LWT15H-*

RELIABILITY DATA

DWG. NO : PA785-79-01				
APPD.(NLJ QA)	APPD.(NLM QA)	APPROVED	CHECKED	ENGR.
I Murayama 26/JAN./95	M.K.HO 28/10/94 28/OCT/94	CCNGO 27/10/94	27/10/94	26-OCT-1994

NEMIC-LAMBDA

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

M. T. B. F.

MODEL : LWT15H -5FF

1. Method of calculation

This calculation is by the components count method laid down by the DC Stabilized Power Supplies (Switching Mode) Committee of EIAJ.

The MTBF is determined by means of a fixed component failure rate λ_G given to each component and the number of component count of each type of component. λ_G is determined based on MIL-HDBK-217F.

Formula :

$$MTBF = \frac{1}{\lambda_{equip}}$$

$$= \frac{1}{\sum_{i=1}^{n} N_i (\lambda_G \pi_Q)_i} \times 10^6 \quad \text{(HOURS)}$$

where :

λ_{equip} = Total Equipment Failure Rate (Failures / 10^6 Hours)

λ_G = Generic Failure Rate For The ith Generic Part (Failure / 10^6 Hours)

Ni = Quantity of ith Generic Part

n = Number of Different Generic Part Categories

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

2. MTBF Values

1. G_F : (GROUND, FIXED)

MTBF = 457770 (HOURS)

COMPONENTS DERATING

(At Nominal Line and Rated Load , Ambient Temperature 40 °C)

Calculation Method

A . Semiconductors

The derating factor is taken as the ratio of the actual operating junction temperature taking into consideration operating ambient temperature , power loss and thermal resistance to the maximum rated junction temperature specifications of the components .

B . IC , Resistors , Capacitors etc .

Operating ambient temperature , operating condition , power loss for each individual component are all designed to meet the requirements of Nemic-Lambda's design standard .

C . Thermal Resistance Calculation

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

T_c : Case Temperature (Normally 25°C)

T_a : Ambient Temperature (Normally 25°C)

$P_{c(max)}$: Maximum Power Loss

$T_{j(max)}$: Maximum Junction Temperature

θ_{j-c} : Junction To Case Thermal Resistance

θ_{j-a} : Junction To Ambient Thermal Resistance

SEMICONDUCTOR DERATING

DATE : 28-FEB-94

MODEL : LWT15H-5FF

VIN = AC 100V LOAD = 100% Ta = 40°C

Q1 2SK1943 FUJI	Tchmax =	150	°C	Θch-c =	1.56	°C/W	Pdmax =	80.0 W
	Pd =	0.99	W	Δ Tc =	36.4	°C	Tc =	76.4 °C
	Tch = Tc + (Θch-c)*Pd =				77.9	°C		
	D.F. =	52.0	%					
Q2 2SC3425 TOSHIBA	Tjmax =	150	°C	Θj-c =	12.5	°C/W	Pdmax =	10 W
	Pd =	0.1	W	Δ Tc =	33.0	°C	Tc =	73.0 °C
	Tj = Tc + (Θj-c)*Pd =				74.3	°C		
	D.F. =	49.5	%					
A2 TA7815S TOSHIBA	Tjmax =	150	°C	Θj-c =	5	°C/W	Pdmax =	15 W
	Pd =	2.4	W	Δ Tc =	32.6	°C	Tc =	72.6 °C
	Tj = Tc + (Θj-c)*Pd =				84.6	°C		
	D.F. =	56.4	%					
A3 TA7815S TOSHIBA	Tjmax =	150	°C	Θj-c =	5	°C/W	Pdmax =	15 W
	Pd =	1.6	W	Δ Tc =	55.6	°C	Tc =	95.6 °C
	Tj = Tc + (Θj-c)*Pd =				103.6	°C		
	D.F. =	69.1	%					
A4 AN1431T MATSUSHITA	Tjmax =	150	°C	Θj-c =	156	°C/W	Pdmax =	0.55 W
	Pd =	0.006	W	Δ Tc =	33.0	°C	Tc =	73.0 °C
	Tj = Tc + (Θj-c)*Pd =				73.9	°C		
	D.F. =	49.3	%					
A50 UC2842ADW UNITRODE	Tjmax =	150	°C	Θj-c =	70	°C/W	Pdmax =	0.725 W
	Pd =	0.4	W	Δ Tc =	40.9	°C	Tc =	80.9 °C
	Tj = Tc + (Θj-c)*Pd =				108.9	°C		
	D.F. =	72.6	%					
D1 D2SB60 SHINDENGEN	Tjmax =	150	°C	Θj-l =	10	°C/W	Pdmax =	12.5 W
	Pd =	0.35	W	Δ Tl =	30.0	°C	T(lead) =	70.0 °C
	Tj = Tl + (Θj-l)*Pd =				73.5	°C		
	D.F. =	49.0	%					

SEMICONDUCTOR DERATING

DATE : 28-FEB-94

MODEL : , LWT15H-5FF

VIN = AC 100V LOAD – 100% Ta = 40°C

D2 1SS193 TOSHIBA	Tjmax =	125	°C	Θj–l =	666	°C/W	Pdmax =	0.15 W
	Pd =	0	W	Δ Tl =	27.4	°C	T(lead) =	67.4 °C
	Tj = Tl + (Θj–l)*Pd =				67.4	°C		
	D.F. =	53.9	%					
D3 1NU41 TOSHIBA	Tjmax =	150	°C	Θj–l =	34	°C/W	Pdmax =	3.7 W
	Pd =	0.03	W	Δ Tl =	25.6	°C	T(lead) =	65.6 °C
	Tj = Tl + (Θj–l)*Pd =				66.6	°C		
	D.F. =	44.4	%					
D4 EGP10G G.I.	Tjmax =	150	°C	Θj–l =	50	°C/W	Pdmax =	2.5 W
	Pd =	0.005	W	Δ Tl =	29.8	°C	T(lead) =	69.8 °C
	Tj = Tl + (Θj–l)*Pd =				70.1	°C		
	D.F. =	46.7	%					
D7 D10SC6M SHINDENGEN	Tjmax =	125	°C	Θj–l =	3.3	°C/W	Pdmax =	5.8 W
	Pd =	0.25	W	Δ Tl =	36.6	°C	T(lead) =	76.6 °C
	Tj = Tl + (Θj–l)*Pd =				77.4	°C		
	D.F. =	61.9	%					
D9 5FL2CZ41A TOSHIBA	Tjmax =	150	°C	Θj–l =	3.8	°C/W	Pdmax =	33 W
	Pd =	0.26	W	Δ Tl =	38.2	°C	T(lead) =	78.2 °C
	Tj = Tl + (Θj–l)*Pd =				79.2	°C		
	D.F. =	52.8	%					
D10 V19E HITACHI	Tjmax =	150	°C	Θj–l =	50	°C/W	Pdmax =	12 W
	Pd =	0	W	Δ Tl =	32.8	°C	T(lead) =	72.8 °C
	Tj = Tl + (Θj–l)*Pd =				72.8	°C		
	D.F. =	48.5	%					
D11 S2L40 SHINDENGEN	Tjmax =	150	°C	Θj–l =	12	°C/W	Pdmax =	12.5 W
	Pd =	0.36	W	Δ Tl =	36.0	°C	T(lead) =	76.0 °C
	Tj = Tl + (Θj–l)*Pd =				80.3	°C		
	D.F. =	53.5	%					

SEMICONDUCTOR DERATING

DATE : 28-FEB-94

MODEL : LWT15H-5FF

VIN = AC 100V LOAD = 100% Ta = 40°C

D13 V19E HITACHI	Tjmax =	150	°C	Θj-l =	50	°C/W	Pdmax =	12 W
	Pd =	0	W	Δ Tl =	34.2	°C	T(lead) =	74.2 °C
	Tj = Tl + (Θj-l)*Pd =				74.2	°C		
	D.F. =	49.6	%					
ZD1 1N4746A MOTOROLA	Tjmax =	200	°C	Θj-l =	175	°C/W	Pdmax =	1 W
	Pd =	0	W	Δ Tl =	30.8	°C	T(lead) =	70.8 °C
	Tj = Tl + (Θj-l)*Pd =				70.8	°C		
	D.F. =	35.4	%					
ZD2 1N4746A MOTOROLA	Tjmax =	200	°C	Θj-l =	175	°C/W	Pdmax =	1 W
	Pd =	0	W	Δ Tl =	29.1	°C	T(lead) =	69.1 °C
	Tj = Tl + (Θj-l)*Pd =				69.1	°C		
	D.F. =	34.6	%					
ZD3 1N4735A MOTOROLA	Tjmax =	200	°C	Θj-l =	175	°C/W	Pdmax =	1 W
	Pd =	0	W	Δ Tl =	29.5	°C	T(lead) =	69.5 °C
	Tj = Tl + (Θj-l)*Pd =				69.5	°C		
	D.F. =	34.8	%					
ZD4 HZS5.1NB2-TA HITACHI	Tjmax =	150	°C	Θj-l =	438	°C/W	Pdmax =	0.4 W
	Pd =	0	W	Δ Tl =	35.0	°C	T(lead) =	75.0 °C
	Tj = Tl + (Θj-l)*Pd =				75.0	°C		
	D.F. =	50.0	%					
PC1 (SCR) TLP647G TOSHIBA	Tjmax =	100	°C	Θj-c =	500	°C/W	Pdmax =	0.15 W
	Pd =	0	W	Δ Tc =	30.4	°C	Tc =	70.4 °C
	Tj = Tc + (Θj-c)*Pd =				70.4	°C		
	D.F. =	70.4	%					
PC1 (LED) TLP647G TOSHIBA	Tjmax =	125	°C	Θj-c =	—	°C/W	Pdmax =	— W
	If = 0 mA			Δ Tc =	30.4	°C	Tc =	70.4 °C
	If (max) = 38 mA (at Ta = 70.4 °C)							
	D.F. =	0	%					

SEMICONDUCTOR DERATING

DATE : 28-FEB-94

MODEL : LWT15H-5FF

VIN = AC 100V LOAD = 100% Ta = 40°C

PC2 (TRANSISTOR) TLP732 TOSHIBA	Tjmax =	125	°C	Θj-c =	667	°C/W	Pdmax =	0.15 W
	Pd =	0.004	W	Δ Tc =	29.9	°C	Tc =	69.9 °C
	Tj = Tc + (Θj-c)*Pd =				72.6	°C		
	D.F. =	58.1	%					
PC2 (LED) TLP732 TOSHIBA	Tjmax =	125	°C	Θj-c =	–	°C/W	Pdmax =	– W
	If = 1.4 mA			Δ Tc =	29.9	°C	Tc =	69.9 °C
	If (max) = 38 mA (at Ta = 69.9 °C)							
	D.F. =	3.7	%					

