CUT35J

RELIABILITY DATA

信頼性データ

INDEX

※ 試験結果は、代表データでありますが、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： CUT35J-522

(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＞ $$MTBF = \frac{1}{\lambda_{equip}} \times 10^6 = \frac{1}{\sum_{i=1}^{n} n_i \left(\lambda_G \pi_Q\right)_i} \times 10^6$$

時間(Hours)

λequip : 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 ith Generic Part (Failure／10^6Hours)

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 (π_Q=1)
Generic Quality Factor for The ith Generic Part (π_Q=1)

(2) MTBF値 MTBF Values

G_F ： 地上固定 (Ground, Fixed)

RCR-9102B

MTBF ≒ 219,601 時間 (Hours)

2. 部品ディレーティング　Components Derating

MODEL：CUT35J-522

(1) 算出方法　Calculating Method

(a) 測定方法　Measuring method

・取付方法　:標準取付 : B Mounting method　Standard mounting : B	・周囲温度　:55℃ Ambient temperature
・入力電圧　:100, 230VAC Input voltage	・出力電圧、電流　:　5V, 3A(100%) +12V, 1.2A(100%) -12V, 0.5A(100%) 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

$$\theta j-c=\frac{Tj(max)-Tc}{Pch(max)} \qquad \theta j-l=\frac{Tj(max)-Tl}{Pch(max)}$$

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

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

Pj(max)　:最大チャネル損失
(Pch(max))　Maximum Channel Dissipation

Tj(max)　:最大接合点(チャネル)温度
(Tch(max))　Maximum Junction (channel) Temperature

θj-c　:接合点(チャネル)からケースまでの熱抵抗
(θch-c)　Thermal Impedance between Junction (channel) and Case

θj-l　:接合点(チャネル)からリードまでの熱抵抗
Thermal Impedance between Junction (channel) 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 = 55℃
A1 ICE3A2065ELJ INFINEON	Tj (max) = 150 ℃ Pd= 0.524W Tj= Tc+ ((θj-c) × Pd)= 118.6 ℃ D.F. = 79.0 %	θj-c = 15.0 ℃/W ΔTc=55.7 ℃	Tc=110.7 ℃
A2 ICE3A2065ELJ INFINEON	Tj (max) = 150 ℃ Pd= 0.661W Tj= Tc+ ((θj-c) × Pd)= 114.3 ℃ D.F. = 76.2 %	θj-c = 15.0 ℃/W ΔTc=49.4 ℃	Tc=104.4 ℃
BD101 TT208 LITE-ON	Tch (max) = 150 ℃ Pch = 0.826 W Tj = Tc + ((θch-c) × Pch) =107.8 ℃ D.F. =71.9 %	θch-c =7.5 ℃/W ΔTc = 46.6 ℃	Tc= 101.6℃
D51 RBQ10T65A ROHM	Tj (max) = 150 ℃ Pd=2.045W Tj= Tc+ ((θj-c) × Pd)= 117.8 ℃ D.F. = 78.6 %	θj-c = 3.0℃/W ΔTc=56.7 ℃	Tc=111.7 ℃
D301 STPS8170DEE-TR STMICRO	Tj (max) = 175 ℃ Pd= 1.088W Tj= Tc+ ((θj-c) × Pd)= 120.8 ℃ D.F. =69.0 %	θj-c = 4.0 ℃/W ΔTc=61.4℃	Tc=116.4 ℃
D302 STPS8170DEE-TR STMICRO	Tj (max) = 175 ℃ Pd= 1.088W Tj= Tc+ ((θj-c) × Pd)= 107.9 ℃ D.F. =61.6 %	θj-c = 4.0 ℃/W ΔTc=48.5℃	Tc=103.5 ℃

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

部品番号 Location No.	Vin = 230VAC	Load = 100%	Ta = 55℃
A1 ICE3A2065ELJ INFINEON	Tj (max) = 150 ℃ Pd= 0.524W Tj= Tc+ ((θj-c) × Pd)= 115.9 ℃ D.F. = 77.2 %	θj-c = 15.0 ℃/W ΔTc=53.0 ℃	Tc=108.0 ℃
A2 ICE3A2065ELJ INFINEON	Tj (max) = 150 ℃ Pd= 0.661W Tj= Tc+ ((θj-c) × Pd)= 112.3 ℃ D.F. = 74.9 %	θj-c = 15.0 ℃/W ΔTc=47.4 ℃	Tc=102.4 ℃
BD101 TT208 LITE-ON	Tch (max) = 150 ℃ Pch = 0.826 W Tj = Tc + ((θch-c) × Pch) =95.4 ℃ D.F. =63.6 %	θch-c =7.5 ℃/W ΔTc = 34.2 ℃	Tc= 89.2℃
D51 RBQ10T65A ROHM	Tj (max) = 150 ℃ Pd=2.045W Tj= Tc+ ((θj-c) × Pd)= 118.3 ℃ D.F. = 78.9 %	θj-c = 3.0℃/W ΔTc=57.2 ℃	Tc=112.2 ℃
D301 STPS8170DEE-TR STMICRO	Tj (max) = 175 ℃ Pd= 1.088W Tj= Tc+ ((θj-c) × Pd)= 122.7 ℃ D.F. =70.1 %	θj-c = 4.0 ℃/W ΔTc=63.3℃	Tc=118.3 ℃
D302 STPS8170DEE-TR STMICRO	Tj (max) = 175 ℃ Pd= 1.088W Tj= Tc+ ((θj-c) × Pd)= 109.9 ℃ D.F. =62.8 %	θj-c = 4.0 ℃/W ΔTc=50.5℃	Tc=105.5 ℃

MODEL：CUT35J-5FF

(1) 算出方法 Calculating Method

(a) 測定方法 Measuring method

・取付方法 :標準取付 : B Mounting method Standard mounting : B	・周囲温度 :55℃ Ambient temperature
・入力電圧 :100, 230VAC Input voltage	・出力電圧、電流 : 5V, 3A(100%) +15V, 1.0A(100%) -15V, 0.3A(100%) 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

$$\theta j-c=\frac{Tj(max)-Tc}{Pch(max)} \qquad \theta j-l=\frac{Tj(max)-Tl}{Pch(max)}$$

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

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

Pj(max) :最大チャネル損失
(Pch(max)) Maximum Channel Dissipation

Tj(max) :最大接合点(チャネル)温度
(Tch(max)) Maximum Junction (channel) Temperature

θj-c :接合点(チャネル)からケースまでの熱抵抗
(θch-c) Thermal Impedance between Junction (channel) and Case

