

LWT50H-*

RELIABILITY DATA

DWG. NO : PA787-79-01				
APPD.(NLJ QA)	APPD.(NLM QA)	APPROVED	CHECKED	ENGR.
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<i>26/JAN./95</i>	<i>[Signature]</i> <i>27/OCT/94</i>	<i>27/10/94</i>	<i>26.10.94</i>	<i>26.OCT.1994</i>

 **NEMIC-LAMBDA**

INDEX

1. M.T.B.F	-----	-T-1
2. Component Derating Data	-----	-T-2
3. ΔT Temperature Rise	-----	-T-9
4. E.Cap Lifetime Versus Load	-----	-T-10
5. Abnormal Test	-----	-T-18
6. Vibration Test	-----	-T-35
7. Noise Simulation Test	-----	-T-37
8. Electrostatic Discharge Test	-----	-T-38
9. Lightning Surge Test	-----	-T-39

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 : LWT50H-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 :

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

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)

N_i = Quantity of ith Generic Part

n = Number of Different Generic Part Categories

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

2. MTBF Values

1. G_F : (GROUND, FIXED)

$$\text{MTBF} = 404350 \text{ (HOURS)}$$

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

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

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 : 21/04/1994

MODEL : LWT50H-5FF

VIN = AC 100V

LOAD = 100% TYP

Ta = 40°C

Q1 2SK1358 TOSHIBA	Tchmax = 150 °C	$\Theta_{ch-c} = 0.833 \text{ } ^\circ\text{C/W}$	Pdmax = 150.0 W
	Pd = 2.98 W	$\Delta T_c = 45.0 \text{ } ^\circ\text{C}$	Tc = 85.0 °C
	Tch = Tc + (Θ_{ch-c})*Pd =		87.5 °C
	D.F. = 58.3 %		
Q2 2SC3425 TOSHIBA	Tjmax = 150 °C	$\Theta_{j-c} = 12.5 \text{ } ^\circ\text{C/W}$	Pdmax = 10 W
	Pd = 0 W	$\Delta T_c = 34.8 \text{ } ^\circ\text{C}$	Tc = 74.8 °C
	Tj = Tc + (Θ_{j-c})*Pd =		74.8 °C
	D.F. = 49.9 %		
Q3 2SA1213-Y TOSHIBA	Tjmax = 150 °C	$\Theta_{j-c} = 0.9 \text{ } ^\circ\text{C/W}$	Pdmax = 0.5 W
	Pd = 0.03 W	$\Delta T_c = 40.6 \text{ } ^\circ\text{C}$	Tc = 80.6 °C
	Tj = Tc + (Θ_{j-c})*Pd =		80.6 °C
	D.F. = 53.8 %		
A2 UPC24A15HF N.E.C	Tjmax = 150 °C	$\Theta_{j-c} = 5 \text{ } ^\circ\text{C/W}$	Pdmax = 20 W
	Pd = 2.4 W	$\Delta T_c = 51.3 \text{ } ^\circ\text{C}$	Tc = 91.3 °C
	Tj = Tc + (Θ_{j-c})*Pd =		103.3 °C
	D.F. = 68.9 %		
A3 UPC24A15HF N.E.C	Tjmax = 150 °C	$\Theta_{j-c} = 5 \text{ } ^\circ\text{C/W}$	Pdmax = 20 W
	Pd = 1.6 W	$\Delta T_c = 56.4 \text{ } ^\circ\text{C}$	Tc = 96.4 °C
	Tj = Tc + (Θ_{j-c})*Pd =		104.4 °C
	D.F. = 69.6 %		
A4 AN1431T MATSUSHITA	Tjmax = 150 °C	$\Theta_{j-c} = 156 \text{ } ^\circ\text{C/W}$	Pdmax = 0.55 W
	Pd = 0.006 W	$\Delta T_c = 26.5 \text{ } ^\circ\text{C}$	Tc = 66.5 °C
	Tj = Tc + (Θ_{j-c})*Pd =		67.4 °C
	D.F. = 45.0 %		
A50 UC2842ADW UNITRODE	Tjmax = 150 °C	$\Theta_{j-c} = 70 \text{ } ^\circ\text{C/W}$	Pdmax = 0.725 W
	Pd = 0.4 W	$\Delta T_c = 31.2 \text{ } ^\circ\text{C}$	Tc = 71.2 °C
	Tj = Tc + (Θ_{j-c})*Pd =		99.2 °C
	D.F. = 66.1 %		
D1 U3SB60 SHINDENGEN	Tjmax = 150 °C	$\Theta_{j-l} = 6 \text{ } ^\circ\text{C/W}$	Pdmax = 20.3 W
	Pd = 1.97 W	$\Delta T_l = 47.1 \text{ } ^\circ\text{C}$	T(lead) = 87.1 °C
	Tj = Tl + (Θ_{j-l})*Pd =		98.9 °C
	D.F. = 65.9 %		
D2 1SS193 TOSHIBA	Tjmax = 125 °C	$\Theta_{j-l} = 666 \text{ } ^\circ\text{C/W}$	Pdmax = 0.15 W
	Pd = 0 W	$\Delta T_l = 35.0 \text{ } ^\circ\text{C}$	T(lead) = 75.0 °C
	Tj = Tl + (Θ_{j-l})*Pd =		75.0 °C
	D.F. = 60.0 %		