SEMICONDUCTOR DERATING

DATE : 28-FEB-94

MODEL : LWT15H-5FF

VIN = AC 200V LOAD = 100% Ta = 40°C

Q1 2SK1943 FUJI	Tchmax =	150	°C	Θch-c =	1.56	°C/W	Pdmax =	80.0	W
	Pd =	0.91	W	ΔTc =	45.3	°C	Tc =	85.3	°C
	Tch = Tc + (Θch-c)*Pd =				86.7	°C			
	D.F. =	57.8	%						
Q2 2SC3425 TOSHIBA	Tjmax =	150	°C	Θj-c =	12.5	°C/W	Pdmax =	10	W
	Pd =	0.1	W	ΔTc =	34.1	°C	Tc =	74.1	°C
	Tj = Tc + (Θj-c)*Pd =				75.4	°C			
	D.F. =	50.2	%						
A2 TA7815S TOSHIBA	Tjmax =	150	°C	Θj-c =	5	°C/W	Pdmax =	15	W
	Pd =	2.4	W	ΔTc =	34.3	°C	Tc =	74.3	°C
	Tj = Tc + (Θj-c)*Pd =				86.3	°C			
	D.F. =	57.5	%						
A3 TA7815S TOSHIBA	Tjmax =	150	°C	Θj-c =	5	°C/W	Pdmax =	15	W
	Pd =	1.6	W	ΔTc =	57.0	°C	Tc =	97.0	°C
	Tj = Tc + (Θj-c)*Pd =				105	°C			
	D.F. =	70.0	%						
A4 AN1431T MATSUSHITA	Tjmax =	150	°C	Θj-c =	156	°C/W	Pdmax =	0.55	W
	Pd =	0.006	W	ΔTc =	36.7	°C	Tc =	76.7	°C
	Tj = Tc + (Θj-c)*Pd =				77.6	°C			
	D.F. =	51.8	%						
A50 UC2842ADW UNITRODE	Tjmax =	150	°C	Θj-c =	70	°C/W	Pdmax =	0.725	W
	Pd =	0.4	W	ΔTc =	42.7	°C	Tc =	82.7	°C
	Tj = Tc + (Θj-c)*Pd =				110.7	°C			
	D.F. =	73.8	%						
D1 D2SB60 SHINDENGEN	Tjmax =	150	°C	Θj-l =	10	°C/W	Pdmax =	12.5	W
	Pd =	0.21	W	ΔTl =	26.1	°C	T(lead) =	66.1	°C
	Tj = Tl + (Θj-l)*Pd =				68.2	°C			
	D.F. =	45.5	%						

SEMICONDUCTOR DERATING

DATE : 28-FEB-94

MODEL : LWT15H-5FF

VIN = AC 200V LOAD = 100% Ta = 40°C

D2 1SS193 TOSHIBA	Tjmax =	125	°C	Θj-l =	666	°C/W	Pdmax =	0.15 W
	Pd =	0	W	Δ Tl =	29.0	°C	T(lead) =	69.0 °C
	Tj = Tl + (Θj-l)*Pd =				69.0	°C		
	D.F. =	55.2	%					
D3 1NU41 TOSHIBA	Tjmax =	150	°C	Θj-l =	34	°C/W	Pdmax =	3.7 W
	Pd =	0.02	W	Δ Tl =	25.8	°C	T(lead) =	65.8 °C
	Tj = Tl + (Θj-l)*Pd =				66.5	°C		
	D.F. =	44.3	%					
D4 EGP10G G.I.	Tjmax =	150	°C	Θj-l =	50	°C/W	Pdmax =	2.5 W
	Pd =	0.004	W	Δ Tl =	32.4	°C	T(lead) =	72.4 °C
	Tj = Tl + (Θj-l)*Pd =				72.6	°C		
	D.F. =	48.4	%					
D7 D10SC6M SHINDENGEN	Tjmax =	125	°C	Θj-l =	3.3	°C/W	Pdmax =	5.8 W
	Pd =	0.25	W	Δ Tl =	38.6	°C	T(lead) =	78.6 °C
	Tj = Tl + (Θj-l)*Pd =				79.4	°C		
	D.F. =	63.5	%					
D9 5FL2CZ41A TOSHIBA	Tjmax =	150	°C	Θj-l =	3.8	°C/W	Pdmax =	33 W
	Pd =	0.26	W	Δ Tl =	44.8	°C	T(lead) =	84.8 °C
	Tj = Tl + (Θj-l)*Pd =				85.8	°C		
	D.F. =	57.2	%					
D10 V19E HITACHI	Tjmax =	150	°C	Θj-l =	50	°C/W	Pdmax =	12 W
	Pd =	0	W	Δ Tl =	35.4	°C	T(lead) =	75.4 °C
	Tj = Tl + (Θj-l)*Pd =				75.4	°C		
	D.F. =	50.3	%					
D11 S2L40 SHINDENGEN	Tjmax =	150	°C	Θj-l =	12	°C/W	Pdmax =	12.5 W
	Pd =	0.24	W	Δ Tl =	39.4	°C	T(lead) =	79.4 °C
	Tj = Tl + (Θj-l)*Pd =				82.3	°C		
	D.F. =	54.9	%					

SEMICONDUCTOR DERATING

DATE : 28-FEB-94

MODEL : LWT15H-5FF

VIN = AC 200V LOAD = 100% Ta = 40°C

D13 V19E HITACHI	Tjmax =	150	°C	Θj-l =	50	°C/W	Pdmax =	12 W
	Pd =	0	W	Δ Tl =	38.0	°C	T(lead) =	78.0 °C
	Tj = Tl + (Θj-l)*Pd =				78.0	°C		
	D.F. =	52.0	%					
ZD1 1N4746A MOTOROLA	Tjmax =	200	°C	Θj-l =	175	°C/W	Pdmax =	1 W
	Pd =	0	W	Δ Tl =	32.8	°C	T(lead) =	72.8 °C
	Tj = Tl + (Θj-l)*Pd =				72.8	°C		
	D.F. =	36.4	%					
ZD2 1N4746A MOTOROLA	Tjmax =	200	°C	Θj-l =	175	°C/W	Pdmax =	1 W
	Pd =	0	W	Δ Tl =	33.2	°C	T(lead) =	73.2 °C
	Tj = Tl + (Θj-l)*Pd =				73.2	°C		
	D.F. =	36.6	%					
ZD3 1N4735A MOTOROLA	Tjmax =	200	°C	Θj-l =	175	°C/W	Pdmax =	1 W
	Pd =	0	W	Δ Tl =	32.9	°C	T(lead) =	72.9 °C
	Tj = Tl + (Θj-l)*Pd =				72.9	°C		
	D.F. =	36.5	%					
ZD4 HZS5.1NB2-TA HITACHI	Tjmax =	150	°C	Θj-l =	438	°C/W	Pdmax =	0.4 W
	Pd =	0	W	Δ Tl =	39.0	°C	T(lead) =	79.0 °C
	Tj = Tl + (Θj-l)*Pd =				79.0	°C		
	D.F. =	52.7	%					
PC1 (SCR) TLP647G TOSHIBA	Tjmax =	100	°C	Θj-c =	500	°C/W	Pdmax =	0.15 W
	Pd =	0	W	Δ Tc =	32.8	°C	Tc =	72.8 °C
	Tj = Tc + (Θj-c)*Pd =				72.8	°C		
	D.F. =	72.8	%					
PC1 (LED) TLP647G TOSHIBA	Tjmax =	125	°C	Θj-c =	—	°C/W	Pdmax =	— W
	If = 0 mA			Δ Tc =	32.8	°C	Tc =	72.8 °C
	If (max) = 36 mA (at Ta = 72.8 °C)							
	D.F. =	0	%					

SEMICONDUCTOR DERATING

DATE : 28-FEB-94

MODEL : LWT15H-5FF

VIN = AC 200V LOAD = 100% Ta = 40°C

PC2 (TRANSISTOR) TLP732 TOSHIBA	Tjmax =	125	°C	Θj-c =	667	°C/W	Pdmax =	0.15 W
	Pd =	0.004	W	ΔTc =	32.2	°C	Tc =	72.2 °C
	Tj = Tc + (Θj-c)*Pd =				74.9	°C		
	D.F. =	59.9	%					
PC2 (LED) TLP732 TOSHIBA	Tjmax =	125	°C	Θj-c =	–	°C/W	Pdmax =	– W
	If =	1.4	mA	ΔTc =	32.2	°C	Tc =	72.2 °C
	If (max) = 37 mA (at Ta = 72.2 °C)							
	D.F. =	3.8	%					

LWT15H-5FF

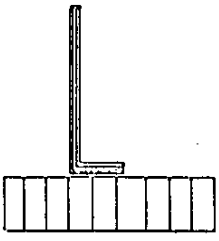
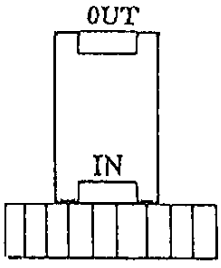
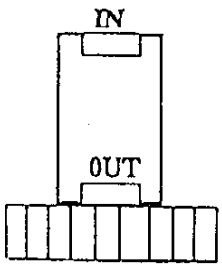
ΔT TEMPERATURE RISE

MODEL : LWT15H-5FF

Ta : 40°C

Sym.	Parts Name	ΔT Temperature Rise (°C)			
		Mounting A	Mounting B	Mounting C	Mounting D
Q1	MOSFET	36.4	35.1	15.1	12.2
D1	BRIDGE DIODE	30.0	29.3	14.2	17.0
D7	S.B.D	36.6	25.8	13.4	15.0
T1	TRANS., PULSE	34.6	31.9	17.3	17.0
L1	BALUN COIL	35.3	35.5	15.7	17.8
C7	E.CAP	24.0	22.5	10.9	13.0
C14	E.CAP	31.3	23.5	14.2	14.6

Conditions

	(A)	(B)	(C)	(D)
Mounting Method (Standard Mounting : A)				
Input Voltage	100VAC	100VAC	100VAC	100VAC
Output Voltage	5FF	5FF	5FF	5FF
Output Current	100%	100%	50%	50%