θj-l :接合点(チャネル)からリードまでの熱抵抗
Thermal Impedance between Junction (channel) 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 = 55℃
A1 ICE3A2065ELJ INFINEON	Tj (max) = 150 ℃ Pd= 0.524W Tj= Tc+ ((θj-c) × Pd)= 116.5 ℃ D.F. = 77.6 %	θj-c = 15.0 ℃/W ΔTc=53.6 ℃	Tc=108.6 ℃
A2 ICE3A2065ELJ INFINEON	Tj (max) = 150 ℃ Pd= 0.661W Tj= Tc+ ((θj-c) × Pd)= 112.4 ℃ D.F. = 74.9 %	θj-c = 15.0 ℃/W ΔTc=47.5 ℃	Tc=102.5 ℃
BD101 TT208 LITE-ON	Tch (max) = 150 ℃ Pch = 0.826 W Tj = Tc + ((θch-c) × Pch) =117.0 ℃ D.F. =78.0 %	θch-c =7.5 ℃/W ΔTc = 55.8 ℃	Tc= 110.8℃
D51 RBQ10T65A ROHM	Tj (max) = 150 ℃ Pd=2.045W Tj= Tc+ ((θj-c) × Pd)= 114.1 ℃ D.F. = 76.1 %	θj-c = 3.0℃/W ΔTc=53.0 ℃	Tc=108.0 ℃
D301 STPS8170DEE-TR STMICRO	Tj (max) = 175 ℃ Pd= 1.088W Tj= Tc+ ((θj-c) × Pd)= 112.5 ℃ D.F. =64.3 %	θj-c = 4.0 ℃/W ΔTc=53.1℃	Tc=108.1 ℃
D302 STPS8170DEE-TR STMICRO	Tj (max) = 175 ℃ Pd= 1.088W Tj= Tc+ ((θj-c) × Pd)=98.7 ℃ D.F. =56.4 %	θj-c = 4.0 ℃/W ΔTc=39.3℃	Tc=94.3 ℃

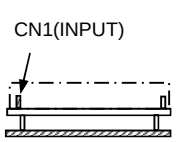
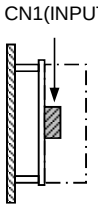
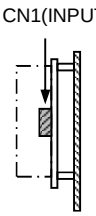
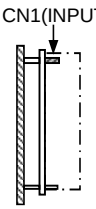
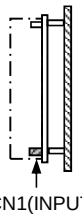
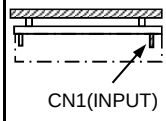
(2) 部品ディレーティング表 Component Derating List

部品番号 Location No.	Vin = 230VAC	Load = 100%	Ta = 55℃
A1 ICE3A2065ELJ INFINEON	Tj (max) = 150 ℃ Pd= 0.524W Tj= Tc+ ((θj-c) × Pd)= 110.4 ℃ D.F. = 73.6 %	θj-c = 15.0 ℃/W ΔTc=47.5 ℃	Tc=102.5 ℃
A2 ICE3A2065ELJ INFINEON	Tj (max) = 150 ℃ Pd= 0.661W Tj= Tc+ ((θj-c) × Pd)= 106.6 ℃ D.F. = 71.1 %	θj-c = 15.0 ℃/W ΔTc=41.7 ℃	Tc=96.7 ℃
BD101 TT208 LITE-ON	Tch (max) = 150 ℃ Pch = 0.826 W Tj = Tc + ((θch-c) × Pch) =97.3 ℃ D.F. =64.9 %	θch-c =7.5 ℃/W ΔTc = 36.1 ℃	Tc= 91.1℃
D51 RBQ10T65A ROHM	Tj (max) = 150 ℃ Pd=2.045W Tj= Tc+ ((θj-c) × Pd)= 113.8 ℃ D.F. = 75.9 %	θj-c = 3.0℃/W ΔTc=52.7 ℃	Tc=107.7 ℃
D301 STPS8170DEE-TR STMICRO	Tj (max) = 175 ℃ Pd= 1.088W Tj= Tc+ ((θj-c) × Pd)= 114.0 ℃ D.F. =65.1 %	θj-c = 4.0 ℃/W ΔTc=54.6℃	Tc=109.6 ℃
D302 STPS8170DEE-TR STMICRO	Tj (max) = 175 ℃ Pd= 1.088W Tj= Tc+ ((θj-c) × Pd)= 100.5 ℃ D.F. =57.4 %	θj-c = 4.0 ℃/W ΔTc=41.1℃	Tc=96.1 ℃

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

MODEL : CUT35J-522

(1) 測定条件 Measuring Conditions

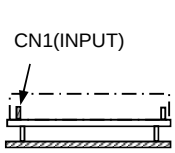
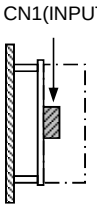
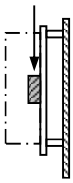
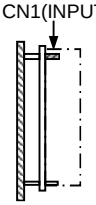
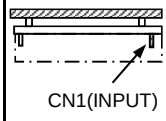
	Mounting A	Mounting B	Mounting C	Mounting D	Mounting E	Mounting F
取付方法 Mounting Method (標準取付 : B) (Standard Mounting : B)						
入力電圧 Vin Input Voltage	100VAC					
出力電圧 Vo Output Voltage	5VDC, +12VDC, -12VDC					
出力電流 Io Output Current	3A, 1.2A, 0.5A (100%)					

(2) 測定結果 Measuring Results

		ΔT Temperature Rise (℃)					
出力ディレーティング Output Derating		Io=100 %					
		Ta=50℃	Ta=55℃	Ta=50℃	Ta=45℃	Ta=45℃	Ta=40℃
部品番号 Location No.	部品名 Part 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	取付方向 Mounting E	取付方向 Mounting F
A1	IC	60	56	52	66	57	68
A2	IC	56	49	58	66	57	68
BD101	BRIDGE DIODE	58	47	46	59	46	68
T1 WIRE	TRANSFORMER WIRE	63	58	53	59	58	63
T1 CORE	TRANSFORMER CORE	63	59	55	63	59	65
T2 WIRE	TRANSFORMER WIRE	62	54	63	63	63	66
T2 CORE	TRANSFORMER CORE	64	56	66	67	65	70
D51	S.B.D	53	57	52	56	59	61
D301	DIODE	68	61	68	65	76	79

