 91.4℃
Q109 2SK2615 TOSHIBA	Tchmax = 150℃, Pd = 0.008W, Tch = Tc + ((θ ch - c) × Pd) = 61.6℃ D.F. = 41.1%	θ ch-c = 250℃/W, Δ Tc = 9.6℃,	Pch(max) = 0.5W Tc = 59.6℃
Q652 2SK2865 TOSHIBA	Tchmax = 150℃, Pd = 1.079W, Tch = Tc + ((θ ch - c) × Pd) = 80.2℃ D.F. = 53.5%	θ ch-c = 6.25℃/W, Δ Tc = 23.5℃,	Pch(max) = 20W Tc = 73.5℃
Q801 2SK3435 NEC	Tchmax = 150℃, Pd = 13.49W, Tch = Tc + ((θ ch - c) × Pd) = 92.7℃ D.F. = 61.8%	θ ch-c = 1.488℃/W, Δ Tc = 22.6℃,	Pch(max) = 84W Tc = 72.6℃
Q802 2SK3435 NEC	Tchmax = 150℃, Pd =13.49W, Tch = Tc + ((θ ch - c) × Pd) = 93.8℃ D.F. = 62.5%	θ ch-c = 1.488℃/W, Δ Tc = 23.7℃,	Pch(max) = 84W Tc = 73.7℃
D1 D10XB60H SHINDENGEN	Tjmax = 150℃, Pd = 5.9W, Tj = Tc + ((θ j - c) × Pd) = 81.5℃ D.F. = 54.3%	θ j-c = 1.9℃/W, Δ Tc = 20.3℃,	P(max) = - Tc = 70.3℃
D2 10JL2CZ47A TOSHIBA	Tjmax = 150℃, Pd = 6.33W, Tj = Tc + ((θ j - c) × Pd) = 90.2℃ D.F. = 60.1%	θ j-c = 3.6℃/W, Δ Tc = 17.4℃,	P(max) = - Tc = 67.4℃

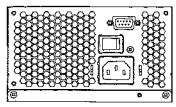
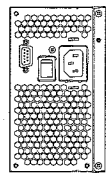
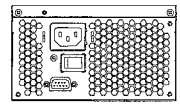
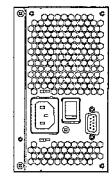
部品番号 Location No.	Vin = 230VAC	Load = 100%	Ta = 50℃
D201 S30SC4M SHINDENGEN	Tjmax = 150℃, Pd = 10.05W, Tj = Tc + ((θ j - c) × Pd) = 120.3℃ D.F. = 80.2%	θ j-c = 1.0℃/W, Δ Tc = 60.2℃,	P(max) = - Tc = 110.2℃
D202 S30SC4M SHINDENGEN	Tjmax = 150℃, Pd = 10.05W, Tj = Tc + ((θ j - c) × Pd) = 123.9℃ D.F. = 82.6%	θ j-c = 1.0℃/W, Δ Tc = 63.8℃,	P(max) = - Tc = 113.8℃
D301 S30SC4M SHINDENGEN	Tjmax = 150℃, Pd = 7.35W, Tj = Tc + ((θ j - c) × Pd) = 108.1℃ D.F. = 72.0%	θ j-c = 1.0℃/W, Δ Tc = 50.7℃,	P(max) = - Tc = 100.7℃
D302 S30SC4M SHINDENGEN	Tjmax = 150℃, Pd = 7.35W, Tj = Tc + ((θ j - c) × Pd) = 111.6℃ D.F. = 74.4%	θ j-c = 1.0℃/W, Δ Tc = 54.2℃,	P(max) = - Tc = 104.2℃
D401 SF30SC4 SHINDENGEN	Tjmax = 150℃, Pd = 12.1W, Tj = Tc + ((θ j – c) × Pd) = 134.2℃ D.F. = 89.5%	θ j-c = 2.0℃/W, Δ Tc = 60.0℃,	P(max) = - Tc = 110.0℃
D501 D10LC20U SHINDENGEN	Tjmax = 150℃, Pd = 0.68W, Tj = Tc + ((θ j – c) × Pd) = 61.5℃ D.F. = 41.0%	θ j-c = 3.3℃/W, Δ Tc = 9.3℃,	P(max) = - Tc = 59.3℃
D751 D10SC4M SHINDENGEN	Tjmax = 150℃, Pd = 1.14W, Tj = Tc + ((θ j - c) × Pd) = 65.5℃ D.F. = 43.6%	θ j-c = 3.3℃/W, Δ Tc = 11.7℃,	P(max) = - Tl = 61.7℃
D801 FSF05A60 NI	Tjmax = 150℃, Pd = 0.92W, Tj = Tc + ((θ j – c) × Pd) = 70.7℃ D.F. = 47.1%	θ j-c = 5.0℃/W, Δ Tc = 21.1℃,	P(max) = - Tl = 66.1℃
D3 DE5L60 SHINDENGEN	Tjmax = 150℃, Pd = 1.406W, Tj = Tc + ((θ j – c) × Pd) = 84.1℃ D.F. = 56.0%	θ j-c = 12℃/W, Δ Tc = 17.2℃,	P(max) = - Tl = 67.2℃
D653 U05NU44 TOSHIBA	Tjmax = 150℃, Pd = 0.30W, Tj = Tc + ((θ j - c) × Pd) = 103.0℃ D.F. = 68.7%	θ j-c = 100℃/W, Δ Tc = 23.0℃,	P(max) = - Tl = 73.0℃

3．主要部品温度上昇値

MAIN COMPONENTS TEMPERATURE RISE ΔT LIST

MODEL ： UNA350P＊

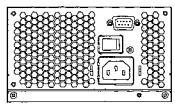
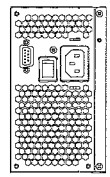
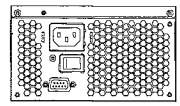
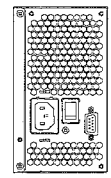
・ 測定条件 Measuring Conditions

取付方法 Mounting Method （標準取付：(A)） (Standard Mounting Method: (A))		(A) 	(B) 	(C) 	(D) 		
入力電圧 Input Voltage（VAC）		100					
出力電圧 Output Voltage（VDC）		5	3.3	12	-12	5VSB	負荷間隔 Interval (sec)
出力電流 Output Current（A）	FL1	19.5	16.0	11.2	0.5	2.0	180
	PL1	20.6	28.0	11.1	0.8	2.5	5

※Condition Ta＝25℃

部品番号 Location No.	部品名 Parts Name	ΔT Temperature rise (℃) 取付方向 Mounting A	取付方向 Mounting B	取付方向 Mounting C	取付方向 Mounting D
L3	CHOKE COIL	43.8	43.5	44.1	43.8
L201	CHOKE COIL	38.0	36.9	36.6	38.0
L301	CHOKE COIL	32.9	33.1	34.0	33.6
L302	CHOKE COIL	38.2	37.4	37.3	38.2
L501	CHOKE COIL	9.2	8.1	8.4	9.3
T1	TRANSE PULSE	28.8	28.1	28.9	28.8
T601	TRANSE PULSE	11.1	10.7	12.0	11.2
D1	BRIDGE DIODE	42.0	41.7	42.0	42.2
D2	LLD	32.6	32.7	33.0	32.7
D201	SBD	56.2	55.2	55.2	56.0
D202	SBD	59.0	58.2	58.4	58.8
D301	SBD	50.2	49.6	49.5	50.3
D302	SBD	53.7	53.2	53.2	53.8
D401	SBD	46.6	45.7	45.5	46.3
D501	LLD	9.0	7.9	8.3	8.9
Q1	MOS FET	50.8	52.2	52.3	52.2
Q2	MOS FET	36.8	37.4	38.2	38.3
Q3	MOS FET	41.1	41.0	42.2	42.2
Q652	MOS FET	24.0	23.5	24.5	23.7
A101	IC	22.5	22.1	22.6	22.2
A103	IC	10.6	10.2	10.7	10.5
A501	IC	51.2	50.6	48.8	51.7
C9	E. CAP.	7.8	11.2	12.0	10.4
C204	E. CAP.	22.6	27.1	26.4	25.2
C304	E. CAP.	8.2	12.3	12.6	10.7
C403	E. CAP.	19.2	23.3	23.2	21.7
C502	E. CAP.	7.5	10.5	10.7	8.7
C701	E. CAP.	0.7	2.8	4.2	1.8