ELECTROLYTIC CAPACITOR LIFETIME VERSUS LOAD

MODEL : LWT15H-5FF

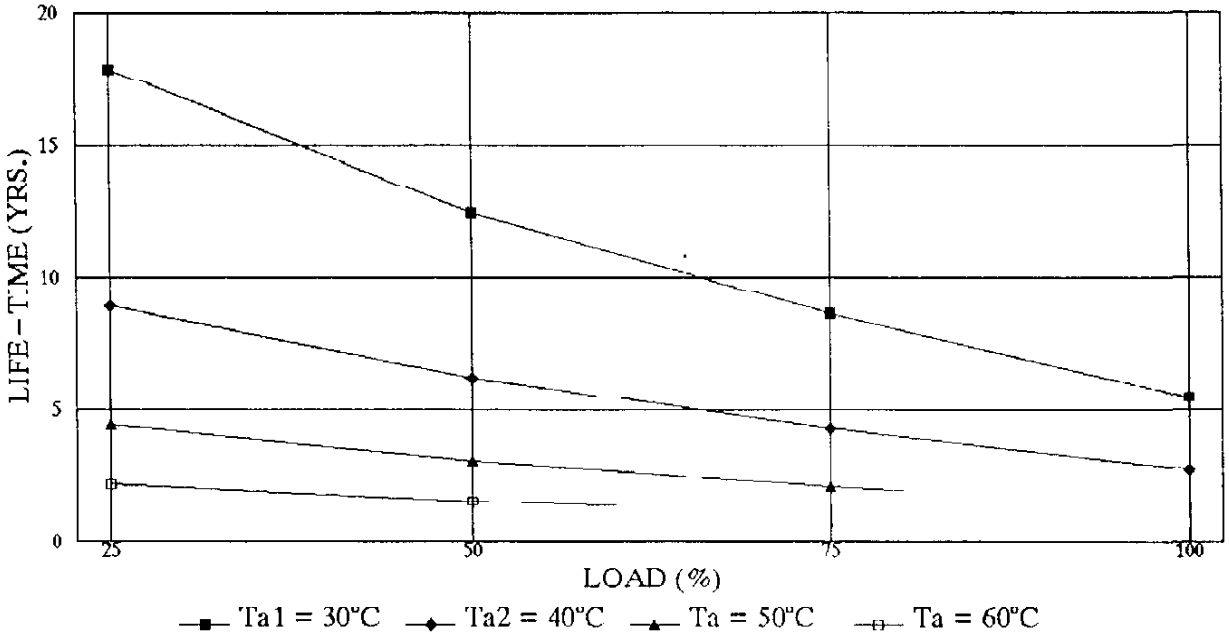
MOUNTING POSITION : A

Iout (100%) = CH1 : 2A
CH2 : 0.28A
CH3 : 0.19A

Vin : 100VAC

LOAD (%)	LIFETIME (YRS.)			
	Ta1 = 30°C	Ta2 = 40°C	Ta3 = 50°C	Ta4 = 60°C
25	17.9	8.9	4.5	2.2
50	12.5	6.2	3.1	1.6
75	8.6	4.3	2.2	–
100	5.5	2.8	–	–

GRAPH OF ELECTROLYTIC CAPACITOR LIFETIME VERSUS LOAD



FORMULA :

1. AL. Elec. capacitor

$$L = Lo \times 2^{\frac{105-Tc}{10}} \quad (Yrs)$$

L : Elec. capacitor computed life
(24 hours per day, 365 days operation)

Lo : Guarantee life for Elec. capacitor

Tc : Case temperature of Elec. capacitor

ELECTROLYTIC CAPACITOR LIFETIME VERSUS LOAD

MODEL : LWT15H-5FF

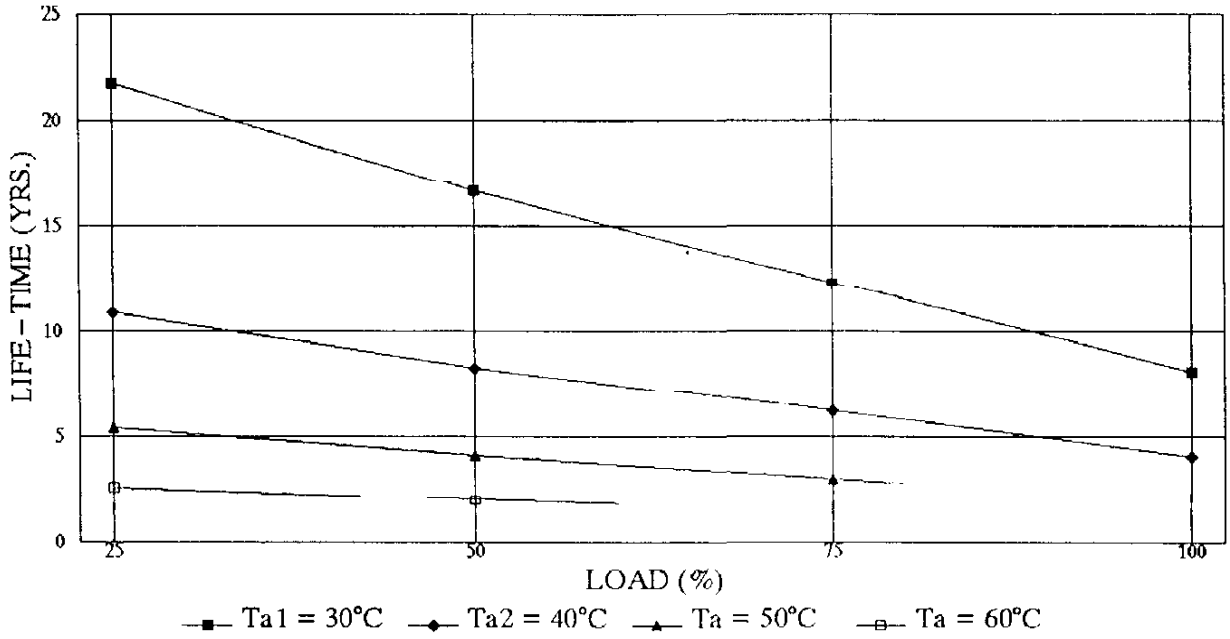
MOUNTING POSITION: B

Iout (100%) = CH1 : 2A
CH2 : 0.20A
CH3 : 0.19A

Vin : 100VAC

LOAD (%)	LIFETIME (YRS.)			
	Ta1 = 30°C	Ta2 = 40°C	Ta3 = 50°C	Ta4 = 60°C
25	21.7	10.8	5.4	2.7
50	16.7	8.3	4.2	2.1
75	12.4	6.2	3.1	—
100	8.2	4.1	—	—

GRAPH OF ELECTROLYTIC CAPACITOR LIFETIME VERSUS LOAD



FORMULA :

1. AL. Elec. capacitor

$$L = Lo \times 2^{\frac{105-Tc}{10}} \quad (Yrs)$$

L : Elec. capacitor computed life
(24 hours per day, 365 days operation)

Lo : Guarantee life for Elec. capacitor

Tc : Case temperature of Elec. capacitor

ELECTROLYTIC CAPACITOR LIFETIME VERSUS LOAD

MODEL : LWT15H-5FF

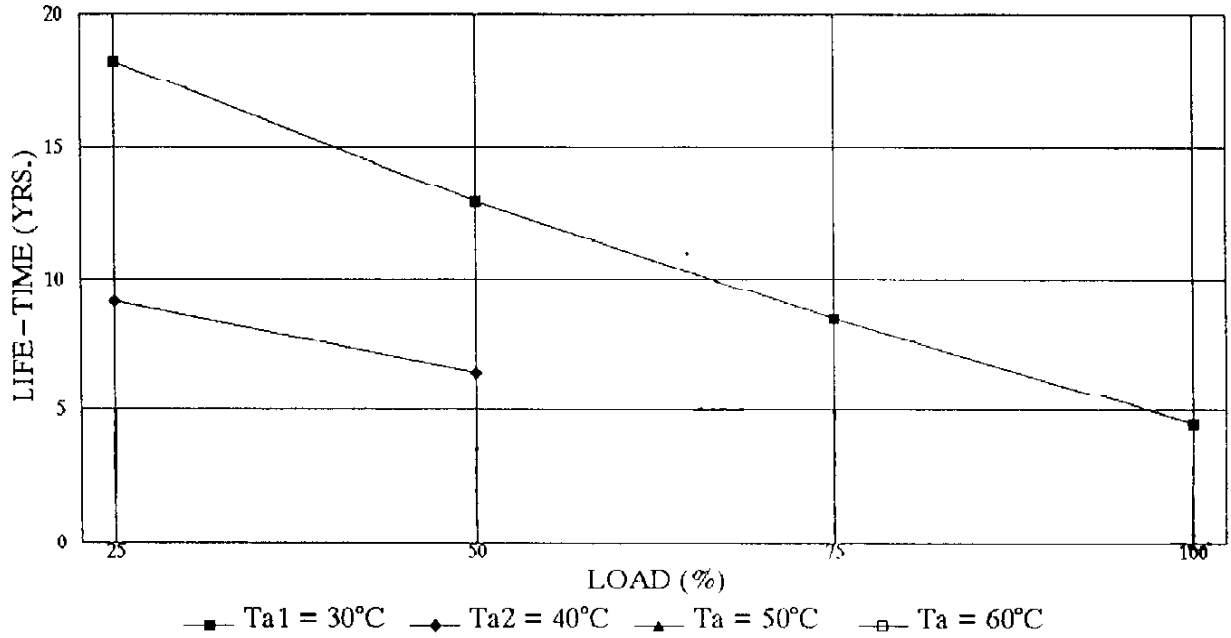
MOUNTING POSITION: C

Iout (100%) = CH1 : 2A
CH2 : 0.28A
CH3 : 0.19A

Vin : 100VAC

LOAD (%)	LIFETIME (YRS.)			
	Ta1 = 30°C	Ta2 = 40°C	Ta3 = 50°C	Ta4 = 60°C
25	18.3	9.1	-	-
50	12.9	6.5	-	-
75	8.5	-	-	-
100	4.5	-	-	-

GRAPH OF ELECTROLYTIC CAPACITOR LIFETIME VERSUS LOAD



FORMULA :

1. AL. Elec. capacitor

$$L = Lo \times 2^{\frac{105-Tc}{10}} \quad (Yrs)$$

L : Elec. capacitor computed life
(24 hours per day, 365 days operation)