SEMICONDUCTOR DERATING

DATE : 21/04/1994

MODEL : LWT50H-5FF

VIN = AC 100V

LOAD = 100% TYP

Ta = 40°C

D3 1NU41 TOSHIBA	Tjmax = 150 °C	$\Theta_{j-l} = 34 \text{ }^\circ\text{C/W}$	Pdmax = 3.7 W
	Pd = 0.33 W	$\Delta T_l = 55.2 \text{ }^\circ\text{C}$	T(lead) = 95.2 °C
	Tj = Tl + (Θ_{j-l})*Pd =		106.4 °C
	D.F. = 70.9 %		
D5 1SS193 TOSHIBA	Tjmax = 125 °C	$\Theta_{j-l} = 666 \text{ }^\circ\text{C/W}$	Pdmax = 0.15 W
	Pd = 0.002 W	$\Delta T_l = 41.0 \text{ }^\circ\text{C}$	T(lead) = 81.0 °C
	Tj = Tl + (Θ_{j-l})*Pd =		82.3 °C
	D.F. = 65.9 %		
D6 1NU41 TOSHIBA	Tjmax = 150 °C	$\Theta_{j-l} = 34 \text{ }^\circ\text{C/W}$	Pdmax = 3.7 W
	Pd = 0.2 W	$\Delta T_l = 40.5 \text{ }^\circ\text{C}$	T(lead) = 80.5 °C
	Tj = Tl + (Θ_{j-l})*Pd =		87.3 °C
	D.F. = 58.2 %		
D7 D10SC6M SHINDENGEN	Tjmax = 150 °C	$\Theta_{j-l} = 3.3 \text{ }^\circ\text{C/W}$	Pdmax = 5.8 W
	Pd = 1.65 W	$\Delta T_l = 56.2 \text{ }^\circ\text{C}$	T(lead) = 96.2 °C
	Tj = Tl + (Θ_{j-l})*Pd =		101.6 °C
	D.F. = 67.8 %		
D8 D10SC6M SHINDENGEN	Tjmax = 150 °C	$\Theta_{j-l} = 3.3 \text{ }^\circ\text{C/W}$	Pdmax = 5.8 W
	Pd = 1.65 W	$\Delta T_l = 57.5 \text{ }^\circ\text{C}$	T(lead) = 97.5 °C
	Tj = Tl + (Θ_{j-l})*Pd =		102.9 °C
	D.F. = 68.6 %		
D9 5FL2CZ41A TOSHIBA	Tjmax = 150 °C	$\Theta_{j-l} = 3.8 \text{ }^\circ\text{C/W}$	Pdmax = 33 W
	Pd = 1.04 W	$\Delta T_l = 41.4 \text{ }^\circ\text{C}$	T(lead) = 81.4 °C
	Tj = Tl + (Θ_{j-l})*Pd =		85.4 °C
	D.F. = 56.9 %		
D10 1N4001 G.I.	Tjmax = 175 °C	$\Theta_{j-l} = 26 \text{ }^\circ\text{C/W}$	Pdmax = 5.8 W
	Pd = 0 W	$\Delta T_l = 45.0 \text{ }^\circ\text{C}$	T(lead) = 85.0 °C
	Tj = Tl + (Θ_{j-l})*Pd =		85.0 °C
	D.F. = 48.6 %		
D11 5FL2CZ41A TOSHIBA	Tjmax = 150 °C	$\Theta_{j-l} = 3.8 \text{ }^\circ\text{C/W}$	Pdmax = 33 W
	Pd = 0.7 W	$\Delta T_l = 49.3 \text{ }^\circ\text{C}$	T(lead) = 89.3 °C
	Tj = Tl + (Θ_{j-l})*Pd =		92.0 °C
	D.F. = 61.3 %		
D13 1N4001 G.I.	Tjmax = 175 °C	$\Theta_{j-l} = 26 \text{ }^\circ\text{C/W}$	Pdmax = 5.8 W
	Pd = 0 W	$\Delta T_l = 41.1 \text{ }^\circ\text{C}$	T(lead) = 81.1 °C
	Tj = Tl + (Θ_{j-l})*Pd =		81.1 °C
	D.F. = 46.3 %		

SEMICONDUCTOR DERATING

DATE : 21/04/1994

MODEL : LWT50H-5FF

VIN = AC 100V

LOAD = 100% TYP.

Ta = 40°C

ZD1 1N4746A MOTOROLA	Tjmax = 200 °C	$\Theta_{j-l} = 175 \text{ }^\circ\text{C/W}$	Pdmax = 1 W
	Pd = 0 W	$\Delta T_l = 24.5 \text{ }^\circ\text{C}$	T(lead) = 64.5 °C
	$T_j = T_l + (\Theta_{j-l}) * Pd = 64.5 \text{ }^\circ\text{C}$		
	D.F. = 32.3 %		
ZD2 1N4746A MOTOROLA	Tjmax = 200 °C	$\Theta_{j-l} = 175 \text{ }^\circ\text{C/W}$	Pdmax = 1 W
	Pd = 0 W	$\Delta T_l = 42.6 \text{ }^\circ\text{C}$	T(lead) = 82.6 °C
	$T_j = T_l + (\Theta_{j-l}) * Pd = 82.6 \text{ }^\circ\text{C}$		
	D.F. = 41.3 %		
ZD3 1N4735A MOTOROLA	Tjmax = 200 °C	$\Theta_{j-l} = 175 \text{ }^\circ\text{C/W}$	Pdmax = 1 W
	Pd = 0 W	$\Delta T_l = 39.8 \text{ }^\circ\text{C}$	T(lead) = 79.8 °C
	$T_j = T_l + (\Theta_{j-l}) * Pd = 79.8 \text{ }^\circ\text{C}$		
	D.F. = 39.9 %		
ZD4 HZS5.1NB2-TA HITACHI	Tjmax = 150 °C	$\Theta_{j-l} = 438 \text{ }^\circ\text{C/W}$	Pdmax = 0.4 W
	Pd = 0 W	$\Delta T_l = 27.6 \text{ }^\circ\text{C}$	T(lead) = 67.6 °C
	$T_j = T_l + (\Theta_{j-l}) * Pd = 67.6 \text{ }^\circ\text{C}$		
	D.F. = 45.1 %		
PC1 (SCR) TLP647G TOSHIBA	Tjmax = 100 °C	$\Theta_{j-c} = 500 \text{ }^\circ\text{C/W}$	Pdmax = 0.15 W
	Pd = 0 W	$\Delta T_c = 20.3 \text{ }^\circ\text{C}$	Tc = 60.3 °C
	$T_j = T_c + (\Theta_{j-c}) * Pd = 60.3 \text{ }^\circ\text{C}$		
	D.F. = 60.3 %		
PC1 (LED) TLP647G TOSHIBA	Tjmax = 125 °C	$\Theta_{j-c} = - \text{ }^\circ\text{C/W}$	Pdmax = - W
	If = 0 mA	$\Delta T_c = 20.3 \text{ }^\circ\text{C}$	Tc = 60.3 °C
	If (max) = 45 mA (at Ta = 60.3 °C)		
	D.F. = 0 %		
PC2 (TRANSISTOR) TLP732 TOSHIBA	Tjmax = 125 °C	$\Theta_{j-c} = 667 \text{ }^\circ\text{C/W}$	Pdmax = 0.15 W
	Pd = 0.004 W	$\Delta T_c = 25.1 \text{ }^\circ\text{C}$	Tc = 65.1 °C
	$T_j = T_c + (\Theta_{j-c}) * Pd = 67.8 \text{ }^\circ\text{C}$		
	D.F. = 54.2 %		
PC2 (LED) TLP732 TOSHIBA	Tjmax = 125 °C	$\Theta_{j-c} = - \text{ }^\circ\text{C/W}$	Pdmax = - W
	If = 1.4 mA	$\Delta T_c = 25.1 \text{ }^\circ\text{C}$	Tc = 65.1 °C
	If (max) = 43 mA (at Ta = 65.1 °C)		
	D.F. = 3.3 %		

SEMICONDUCTOR DERATING

DATE : 21/04/1994

MODEL : LWT50H-5FF

VIN = AC 200V

LOAD = 100% TYP.