MODEL : CUT35J-522

(1) 測定条件 Measuring Conditions

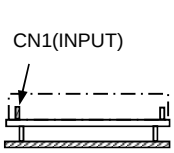
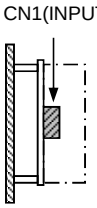
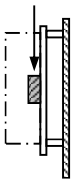
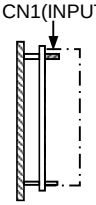
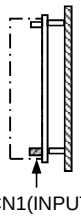
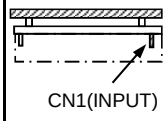
取付方法 Mounting Method (標準取付 : B) (Standard Mounting : B)	Mounting A	Mounting B	Mounting C	Mounting D	Mounting E	Mounting F
						
入力電圧 Vin Input Voltage	230VAC					
出力電圧 Vo Output Voltage	5VDC, +12VDC, -12VDC					
出力電流 Io Output Current	3A, 1.2A, 0.5A (100%)					

(2) 測定結果 Measuring Results

		ΔT Temperature Rise (℃)					
出力ディレーティング Output Derating		Io=100 %					
		Ta=50℃	Ta=55℃	Ta=50℃	Ta=45℃	Ta=45℃	Ta=40℃
部品番号 Location No.	部品名 Part 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	取付方向 Mounting E	取付方向 Mounting F
A1	IC	54	53	48	64	51	62
A2	IC	52	47	54	64	52	63
BD101	BRIDGE DIODE	39	34	33	47	33	48
T1 WIRE	TRANSFORMER WIRE	62	58	52	60	55	62
T1 CORE	TRANSFORMER CORE	63	60	55	64	57	65
T2 WIRE	TRANSFORMER WIRE	62	55	63	64	61	66
T2 CORE	TRANSFORMER CORE	63	58	67	69	64	70
D51	S.B.D	54	57	52	56	58	61
D301	DIODE	70	63	70	67	75	80

MODEL : CUT35J-5FF

(1) 測定条件 Measuring Conditions

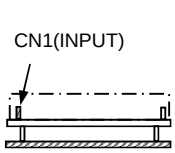
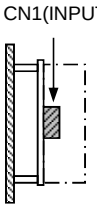
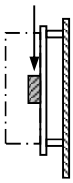
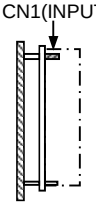
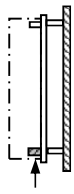
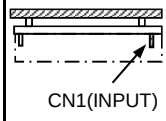
取付方法 Mounting Method (標準取付 : B) (Standard Mounting : B)	Mounting A	Mounting B	Mounting C	Mounting D	Mounting E	Mounting F
						
入力電圧 Vin Input Voltage	100VAC					
出力電圧 Vo Output Voltage	5VDC ,+15VDC, -15VDC					
出力電流 Io Output Current	3A, 1.0A, 0.3A (100%)					

(2) 測定結果 Measuring Results

		ΔT Temperature Rise (℃)					
出力ディレーティング Output Derating		Io=100 %					
		Ta=50℃	Ta=55℃	Ta=50℃	Ta=45℃	Ta=45℃	Ta=40℃
部品番号 Location No.	部品名 Part 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	取付方向 Mounting E	取付方向 Mounting F
A1	IC	59	54	51	62	57	65
A2	IC	59	48	56	63	58	66
BD101	BRIDGE DIODE	58	56	51	64	54	65
T1 WIRE	TRANSFORMER WIRE	61	54	50	56	58	58
T1 CORE	TRANSFORMER CORE	60	55	52	59	59	60
T2 WIRE	TRANSFORMER WIRE	58	48	57	58	59	60
T2 CORE	TRANSFORMER CORE	58	50	60	61	62	63
D51	S.B.D	52	53	49	52	58	56
D301	DIODE	62	53	60	56	70	70

MODEL : CUT35J-5FF

(1) 測定条件 Measuring Conditions

取付方法 Mounting Method (標準取付 : B) (Standard Mounting : B)	Mounting A	Mounting B	Mounting C	Mounting D	Mounting E	Mounting F
						
入力電圧 Vin Input Voltage	230VAC					
出力電圧 Vo Output Voltage	5VDC ,+15VDC, -15VDC					
出力電流 Io Output Current	3A, 1.0A, 0.3A (100%)					

(2) 測定結果 Measuring Results

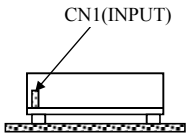
		ΔT Temperature Rise (℃)					
出力ディレーティング Output Derating		Io=100 %					
		Ta=50℃	Ta=55℃	Ta=50℃	Ta=45℃	Ta=45℃	Ta=40℃
部品番号 Location No.	部品名 Part name	取付方向 Mounting A	取付方向 Mounting B	取付方向 Mounting C	取付方向 Mounting D	取付方向 Mounting E	取付方向 Mounting F
A1	IC	53	48	45	58	49	58
A2	IC	51	42	49	58	49	58
BD101	BRIDGE DIODE	39	36	33	47	36	45
T1 WIRE	TRANSFORMER WIRE	60	53	49	56	55	58
T1 CORE	TRANSFORMER CORE	60	55	52	60	57	61
T2 WIRE	TRANSFORMER WIRE	57	48	57	58	57	59
T2 CORE	TRANSFORMER CORE	58	51	60	62	60	63
D51	S.B.D	52	53	49	52	56	56
D301	DIODE	63	55	62	58	69	71

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

MODEL : CUT35J-522

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

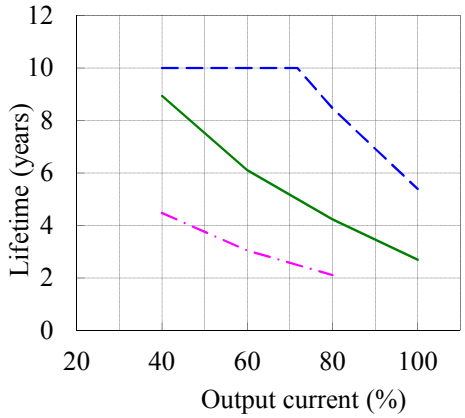
取付方向 A
Mounting A



Conditions　Ta　40℃ :
50℃ :
60℃ :