・ 測定条件　Measuring Conditions

取付方法 Mounting Method （標準取付：(A)） (Standard Mounting Method: (A))		(A) 	(B) 	(C) 	(D) 		
入力電圧 Input Voltage（VAC）		230					
出力電圧 Output Voltage（VDC）		5	3.3	12	-12	5VSB	負荷間隔 Interval (sec)
出力電流 Output Current（A）	FL1	19.5	16.0	11.2	0.5	2.0	180
	PL1	20.6	28.0	11.1	0.8	2.5	5

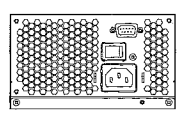
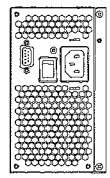
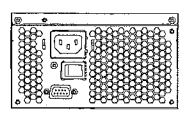
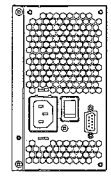
※Condition　Ta = 25℃

部品番号 Location No.	部品名 Parts Name	ΔT Temperature rise (℃) 取付方向 Mounting A	取付方向 Mounting B	取付方向 Mounting C	取付方向 Mounting D
L3	CHOKE COIL	27.8	27.4	27.8	27.3
L201	CHOKE COIL	38.0	37.0	36.6	37.1
L301	CHOKE COIL	33.3	30.7	33.6	32.8
L302	CHOKE COIL	38.7	35.6	37.2	37.7
L501	CHOKE COIL	9.6	8.4	8.6	8.8
T1	TRANSE PULSE	28.6	28.0	28.4	27.6
T601	TRANSE PULSE	10.9	10.8	11.6	10.8
D1	BRIDGE DIODE	19.9	18.9	19.9	19.6
D2	LLD	17.4	16.8	17.1	16.6
D201	SBD	56.3	55.2	55.1	55.3
D202	SBD	59.1	58.0	58.4	58.2
D301	SBD	50.7	48.0	49.4	49.9
D302	SBD	54.2	51.2	53.0	53.4
D401	SBD	47.4	46.6	46.1	46.0
D501	LLD	9.3	7.7	8.4	8.6
Q1	MOS FET	17.5	17.0	17.4	16.7
Q2	MOS FET	37.0	34.5	37.2	36.6
Q3	MOS FET	41.3	38.3	41.4	40.5
Q652	MOS FET	23.3	22.4	23.3	22.5
A101	IC	17.4	16.9	17.1	16.6
A103	IC	10.7	10.5	10.8	9.8
A501	IC	52.3	50.6	48.9	51.7
C9	E. CAP.	7.3	9.0	9.5	8.0
C204	E. CAP.	23.7	26.4	25.9	24.6
C304	E. CAP.	9.3	11.4	11.9	9.9
C403	E. CAP.	20.5	22.8	22.8	21.2
C502	E. CAP.	9.2	10.2	10.6	8.4
C701	E. CAP.	0.7	2.7	4.0	1.5

3．主要部品温度上昇値
MAIN COMPONENTS TEMPERATURE RISE ΔT LIST

MODEL ： UNA350P＊

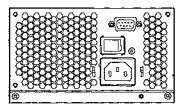
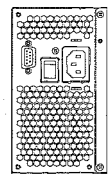
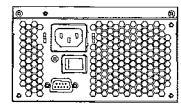
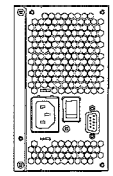
・ 測定条件 Measuring Conditions

		(A)	(B)	(C)	(D)		
取付方法 Mounting Method （標準取付：(A)） (Standard Mounting Method: (A))							
入力電圧 Input Voltage （VAC）		100					
出力電圧 Output Voltage （VDC）		5	3.3	12	-12	5VSB	負荷間隔 Interval (sec)
出力電流 Output Current （A）	FL2	25.0	7.6	11.2	0.5	2.0	180
	PL2	30.0	13.7	11.1	0.8	2.5	5

※Condition Ta = 25℃

部品番号 Location No.	部品名 Parts Name	ΔT Temperature rise (℃) 取付方向 Mounting A	取付方向 Mounting B	取付方向 Mounting C	取付方向 Mounting D
L3	CHOKE COIL	43.9	42.8	44.2	43.2
L201	CHOKE COIL	40.6	38.4	39.1	39.0
L301	CHOKE COIL	29.4	28.8	30.5	29.0
L302	CHOKE COIL	31.8	30.2	31.2	31.0
L501	CHOKE COIL	9.5	8.1	8.8	8.7
T1	TRANSE PULSE	28.7	27.9	28.8	27.7
T601	TRANSE PULSE	11.1	10.4	12.1	11.5
D1	BRIDGE DIODE	42.2	41.7	42.5	42.1
D2	LLD	32.3	32.1	33.1	31.7
D201	SBD	60.2	58.9	59.3	59.1
D202	SBD	63.9	62.6	63.5	62.9
D301	SBD	47.9	46.7	47.3	47.1
D302	SBD	50.8	49.7	50.4	50.0
D401	SBD	47.8	46.4	46.6	46.4
D501	LLD	9.0	7.7	8.7	8.3
Q1	MOS FET	50.4	49.7	52.2	49.7
Q2	MOS FET	35.6	34.1	36.9	34.1
Q3	MOS FET	39.3	37.4	40.5	37.7
Q652	MOS FET	24.1	23.1	24.8	24.0
A101	IC	22.3	21.6	22.5	21.8
A103	IC	10.6	10.4	10.9	9.9
A501	IC	53.6	51.7	51.3	52.2
C9	E. CAP.	8.3	11.7	11.3	9.5
C204	E. CAP.	25.4	29.3	27.9	26.2
C304	E. CAP.	7.6	11.0	10.8	8.9
C403	E. CAP.	21.7	25.0	24.5	22.8
C502	E. CAP.	7.7	10.2	10.1	8.4
C701	E. CAP.	1.0	2.7	3.5	1.3

・ 測定条件　Measuring Conditions

取付方法 Mounting Method （標準取付：(A)） (Standard Mounting Method: (A))		(A) 	(B) 	(C) 	(D) 		
入力電圧 Input Voltage（VAC）		230					
出力電圧 Output Voltage（VDC）		5	3.3	12	-12	5VSB	負荷間隔 Interval (sec)
出力電流 Output Current（A）	FL2	25.0	7.6	11.2	0.5	2.0	180
	PL2	30.0	13.7	11.1	0.8	2.5	5

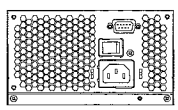
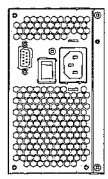
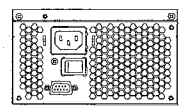
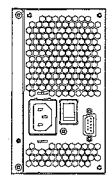
※Condition　Ta = 25℃