Ta = 40°C

Q1 2SK1358 TOSHIBA	Tchmax = 150 °C	$\Theta_{ch-c} = 0.833 \text{ }^\circ\text{C/W}$	Pdmax = 150.0 W
	Pd = 2.63 W	$\Delta T_c = 44.3 \text{ }^\circ\text{C}$	Tc = 84.3 °C
	Tch = Tc + (Θ_{ch-c})*Pd =		86.5 °C
	D.F. = 57.7 %		
Q2 2SC3425 TOSHIBA	Tjmax = 150 °C	$\Theta_{j-c} = 12.5 \text{ }^\circ\text{C/W}$	Pdmax = 10 W
	Pd = 0 W	$\Delta T_c = 33.8 \text{ }^\circ\text{C}$	Tc = 73.8 °C
	Tj = Tc + (Θ_{j-c})*Pd =		73.8 °C
	D.F. = 49.2 %		
Q3 2SA1213-Y TOSHIBA	Tjmax = 150 °C	$\Theta_{j-c} = 0.9 \text{ }^\circ\text{C/W}$	Pdmax = 0.5 W
	Pd = 0.03 W	$\Delta T_c = 39.4 \text{ }^\circ\text{C}$	Tc = 79.4 °C
	Tj = Tc + (Θ_{j-c})*Pd =		79.4 °C
	D.F. = 53.0 %		
A2 UPC24A15HF N.E.C	Tjmax = 150 °C	$\Theta_{j-c} = 5 \text{ }^\circ\text{C/W}$	Pdmax = 20 W
	Pd = 2.4 W	$\Delta T_c = 49.4 \text{ }^\circ\text{C}$	Tc = 89.4 °C
	Tj = Tc + (Θ_{j-c})*Pd =		101.4 °C
	D.F. = 67.6 %		
A3 UPC24A15HF N.E.C	Tjmax = 150 °C	$\Theta_{j-c} = 5 \text{ }^\circ\text{C/W}$	Pdmax = 20 W
	Pd = 1.6 W	$\Delta T_c = 54.3 \text{ }^\circ\text{C}$	Tc = 94.3 °C
	Tj = Tc + (Θ_{j-c})*Pd =		102.3 °C
	D.F. = 68.2 %		
A4 AN1431T MAITSUSHITA	Tjmax = 150 °C	$\Theta_{j-c} = 156 \text{ }^\circ\text{C/W}$	Pdmax = 0.55 W
	Pd = 0.006 W	$\Delta T_c = 26.4 \text{ }^\circ\text{C}$	Tc = 66.4 °C
	Tj = Tc + (Θ_{j-c})*Pd =		67.3 °C
	D.F. = 44.9 %		
A50 UC2842ADW UNITRODE	Tjmax = 150 °C	$\Theta_{j-c} = 70 \text{ }^\circ\text{C/W}$	Pdmax = 0.725 W
	Pd = 0.4 W	$\Delta T_c = 31.4 \text{ }^\circ\text{C}$	Tc = 71.4 °C
	Tj = Tc + (Θ_{j-c})*Pd =		99.4 °C
	D.F. = 66.3 %		
D1 D3SB60 SHINDENGEN	Tjmax = 150 °C	$\Theta_{j-l} = 6 \text{ }^\circ\text{C/W}$	Pdmax = 20.3 W
	Pd = 1.09 W	$\Delta T_l = 30.9 \text{ }^\circ\text{C}$	T(lead) = 70.9 °C
	Tj = Tl + (Θ_{j-l})*Pd =		77.4 °C
	D.F. = 51.6 %		
D2 1SS193 TOSHIBA	Tjmax = 125 °C	$\Theta_{j-l} = 666 \text{ }^\circ\text{C/W}$	Pdmax = 0.15 W
	Pd = 0 W	$\Delta T_l = 33.8 \text{ }^\circ\text{C}$	T(lead) = 73.8 °C
	Tj = Tl + (Θ_{j-l})*Pd =		73.8 °C
	D.F. = 59.0 %		

SEMICONDUCTOR DERATING

DATE: 21/04/1994

MODEL: LWT50H-5FF

VIN = AC 200V

LOAD = 100% TYP.

Ta = 40°C

D3 1NU41 TOSHIBA	Tjmax = 150 °C	$\Theta_{j-l} = 34 \text{ }^\circ\text{C/W}$	Pdmax = 3.7 W
	Pd = 0.26 W	$\Delta T_l = 45.4 \text{ }^\circ\text{C}$	T(lead) = 85.4 °C
	$T_j = T_l + (\Theta_{j-l}) \cdot P_d =$		94.2 °C
	D.F. = 62.8 %		
D5 1SS193 TOSHIBA	Tjmax = 125 °C	$\Theta_{j-l} = 666 \text{ }^\circ\text{C/W}$	Pdmax = 0.15 W
	Pd = 0.002 W	$\Delta T_l = 40.1 \text{ }^\circ\text{C}$	T(lead) = 80.1 °C
	$T_j = T_l + (\Theta_{j-l}) \cdot P_d =$		81.4 °C
	D.F. = 65.1 %		
D6 1NU41 TOSHIBA	Tjmax = 150 °C	$\Theta_{j-l} = 34 \text{ }^\circ\text{C/W}$	Pdmax = 3.7 W
	Pd = 0.17 W	$\Delta T_l = 37.4 \text{ }^\circ\text{C}$	T(lead) = 77.4 °C
	$T_j = T_l + (\Theta_{j-l}) \cdot P_d =$		83.2 °C
	D.F. = 55.5 %		
D7 D10SC6M SHINDENGEN	Tjmax = 150 °C	$\Theta_{j-l} = 3.3 \text{ }^\circ\text{C/W}$	Pdmax = 5.8 W
	Pd = 1.65 W	$\Delta T_l = 55.0 \text{ }^\circ\text{C}$	T(lead) = 95.0 °C
	$T_j = T_l + (\Theta_{j-l}) \cdot P_d =$		100.4 °C
	D.F. = 67.0 %		
D8 D10SC6M SHINDENGEN	Tjmax = 150 °C	$\Theta_{j-l} = 3.3 \text{ }^\circ\text{C/W}$	Pdmax = 5.8 W
	Pd = 1.65 W	$\Delta T_l = 56.0 \text{ }^\circ\text{C}$	T(lead) = 96.0 °C
	$T_j = T_l + (\Theta_{j-l}) \cdot P_d =$		101.4 °C
	D.F. = 67.6 %		
D9 5FL2CZ41A TOSHIBA	Tjmax = 150 °C	$\Theta_{j-l} = 3.8 \text{ }^\circ\text{C/W}$	Pdmax = 33 W
	Pd = 1.04 W	$\Delta T_l = 40.6 \text{ }^\circ\text{C}$	T(lead) = 80.6 °C
	$T_j = T_l + (\Theta_{j-l}) \cdot P_d =$		84.6 °C
	D.F. = 56.4 %		
D10 1N4001 G.I.	Tjmax = 175 °C	$\Theta_{j-l} = 26 \text{ }^\circ\text{C/W}$	Pdmax = 5.8 W
	Pd = 0 W	$\Delta T_l = 44.9 \text{ }^\circ\text{C}$	T(lead) = 84.9 °C
	$T_j = T_l + (\Theta_{j-l}) \cdot P_d =$		84.9 °C
	D.F. = 40.3 %		
D11 5FL2CZ41A TOSHIBA	Tjmax = 150 °C	$\Theta_{j-l} = 3.8 \text{ }^\circ\text{C/W}$	Pdmax = 33 W
	Pd = 0.7 W	$\Delta T_l = 48.1 \text{ }^\circ\text{C}$	T(lead) = 88.1 °C
	$T_j = T_l + (\Theta_{j-l}) \cdot P_d =$		90.8 °C
	D.F. = 60.5 %		
D13 1N4001 G.I.	Tjmax = 175 °C	$\Theta_{j-l} = 26 \text{ }^\circ\text{C/W}$	Pdmax = 5.8 W
	Pd = 0 W	$\Delta T_l = 41.2 \text{ }^\circ\text{C}$	T(lead) = 81.2 °C
	$T_j = T_l + (\Theta_{j-l}) \cdot P_d =$		81.2 °C
	D.F. = 46.4 %		

SEMICONDUCTOR DERATING

DATE : 21/04/1994

MODEL : LWT50H-5FF

VIN = AC 200V

LOAD = 100% TYP.