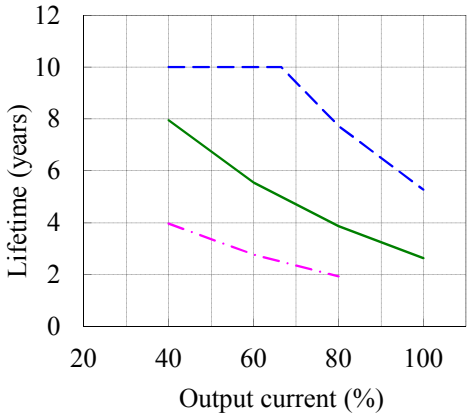
Vin=100VAC

Load \ Ta	Lifetime (years)		
	40℃	50℃	60℃
40	10.0	8.9	4.5
60	10.0	6.1	3.1
80	8.5	4.2	2.1
100	5.4	2.7	-



Vin=200VAC

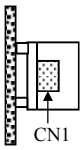
Load \ Ta	Lifetime (years)		
	40℃	50℃	60℃
40	10.0	8.0	4.0
60	10.0	5.5	2.8
80	7.7	3.9	1.9
100	5.3	2.6	-



MODEL : CUT35J-522

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

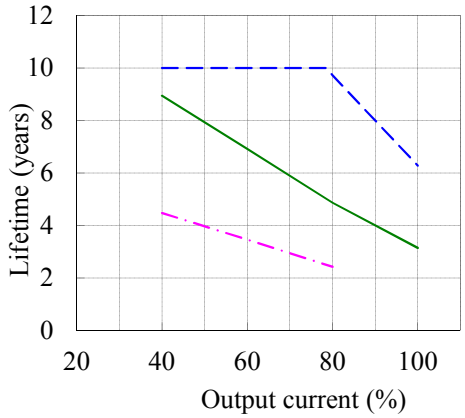
取付方向 B
Mounting B



Conditions　Ta　40℃ :
50℃ :
60℃ :

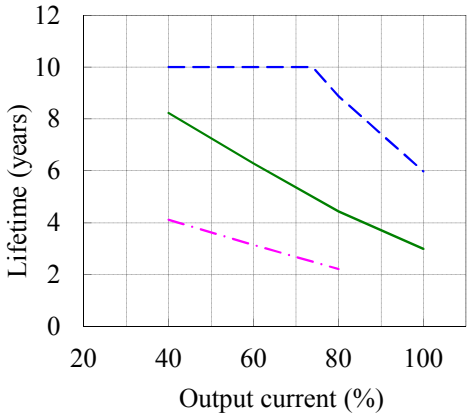
Vin=100VAC

Load \ Ta	Lifetime (years)		
	40℃	50℃	60℃
40	10.0	8.9	4.5
60	10.0	6.9	3.5
80	9.7	4.9	2.4
100	6.3	3.1	-



Vin=200VAC

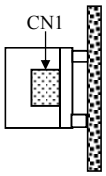
Load \ Ta	Lifetime (years)		
	40℃	50℃	60℃
40	10.0	8.2	4.1
60	10.0	6.3	3.1
80	8.9	4.4	2.2
100	6.0	3.0	-



MODEL : CUT35J-522

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

取付方向 C
Mounting C



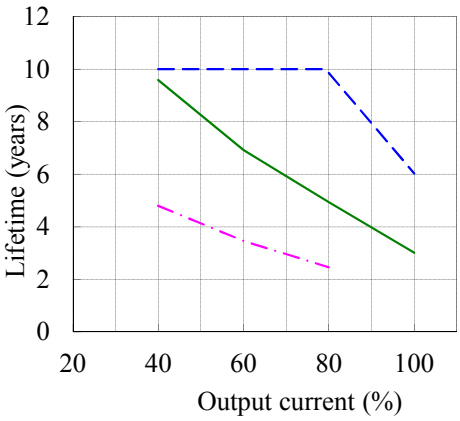
Conditions　Ta　40℃ :
50℃ :
60℃ :

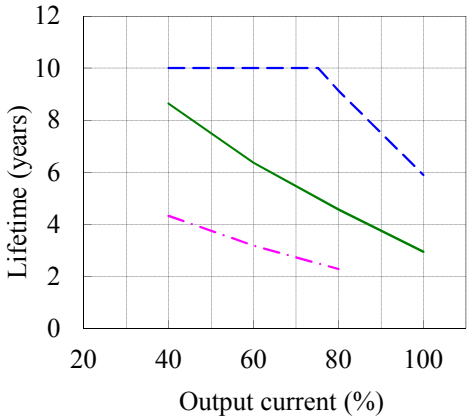
Vin=100VAC

Load \ Ta	Lifetime (years)		
	40℃	50℃	60℃
40	10.0	9.6	4.8
60	10.0	6.9	3.5
80	9.9	4.9	2.5
100	6.0	3.0	-

Vin=200VAC

Load \ Ta	Lifetime (years)		
	40℃	50℃	60℃
40	10.0	8.6	4.3
60	10.0	6.4	3.2
80	9.1	4.6	2.3
100	5.9	3.0	-

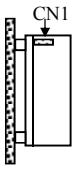




MODEL : CUT35J-522

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

取付方向 D
Mounting D



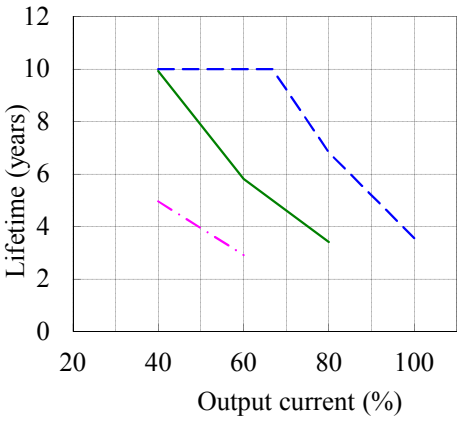
Conditions　Ta　40℃ :
50℃ :
60℃ :

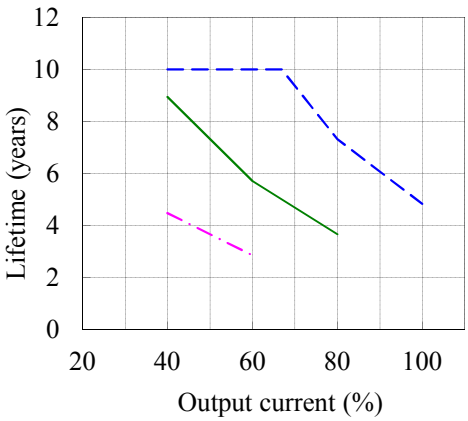
Vin=100VAC

Load \ Ta	Lifetime (years)		
	40℃	50℃	60℃
40	10.0	9.9	5.0
60	10.0	5.8	2.9
80	6.8	3.4	-
100	3.6	-	-