部品番号 Location No.	部品名 Parts Name	ΔT Temperature rise (℃) 取付方向 Mounting A	取付方向 Mounting B	取付方向 Mounting C	取付方向 Mounting D
L3	CHOKE COIL	27.6	26.7	28.0	27.0
L201	CHOKE COIL	40.4	38.4	39.1	39.0
L301	CHOKE COIL	29.0	28.5	30.1	28.6
L302	CHOKE COIL	31.5	30.0	30.8	30.4
L501	CHOKE COIL	9.4	8.3	8.9	8.8
T1	TRANSE PULSE	28.2	27.7	28.4	27.2
T601	TRANSE PULSE	10.7	10.3	11.8	11.1
D1	BRIDGE DIODE	20.0	19.2	20.3	19.8
D2	LLD	17.2	17.1	17.4	16.7
D201	SBD	60.2	58.9	59.2	58.8
D202	SBD	63.8	62.6	63.1	62.5
D301	SBD	47.8	46.7	47.1	46.7
D302	SBD	50.6	49.7	50.2	49.7
D401	SBD	48.2	47.0	47.2	47.0
D501	LLD	9.1	8.1	8.7	8.7
Q1	MOS FET	17.2	17.1	17.7	16.8
Q2	MOS FET	35.0	33.7	35.9	33.7
Q3	MOS FET	39.0	37.1	39.7	37.2
Q652	MOS FET	23.1	22.2	23.5	22.8
A101	IC	17.2	16.4	17.3	16.6
A103	IC	10.7	10.5	11.1	10.1
A501	IC	54.1	51.6	50.6	52.0
C9	E. CAP.	7.2	9.6	9.0	7.8
C204	E. CAP.	26.7	29.5	27.2	26.0
C304	E. CAP.	8.7	10.9	10.1	8.5
C403	E. CAP.	23.0	25.2	24.0	22.6
C502	E. CAP.	9.2	10.9	10.2	8.7
C701	E. CAP.	1.0	3.2	3.3	1.4

3．主要部品温度上昇値
MAIN COMPONENTS TEMPERATURE RISE ΔT LIST

MODEL ： UNA350P＊

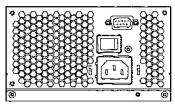
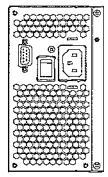
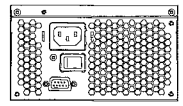
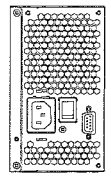
・ 測定条件 Measuring Conditions

		(A)	(B)	(C)	(D)		
取付方法 Mounting Method (標準取付:(A)) (Standard Mounting Method:(A))							
入力電圧 Input Voltage (VAC)		100					
出力電圧 Output Voltage (VDC)		5	3.3	12	-12	5VSB	負荷間隔 Interval (sec)
出力電流 Output Current (A)	FL3	14.2	10.0	15.0	0.5	2.0	180
	PL3	12.2	10.0	19.5	0.8	2.5	5

※Condition Ta＝25℃

部品番号 Location No.	部品名 Parts Name	ΔT Temperature rise (℃) 取付方向 Mounting A	取付方向 Mounting B	取付方向 Mounting C	取付方向 Mounting D
L3	CHOKE COIL	43.0	42.5	43.0	42.7
L201	CHOKE COIL	58.6	56.6	55.5	57.5
L301	CHOKE COIL	28.3	28.2	29.2	28.1
L302	CHOKE COIL	29.9	29.2	29.7	29.5
L501	CHOKE COIL	9.4	8.5	8.7	9.0
T1	TRANSE PULSE	28.0	27.6	27.9	27.2
T601	TRANSE PULSE	11.1	10.7	11.9	11.3
D1	BRIDGE DIODE	41.9	41.3	41.1	41.7
D2	LLD	31.8	31.9	31.7	31.4
D201	SBD	55.0	54.2	53.7	54.2
D202	SBD	58.2	57.5	57.3	57.5
D301	SBD	45.4	44.8	44.7	44.9
D302	SBD	48.2	47.7	47.6	47.6
D401	SBD	59.6	58.4	57.2	58.5
D501	LLD	9.1	8.3	8.5	8.9
Q1	MOS FET	47.6	48.4	48.7	48.0
Q2	MOS FET	34.1	34.2	35.1	34.1
Q3	MOS FET	37.7	37.4	38.7	37.6
Q652	MOS FET	24.5	23.5	24.9	23.9
A101	IC	22.3	21.8	24.6	21.8
A103	IC	10.6	10.7	10.6	10.1
A501	IC	49.5	48.5	46.4	49.0
C9	E. CAP.	8.0	11.5	11.7	9.9
C204	E. CAP.	20.0	25.0	23.7	22.6
C304	E. CAP.	6.3	10.4	10.4	8.7
C403	E. CAP.	18.8	23.2	22.6	21.2
C502	E. CAP.	6.8	10.3	10.0	8.5
C701	E. CAP.	0.9	2.8	3.5	1.6

・ 測定条件　Measuring Conditions

		(A)	(B)	(C)	(D)		
取付方法 Mounting Method (標準取付:(A)) (Standard Mounting Method:(A))							
入力電圧 Input Voltage (VAC)		230					
出力電圧 Output Voltage (VDC)		5	3.3	12	-12	5VSB	負荷間隔 Interval (sec)
出力電流 Output Current (A)	FL3	14.2	10.0	15.0	0.5	2.0	180
	PL3	12.2	10.0	19.5	0.8	2.5	5

※Condition　Ta = 25℃

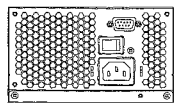
		ΔT Temperature rise (℃)			
部品番号 Location No.	部品名 Parts Name	取付方向 Mounting A	取付方向 Mounting B	取付方向 Mounting C	取付方向 Mounting D
L3	CHOKE COIL	27.0	27.6	27.1	26.6
L201	CHOKE COIL	58.5	57.6	56.7	57.2
L301	CHOKE COIL	27.7	28.6	28.5	27.5
L302	CHOKE COIL	29.3	30.0	29.2	28.7
L501	CHOKE COIL	9.1	9.5	8.7	8.5
T1	TRANSE PULSE	27.3	27.7	27.1	26.6
T601	TRANSE PULSE	10.5	11.4	11.2	10.5
D1	BRIDGE DIODE	19.6	20.1	19.8	19.3
D2	LLD	17.0	17.4	16.5	16.3
D201	SBD	54.7	54.8	53.7	53.6
D202	SBD	57.8	57.9	57.2	56.8
D301	SBD	45.0	45.3	44.5	44.2
D302	SBD	47.8	48.1	47.4	47.1
D401	SBD	60.0	58.9	59.0	59.1
D501	LLD	8.9	9.2	8.6	8.2
Q1	MOS FET	16.7	17.6	16.7	16.3
Q2	MOS FET	33.1	34.9	34.7	32.9
Q3	MOS FET	36.9	38.3	38.5	36.6
Q652	MOS FET	22.8	23.4	23.1	22.4
A101	IC	16.8	17.5	16.7	16.2
A103	IC	10.3	11.1	10.4	9.8
A501	IC	49.2	48.9	47.4	48.8
C9	E. CAP.	7.4	8.9	9.5	8.0
C204	E. CAP.	21.3	24.3	23.5	22.2
C304	E. CAP.	7.6	9.5	9.8	8.0
C403	E. CAP.	20.4	22.7	22.6	20.9
C502	E. CAP.	8.6	10.1	10.1	8.5
C701	E. CAP.	0.9	2.4	3.6	1.4