Lo : Guarantee life for Elec. capacitor

Tc : Case temperature of Elec. capacitor

ELECTROLYTIC CAPACITOR LIFETIME VERSUS LOAD

MODEL : LWT15H-5FF

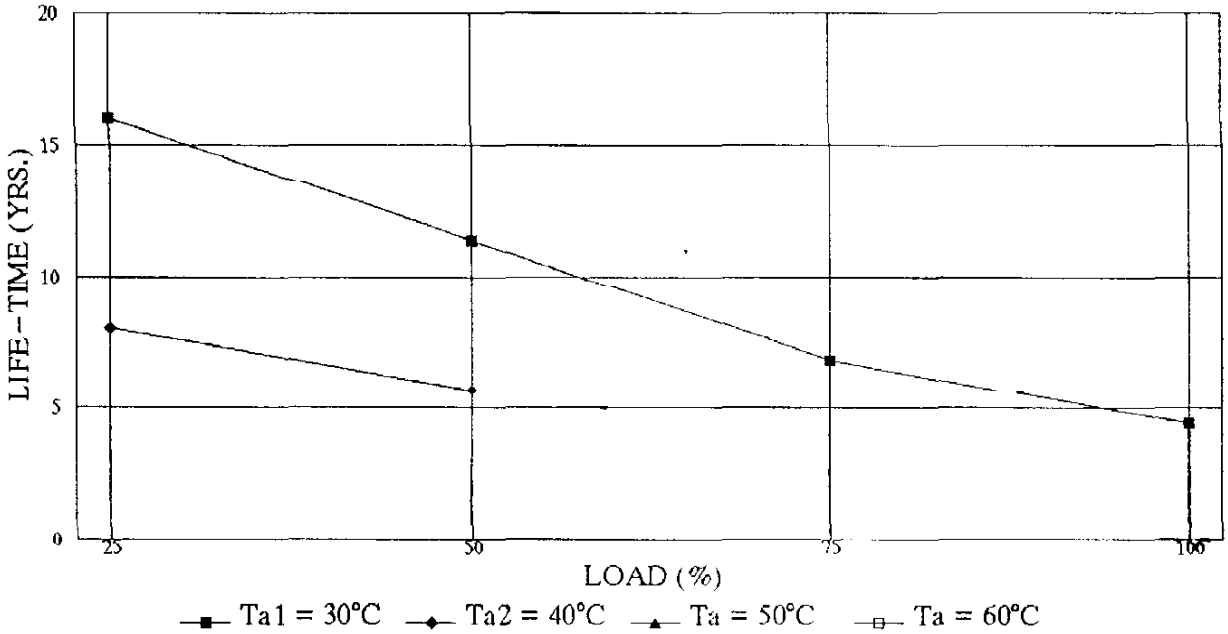
MOUNTING POSITION : D

Iout (100%) = CH1 : 2A
CH2 : 0.28A
CH3 : 0.19A

Vin : 100VAC

LOAD (%)	LIFETIME (YRS.)			
	Ta1 = 30°C	Ta2 = 40°C	Ta3 = 50°C	Ta4 = 60°C
25	16.0	8.0	—	—
50	11.4	5.7	—	—
75	6.8	—	—	—
100	4.4	—	—	—

GRAPH OF ELECTROLYTIC CAPACITOR LIFETIME VERSUS LOAD



FORMULA :

1. AL. Elec. capacitor

$$L = Lo \times 2^{\frac{105-Tc}{10}} \quad (Yrs)$$

L : Elec. capacitor computed life
(24 hours per day, 365 days operation)

Lo : Guarantee life for Elec. capacitor

Tc : Case temperature of Elec. capacitor

ELECTROLYTIC CAPACITOR LIFETIME VERSUS LOAD

MODEL : LWT15H-5FF

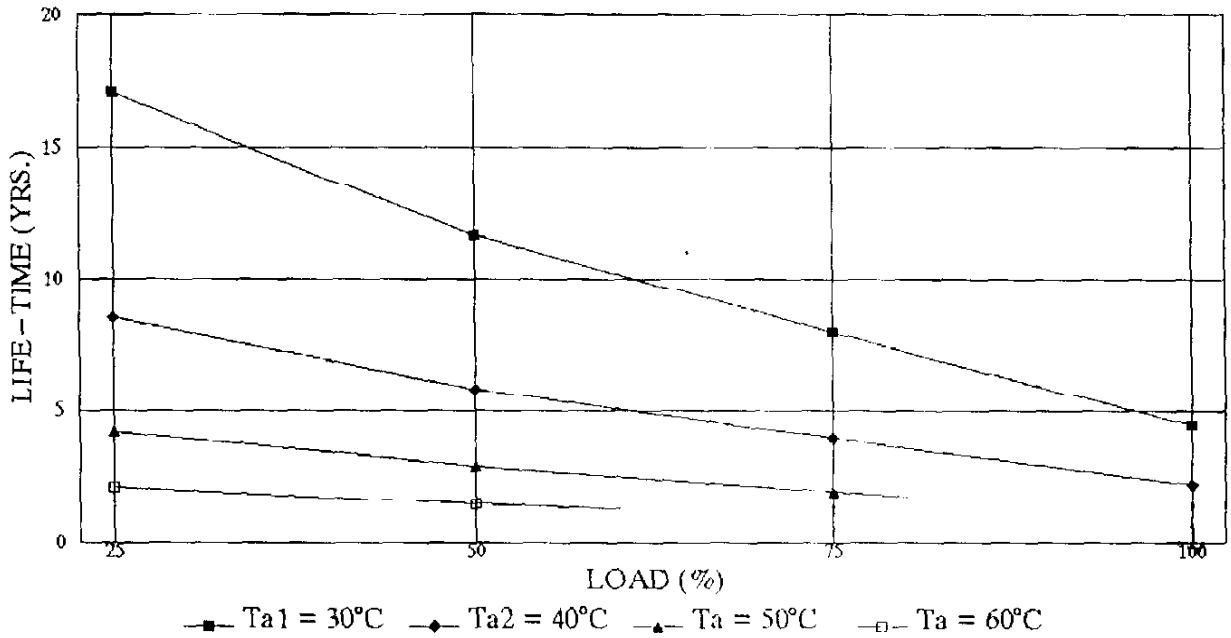
MOUNTING POSITION : A

Iout (100%) = CH1 : 2A
CH2 : 0.28A
CH3 : 0.19A

Vin : 200VAC

LOAD (%)	LIFETIME (YRS.)			
	Ta1 = 30°C	Ta2 = 40°C	Ta3 = 50°C	Ta4 = 60°C
25	17.0	8.5	4.3	2.1
50	11.6	5.8	2.9	1.5
75	8.0	4.0	2.0	–
100	4.5	2.2	–	–

GRAPH OF ELECTROLYTIC CAPACITOR LIFETIME VERSUS LOAD



FORMULA :

1. AL. Elec. capacitor

$$L = Lo \times 2^{\frac{105-Tc}{10}} \quad (Yrs)$$

L : Elec. capacitor computed life
(24 hours per day, 365 days operation)

Lo : Guarantee life for Elec. capacitor

Tc : Case temperature of Elec. capacitor

ELECTROLYTIC CAPACITOR LIFETIME VERSUS LOAD

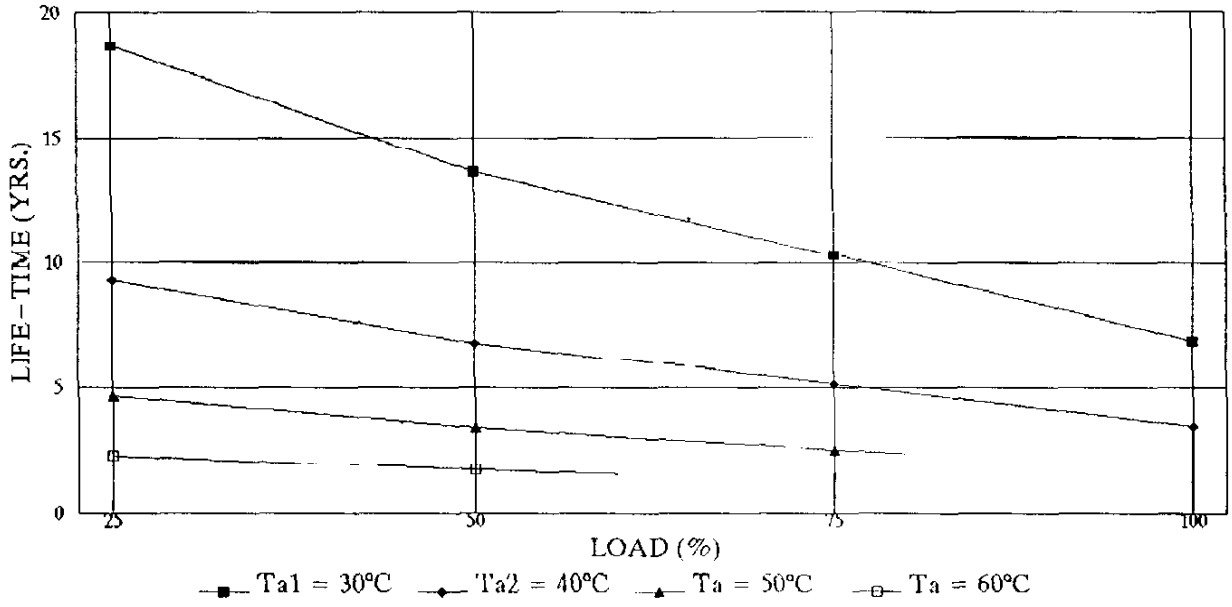
MODEL : LWT15H-5FF

Vin : 200VAC

MOUNTING POSITION : B
Iout (100%) = CH1 : 2A
CH2 : 0.28A
CH3 : 0.19A

LOAD (%)	LIFETIME (YRS.)			
	Ta1 = 30°C	Ta2 = 40°C	Ta3 = 50°C	Ta4 = 60°C
25	18.6	9.3	4.7	2.3
50	13.6	6.8	3.4	1.7
75	10.3	5.2	2.6	-
100	6.9	3.5	-	-

GRAPH OF ELECTROLYTIC CAPACITOR LIFETIME VERSUS LOAD



FORMULA :

1. AL. Elec. capacitor

$$L = Lo \times 2^{\frac{105-Tc}{10}} \quad (Yrs)$$

L : Elec. capacitor computed life
(24 hours per day, 365 days operation)

Lo : Guarantee life for Elec. capacitor

Tc : Case temperature of Elec. capacitor

ELECTROLYTIC CAPACITOR LIFETIME VERSUS LOAD

MODEL : LWT15H--5FF

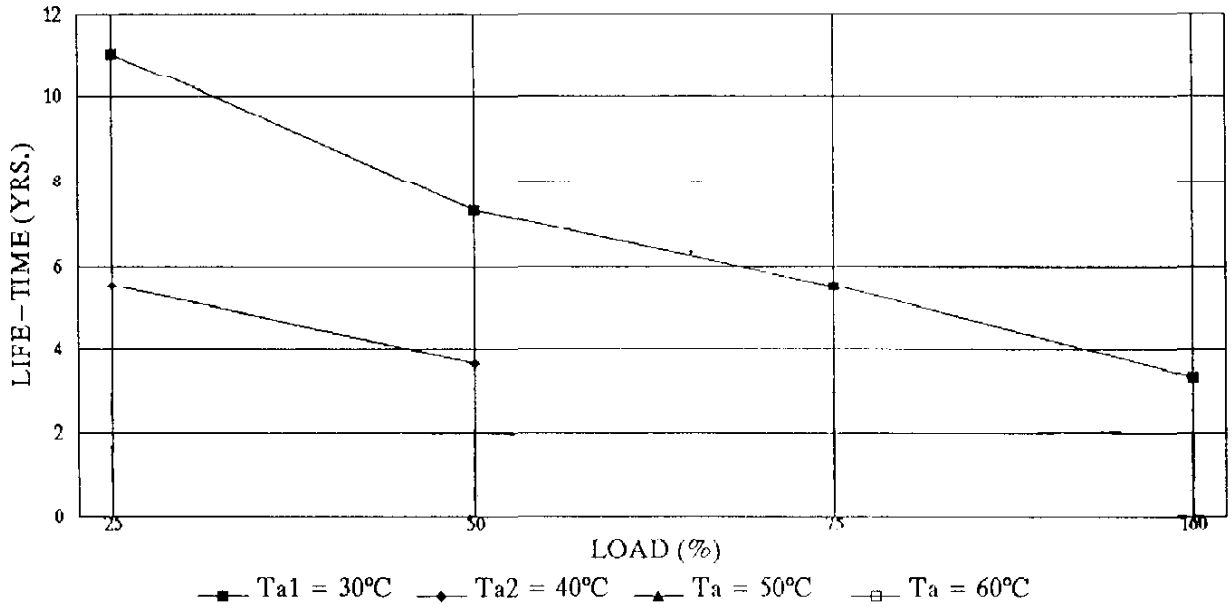
MOUNTING POSITION : C

Vin : 200VAC

Iout (100%) = CH1 : 2A
CH2 : 0.28A
CH3 : 0.19A

LOAD (%)	LIFETIME (YRS.)			
	Ta1 = 30°C	Ta2 = 40°C	Ta3 = 50°C	Ta4 = 60°C
25	11.1	5.5	--	--
50	7.3	3.7	--	--
75	5.5	--	--	--
100	3.3	--	--	--