Vin=200VAC

Load \ Ta	Lifetime (years)		
	40℃	50℃	60℃
40	10.0	8.9	4.5
60	10.0	5.7	2.9
80	7.3	3.7	-
100	4.8	-	-

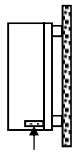




MODEL : CUT35J-522

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

取付方向 E
Mounting E



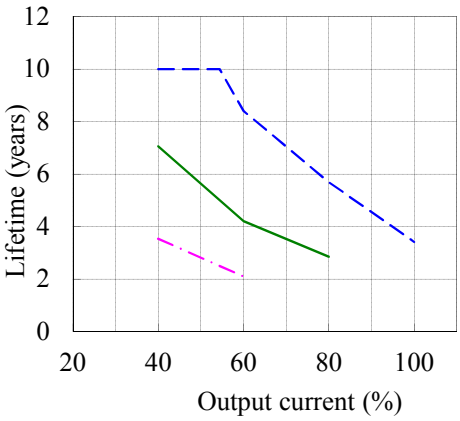
Conditions　Ta　40℃ :
50℃ :
60℃ :

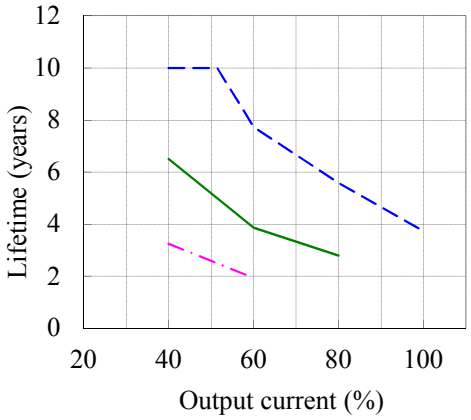
Vin=100VAC

Load \ Ta	Lifetime (years)		
	40℃	50℃	60℃
40	10.0	7.1	3.5
60	8.4	4.2	2.1
80	5.7	2.9	-
100	3.4	-	-

Vin=200VAC

Load \ Ta	Lifetime (years)		
	40℃	50℃	60℃
40	10.0	6.5	3.3
60	7.7	3.9	1.9
80	5.6	2.8	-
100	3.7	-	-

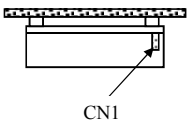




MODEL : CUT35J-522

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

取付方向 F
Mounting F



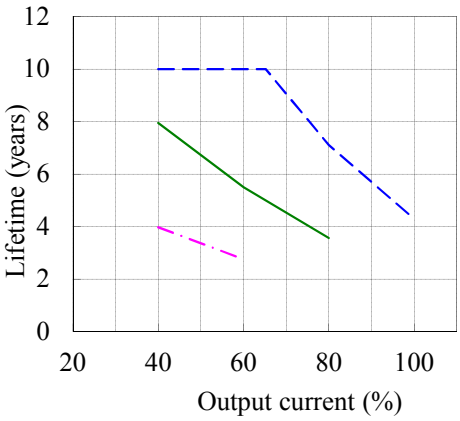
Conditions　Ta　40℃ :
50℃ :
60℃ :

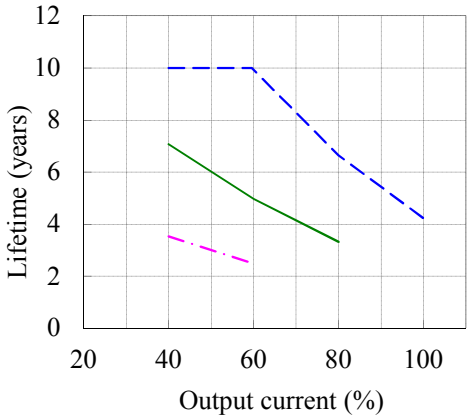
Vin=100VAC

Load \ Ta	Lifetime (years)		
	40℃	50℃	60℃
40	10.0	8.0	4.0
60	10.0	5.5	2.8
80	7.1	3.6	-
100	4.3	-	-

Vin=200VAC

Load \ Ta	Lifetime (years)		
	40℃	50℃	60℃
40	10.0	7.1	3.5
60	9.9	5.0	2.5
80	6.6	3.3	-
100	4.2	-	-

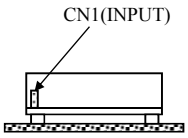




MODEL : CUT35J-5FF

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

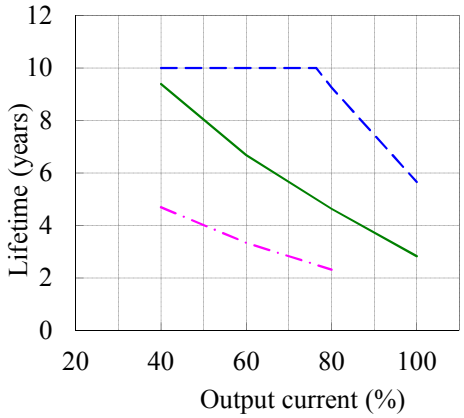
取付方向 A
Mounting A



Conditions　Ta　40℃ :
50℃ :
60℃ :

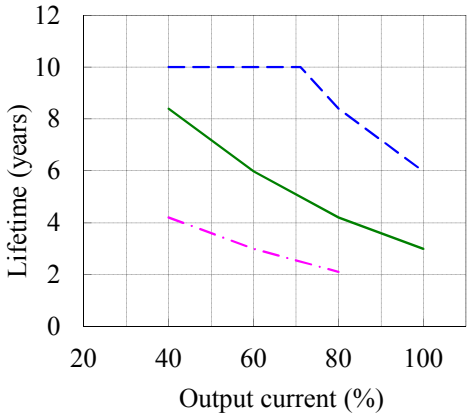
Vin=100VAC

Load \ Ta	Lifetime (years)		
	40℃	50℃	60℃
40	10.0	9.4	4.7
60	10.0	6.7	3.3
80	9.3	4.6	2.3
100	5.7	2.8	-