4．電解コンデンサ推定寿命計算値

ELECTROLYTIC CAPACITOR LIFETIME

MODEL ： UNA350P＊

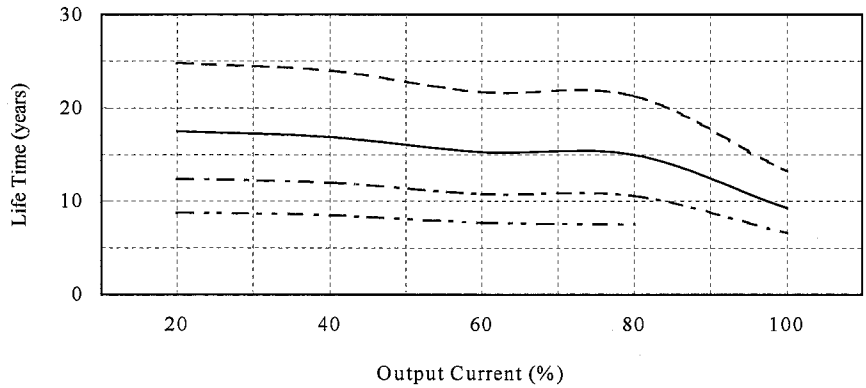
Mounting A



Vin = 100VAC

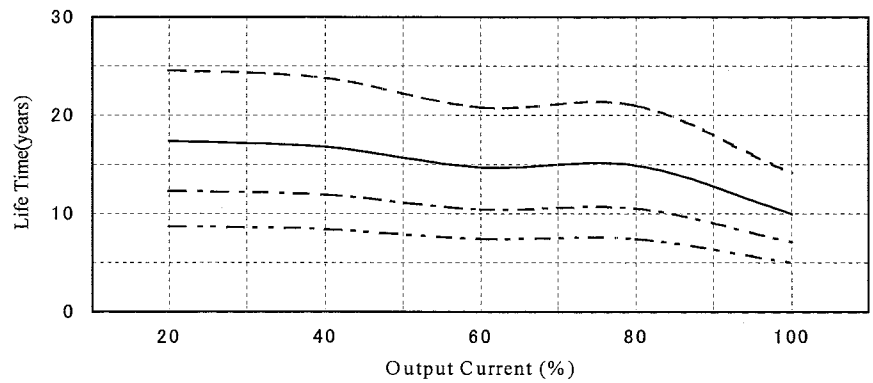
Ta=35℃: ------ Ta=40℃: ——— Ta=45℃: -·-·- Ta=50℃: -·-·-

Load(%)	Life time (years)			
	Ta= 35℃	Ta= 40℃	Ta= 45℃	Ta= 50℃
20	24.8	17.5	12.4	8.8
40	24.0	16.9	12.0	8.5
60	21.7	15.3	10.8	7.7
80	21.3	15.0	10.6	7.5
100	13.2	9.3	6.6	-



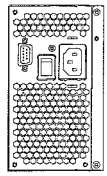
Vin = 230VAC

Load(%)	Life time (years)			
	Ta= 35℃	Ta= 40℃	Ta= 45℃	Ta= 50℃
20	24.6	17.4	12.3	8.7
40	23.8	16.8	11.9	8.4
60	20.8	14.7	10.4	7.4
80	21.0	14.9	10.5	7.4
100	14.1	10.0	7.1	5.0



MODEL : UNA350P＊

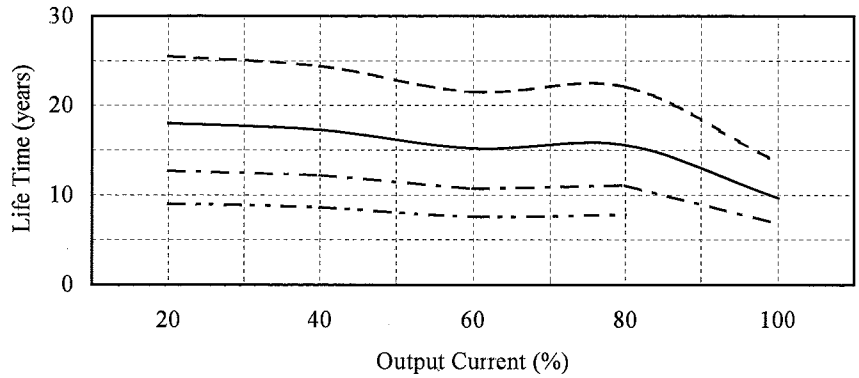
Mounting B



Vin = 100VAC

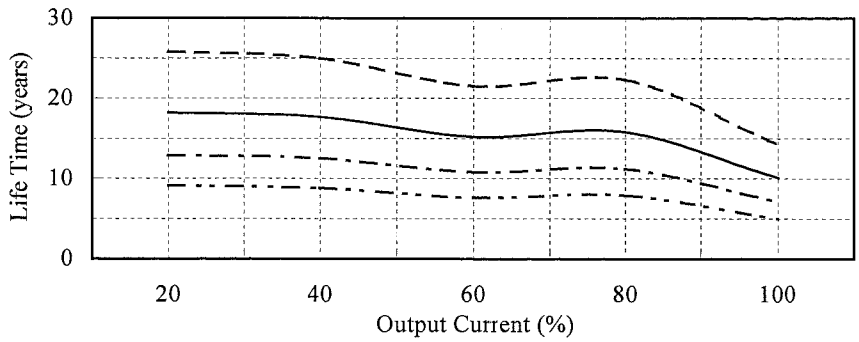
Ta=35℃: ------ Ta=40℃: ——— Ta=45℃: -·-·- Ta=50℃: -·-·-·-

Load(%)	Life time (years)			
	Ta= 35℃	Ta= 40℃	Ta= 45℃	Ta= 50℃
20	25.5	18.0	12.7	9.0
40	24.4	17.3	12.2	8.6
60	21.5	15.2	10.7	7.6
80	22.1	15.6	11.1	7.8
100	13.7	9.7	6.8	-



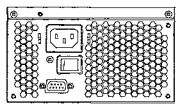
Vin = 230VAC

Load(%)	Life time (years)			
	Ta= 35℃	Ta= 40℃	Ta= 45℃	Ta= 50℃
20	25.8	18.2	12.9	9.1
40	25.0	17.7	12.5	8.8
60	21.5	15.2	10.8	7.6
80	22.3	15.8	11.2	7.9
100	14.3	10.1	7.1	5.0



MODEL : UNA350P＊

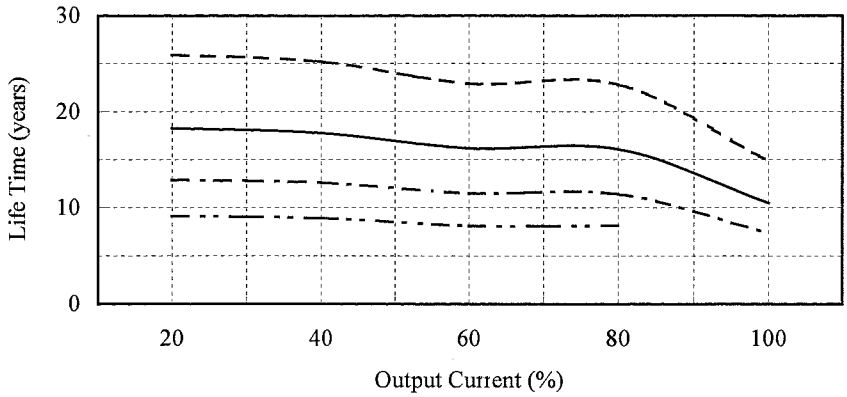
Mounting C



Vin = 100VAC

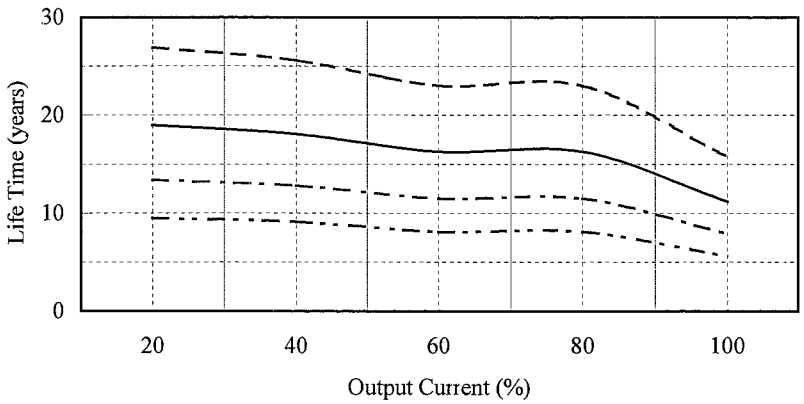
Ta=35℃: ------ Ta=40℃: ——— Ta=45℃: -·-·-· Ta=50℃: ·-·-·-