GRAPH OF ELECTROLYTIC CAPACITOR LIFETIME VERSUS LOAD



FORMULA :

1. AL. Elec. capacitor

$$L = Lo \times 2^{\frac{105-Tc}{10}} \quad (Yrs)$$

L : Elec. capacitor computed life
(24 hours per day, 365 days operation)

Lo : Guarantee life for Elec. capacitor

Tc : Case temperature of Elec. capacitor

ELECTROLYTIC CAPACITOR LIFETIME VERSUS LOAD

MODEL : LWT15H-5FF

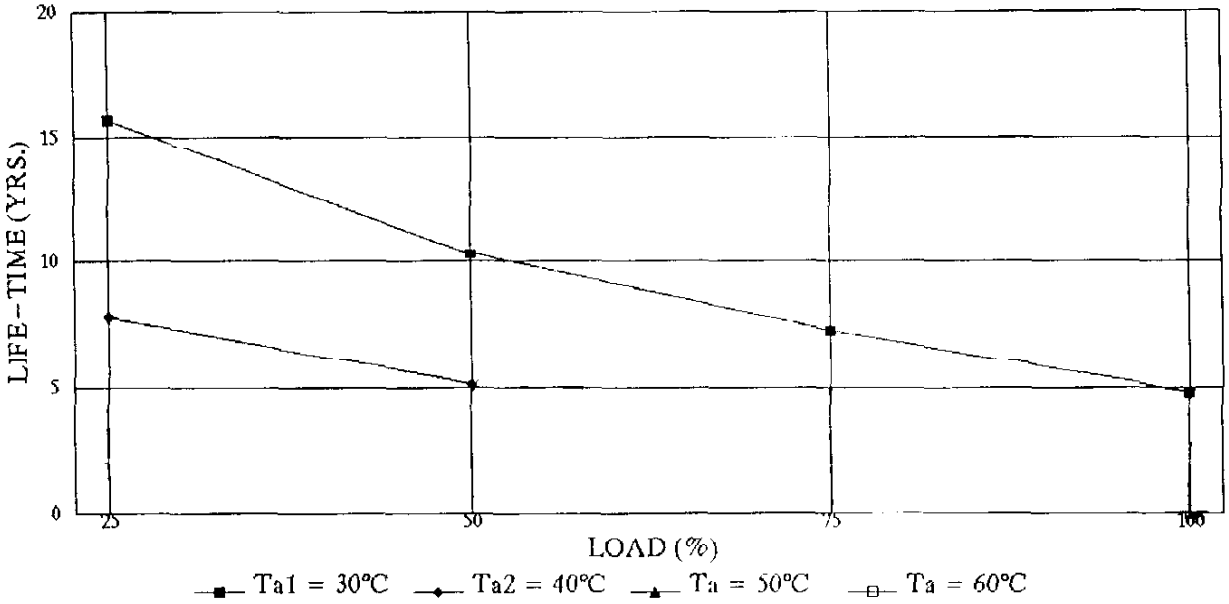
MOUNTING POSITION : D

Iout (100%) = CH1 : 2A
CH2 : 0.28A
CH3 : 0.19A

Vin : 200VAC

LOAD (%)	LIFETIME (YRS.)			
	Ta1 = 30°C	Ta2 = 40°C	Ta3 = 50°C	Ta4 = 60°C
25	15.7	7.8	—	—
50	10.3	5.2	—	—
75	7.3	—	—	—
100	4.8	—	—	—

GRAPH OF ELECTROLYTIC CAPACITOR LIFETIME VERSUS LOAD



FORMULA :

1. AL. Elec. capacitor

$$L = Lo \times 2^{\frac{105-Tc}{10}} \quad (Yrs)$$

L : Elec. capacitor computed life
(24 hours per day, 365 days operation)

Lo : Guarantee life for Elec. capacitor

Tc : Case temperature of Elec. capacitor

MODEL : LWT15H-5FF	ABNORMAL TESTING	TEST CONDITIONS	APPROVED BY	TESTED BY
		LOAD = 100% TYPICAL / Vin = 200VAC Ta = 25°C	Ramesh.m	CTLEE

	PARTS NAME	PART NO.	TEST MODE	SHORT	OPEN	FIRE	SMOKE A	SMOKE B	BURST	SMELL	RED HOT	DAMAGE	FUSE BLOWN	O.C.P.	O.V.P.	NO OUTPUT	NO CHANGE	OTHERS	NOTE	OK	RETEST	NO GOOD
1	MOSFET	Q1	D-G	Y								Y	Y						Q1,A50,ZD2,ZD3	Y		
2	2SK1943		D-S	Y								Y	Y						ZD3	Y		
3			G-S	Y												Y				Y		
4			D		Y											Y				Y		
5			S		Y											Y				Y		
6			G		Y							Y	Y						Q1,ZD3	Y		
7																						
8	TRANSISTOR	Q2	C-E	Y			Y				Y	Y							R8 RED HOT & OPENS	Y		
9	2SC3425		C-B	Y			Y				Y	Y							R8 RED HOT & OPENS	Y		
10			B-E	Y													Y			Y		
11			C		Y												Y			Y		
12			E		Y												Y			Y		
13			B		Y												Y			Y		
14																						
15	NOT ASSIGNED	Q3																				
16																						
17																						
18																						
19																						
20																						
21																						
22	HIC	A1	1-2	Y													Y			Y		
23	AB712		2-3	Y											Y					Y		
24			3-4	Y												Y				Y		
25			4-5	Y												Y				Y		

*** A : SLIGHT B : PROLONGED

MODEL : LWT15H-5FF	ABNORMAL TESTING	TEST CONDITIONS	APPROVED BY	TESTED BY
		LOAD = 100% TYPICAL / Vin = 200VAC Ta = 25°C	Ramesh	CTLEE

	PARTS NAME	PART NO.	TEST MODE	SHORT	OPEN	FIRE	SMOKE A	SMOKE B	BURST	SMELL	RED HOT	DAMAGE	FUSE BLOWN	O.C.P.	O.V.P.	NO OUTPUT	NO CHANGE	OTHERS	NOTE	OK	RETEST	NO GOOD
1	HIC	A1	5-6	Y												Y				Y		
2	AB712		6-7	Y										Y						Y		
3			7-8	Y										Y						Y		
4			8-9	Y												Y				Y		
5			1		Y													Y	HICCUP	Y		
6			2		Y												Y			Y		
7			3		Y											Y				Y		
8			4		Y											Y				Y		
9			5		Y												Y			Y		
10			6		Y											Y				Y		
11			7		Y												Y			Y		
12			8		Y												Y			Y		
13			9		Y											Y				Y		
14																						
15	3T-REGULATOR	A2	1-2	Y										Y						Y		
16	TA7815S		2-3	Y										Y						Y		
17			1-3	Y														Y	CH2 OUTPUT 19V	Y		
18			1		Y											Y			CH2	Y		
19			2		Y											Y			CH2	Y		
20			3		Y											Y			CH2	Y		
21																						
22																						
23																						
24																						
25																						

*** A : SLIGHT B : PROLONGED

MODEL : LWT15H-5FF	ABNORMAL TESTING	TEST CONDITIONS		APPROVED BY	TESTED BY
		LOAD = 100% TYPICAL	Vin = 200VAC Ta = 25°C	Ramesh.M	CTLEE

	PARTS NAME	PART NO.	TEST MODE	SHORT	OPEN	FIRE	SMOKE A	SMOKE B	BURST	SMELL	RED HOT	DAMAGE	FUSE BLOWN	O.C.P.	O.V.P.	NO OUTPUT	NO CHANGE	OTHERS	NOTE	OK	RETEST	NO GOOD
1	3T-REGULATOR	A3	1-2	Y										Y						Y		
2	TA7815S		2-3	Y										Y						Y		
3			1-3	Y														Y	CH3 OUTPUT 19V	Y		
4			1		Y											Y			CH3	Y		
5			2		Y											Y			CH3	Y		
6			3		Y											Y			CH3	Y		
7																						
8																						
9	I.C	A4	K-A	Y														Y	HICCUP, VOUT LOW	Y		
10	AN1431T		K-R	Y														Y	HICCUP, VOUT LOW	Y		
11			R-A	Y											Y					Y		
12			K		Y										Y					Y		
13			A		Y										Y					Y		
14			R		Y										Y					Y		
15																						
16	CHIP I.C	A50	1-2	Y													Y			Y		
17	UC2842ADW		2-3	Y													Y			Y		
18			3-4	Y												Y				Y		
19			4-5	Y								Y							Q1, A50, ZD3	Y		
20			5-6	Y												Y				Y		
21			6-7	Y													Y			Y		
22			7-8	Y													Y			Y		
23			9-10	Y													Y			Y		
24			10-11	Y													Y			Y		
25			11-12	Y												Y						

*** A : SLIGHT B : PROLONGED

MODEL : LWT15H-5FF	ABNORMAL TESTING	TEST CONDITIONS		APPROVED BY	TESTED BY
		LOAD = 100% TYPICAL	Vin = 200VAC Ta = 25°C	Ramesh.n	CT LEE

	PARTS NAME	PART NO.	TEST MODE	SHORT	OPEN	FIRE	SMOKE A	SMOKE B	BURST	SMELL	RED HOT	DAMAGE	FUSE BLOWN	O.C.P.	O.V.P.	NO OUTPUT	NO CHANGE	OTHERS	NOTE	OK	RETEST	NO GOOD
1		A50	12-13	Y												Y				Y		
2			13-14	Y													Y			Y		
3			14-15	Y												Y				Y		
4			15-16	Y													Y			Y		
5			1		Y												Y			Y		
6			2		Y												Y			Y		
7			3		Y										Y					Y		
8			4		Y											Y				Y		
9			5		Y											Y				Y		
10			6		Y											Y				Y		
11			7		Y												Y			Y		
12			8		Y												Y			Y		
13			9		Y												Y			Y		
14			10		Y													Y	HICCUP	Y		
15			11		Y							Y	Y						Q1, A50, ZD3	Y		
16			12		Y											Y				Y		
17			13		Y											Y				Y		
18			14		Y											Y				Y		
19			15		Y													Y	SWITCHING FREQ LOW, VOUT LOW	Y		
20			16		Y												Y			Y		
21																						
22	BRIDGE DIODE	D1	AC	Y									Y							Y		
23	D2SB60		AC		Y											Y				Y		
24			DC	Y									Y							Y		
25			DC		Y											Y				Y		