Ta = 40°C

ZD1 1N4746A MOTOROLA	Tjmax = 200 °C	$\Theta_{j-l} = 175 \text{ }^\circ\text{C/W}$	Pdmax = 1 W
	Pd = 0 W	$\Delta T_l = 26.2 \text{ }^\circ\text{C}$	T(lead) = 66.2 °C
	Tj = Tl + (Θ_{j-l})*Pd =		66.2 °C
	D.F. = 33.1 %		
ZD2 1N4746A MOTOROLA	Tjmax = 200 °C	$\Theta_{j-l} = 175 \text{ }^\circ\text{C/W}$	Pdmax = 1 W
	Pd = 0 W	$\Delta T_l = 38.2 \text{ }^\circ\text{C}$	T(lead) = 78.2 °C
	Tj = Tl + (Θ_{j-l})*Pd =		78.2 °C
	D.F. = 39.1 %		
ZD3 1N4735A MOTOROLA	Tjmax = 200 °C	$\Theta_{j-l} = 175 \text{ }^\circ\text{C/W}$	Pdmax = 1 W
	Pd = 0 W	$\Delta T_l = 36.2 \text{ }^\circ\text{C}$	T(lead) = 76.2 °C
	Tj = Tl + (Θ_{j-l})*Pd =		76.2 °C
	D.F. = 38.1 %		
ZD4 HZS5.1NB2-TA HITACHI	Tjmax = 150 °C	$\Theta_{j-l} = 438 \text{ }^\circ\text{C/W}$	Pdmax = 0.4 W
	Pd = 0 W	$\Delta T_l = 27.6 \text{ }^\circ\text{C}$	T(lead) = 67.6 °C
	Tj = Tl + (Θ_{j-l})*Pd =		67.6 °C
	D.F. = 45.1 %		
PC1 (SCR) TLP647G TOSHIBA	Tjmax = 100 °C	$\Theta_{j-c} = 500 \text{ }^\circ\text{C/W}$	Pdmax = 0.15 W
	Pd = 0 W	$\Delta T_c = 20.4 \text{ }^\circ\text{C}$	Tc = 60.4 °C
	Tj = Tc + (Θ_{j-c})*Pd =		60.4 °C
	D.F. = 60.4 %		
PC1 (LED) TLP647G TOSHIBA	Tjmax = 125 °C	$\Theta_{j-c} = - \text{ }^\circ\text{C/W}$	Pdmax = - W
	If = 0 mA	$\Delta T_c = 20.4 \text{ }^\circ\text{C}$	Tc = 60.4 °C
	If (max) = 45 mA (at Ta = 60.4 °C)		
	D.F. = 0 %		
PC2 (TRANSISTOR) TLP732 TOSHIBA	Tjmax = 125 °C	$\Theta_{j-c} = 667 \text{ }^\circ\text{C/W}$	Pdmax = 0.15 W
	Pd = 0.004 W	$\Delta T_c = 25.0 \text{ }^\circ\text{C}$	Tc = 65.0 °C
	Tj = Tc + (Θ_{j-c})*Pd =		67.7 °C
	D.F. = 54.1 %		
PC2 (LED) TLP732 TOSHIBA	Tjmax = 125 °C	$\Theta_{j-c} = - \text{ }^\circ\text{C/W}$	Pdmax = - W
	If = 1.4 mA	$\Delta T_c = 25.0 \text{ }^\circ\text{C}$	Tc = 65.0 °C
	If (max) = 43 mA (at Ta = 65.0 °C)		
	D.F. = 3.3 %		

LWT50H 5FF

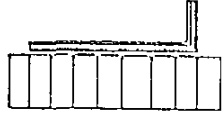
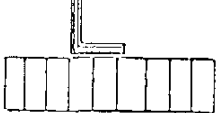
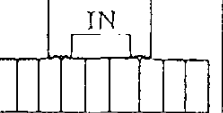
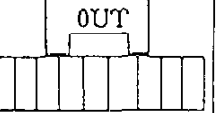
ΔT TEMPERATURE RISE

MODEL : LWT50H-5FF

Ta : 40°C

Sym.	Parts Name	ΔT Temperature Rise (°C)			
		Mounting A	Mounting B	Mounting C	Mounting D
Q1	MOSFET	45.0	51.2	24.9	25.9
D1	BRIDGE DIODE	47.4	51.2	26.2	32.6
D7	S.B.D	56.2	59.0	25.5	29.7
T1	TRANS., PULSE	41.4	58.3	26.9	27.1
L1	BALUN COIL	22.6	36.6	13.0	18.2
C7	E.CAP	22.6	28.2	15.0	17.1
C14	E.CAP	38.2	39.5	22.5	19.0

Conditions

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

ELECTROLYTIC CAPACITOR LIFETIME VERSUS LOAD

MODEL : LWT50H-5FF

MOUNTING POSITION : A

Vin : 100VAC

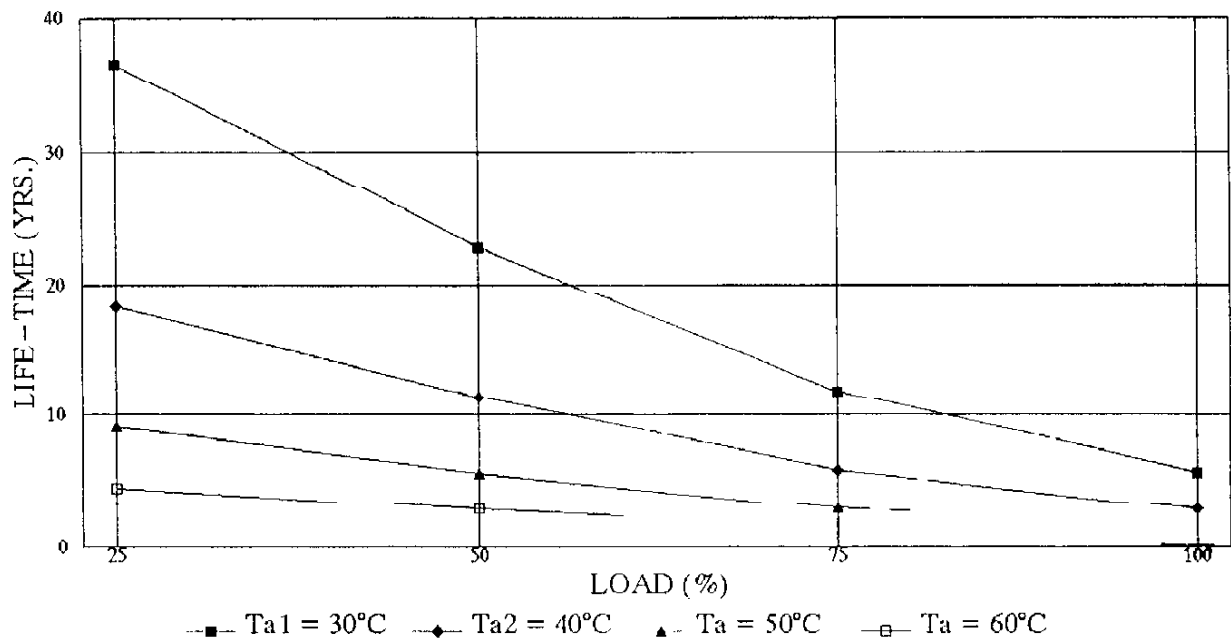
Iout (100%) = CH1 : 6A

CH2 : 0.8A

CH3 : 0.53A

LOAD (%)	LIFETIME (YRS.)			
	Ta1 = 30°C	Ta2 = 40°C	Ta3 = 50°C	Ta4 = 60°C
25	36.5	18.3	9.1	4.6
50	22.8	11.4	5.7	2.9
75	11.9	5.9	3.0	-
100	5.7	2.9	-	-