Load(%)	Life time (years)			
	Ta= 35℃	Ta= 40℃	Ta= 45℃	Ta= 50℃
20	25.9	18.3	12.9	9.1
40	25.2	17.8	12.6	8.9
60	22.9	16.2	11.5	8.1
80	22.8	16.1	11.4	8.1
100	14.9	10.5	7.4	-



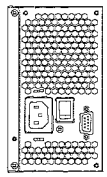
Vin = 230VAC

Load(%)	Life time (years)			
	Ta= 35℃	Ta= 40℃	Ta= 45℃	Ta= 50℃
20	26.9	19.0	13.4	9.5
40	25.6	18.1	12.8	9.1
60	23.0	16.3	11.5	8.1
80	23.0	16.3	11.5	8.1
100	15.8	11.2	7.9	5.6



MODEL : UNA350P＊

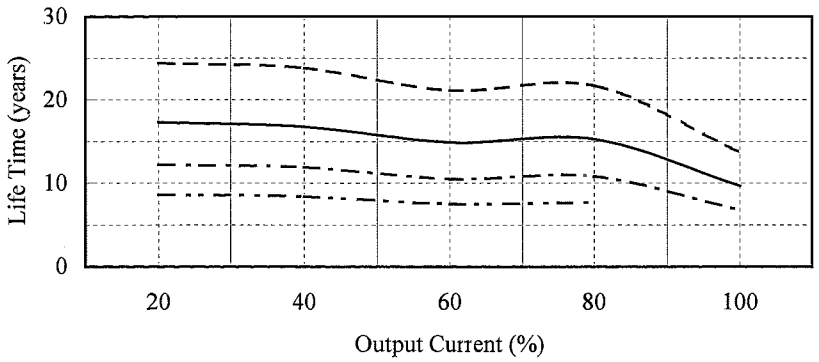
Mounting D



Vin = 100VAC

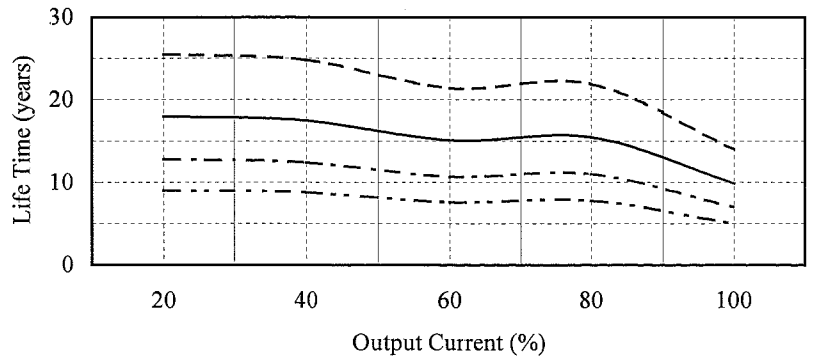
Ta=35℃: ------ Ta=40℃: ——— Ta=45℃: -·-·- Ta=50℃: -··-··-

Load(%)	Life time (years)			
	Ta= 35℃	Ta= 40℃	Ta= 45℃	Ta= 50℃
20	24.4	17.3	12.2	8.6
40	23.8	16.8	11.9	8.4
60	21.1	14.9	10.5	7.5
80	21.7	15.3	10.8	7.7
100	13.7	9.7	6.8	-



Vin = 230VAC

Load(%)	Life time (years)			
	Ta= 35℃	Ta= 40℃	Ta= 45℃	Ta= 50℃
20	25.5	18.0	12.8	9.0
40	24.8	17.5	12.4	8.8
60	21.4	15.1	10.7	7.6
80	21.9	15.5	11.0	7.8
100	14.0	9.9	7.0	5.0



5．アブノーマル試験　ABNORMAL　TEST

MODEL：UNA350P＊

(1)試験条件　Condition

Input : 200VAC Output : 5V / 19 5A, 3.3V / 16A, 12V / 6A, -12V / 0.5A, 5VSB / 2A　Ta : 25℃ 70%RH

(2)試験結果　Test Result

No.	試験個所 Test Position		Test Mode		試験結果 Test Results Da:Damaged Fu:Fuse Blown NO:No Output NC:No Change Ot:Others												
	部品No. Location No.	試験端子 Test Point	SHORT	OPEN	①発火 Fi	②発煙 So	③破裂 Bu	④異臭 Se	⑤発熱 Re	⑥破損 Da	⑦ヒューズ断 Fu	⑧OVP	⑨OCP	⑩出力断 NO	⑪変化なし NC	⑫その他 Ot	記事 Note
	B 1			●										●			
			●										●	●			
	P 1	1,2,11		●											●		
		4,6,19,20		●											●		
		3,5,7,13,15,16,17		●											●		
		8		●											●		
		9		●											●		
		10		●											●		
		12		●											●		
		14		●										●			No:Except 5VSB
		18		●											●		
		1-2	●												●		
		2-3	●										●	●			No:Except 5VSB
		3-4	●										●	●			No:Except 5VSB
		4-5	●										●	●			No:Except 5VSB
		5-6	●										●	●			No:Except 5VSB
		6-7	●										●	●			No:Except 5VSB
		7-8	●												●		
		8-9	●												●		
		9-10	●									●		●			No:All output
		11-12	●										●	●			No:Except 5VSB
		12-13	●											●		●	No:-12V,Ot:Iin up
		13-14	●												●		
		14-15	●												●		
		15-16	●												●		
		16-17	●												●		
		17-18	●												●		
		18-19	●												●		
		19-20	●												●		
		1-11	●												●		
		2-12	●										●	●			No:Except 5VSB
		3-13	●												●		
		4-14	●										●	●			No:Except 5VSB
		5-15	●												●		
		6-16	●										●	●			No:Except 5VSB
		7-17	●												●		
		8-18	●												●		
		9-19	●												●		
		10-20	●									●		●			No:Except 5VSB
	P 2	1		●											●		
		2		●											●		
		3		●											●		
		4		●											●		
		5		●											●		
		6		●											●		
		1-2	●												●		
		2-3	●												●		
		3-4	●												●		
		4-5	●												●		
		5-6	●												●		
	P 3～P8	1		●											●		
		2		●											●		
		3		●											●		
		4		●											●		
		1-2	●										●	●			No:Except 5VSB
		2-3	●												●		
		3-4	●										●	●			No:Except 5VSB
	P 9	1		●											●		
		2		●											●		
		3		●											●		
		4		●											●		
		1-2	●												●		
		2-3	●										●	●			No:Except 5VSB
		3-4	●												●		
	P 10	1,2		●											●		
		1-2	●													●	Ot:Batt no connection ,Iin UP

No.	試験個所 Test Position 部品No. Location No.	試験端子 Test Point	Test Mode SHORT	Test Mode OPEN	試験結果 Test Results Da:Damaged Fu:Fuse Blown NO:No Output NC:No Change Ot:Others ①発火 Fi	②発煙 So	③破裂 Bu	④異臭 Se	⑤発熱 Re	⑥破損 Da	⑦ヒューズ断 Fu	⑧OVP	⑨OCP	⑩出力断 NO	⑪変化なし NC	⑫その他 Ot	記事 Note
	INLET	1(L),2(N)		●												●	Ot:Change batt operation
		3(FG)		●											●		
		1-2	●													●	Ot:Change batt operation
		1-3,2-3	●													●	Ot:Change batt operation
	SW1	1,2		●												●	Ot:Change batt operation
		3,4		●											●		
		1-2	●												●		
		3-4	●												●		
	F1			●												●	Ot:Change batt operation
			●												●		
	C1			●											●		
			●								●					●	Fu:F1,Ot:Change batt operation
	C10, C11			●											●		
			●												●		
	R101～ R104			●											●		
			●												●		
	L1	1,2,3,4		●												●	Ot:Change batt operation
		1-2,3-4	●								●					●	Fu:F1,Ot:Change batt operation
		1-3,2-4	●												●		
	L32	1,2		●											●		
		1-2	●												●		
	CN11	1,5,6,7		●											●		
		2,3,4,8,9,10		●											●		
		1-2	●												●		
		2-3	●												●		
		3-4	●												●		
		4-5	●												●		
		5-6	●												●		
		6-7	●												●		
		7-8	●												●		
		8-9	●												●		
		9-10	●												●		