*** A : SLIGHT B : PROLONGED

MODEL : LWT15H-5FF	ABNORMAL TESTING	TEST CONDITIONS	APPROVED BY	TESTED BY
		LOAD = 100% TYPICAL / Vin = 200VAC Ta = 25°C	Ramesh.M	CTLEE

	PARTS NAME	PART NO.	TEST MODE	SHORT	OPEN	FIRE	SMOKE A	SMOKE B	BURST	SMELL	RED HOT	DAMAGE	FUSE BLOWN	O.C.P.	O.V.P.	NO OUTPUT	NO CHANGE	OTHERS	NOTE	OK	RETEST	NO GOOD
1	CHIP DIODE	D2	A-K	Y													Y			Y		
2	1SS193		A-K		Y												Y			Y		
3																						
4	F.R.D	D3	A-K	Y														Y	HICCUP	Y		
5	1NU41		A-K		Y												Y			Y		
6																						
7	F.R.D	D4	A-K	Y												Y				Y		
8	EGP10G		A-K		Y													Y	HICCUP	Y		
9																						
10	NOT ASSIGNED	D5																				
11																						
12																						
13	NOT ASSIGNED	D6																				
14																						
15																						
16	S.B.D	D7	A-K	Y														Y	HICCUP	Y		
17	D10SC6M		A-K		Y													Y	HICCUP	Y		
18																						
19	NOT ASSIGNED	D8																				
20																						
21	F.R.D	D9	A-K	Y														Y	HICCUP	Y		
22	5FL2CZ41A		A-K		Y													Y	HICCUP	Y		
23																						
24	F.R.D	D10	A-K	Y										Y					HICCUP	Y		
25	V19E		A-K		Y												Y			Y		

*** A : SLIGHT B : PROLONGED

MODEL : LWT15H-5FF	ABNORMAL TESTING		TEST CONDITIONS		APPROVED BY	TESTED BY
			LOAD = 100% TYPICAL	Vin = 200VAC Ta = 25°C	Ramesh.n	CTLEE

	PARTS NAME	PART NO.	TEST MODE	SHORT	OPEN	FIRE	SMOKE A	SMOKE B	BURST	SMELL	RED HOT	DAMAGE	FUSE BLOWN	O.C.P.	O.V.P.	NO OUTPUT	NO CHANGE	OTHERS	NOTE	OK	RETEST	NO GOOD
1	F.R.D	D11	A-K	Y														Y	HICCUP	Y		
2	S2L40		A-K		Y													Y	HICCUP	Y		
3																						
4	NOT ASSIGNED	D12																				
5																						
6	F.R.D	D13	A-K	Y										Y						Y		
7	V19E		A-K		Y												Y			Y		
8																						
9	F.R.D	D50	A-K	Y													Y			Y		
10	1SS193-TE85L		A-K		Y												Y			Y		
11																						
12	ZENER DIODE	ZD1	A-K	Y												Y				Y		
13	1N4746A		A-K		Y												Y			Y		
14																						
15	ZENER DIODE	ZD2	A-K	Y												Y				Y		
16	1N4746A		A-K		Y												Y			Y		
17																						
18	ZENER DIODE	ZD3	A-K	Y								Y	Y						Q1 DAMAGED	Y		
19	1N4735A		A-K		Y												Y			Y		
20																						
21	ZENER DIODE	ZD4	A-K	Y											Y					Y		
22	HZS5.1NB2		A-K		Y												Y			Y		
23																						
24	CAP.,FILM	C1		Y									Y							Y		
25	ECQ-U2A474MX				Y												Y			Y		

*** A : SLIGHT B : PROLONGED

MODEL : LWT15H-5FF		ABNORMAL TESTING													TEST CONDITIONS					APPROVED BY	TESTED BY		
															LOAD = 100% TYPICAL					Vin = 200VAC Ta = 25°C	Ramesh-m	CT LEE	
			TEST MODE																				
	PARTS NAME	PART NO.		SHORT	OPEN	FIRE	SMOKE A	SMOKE B	BURST	SMELL	RED HOT	DAMAGE	FUSE BLOWN		O.C.P.	O.V.P.	NO OUTPUT	NO CHANGE	OTHERS	NOTE	OK	RETEST	NO GOOD
1	NOT ASSIGNED	C2																					
2																							
3																							
4	CAP., CERAMIC	C3		Y														Y			Y		
5	CD-19E2GA332MYAS				Y													Y			Y		
6																							
7	NOT ASSIGNED	C4																					
8																							
9																							
10	CAP., CERAMIC	C5		Y														Y			Y		
11	CD-19E2GA472MYAS				Y													Y			Y		
12																							
13	CAP., CERAMIC	C6		Y														Y			Y		
14	CD-19E2GA472MYAS				Y													Y			Y		
15																							
16	CAP., ELECT	C7		Y									Y								Y		
17	LGE2G101MHSB				Y												Y				Y		
18																							
19	NOT ASSIGNED	C8																					
20																							
21	CAP., ELECT	C9		Y			Y				Y	Y								R8 RED HOT & OPENS	Y		
22	UPR2G010MPH				Y													Y			Y		
23																							
24	CAP.,FILM	C10		Y															Y	HICCUP	Y		
25	MMHF-103K630				Y													Y			Y		

*** A : SLIGHT B : PROLONGED

MODEL : LWT15H-5FF	ABNORMAL TESTING	TEST CONDITIONS		APPROVED BY	TESTED BY
		LOAD = 100% TYPICAL	Vin = 200VAC Ta = 25°C	Ramesh.M	CTLEE

	PARTS NAME	PART NO.	TEST MODE	SHORT	OPEN	FIRE	SMOKE A	SMOKE B	BURST	SMELL	RED HOT	DAMAGE	FUSE BLOWN	O.C.P.	O.V.P.	NO OUTPUT	NO CHANGE	OTHERS	NOTE	OK	RETEST	NO GOOD
1	CHIP CAP., CERAMIC	C11		Y													Y			Y		
2	GRM42-6R103K50PT				Y												Y			Y		
3																						
4	CAP., ELECT	C12		Y														Y	HICCUP	Y		
5	LXF35VB150				Y													Y	HICCUP	Y		
6																						
7	CHIP CAP., CERAMIC	C13		Y										Y					HICCUP	Y		
8	GRM42-6W5R472K200PT				Y												Y			Y		
9																						
10	CAP., ELECT	C14		Y										Y					HICCUP	Y		
11	LXF10VB1800				Y												Y			Y		
12																						
13	CAP., ELECT	C15		Y										Y					HICCUP	Y		
14	LXF10VB1800				Y												Y			Y		
15																						
16	NCT ASSIGNED	C16																				
17																						
18																						
19	NCT ASSIGNED	C17																				
20																						
21	CAP., ELECT	C18		Y										Y					HICCUP	Y		
22	LXF10VB1000				Y												Y			Y		
23																						
24	CAP., FILM	C19		Y													Y			Y		
25	MMHF-223K630				Y												Y			Y		

*** A : SLIGHT B : PROLONGED

MODEL : LWT15H-5FF		ABNORMAL TESTING													TEST CONDITIONS						APPROVED BY	TESTED BY		
															LOAD = 100% TYPICAL						Vin = 200VAC Ta = 25°C	Ramesh.m	CTLEE	
			TEST MODE																					
	PARTS NAME	PART NO.		SHORT	OPEN	FIRE	SMOKE A	SMOKE B	BURST	SMELL	RED HOT	DAMAGE	FUSE BLOWN		O.C.P.	O.V.P.	NO OUTPUT	NO CHANGE	OTHERS	NOTE	OK	RETEST	NO GOOD	
1	CAP., FILM	C20		Y														Y			Y			
2	MMHF-223K630				Y													Y			Y			
3																								
4	CHIP CAP., CERAMIC	C21		Y											Y					HICCUP	Y			
5	GRM42-6R104K50PT				Y													Y			Y			
6																								
7	CHIP CAP., CERAMIC	C22		Y														Y			Y			
8	CM21W5R331K200BT				Y													Y			Y			
9																								
10	CAP., ELECT	C23		Y											Y					HICCUP	Y			
11	LXF35VB220				Y													Y			Y			
12																								
13	CAP., ELECT	C24		Y											Y					HICCUP	Y			
14	LXF35VB150				Y													Y			Y			
15																								
16	CHIP CAP., CERAMIC	C25		Y											Y					HICCUP	Y			
17	GRM42-6R104K50PT				Y													Y			Y			
18																								
19	CAP., ELECT	C26		Y											Y						Y			
20	LXF35VB220				Y													Y			Y			
21																								
22	CAP., ELECT	C27		Y											Y						Y			
23	LXF35VB150				Y													Y			Y			
24																								
25																								

*** A : SLIGHT B : PROLONGED

MODEL : LWT15H-5FF	ABNORMAL TESTING	TEST CONDITIONS		APPROVED BY	TESTED BY
		LOAD = 100% TYPICAL	Vin = 200VAC Ta = 25°C	Ranjit.n	CT LEE

	PARTS NAME	PART NO.	TEST MODE	SHORT	OPEN	FIRE	SMOKE A	SMOKE B	BURST	SMELL	RED HOT	DAMAGE	FUSE BLOWN	O.C.P.	O.V.P.	NO OUTPUT	NO CHANGE	OTHERS	NOTE	OK	RETEST	NO GOOD
1	CAP., FILM	C28		Y													Y			Y		
2	MMHF-333K630				Y												Y			Y		
3																						
4	CHIP CAP.,CERAMIC	C29		Y										Y						Y		
5	GRM42-6R104K50PT				Y												Y			Y		
6																						
7	CHIP CAP.,CERAMIC	C30		Y										Y						Y		
8	GRM42-6R104K50PT				Y												Y			Y		
9																						
10	CHIP CAP.,CERAMIC	C31		Y										Y						Y		
11	GRM42-6R104K50PT				Y												Y			Y		
12																						
13	CHIP CAP.,CERAMIC	C32		Y										Y						Y		
14	GRM42-6R104K50PT				Y												Y			Y		
15																						
16	CHIP CAP.,CERAMIC	C33		Y										Y						Y		
17	GRM42-6R104K50PT				Y												Y			Y		
18																						
19	CHIP CAP.,CERAMIC	C50		Y												Y				Y		
20	GRM42-6R104K50PT				Y												Y			Y		
21																						
22	CHIP CAP.,CERAMIC	C51		Y												Y				Y		
23	GRM42-6R104K50PT				Y												Y			Y		
24																						
25																						