GRAPH OF ELECTROLYTIC CAPACITOR LIFETIME VERSUS LOAD



FORMULA :

1. AL. Elec. capacitor

$$L = L_0 \times 2^{\frac{105 - T_c}{10}} \quad (\text{Yrs})$$

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

L₀ : Guarantee life for Elec. capacitor

T_c : Case temperature of Elec. capacitor

ELECTROLYTIC CAPACITOR LIFETIME VERSUS LOAD

MODEL : LWT50H-5FF

MOUNTING POSITION: B

Vin : 100VAC

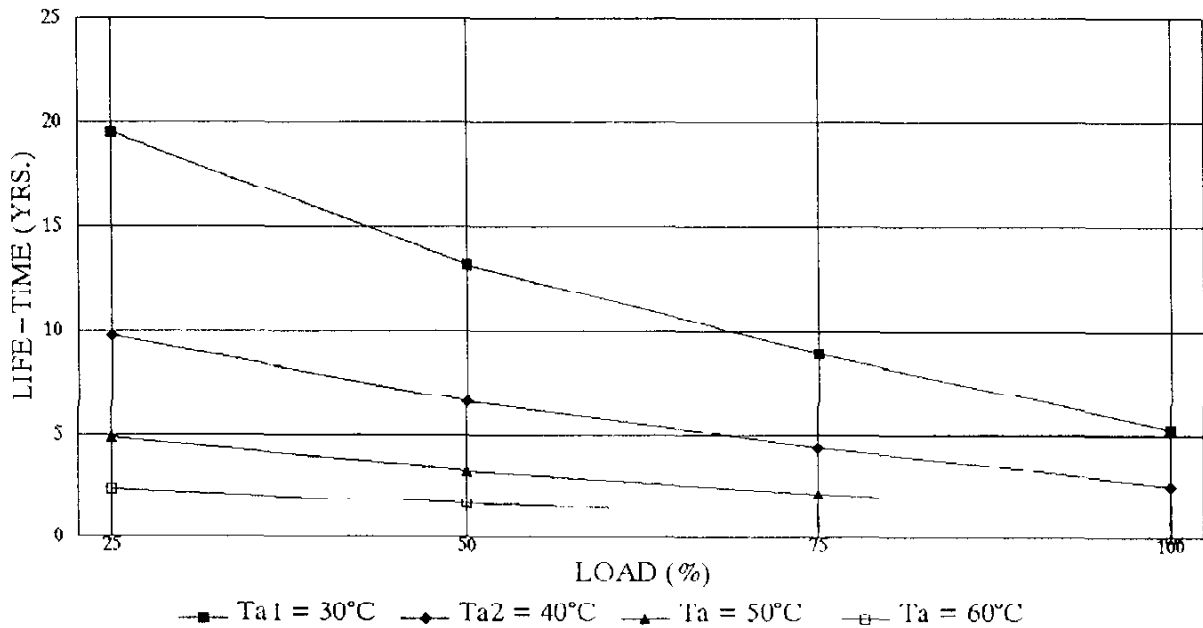
Iout (100%) = CH1 : 6A

CH2 : 0.8A

CH3 : 0.53A

LOAD (%)	LIFETIME (YRS.)			
	Ta1 = 30°C	Ta2 = 40°C	Ta3 = 50°C	Ta4 = 60°C
25	19.5	9.8	4.9	2.4
50	13.3	6.6	3.3	1.7
75	8.9	4.5	2.2	-
100	5.3	2.7	-	-

GRAPH OF ELECTROLYTIC CAPACITOR LIFETIME VERSUS LOAD



FORMULA :

1. AL. Elec. capacitor

$$L = L_0 \times 2^{\frac{105 - T_c}{10}} \quad (\text{Yrs})$$

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

L₀ : Guarantee life for Elec. capacitor

T_c : Case temperature of Elec. capacitor

ELECTROLYTIC CAPACITOR LIFETIME VERSUS LOAD

MODEL : LWT50H-5FF

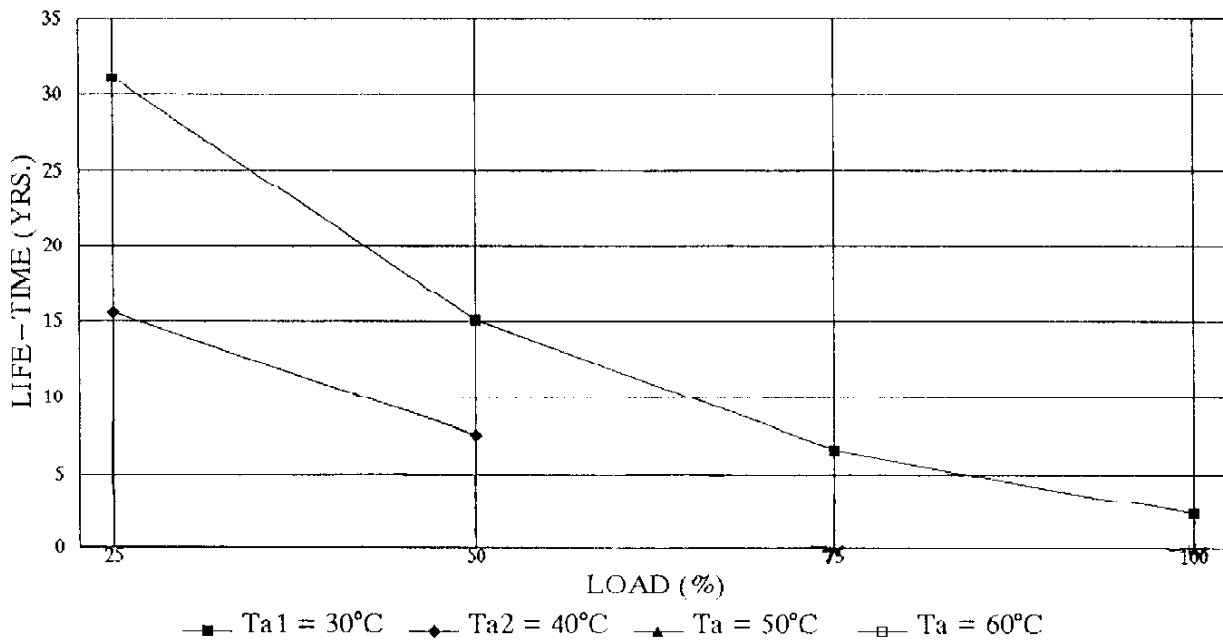
MOUNTING POSITION: C

Vin : 100VAC

Iout (100%) = CH1 : 6A
 CI12 : 0.0A
 CH3 : 0.53A

LOAD (%)	LIFETIME (YRS.)			
	Ta1 = 30°C	Ta2 = 40°C	Ta3 = 50°C	Ta4 = 60°C
25	31.1	15.6	—	—
50	15.0	7.5	—	—
75	6.5	—	—	—
100	2.3	—	—	—