No.	試験個所 Test Position		Test Mode		試験結果 Test Results Da:Damaged Fu:Fuse Blown NO:No Output NC:No Change Ot:Others												
	部品No. Location No	試験端子 Test Point	SHORT	OPEN	①発火 Fi	②発煙 So	③破裂 Bu	④異臭 Se	⑤発熱 Re	⑥破損 Da	⑦ヒューズ断 Fu	⑧OVP	⑨OCP	⑩出力断 NO	⑪変化なし NC	⑫その他 Ot	記事 Note
	CN1	1,5,6,7		●											●		
		2,3,4,8,9,10		●											●		
		1-2	●												●		
		2-3	●												●		
		3-4	●												●		
		4-5	●												●		
		5-6	●												●		
		6-7	●												●		
		7-8	●												●		
		8-9	●												●		
		9-10	●												●		
	C2			●											●		
			●								●					●	Fu:F1,Ot:Change batt operation
	C3, C4			●											●		
			●												●		
	L2	1,2,3,4		●												●	Ot:Change batt operation
		1-2,3-4	●												●		
		1-3,2-4	●								●					●	Fu:F1,Ot:Change batt operation
	C12			●											●		
			●								●					●	Fu:F1,Ot:Change batt operation
	SA1			●											●		
			●								●					●	Fu:F1,Ot:Change batt operation
	D1	+、−、～、～		●												●	Ot:Change batt operation
		+-～,−-～,～-～	●								●					●	Fu:F1,Ot:Change batt operation
	L3			●												●	Ot:Change batt operation
			●							●	●						Fu:F1,Da:Q1,Z103,D1,No:All output
	C126,C127			●											●		
			●												●		
	D2			●						●	●					●	Fu:F1,Da:Q1,Ot:Change batt operation
			●							●	●						Fu:F1,Da:Q1,D103,D104,No:All output
	D103,D104			●											●		
			●												●		
	R1			●											●		
			●													●	Ot:Iin up
	R97, R98, R99			●											●		
			●												●		
	C5			●											●		
			●								●					●	Fu:F1,Ot:Change batt operation
	TH1			●												●	Ot:Change batt operation
			●												●		
	Q1	D		●												●	Ot:Change batt operation
		S		●												●	Ot:Change batt operation
		G		●						●	●						Fu:F1,Da:Q1,D1,No:All output
		D-S	●								●					●	Fu:F1,Ot:Change batt operation
		D-G	●							●	●						Fu:F1,Da:Q1,D103,D104,Z103,No:All output
		G-S	●													●	Ot:Change batt operation
	C9			●										●			No:All output
			●								●			●			Fu:F1,No:All output
	R685,R686			●												●	Ot:Iin up
			●												●		
	Q652	D		●										●			No:All output
		S		●										●			No:All output
		G		●										●			No:All output
		D-S	●							●	●					●	Fu:F1,Da:R685,R686,No:All output
		D-G	●							●	●					●	Fu:F1,Da:Q652,R685,R686,No:All output
		G-S	●											●			No:All output
	Z601			●											●		
			●							●	●					●	Fu:F1,Da:Q652,R685,R686,No:All output
	R674			●									●	●			No:All output
			●												●		
	R682			●											●		
			●												●		
	T601	1,2		●										●			No:All output
		3,4		●										●			No:All output
		5,6		●										●			No:All output
		7,8		●											●		
		1-2	●											●			No:All output
		3-4	●											●			No:All output
		5-6	●											●			No:All output
		7-8	●											●			No:All output

No.	試験個所 Test Position		Test Mode		試験結果 Test Results Da:Damaged Fu:Fuse Blown NO:No Output NC:No Change Ot:Others												
	部品No. Location No.	試験端子 Test Point	SHORT	OPEN	①発火 Fi	②発煙 So	③破裂 Bu	④異臭 Se	⑤発熱 Re	⑥破損 Da	⑦ヒューズ断 Fu	⑧OVP	⑨OCP	⑩出力断 NO	⑪変化なし NC	⑫その他 Ot	記事 Note
	Q801	D		●											●		
	(Q802)	S		●											●		
		G		●						●				●			Da:Q801, Q802, No:Except 5VSB
		D-S	●								●					●	Fu:Batt FUSE
		D-G	●							●				●			Da:Q801, Q802, Z801(Z802) , No:Except 5VSB
		G-S	●												●		
	D801			●											●		
	(D802)		●												●		
	D803			●											●		
	(D804)		●												●		
	C801			●											●		
	(C802)		●								●					●	Fu:Batt FUSE
	T801	1,2		●											●		
		3,4		●											●		
		5,6		●											●		
		9,11		●											●		
		1,2-3,4	●												●		
		3,4-5,6	●												●		
		9-11	●												●		
	D751			●										●			No: All Output
			●											●			No: All Output
	L701			●										●			No: All Output
			●													●	Ot: ripple noise increase
	C701			●										●			No: All Output
			●										●	●			No: All Output
	C702			●												●	Ot: ripple noise increase
			●										●	●			No: All Output
	C663			●											●		
			●							●	●					●	Fu:F1,Da:Q652,R685,R686,No:All output
	R688, R689			●											●		
	R690		●												●		
	C19			●										●			No:All output
			●								●			●			Fu:F1,No:All output
	D653			●											●		
			●							●	●					●	Fu:F1,Da:Q652,R685,R686,No:All output
	A101	1		●												●	Ot:Input Voltage unstable
		2		●											●		
		3		●											●		
		4		●												●	Ot:Change batt operation
		5		●												●	Ot:Input power Increase
		6		●												●	Ot:Change batt operation
		7		●						●	●			●			Fu:F1,Da:Q1,No:All output
		8		●												●	Ot:Change batt operation
		9		●												●	Ot:Change batt operation
		10		●						●	●			●			Fu:F1,Da:Q1,No:All output
		11		●											●		
		12		●												●	Ot:Change batt operation
		13		●												●	Ot:Change batt operation
		14		●											●		
		15		●												●	Ot:Change batt operation
		16		●												●	Ot:Change batt operation
		1-2	●												●		
		2-3	●												●		
		3-4	●													●	Ot:Input Voltage unstable
		4-5	●													●	Ot:Change batt operation
		5-6	●												●		
		6-7	●													●	Ot:Change batt operation
		7-8	●													●	Ot:Change batt operation
		9-10	●												●		
		10-11	●												●		
		11-12	●												●		
		12-13	●												●		
		13-14	●													●	Ot:Change batt operation
		14-15	●													●	Ot:Input power Increase
		15-16	●													●	Ot:Change batt operation