*** A : SLIGHT B : PROLONGED

MODEL : LWT15H-5FF	ABNORMAL TESTING	TEST CONDITIONS	APPROVED BY	TESTED BY
		LOAD = 100% TYPICAL / Vin = 200VAC Ta = 25°C	Rawash.n	CTLEE

	PARTS NAME	PART NO.	TEST MODE	SHORT	OPEN	FIRE	SMOKE A	SMOKE B	BURST	SMELL	RED HOT	DAMAGE	FUSE BLOWN	O.C.P.	O.V.P.	NO OUTPUT	NO CHANGE	OTHERS	NOTE	OK	RETEST	NO GOOD
1	CHIP CAP.,CERAMIC	C52		Y												Y				Y		
2	GRM40SLJ101K50PT				Y												Y			Y		
3																						
4	CHIP CAP.,CERAMIC	C53		Y												Y				Y		
5	GRM40R222J50PT				Y											Y				Y		
6																						
7	CHIP CAP.,CERAMIC	C54		Y													Y			Y		
8	GRM40SLJ101K50PT				Y												Y			Y		
9																						
10	CHIP CAP.,CERAMIC	C55		Y													Y			Y		
11	GRM42-6R104K50PT				Y												Y			Y		
12																						
13																						
14	CHIP RESISTOR	R1		Y													Y			Y		
15	RK73B2HTE244J				Y												Y			Y		
16																						
17	CHIP RESISTOR	R2		Y													Y			Y		
18	RK73B2HTE244J				Y												Y			Y		
19																						
20	CHIP RESISTOR	R3		Y										Y					HICCUP	Y		
21	RK73B2HTE394J				Y												Y			Y		
22																						
23	CHIP RESISTOR	R4		Y										Y					HICCUP	Y		
24	RK73B2HTE244J				Y												Y			Y		
25																						

*** A : SLIGHT B : PROLONGED

MODEL : LWT15H-5FF	ABNORMAL TESTING	TEST CONDITIONS		APPROVED BY	TESTED BY
		LOAD = 100% TYPICAL	Vin = 200VAC Ta = 25°C	Ramesh.M	CTLEE

	PARTS NAME	PART NO.	TEST MODE	SHORT	OPEN	FIRE	SMOKE A	SMOKE B	BURST	SMELL	RED HOT	DAMAGE	FUSE BLOWN	O.C.P.	O.V.P.	NO OUTPUT	NO CHANGE	OTHERS	NOTE	OK	RETEST	NO GOOD
1	CHIP RESISTOR	R5		Y													Y			Y		
2	RK73B2HTE244J				Y												Y			Y		
3																						
4	CHIP RESISTOR	R6		Y										Y					HICCUP	Y		
5	RK73B2HTE244J				Y												Y			Y		
6																						
7	CHIP RESISTOR	R7		Y													Y			Y		
8	RK73B2HTE244J				Y												Y			Y		
9																						
10	RES.,FUSE	R8		Y								Y	Y						A50	Y		
11	FMR2B472J				Y												Y			Y		
12																						
13	CHIP RESISTOR	R9		Y												Y				Y		
14	CR1/10W273JV				Y												Y			Y		
15																						
16	CHIP RESISTOR	R10		Y														Y	HICCUP	Y		
17	RK73B3ATE203J				Y												Y			Y		
18																						
19	CHIP RESISTOR	R11		Y													Y			Y		
20	CR1/10W273JV				Y												Y			Y		
21																						
22	CHIP RESISTOR	R12		Y													Y			Y		
23	RK73B2HTE240J				Y												Y			Y		
24																						
25																						

*** A : SLIGHT B : PROLONGED

MODEL : LWT15H-5FF	ABNORMAL TESTING	TEST CONDITIONS	APPROVED BY	TESTED BY
		LOAD = 100% TYPICAL / Vin = 200VAC Ta = 25°C	Rakesh M	CT LEE

	PARTS NAME	PART NO.	TEST MODE	SHORT	OPEN	FIRE	SMOKE A	SMOKE B	BURST	SMELL	RED HOT	DAMAGE	FUSE BLOWN	O.C.P.	O.V.P.	NO OUTPUT	NO CHANGE	OTHERS	NOTE	O.K.	RETEST	NO GOOD
1	CHIP RESISTOR	R13		Y													Y			Y		
2	RK73M2BTD3R0K				Y												Y			Y		
3																						
4	CHIP RESISTOR	R14		Y													Y			Y		
5	RK73M2BTD3R0K				Y												Y			Y		
6																						
7	CHIP RESISTOR	R15		Y													Y			Y		
8	RK73M2BTD3R0K				Y												Y			Y		
9																						
10	CHIP RESISTOR	R16		Y													Y			Y		
11	RK73M2BTD3R0K				Y												Y			Y		
12																						
13	NOT ASSIGNED	R17																				
14																						
15	CHIP RESISTOR	R18		Y													Y			Y		
16	RK73B3ATE150J				Y												Y			Y		
17																						
18	CHIP RESISTOR	R19		Y													Y			Y		
19	RK73B3ATE150J				Y												Y			Y		
20																						
21	CHIP RESISTOR	R20		Y													Y			Y		
22	RK73B3ATE510J				Y												Y			Y		
23																						
24	CHIP RESISTOR	R21		Y										Y					HICCUP	Y		
25	RK73B2HTE472J				Y												Y			Y		

*** A : SLIGHT B : PROLONGED

MODEL : LWT15H-5FF	ABNORMAL TESTING	TEST CONDITIONS	APPROVED BY	TESTED BY
		LOAD = 100% TYPICAL / Vin = 200VAC Ta = 25°C	Ramesh.n	CTLEE

	PARTS NAME	PART NO.	TEST MODE	SHORT	OPEN	FIRE	SMOKE A	SMOKE B	BURST	SMELL	RED HOT	DAMAGE	FUSE BLOWN	O.C.P.	O.V.P.	NO OUTPUT	NO CHANGE	OTHERS	NOTE	OK	RETEST	NO GOOD
1	NOT ASSIGNED	R22																				
2																						
3	NOT ASSIGNED	R23																				
4																						
5	CHIP RESISTOR	R24		Y													Y			Y		
6	CR1/10W430JV				Y												Y			Y		
7																						
8	CHIP RESISTOR	R25		Y														Y	HICCUP	Y		
9	ERJ8GEYJ202V				Y												Y			Y		
10																						
11	CHIP RESISTOR	R26		Y											Y					Y		
12	ERJ8GEYJ102V				Y												Y			Y		
13																						
14	CHIP RESISTOR	R27		Y											Y					Y		
15	CR1/10W362JV				Y												Y			Y		
16																						
17	CHIP RESISTOR	R28		Y													Y			Y		
18	CR1/8W121JV				Y												Y			Y		
19																						
20	CHIP RESISTOR	R29		Y													Y			Y		
21	CR1/10W150JV				Y												Y			Y		
22																						
23	CHIP RESISTOR	R50		Y												Y				Y		
24	CR1/10W202JV				Y												Y			Y		
25																						

*** A : SLIGHT B : PROLONGED

MODEL : LWT15H-5FF	ABNORMAL TESTING														TEST CONDITIONS					APPROVED BY	TESTED BY			
															LOAD = 100% TYPICAL		Vin = 200VAC Ta = 25°C			Rameshan	CTLEE			
			TEST MODE																					
	PARTS NAME	PART NO.		SHORT	OPEN	FIRE	SMOKE A	SMOKE B	BURST	SMELL	RED HOT	DAMAGE	FUSE BLOWN		O.C.P.	O.V.P.	NO OUTPUT	NO CHANGE	OTHERS	NOTE	OK	RETEST	NO GOOD
1	CHIP RESISTOR	R51		Y													Y				Y		
2	CR1/10W682JV				Y												Y				Y		
3																							
4	CHIP RESISTOR	R52		Y														Y			Y		
5	ERJ8GEYJ100V				Y												Y				Y		
6																							
7	CHIP RESISTOR	R53		Y														Y			Y		
8	ERJ8GEYJ300V				Y												Y				Y		
9																							
10	CHIP RESISTOR	R54		Y											Y						Y		
11	CR1/10W102JV				Y													Y			Y		
12																							
13	CHIP RESISTOR	R55		Y														Y			Y		
14	CR1/10W182JV				Y													Y			Y		
15																							
16	CHIP RESISTOR	R56		Y														Y			Y		
17	CR1/10W362JV				Y													Y			Y		
18																							
19	RES.,VARIABLE	VR1	1-2	Y												Y					Y		
20	RJ-4W202		1-3	Y												Y					Y		
21			2-3	Y														Y			Y		
22			1		Y													Y			Y		
23			2		Y													Y			Y		
24			3		Y													Y			Y		
25																							

*** A : SLIGHT B : PROLONGED

MODEL : LWT15H-5FF	ABNORMAL TESTING	TEST CONDITIONS		APPROVED BY	TESTED BY
		LOAD = 100% TYPICAL	Vin = 200VAC Ta = 25°C	Ramesh-N	CTLEE

	PARTS NAME	PART NO.	TEST MODE	SHORT	OPEN	FIRE	SMOKE A	SMOKE B	BURST	SMELL	RED HOT	DAMAGE	FUSE BLOWN	O.C.P.	O.V.P.	NO OUTPUT	NO CHANGE	OTHERS	NOTE	OK	RETEST	NO GOOD
1	THERMISTOR	TH1		Y													Y			Y		
2	NTH9D100LA				Y											Y				Y		
3																						
4	JUMPER	J1			Y											Y				Y		
5	TINNED WIRE DIA. 0.6																					
6																						
7																						
8	TRANSFORMER	T1	1-2	Y														Y	HICCUP	Y		
9	PA78501		4-5	Y												Y				Y		
10			6-7	Y										Y						Y		
11			7-8	Y										Y						Y		
12			8-9	Y										Y						Y		
13			9-10	Y													Y			Y		
14			1		Y											Y				Y		
15			2		Y													Y	HICCUP	Y		
16			4		Y											Y				Y		
17			5		Y											Y				Y		
18			6		Y											Y			CH3	Y		
19			7		Y											Y			CH3	Y		
20			8		Y											Y			CH2	Y		
21			9		Y											Y			CH2	Y		
22			10		Y											Y				Y		
23			11		Y											Y				Y		
24																						
25																						

*** A : SLIGHT B : PROLONGED

MODEL : LWT15H-5FF	ABNORMAL TESTING	TEST CONDITIONS	APPROVED BY	TESTED BY
		LOAD = 100% TYPICAL / Vin = 200VAC Ta = 25°C	Rameshan	CTLEE