Vin=200VAC

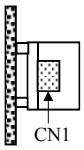
Load \ Ta	Lifetime (years)		
	40℃	50℃	60℃
40	10.0	8.4	4.2
60	10.0	6.0	3.0
80	8.4	4.2	2.1
100	6.0	3.0	-



MODEL : CUT35J-5FF

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

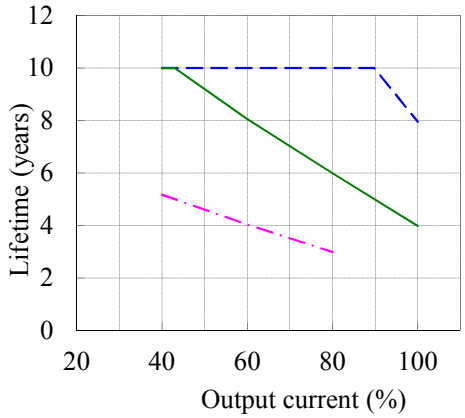
取付方向 B
Mounting B



Conditions　Ta　40℃ :
50℃ :
60℃ :

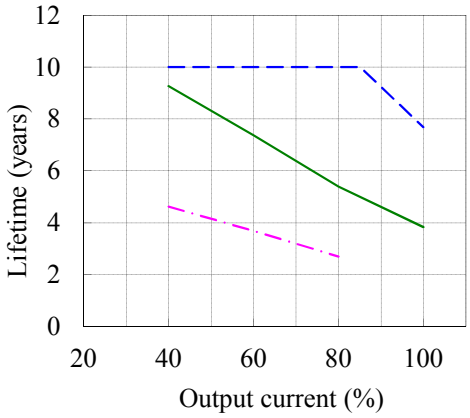
Vin=100VAC

Load \ Ta	Lifetime (years)		
	40℃	50℃	60℃
40	10.0	10.0	5.2
60	10.0	8.1	4.0
80	10.0	6.0	3.0
100	8.0	4.0	-



Vin=200VAC

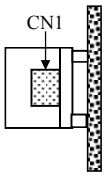
Load \ Ta	Lifetime (years)		
	40℃	50℃	60℃
40	10.0	9.3	4.6
60	10.0	7.4	3.7
80	10.0	5.4	2.7
100	7.7	3.8	-



MODEL : CUT35J-5FF

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

取付方向 C
Mounting C



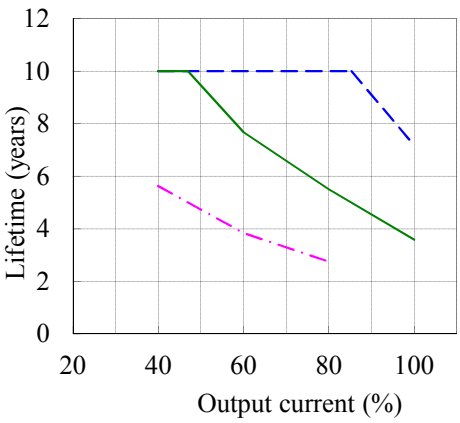
Conditions　Ta　40℃ :
50℃ :
60℃ :

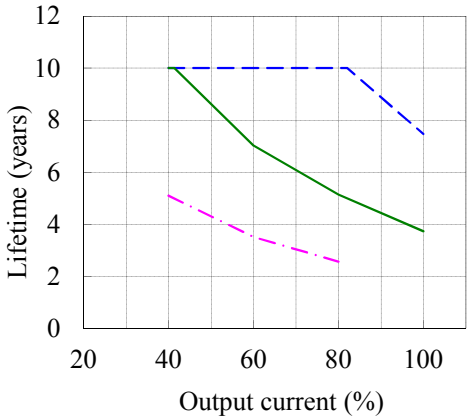
Vin=100VAC

Load \ Ta	Lifetime (years)		
	40℃	50℃	60℃
40	10.0	10.0	5.6
60	10.0	7.7	3.8
80	10.0	5.5	2.8
100	7.2	3.6	-

Vin=200VAC

Load \ Ta	Lifetime (years)		
	40℃	50℃	60℃
40	10.0	10.0	5.1
60	10.0	7.0	3.5
80	10.0	5.1	2.6
100	7.5	3.7	-

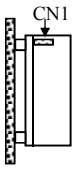




MODEL : CUT35J-5FF

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

取付方向 D
Mounting D



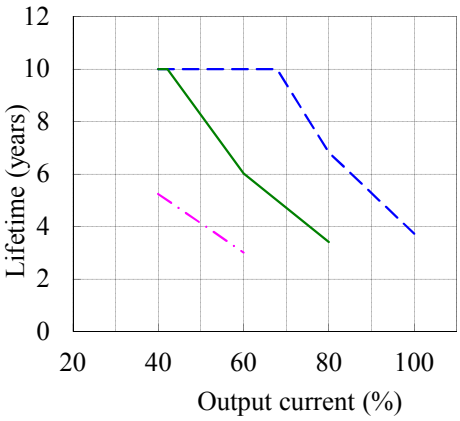
Conditions　Ta　40℃ :
50℃ :
60℃ :

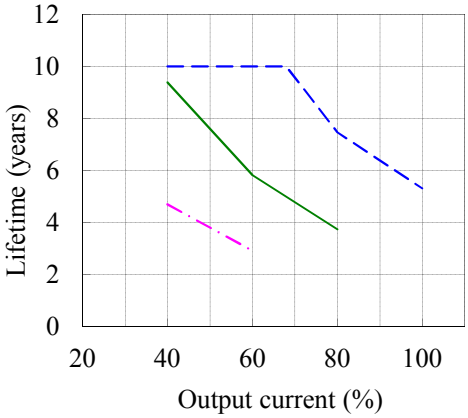
Vin=100VAC

Load \ Ta	Lifetime (years)		
	40℃	50℃	60℃
40	10.0	10.0	5.2
60	10.0	6.0	3.0
80	6.8	3.4	-
100	3.7	-	-

Vin=200VAC

Load \ Ta	Lifetime (years)		
	40℃	50℃	60℃
40	10.0	9.4	4.7
60	10.0	5.8	2.9
80	7.5	3.7	-
100	5.3	-	-