GRAPH OF ELECTROLYTIC CAPACITOR LIFETIME VERSUS LOAD



FORMULA :

1. AL. Elec. capacitor

$$L = L_0 \times 2^{\frac{105 - T_c}{10}} \quad (\text{Yrs})$$

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

L₀ : Guarantee life for Elec. capacitor

T_c : Case temperature of Elec. capacitor

ELECTROLYTIC CAPACITOR LIFETIME VERSUS LOAD

MODEL : LWT50H-5FF

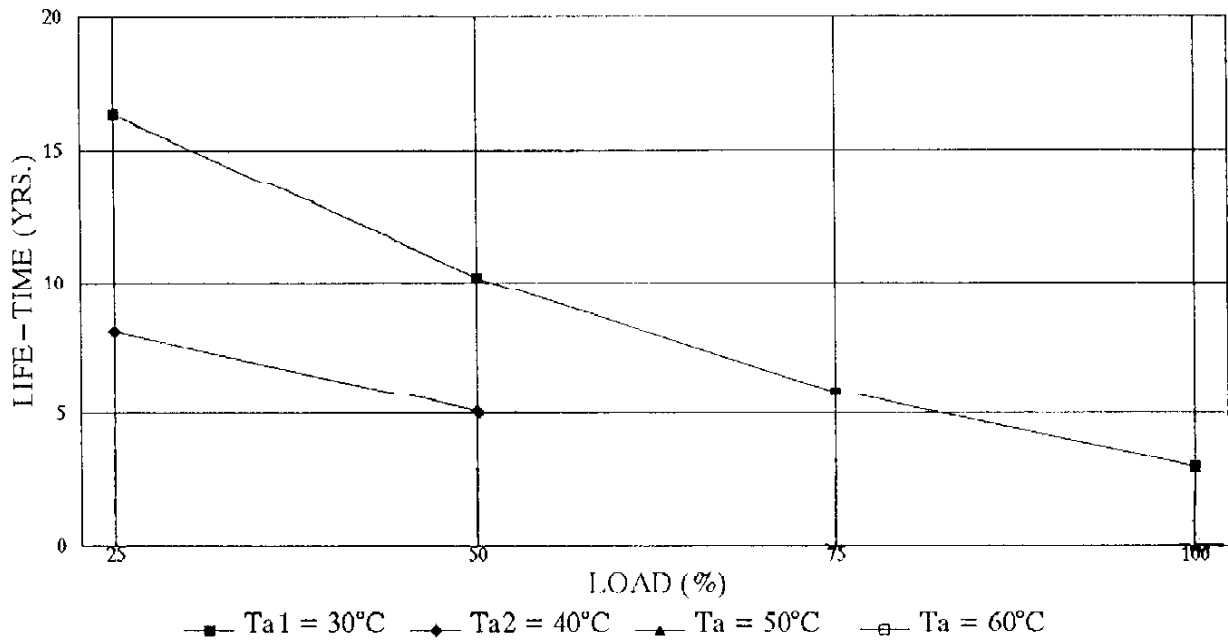
MOUNTING POSITION : D

V_{in} : 100VAC

I_{out} (100%) = CH1 : 6A
 CH2 : 0.8A
 CH3 : 0.53A

LOAD (%)	LIFETIME (YRS.)			
	Ta1 = 30°C	Ta2 = 40°C	Ta3 = 50°C	Ta4 = 60°C
25	16.3	8.2	—	—
50	10.2	5.1	—	—
75	5.9	—	—	—
100	3.0	—	—	—

GRAPH OF ELECTROLYTIC CAPACITOR LIFETIME VERSUS LOAD



FORMULA :

1. AL. Elec. capacitor

$$L = L_o \times 2^{\frac{105 - T_c}{10}} \quad (\text{Yrs})$$

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

L_o : Guarantee life for Elec. capacitor

T_c : Case temperature of Elec. capacitor

ELECTROLYTIC CAPACITOR LIFETIME VERSUS LOAD

MODEL : LWT50H-5FF

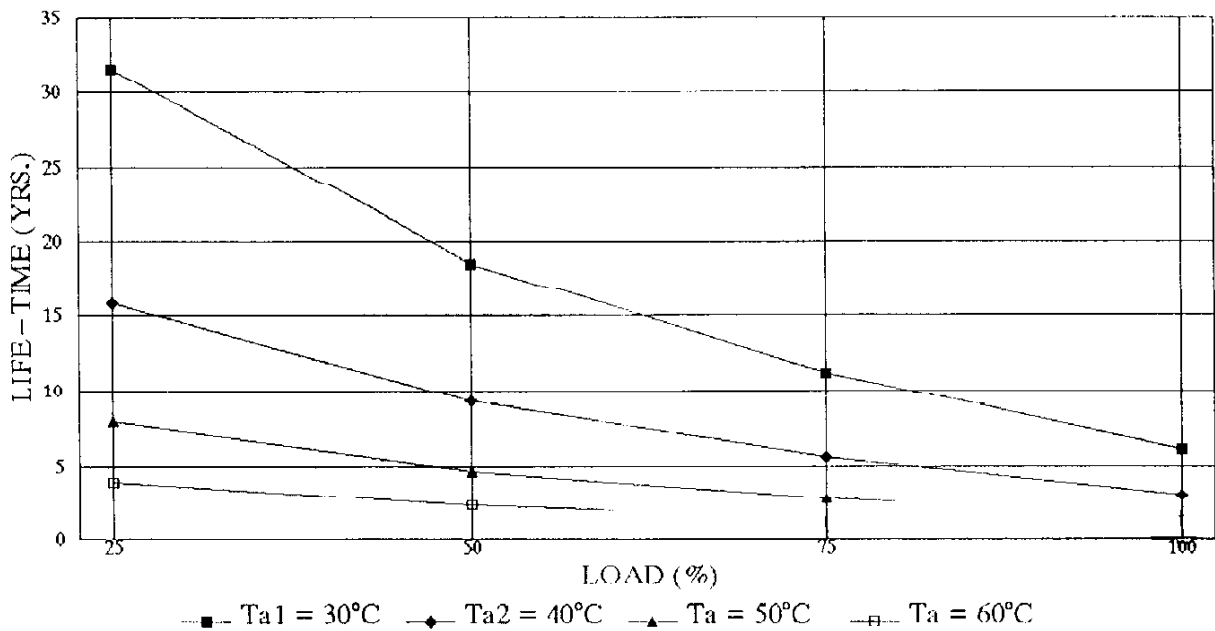
MOUNTING POSITION : A

Vin : 200VAC

lout (100%) = CH1 : 6A
 CH2 : 0.8A
 CH3 : 0.53A

LOAD (%)	LIFETIME (YRS.)			
	Ta1 = 30°C	Ta2 = 40°C	Ta3 = 50°C	Ta4 = 60°C
25	31.6	15.8	7.9	3.9
50	18.5	9.3	4.6	2.3
75	11.2	5.6	2.8	—
100	6.1	3.0	—	—