No.	試験個所 Test Position		Test Mode		試験結果 Test Results Da:Damaged Fu:Fuse Blown NO:No Output NC:No Change Ot:Others												
	部品No. Location No	試験端子 Test Point	SHORT	OPEN	①発火 Fi	②発煙 So	③破裂 Bu	④異臭 Se	⑤発熱 Re	⑥破損 Da	⑦ヒューズ断 Fu	⑧OVP	⑨OCP	⑩出力断 NO	⑪変化なし NC	⑫その他 Ot	記事 Note
	T１	1,2		●										●			No:Except 5VSB
		3,4,5,6		●											●		
		White,Black		●										●			No:-12V,Ot:Iin down
		8,11		●										●			No:Except 5VSB
		1-2	●											●			No:Except 5VSB
		3,4-5,6	●											●			No:Except 5VSB
		White-Black	●											●			No:Except 5VSB
		8-11	●											●			No:Except 5VSB
	C７			●											●		
			●								●			●			Fu:F1,No:All output
	D３			●											●		
			●											●			No:Except 5VSB
	D４			●											●		
			●											●			No:Except 5VSB
	C１４０			●											●		
			●											●			No:Except 5VSB
	C１４１			●											●		
			●											●			No:Except 5VSB
	C130,C131			●											●		
	C134,C135		●												●		
	Q２	D		●										●			No:Except 5VSB
		S		●										●			No:Except 5VSB
		G		●										●			No:Except 5VSB
		D-S	●											●			No:Except 5VSB
		D-G	●											●			No:Except 5VSB
		G-S	●											●			No:Except 5VSB
	Q３	D		●										●			No:Except 5VSB
		S		●										●			No:Except 5VSB
		G		●										●			No:Except 5VSB
		D-S	●											●			No:Except 5VSB
		D-G	●											●			No:Except 5VSB
		G-S	●											●			No:Except 5VSB
	T２	1		●											●		
		3,5		●										●			No:Except 5VSB
		6,7		●										●			No:Except 5VSB
		9,10		●										●			No:Except 5VSB
		1-3	●											●			No:Except 5VSB
		3-5	●											●			No:Except 5VSB
		6-7	●											●			No:Except 5VSB
		9-10	●											●			No:Except 5VSB
	Q１０９	D		●										●			No:Except 5VSB
		S		●										●			No:Except 5VSB
		G		●						●				●			No:Except 5VSB,Da:R142
		D-S	●							●				●			No:Except 5VSB,Da:,R142
		D-G	●							●				●			No:Except 5VSB,Da:R142
		G-S	●											●			No:Except 5VSB
	R６			●									●	●			No:Except 5VSB
			●												●		
	D201 FFside			●											●		No:Except 5VSB
	D202 FFside		●											●			No:Except 5VSB
	D201 FRside			●											●		No:Except 5VSB
	D202 FRside		●											●			No:Except 5VSB
	D301 FFside			●											●		No:Except 5VSB
	D302 FFside		●											●			No:Except 5VSB
	D301 FRside			●											●		No:Except 5VSB
	D302 FRside		●											●			No:Except 5VSB
	C２０４			●										●			No:Except 5VSB
			●										●	●			No:Except 5VSB
	C２０５			●										●			No:Except 5VSB
			●										●	●			No:Except 5VSB
	L２０１	1,2,3,8,9,10		●											●		
		4,5,6,7	●												●		
		1,2,3-8,9,10		●								●		●			No:Except 5VSB
		4,5-6,7	●									●		●			No:Except 5VSB
	L２０２			●										●			No:Except 5VSB
			●													●	Ot: ripple noise increase

No.	試験個所 Test Position		Test Mode		試験結果 Test Results Da:Damaged Fu:Fuse Blown NO:No Output NC:No Change Ot:Others												
	部品No. Location No	試験端子 Test Point	SHORT	OPEN	①発火 Fi	②発煙 So	③破裂 Bu	④異臭 Se	⑤発熱 Re	⑥破損 Da	⑦ヒューズ断 Fu	⑧OVP	⑨OCP	⑩出力断 NO	⑪変化なし NC	⑫その他 Ot	記事 Note
	D401 FFside			●										●			No:Except 5VSB
			●											●			No:Except 5VSB
	D401 FRside			●										●			No:Except 5VSB
			●											●			No:Except 5VSB
	C403			●										●			No:Except 5VSB
			●										●	●			No:Except 5VSB
	C404			●										●			No:Except 5VSB
			●										●	●			No:Except 5VSB
	L401			●										●			No:Except 5VSB
			●													●	Ot: ripple noise increase
	L301	1,3,4,6		●											●		
		1,3-4,6	●									●		●			No:Except 5VSB
	L302	1,2,3,4,5,6	●												●		
		1,2,3-4,5,6	●									●		●			No:Except 5VSB
	L303			●										●			No:Except 5VSB
			●													●	Ot: ripple noise increase
	C304			●										●			No:Except 5VSB
			●										●	●			No:Except 5VSB
	C305			●										●			No:Except 5VSB
			●										●	●			No:Except 5VSB
	D501 FFside			●										●		●	Ot:Iin up,NO:-12V
			●											●			No:Except 5VSB
	D501 FRside			●										●		●	Ot:Iin up,NO:-12V
			●											●			No:Except 5VSB
	L501			●										●		●	Ot:Iin down,NO:-12V
			●											●			No:Except 5VSB
	C501			●										●		●	Ot:Iin down,NO:-12V
			●										●	●			No:Except 5VSB
	A501	1(IN)		●										●		●	Ot:Iin down,NO:-12V
		2(OUT)		●										●		●	Ot:Iin down,NO:-12V
		3(G)		●										●		●	Ot:Iin down,NO:-12V
		1-2	●										●	●		●	Ot:Iin UP , -12V up
		2-3	●											●		●	Ot:Iin up,NO:-12V
		1-3	●											●		●	Ot:Iin up,NO:-12V
	C504			●												●	
			●											●		●	Ot:Iin up,NO:-12V
	Q803	C		●											●		
		E		●											●		
		B		●											●		
		C-E	●									●		●			No:Except 5VSB
		C-B	●									●		●			No:Except 5VSB
		B-E	●												●		
	R842,R843			●											●		
	R813,R814		●												●		
	D855			●											●		
			●									●		●			No:Except 5VSB,Da:Q803
	D857			●											●		
			●											●			No:Except 5VSB
	A103	1		●										●			No:Except 5VSB
		2		●										●			No:Except 5VSB
		3		●										●			No:Except 5VSB
		4		●											●		
		5		●											●		
		6		●											●		
		7		●										●			
		8		●											●		
		9		●											●		
		10		●								●		●			No:Except 5VSB
		11		●										●			No:Except 5VSB
		12		●						●	●			●			Fu:F1, Da:Q2,Q3,No:All output
		13		●										●			No:Except 5VSB
		14		●											●		
		15		●											●		Ot:Change batt operation
		16		●											●		Ot:Change batt operation
		17		●											●		Ot:Change batt operation
		18		●										●			No:Except 5VSB
		19		●										●			No:Except 5VSB
		20		●										●			No:Except 5VSB

No.	試験個所 Test Position		Test Mode		試験結果 Test Results Da:Damaged Fu:Fuse Blown NO:No Output NC:No Change Ot:Others												
	部品No. Location No.	試験端子 Test Point	SHORT	OPEN	①発火 Fi	②発煙 So	③破裂 Bu	④異臭 Se	⑤発熱 Re	⑥破損 Da	⑦ヒューズ断 Fu	⑧OVP	⑨OCP	⑩出力断 NO	⑪変化なし NC	⑫その他 Ot	記事 Note
		1-2	●							●	●			●			Fu:F1, Da:Q2,Q3,No:All output
		2-3	●											●			No:Except 5VSB
		3-4	●											●			No:Except 5VSB
		4-5	●											●			No:Except 5VSB
		5-6	●												●		
		6-7	●												●		
		7-8	●												●		
		9-10	●											●			No:Except 5VSB
		11-12	●											●			No:Except 5VSB
		12-13	●											●			No:Except 5VSB
		13-14	●											●			No:Except 5VSB
		14-15	●												●		
		15-16	●												●		
		16-17	●												●		
		17-18	●												●		
		18-19	●												●		
		19-20	●											●			No:Except 5VSB