	PARTS NAME	PART NO.	TEST MODE	SHORT	OPEN	FIRE	SMOKE A	SMOKE B	BURST	SMELL	RED HOT	DAMAGE	FUSE BLOWN	O.C.P.	O.V.P.	NO OUTPUT	NO CHANGE	OTHERS	NOTE	OK	RETEST	NO GOOD
1	BALUN COIL	L1	1-2	Y													Y			Y		
2	PLA1530R5A020		3-4	Y													Y			Y		
3			1-4	Y									Y							Y		
4			2-3	Y									Y							Y		
5			1		Y											Y				Y		
6			2		Y											Y				Y		
7			3		Y											Y				Y		
8			4		Y											Y						
9																						
10	NOT ASSIGNED	L2																				
11																						
12	CHOKE COIL	L3		Y													Y			Y		
13	RD810A3F				Y											Y				Y		
14																						
15	FUSE	F1		Y													Y			Y		
16	FGLMT250V2.5A				Y											Y				Y		
17																						
18																						
19																						
20																						
21																						
22																						
23																						
24																						
25																						

*** A : SLIGHT B : PROLONGED

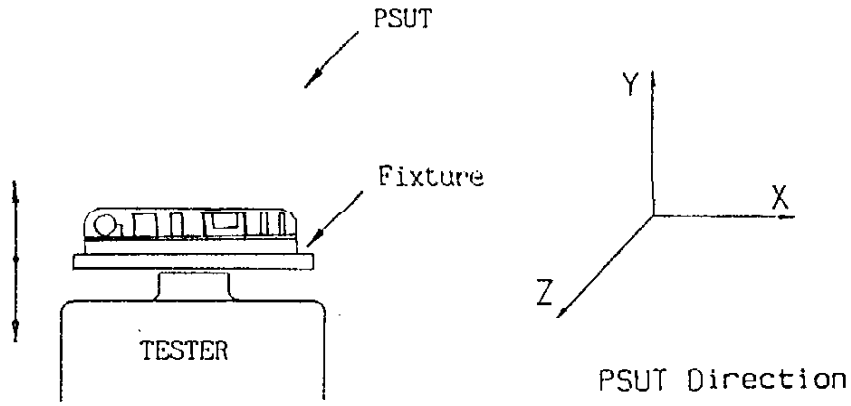
DATE . .

VIBRATION TEST

TYPES OF VIBRATION TEST :
A) OSCILLATOR FREQUENCY SWEEP

EQUIPMENT : EMIC CORPORATION VIBRATION TEST SYSTEM F-400-BM-E47
VIBRATION GENERATOR 905-FN

PROCEDURE :



A) VIBRATION TEST WITH FREQUENCY SWEEP

FREQUENCY	10 ~ 55 Hz
SWEEP TIME	1 min.
ACCELERATION	Fixed (2G)
DIRECTION	X, Y, Z
DURATION	1 hr. for each direction.

TEST POINT :
1. Output voltage (Apply some shock when checking the o/p voltage, and observe any abnormalities.)
2. Ripple voltage (At 100VAC and output)
3. Mechanical Condition (No breakage)

認・APPD	RENGO・ 15.8.94	設計 ENGR	Ramesh.m 1・8・94	図面番号 DWG-No.
検図 CHK	1・8・94	製図 DWG	Ramesh.m 1・8・94	-

TEST RESULTS :
(after vibration)

A)

TEST POINT	OUTPUT VOLTAGE (V)			RIPPLE VOLTAGE (mV)			MECHANICAL CONDITION	NOTE
	CH1	CH2	CH3	CH1	CH2	CH3		
BEFORE TEST DIRECTION	5.005	12.026	11.980	70	60	60	O.K	
X	5.005	12.026	11.980	70	60	60	O.K	
Y	5.005	12.026	11.980	70	60	60	O.K	
Z	5.005	12.026	11.980	70	60	60	O.K	

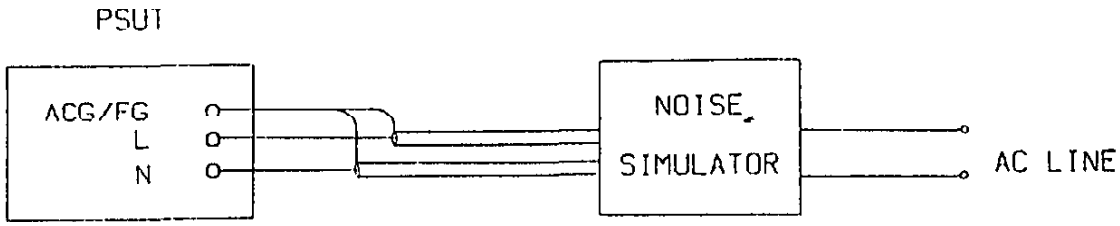
EVALUATION RESULT : (PASS) / FAIL

VISUAL INSPECTION RESULT : (PASS) / FAIL

認 APPD	RONBO 15 · 8 · 94	設 計 ENGR	Ramesh.m 1 · 8 · 94	図面番号 DWG – No.
検 図 CHK	1 · 8 · 94	製 図 DWG	Ramesh.m 1 · 8 · 94	

NOISE SIMULATION TEST

Circuit for measurement and equipment used :



MODEL : ENS-24X (SANKI)

Testing Conditions :

Input Voltage : 100VAC

Output Voltage : Rated

Output Current : ML, 100%

Ambient Temp. : 25 °C

Settings :

MODE ..... Normal , Common

TRIG SELECT .... Line or Ext (Line)

PULSE WIDTH 50, 200, 800, 1000ns

PHASE SHIFT .... 0 ~ 360 Degree

POLARITY ..... + , -

NOISE LEVEL .... 0 ~ 2KV

Acceptance Criteria :

1) No damage of PSUT

2) No output failure

3) Check any abnormalities (eg. noise)

Evaluation Result : (PASS) / FAIL

認・APPD	CCNEO 15.8.94	設計 ENGR	Ramesh.M 1.8.94	図面番号 DWG—No. —
検図 CHK	Gadkin 1.8.94	製図 DWG	Ramesh.M 1.8.94	

ELECTROSTATIC DISCHARGE TEST

EQUIPMENT : SET-30E (SANKI ELECTRONIC)

Discharge Resistor : 250 ohm
Capacitor unit : 200 nF

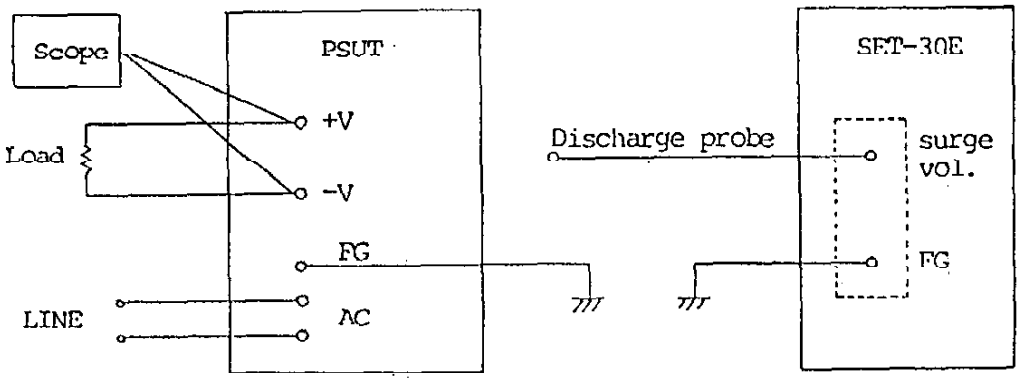
CONDITIONS :

Ambient Temperature	:	25°C
Input Voltage	:	100 VAC
Output Voltage	:	Rated
Output Current	:	Rated
Applied Voltage	:	±3kV, ±5kV, ±10kV, ±15kV

PROCEDURE :

The PSUT should be in a good working condition. Discharge the applied voltage to the touchable parts of the PSUT (Chassis, Input Terminal, Output Terminal, FG Terminal, ACG Terminal) and check any abnormalities.

Each point to be tested 3 times with different polarity. Voltage should be applied from 3kV to 15kV.



ACCEPTANCE CRITERIA :

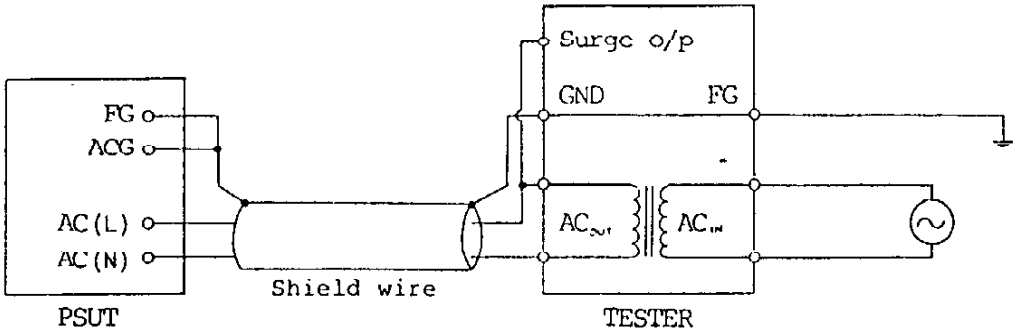
1. No damage of PSUT
2. No output failure
3. No abnormalities

EVALUATION RESULT : (PASS) / FAIL

認・APPD	KONDO 15.8.94	設計 ENGR	Ramesh.n 1・8・94	図面番号 DWG—No. —
検図 CHK	1・8・94	製図 DWG	Ramesh.n 1・8・94	

LIGHTNING SURGE TEST

TEST CIRCUIT, TEST EQUIPMENT

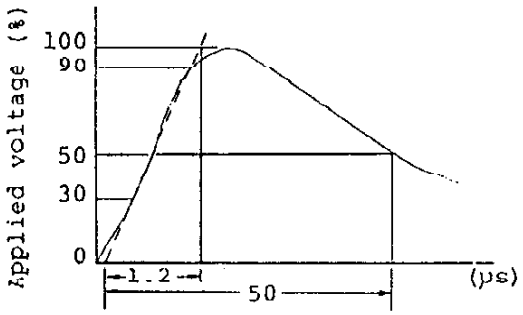


MODEL : LSG - 12K - E (SANKI)

CONDITIONS :

Input Voltage	:	AC100 V
Output Voltage	:	Rated
Output Current	:	Rated
Applied Voltage	:	From 3kV in steps of 0.5kV Check the max. withstand voltage
Applied Point	:	Between FG - AC
Number of Test	:	Each voltage 3 times
Polarity	:	+ , -
Ambient Temp.	:	25°C

APPLIED VOLTAGE WAVEFORM :



ACCEPTANCE CRITERIA :

1. No damage to the PSUT
2. No output failure
3. No abnormalities

EVALUATION RESULT : 3.0KV (PASS) / FAIL

認・APPD	CCNGO. 16・08・94	設計 ENGR	Ramesh.M 1・8・94	図面番号 DWG—No.
検図 CHK	15・8・94	製図 DWG	Ramesh.M 1・8・94	—