GRAPH OF ELECTROLYTIC CAPACITOR LIFETIME VERSUS LOAD



FORMULA :

1. AL. Elec. capacitor

$$L = L_o \times 2^{\frac{105 - T_c}{10}} \quad (\text{Yrs})$$

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

L_o : Guarantee life for Elec. capacitor

T_c : Case temperature of Elec. capacitor

ELECTROLYTIC CAPACITOR LIFETIME VERSUS LOAD

MODEL : LWT50H-5FF

MOUNTING POSITION : B

Vin : 200VAC

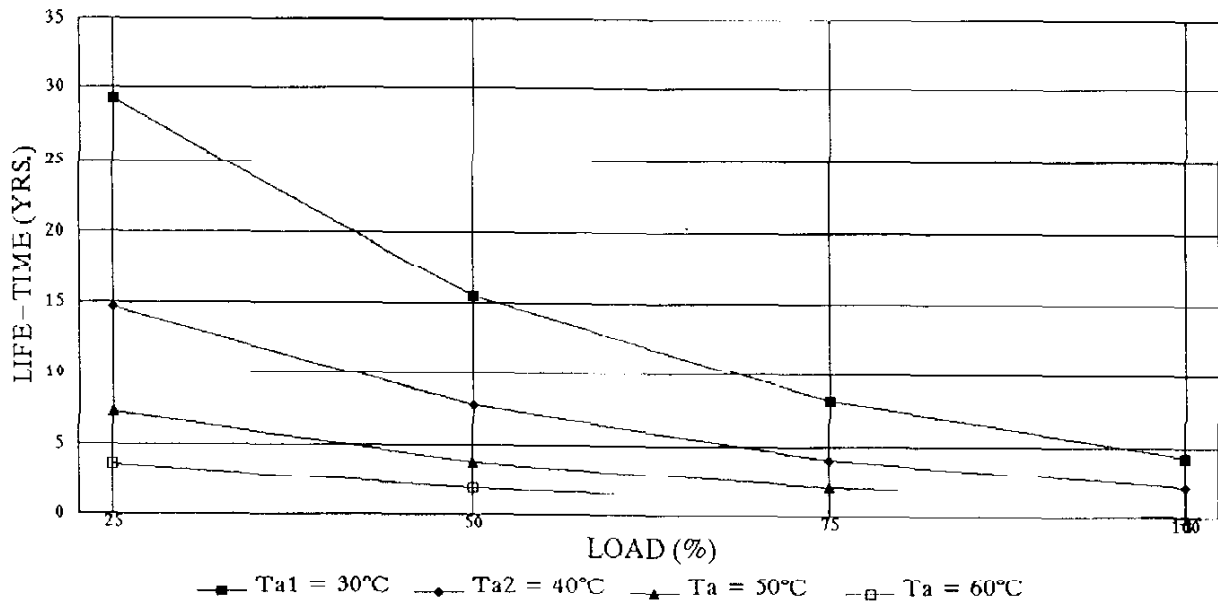
Iout (100%) = CH1 : 6A

CH2 : 0.8A

CH3 : 0.53A

LOAD (%)	LIFETIME (YRS.)			
	Ta1 = 30°C	Ta2 = 40°C	Ta3 = 50°C	Ta4 = 60°C
25	29.3	14.6	7.3	3.7
50	15.5	7.7	3.9	1.9
75	8.2	4.1	2.0	—
100	4.3	2.2	—	—

GRAPH OF ELECTROLYTIC CAPACITOR LIFETIME VERSUS LOAD



FORMULA :

I. AL. Elec. capacitor

$$L = L_0 \times 2^{\frac{105 - T_c}{10}} \quad (\text{Yrs})$$

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

L₀ : Guarantee life for Elec. capacitor

T_c : Case temperature of Elec. capacitor

ELECTROLYTIC CAPACITOR LIFETIME VERSUS LOAD

MODEL : LWT50H-5FF

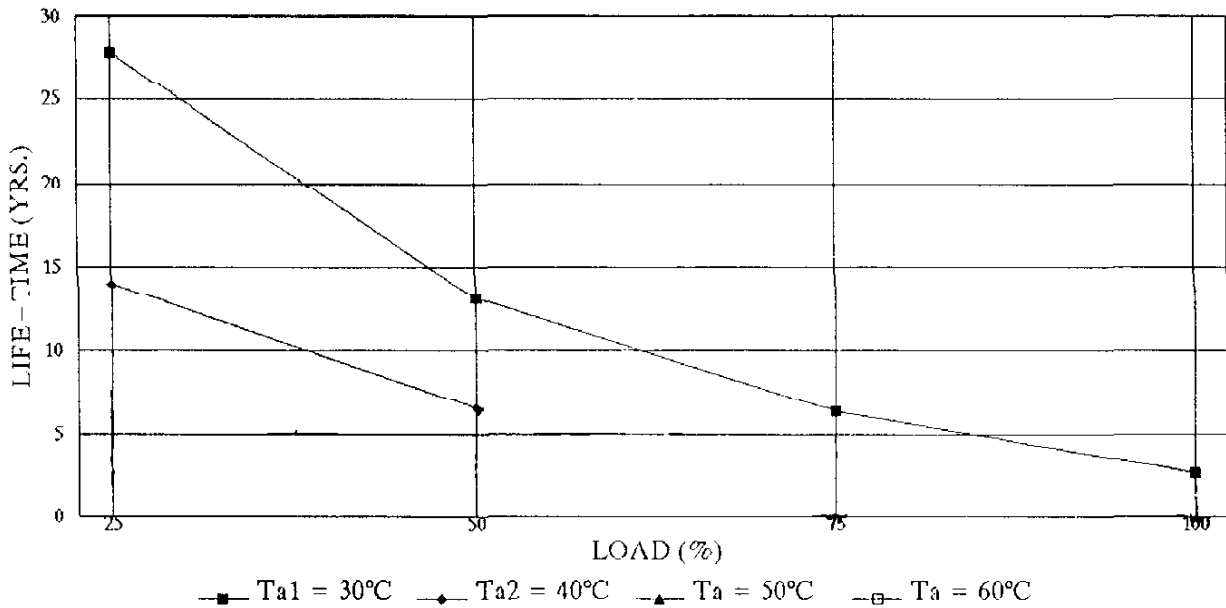
MOUNTING POSITION : C

Vin : 200VAC

Iout (100%) = CH1 : 6A
 CH2 : 0.8A
 CH3 : 0.53A

LOAD (%)	LIFETIME (YRS.)			
	Ta1 = 30°C	Ta2 = 40°C	Ta3 = 50°C	Ta4 = 60°C
25	27.9	13.9	--	--
50	13.1	6.5	--	--
75	6.4	--	--	--
100	2.8	--	--	--

GRAPH OF ELECTROLYTIC CAPACITOR LIFETIME VERSUS LOAD



FORMULA :