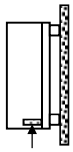




MODEL : CUT35J-5FF

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

取付方向 E
Mounting E



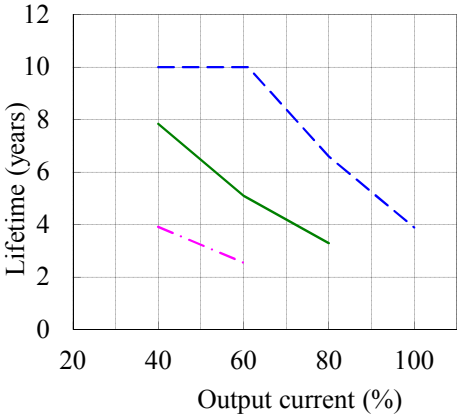
Conditions　Ta　40℃ :
50℃ :
60℃ :

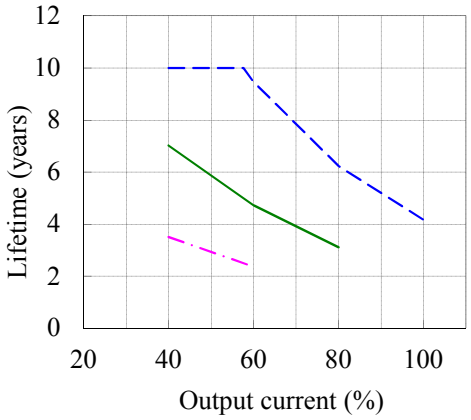
Vin=100VAC

Load \ Ta	Lifetime (years)		
	40℃	50℃	60℃
40	10.0	7.8	3.9
60	10.0	5.1	2.6
80	6.6	3.3	-
100	3.9	-	-

Vin=200VAC

Load \ Ta	Lifetime (years)		
	40℃	50℃	60℃
40	10.0	7.0	3.5
60	9.5	4.7	2.4
80	6.2	3.1	-
100	4.2	-	-

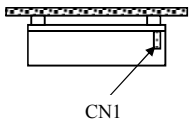




MODEL : CUT35J-5FF

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

取付方向 F
Mounting F



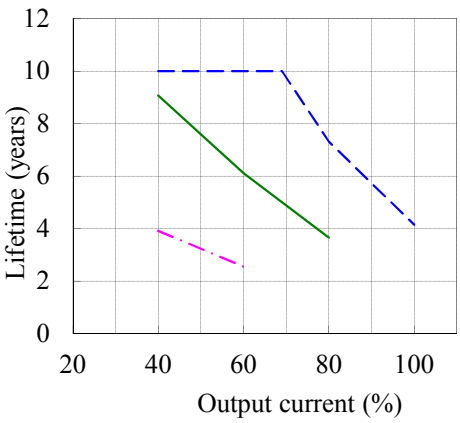
Conditions　Ta　40℃ :
50℃ :
60℃ :

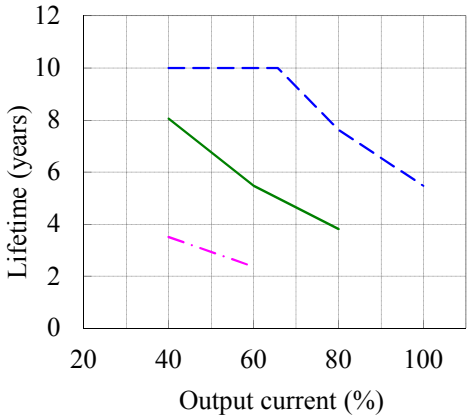
Vin=100VAC

Load \ Ta	Lifetime (years)		
	40℃	50℃	60℃
40	10.0	9.1	3.9
60	10.0	6.1	2.6
80	7.3	3.7	-
100	4.1	-	-

Vin=200VAC

Load \ Ta	Lifetime (years)		
	40℃	50℃	60℃
40	10.0	8.1	3.5
60	10.0	5.5	2.4
80	7.6	3.8	-
100	5.5	-	-





5. アブノーマル試験 Abnormal Test

MODEL : CUT35J-522

(1) 試験条件 Test Conditions

Input : 200VAC Output : 5V/3A; +12V/1.2A; -12V/0.5A Ta : 25℃

(2) 試験結果 Test Results

(Da : Damaged)

No.	Test position		Test mode		Test result													
					a	b	c	d	e	f	g	h	I	j	k	l		
No.	部品No. Location No.	試験端子 Test point	ショート Short	オープン Open	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	記事 Note	
1	A1	1 ~ 2	○											○			CH1 only	
2		2 ~ 3	○											○			CH1 only	
3		3 ~ 4	○							○	○			○			Da : A1, Z103	
4		5 ~ 6	○							○	○			○			Da : A1, Z103	
5		6 ~ 7	○											○			CH1 only	
6		7 ~ 8	○											○			CH1 only	
7		4 ~ 1	○							○	○			○			Da : A1, Z101	
8		4 ~ 2	○							○	○			○			Da : A1, Z102	
9		5 ~ 7	○							○	○			○			Da : A1, Z104	
10		5 ~ 8	○								○			○				
11		1		○											○			
12		2		○								○		○			A1 latched off, CH1 only	
13		3		○										○			CH1 only	
14		4 or 5		○											○			
15		7		○										○			CH1 only	
16		8		○										○			CH1 only	
17	A2	1 ~ 2	○											○			CH2,CH3 only	
18		2 ~ 3	○											○			CH2,CH3 only	
19		3 ~ 4	○							○	○			○			Da : A2, Z107	
20		5 ~ 6	○							○	○			○			Da : A2, Z107	
21		6 ~ 7	○											○			CH2,CH3 only	
22		7 ~ 8	○											○			CH2,CH3 only	
23		4 ~ 1	○							○	○			○			Da : A2, Z105	
24		4 ~ 2	○							○	○			○			Da : A2, Z106	
25		5 ~ 7	○							○	○			○			Da : A2, Z108	
26		5 ~ 8	○								○			○				
27		1		○											○			
28		2		○								○		○			A2 latched off, CH2,CH3 only	
29		3		○										○			CH2,CH3 only	
30		4 or 5		○											○			
31		7		○										○			CH2,CH3 only	
32		8		○										○			CH2,CH3 only	

(Da : Damaged)