6．振動試験　VIBRATION　TEST

MODEL　：　UNA350P＊

(1)　振動試験種類　Vibration Test Class

掃引振動数耐久試験　Frequency Variable Endurance Test

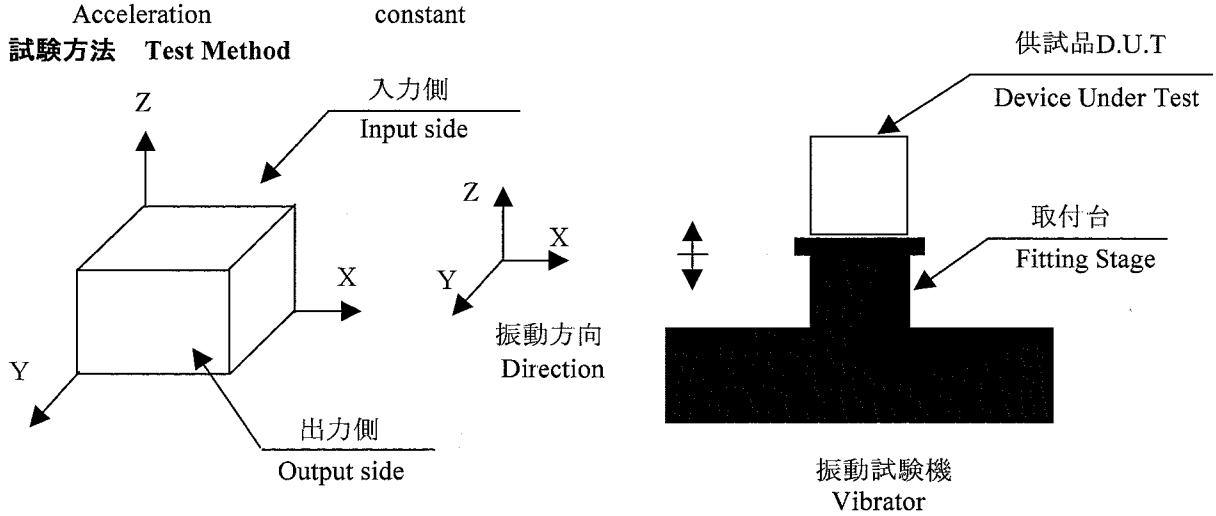
(2)　使用振動試験装置　Equipment Used

・IMV㈱製　IMV CORP　・制御部 Controller　：VA-5　・加振部 Vibrator　：VE-1000

(3)　試験条件　Test Conditions

・周波数範囲 Sweep frequency	10～55Hz	・振幅方向 Direction	X, Y, Z,
・掃引時間 Sweep time	1.0分間 1.0min.	・試験時間 Test Time	各方向共 1 時間 1 hour each
・加速度 Acceleration	一定 19.6m/s² (2G) constant		

(4)　試験方法　Test Method



(5)　試験結果　Test Results

合　格　　O　K

入力電圧 Vin:100VAC　　出力電流 Io:100%(+5V/19.5A,+3.3V/16.0A,+12V/11.2A,-12V/0.5A,+5VSB/2.0A)

測定確認項目 Check Item		出力電圧 (V) Output Voltage					機構・実装状態 D.U.T.state
		+3.3	+5	+12	-12	+5VSB	
試験前 Before test		3.273	4.997	12.351	-11.997	4.935	－
試験後 After test	X	3.272	4.995	12.344	-12.005	4.937	異常なし　OK
	Y	3.272	4.996	12.347	-12.004	4.937	異常なし　OK
	Z	3.270	4.993	12.342	-12.012	4.922	異常なし　OK

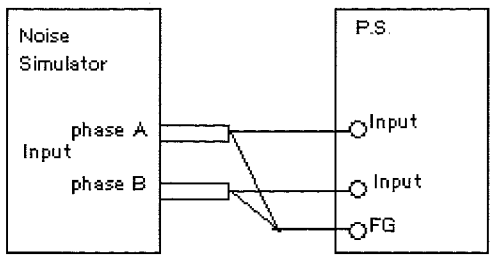
測定確認項目 Check Item		リップル ノイズ (mVp-p) Ripple Noise				
		+3.3	+5	+12	-12	+5VSB
試験前 Before test		25	17	26	40	22
試験後 After test	X	25	17	26	39	23
	Y	25	16	25	38	23
	Z	25	17	26	37	23

7．ノイズシミュレート試験　NOISE　SIMULATE　TEST

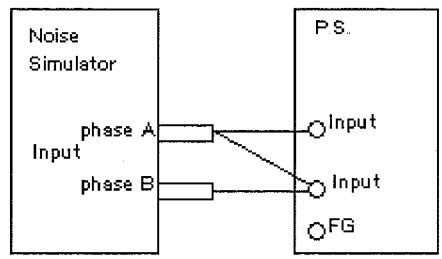
MODEL　：　UNA350P＊

(1)　試験回路及び測定器　Test circuit and equipment

シミュレーター　　：INS-4320(A)（ノイズ研究所）
Simulator　　（Noise Laboratory Co.,LTD）



Common Mode Noise Test



Normal Mode Noise Test

(2)　試験条件　Test Conditions

・入力電圧 Input voltage	：100,230VAC	・ノイズ電圧 Noise level	：0V~2kV
・出力電圧 Output voltage	：定格 ：Rated	・位相 Phase shift	：0°～360°
・出力電流 Output Current	：0%,100%	・極性 Polarity	：＋,－
・周囲温度 Ambient temperature	：25℃	・Mode	：Normal Common
・パルス幅 Pulse width	：50ns ～ 1000ns	・Trig select	：Line

(3)　判定条件　Acceptable 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 Result

合　格　　O　K

８．熱衝撃試験　THERMAL　SHOCK　TEST

MODEL　：　UNA３５０P＊

(1)　使用計測器　Equipment used

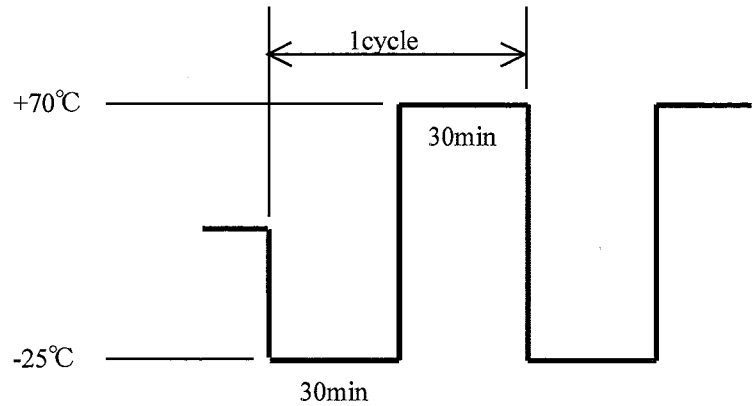
THERMAL SHOCK CHAMBER TSA-101L-A (TABAI ESPEC CORP.)

(2)　供試品台数　The number of D.U.T.(Device Under Test)

２ 台 (units)

(3)　試験条件　Test conditions

・電源周囲温度　：　-25℃ ⇔ +70℃
Ambient temperature
・試験時間　：　30min ⇔ 30min
Test time



・試験サイクル　：　100 サイクル
Test cycle　　cycles
・非動作
not operating

(4)　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.

(5)　試験結果　Test Results

合　格　　Ｏ　Ｋ

測定データは、次項に示す。
See next page for measuring data.

Vin : 100VAC

Io : 100%

			FROM	TO
5V	Voltage	V	4.979	4.982
3.3V	Voltage	V	3.214	3.223
12V	Voltage	V	12.329	12.324
-12V	Voltage	V	12.014	12.037
5VSB	Voltage	V	4.935	4.941
Solder Condition・etc.			—	OK