No.	Test position		Test mode		Test result												記事 Note
					a	b	c	d	e	f	g	h	I	j	k	l	
	部品No. Location No.	Test point	ショート Short	オープン Open	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	
33	A201	A ~ K	○													○	CH1 Hiccup
34		A ~ R	○									○		○			CH1 only
35		K ~ R	○													○	CH1 Output valtage drop
36		A		○								○		○			CH1 only
37		K		○								○		○			CH1 only
38		R		○								○		○			CH1 only
39	A301	A ~ K	○											○			CH2,CH3 only
40		A ~ R	○									○		○			CH2,CH3 only
41		K ~ R	○											○			CH2,CH3 only
42		A		○								○		○			CH2,CH3 only
43		K		○								○		○			CH2,CH3 only
44		R		○								○		○			CH2,CH3 only
45	BD101	DC ~ DC	○							○	○			○			Da : BD101
46		AC ~ AC	○								○			○			
47		AC(2 or 3)		○										○			
48		DC(1 or 4)		○										○			
49	D51		○											○			CH1 only
50				○						○				○			Da : R111, CH1 only
51	D301		○											○			CH2,CH3 only
52				○										○			CH2,CH3 only
53	D302		○											○			CH2,CH3 only
54				○								○		○			A2 latched off, CH2,CH3 only
55	PC101	1 ~ 2	○									○		○			CH1 only
56		3 ~ 4	○											○			CH1 only
57		1 or 2		○								○		○			CH1 only
58		3 or 4		○								○		○			CH1 only
59	PC102	1 ~2	○												○		
60		3 ~ 4	○											○			A1 latched off, CH1 only
61		1 or 2		○											○		
62		3 or 4		○											○		
63	PC103	1 ~ 2	○									○		○			CH2,CH3 only
64		3 ~ 4	○											○			CH2,CH3 only
65		1 or 2		○								○		○			CH2,CH3 only
66		3 or 4		○								○		○			CH2,CH3 only
67	PC104	1 ~ 2	○												○		
68		3 ~ 4	○											○			A2 latched off, CH2,CH3 only
69		1 or 2		○											○		
70		3 or 4		○											○		

(Da : Damaged)

No.	Test position		Test mode		Test result												
					a	b	c	d	e	f	g	h	I	j	k	l	
No.	部品No. Location No.	Test point	ショート Short	オープン Open	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	記事 Note
71	T1	2 ~ 3	○													○	CH1 Hiccup
72		5 ~ 6	○											○			CH1 only
73		6 ~ 7	○								○			○			
74		7 ~ 8	○											○			CH1 only
75		2		○						○				○			Da : R111, CH1 only
76		3		○						○				○			Da : R111, CH1 only
77		5		○										○			CH1 only
78		6		○										○			CH1 only
79		7		○												○	CH1 Hiccup
80		8		○										○			CH1 only
81	T2	1 ~ 2	○											○			CH2,CH3 only
82		2 ~ 3	○											○			CH2,CH3 only
83		3 ~ 4	○											○			CH2,CH3 only
84		5 ~ 6	○											○			CH2,CH3 only
85		6 ~ 7	○								○			○			
86		7 ~ 8	○											○			CH2,CH3 only
87		1		○										○			CH2,CH3 only
88		2		○										○			CH2,CH3 only
89		3		○										○			CH2,CH3 only
90		4		○										○			CH2,CH3 only
91		5		○										○			CH2,CH3 only
92		6		○										○			CH2,CH3 only
93		7		○										○			CH2,CH3 only
94		8		○										○			CH2,CH3 only

6. 振動試験 Vibration Test

MODEL： CUT35J-5FF

(1) 振動試験種類 Vibration Test Class

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

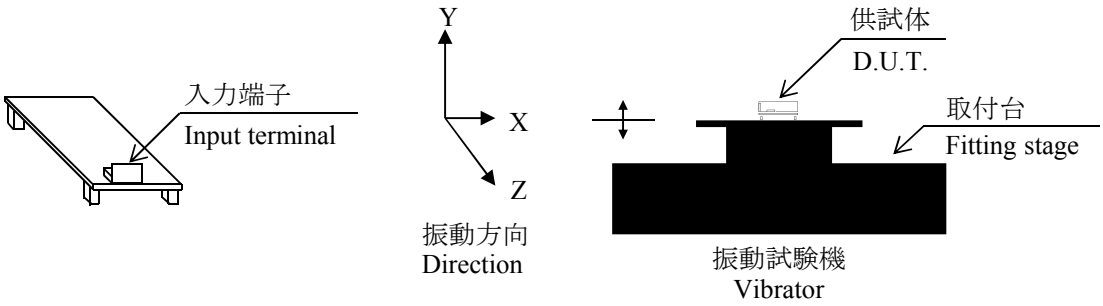
(2) 使用振動試験装置 Equipment Used

Vibrator	DC-3200-36 (Suzhou SuShi)

(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. 破壊しない事
   Not to be broken.
2. 試験後の出力に異常がない事
   No abnormal output after test.

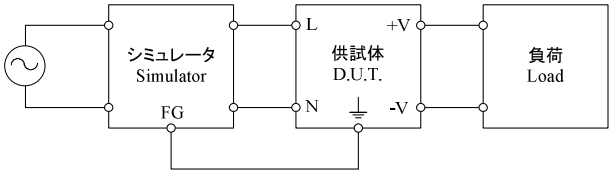
(6) 試験結果 Test Results

合格 OK

7. ノイズシミュレート試験 Noise Simulate Test

MODEL： CUT35J-5FF

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



シミュレータ：INS-AX2-450TH (ノイズ研究所)
Simulator (Noise Laboratory Co.,LTD)

(2) 試験条件 Test Conditions

・入力電圧 Input voltage	: 100, 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℃	・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 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 Results

合格 OK

8. 熱衝撃試験 Thermal Shock Test

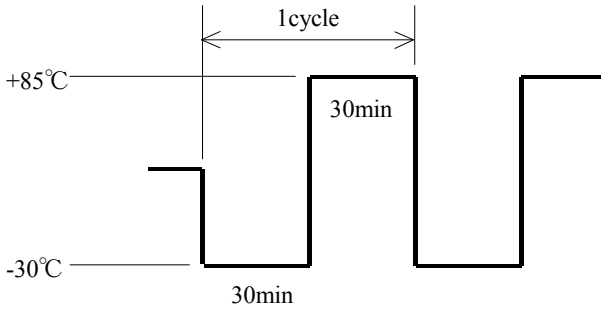
MODEL： CUT35J-5FF

(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 : -30℃ ⇔ 85℃
Ambient Temperature
・試験時間 : 図参照
Test Time Refer to Dwg.
・試験サイクル : 200 サイクル
Test Cycle 200 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。200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. 200 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 after test.

(5) 試験結果 Test Results

合格 OK