1. AL. Elec. capacitor

$$L = L_o \times 2^{\frac{105 - T_c}{10}} \quad (\text{Yrs})$$

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

L_o : Guarantee life for Elec. capacitor

T_c : Case temperature of Elec. capacitor

ELECTROLYTIC CAPACITOR LIFETIME VERSUS LOAD

MODEL : LWT50H-5FF

MOUNTING POSITION : D

Vin : 200VAC

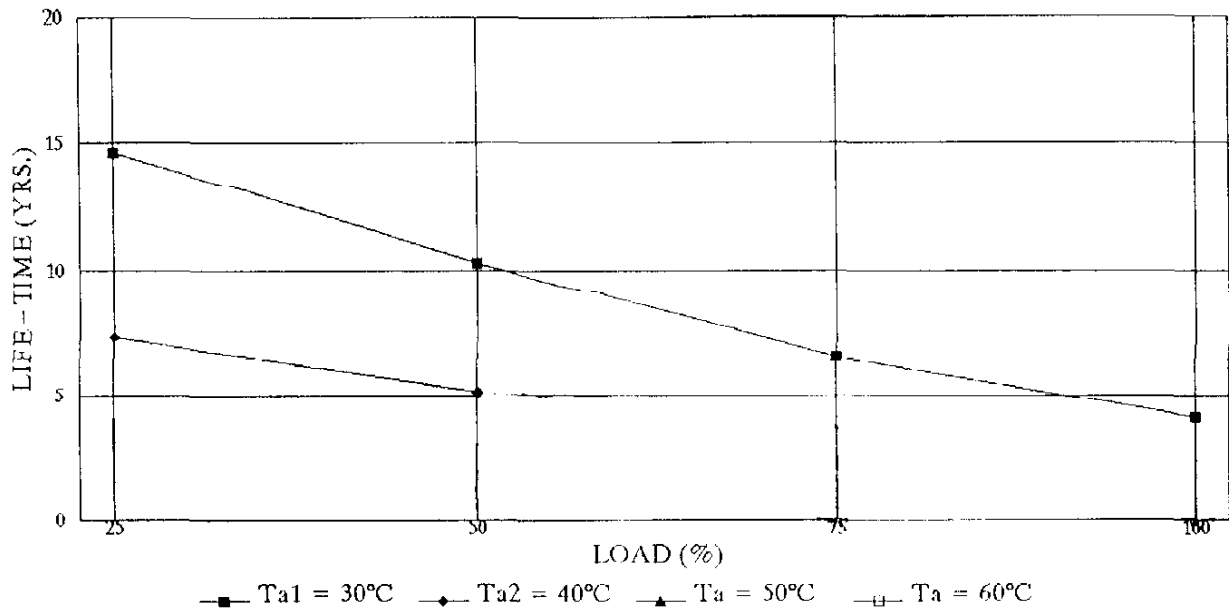
Iout (100%) = CH1 : 6A

CH2 : 0.8A

CH3 : 0.53A

LOAD (%)	LIFETIME (YRS.)			
	Ta1 = 30°C	Ta2 = 40°C	Ta3 = 50°C	Ta4 = 60°C
25	14.6	7.3	—	—
50	10.3	5.1	—	—
75	6.5	—	—	—
100	4.1	—	—	—

GRAPH OF ELECTROLYTIC CAPACITOR LIFETIME VERSUS LOAD



FORMULA :

1. AL. Elec. capacitor

$$L = L_0 \times 2^{\frac{105 - T_c}{10}} \quad (\text{Yrs})$$

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

L₀ : Guarantee life for Elec. capacitor

T_c : Case temperature of Elec. capacitor

MODEL : LWT50H-522		ABNORMAL TESTING										TEST CONDITIONS			APPROVED BY	TESTED BY					
PARTS NAME	PART NO.	TEST MODE	SHORT	OPEN	FIRE	SMOKE A	SMOKE B	BURST	SMELL	RED HOT	DAMAGE	FUSE	O.C.P.	O.V.P.	NO OUTPUT	NO CHANGE	OTHERS	NOTE	OK	TEST	D
MOSFET	Q1	D-G	Y								Y	Y						Q3, ZD2	Y		
2SK1358		D-S	Y							Y	Y							ZD3	Y		
		G-S	Y										Y						Y		
		D	Y										Y						Y		
		S	Y										Y					Q1, ZD3	Y		
		G	Y							Y	Y								Y		
TRANSISTOR	Q2	C-E	Y		Y					Y	Y							R8 RED HOT & OPENS	Y		
2SC3425		C-B	Y		Y					Y	Y							R8 RED HOT & OPENS	Y		
		B-E	Y												Y				Y		
		C		Y											Y				Y		
		E		Y											Y				Y		
		B		Y											Y				Y		
																			Y		
TRANSISTOR	Q3	C-E	Y										Y						Y		
2SA1213-Y		C-B	Y										Y						Y		
		B-E	Y												Y				Y		
		C		Y															Y		
		E		Y						Y	Y							Q1, ZD3	Y		
		B		Y						Y	Y							Q1, ZD3	Y		
																			Y		
HIC	A1	1-2	Y																Y		
AB712		2-3	Y										Y						Y		
		3-4	Y										Y						Y		
		4-5	Y												Y				Y		

*** A : SLIGHT B : PROLONGED

MODEL : LWT50H - 522		ABNORMAL TESTING										TEST CONDITIONS		APPROVED BY	TESTED BY	
												LOAD = 100%	Vin = 200VAC Ta = 25°C	RCNEO 11/05/94	Wp 11/15/94	
PARTS NAME	PART NO.	TEST MODE		S M O K E E A B	S M O K E E A B	S M E L L	R E D A M A G E	F U S E L O W N	O . C . P .	O N O U T P U T	N O C H A N G E	O T H E R S	N O T E	O K	R E T E S T	
		S H O R T	O P E N													
1	CHIP DIODE															
2	1SS193															
3																
4	F.R.D															
5	1NU41															
6																
7	NOT ASSIGNED															
8																
9	CHIP DIODE															
10	1SS193															
11																
12	F.R.D															
13	1NU41															
14																
15	S.B.D															
16	D10SC3M															
17																
18	S.B.D															
19	D10SC3M															
20																
21	F.R.D															
22	5FL2CZ41A															
23																
24	F.R.D															
25	1N4001															

*** A : SLIGHT B : PRO.ONGED

MODEL : LWT50H-522		ABNORMAL TESTING										TEST CONDITIONS			APPROVED BY	TESTED BY		
		TEST MODE										LOAD = 100%	ViN = 200VAC Ta = 25°C	RCSNGD 11/05/94	11/14/94			
PARTS NAME	PART NO.	S H O R T	O P E N	F I R E	S M O K E A	S M O K E B	B U R S T	S M E L L	R E D H O T	D A M A G E	F U S E L O W N	O . V . P .	O . C . P .	N O O U T P U T	N O C H A N G E	O T H E R S	NOTE	
1	F.R.D		Y									Y				HICCUP		Y
2	5FL2CZ41A		Y											Y		CH3		Y
3																		
4	NOT ASSIGNED																	
5																		
6	F.R.D		Y									Y				HICCUP		Y
7	1N4001																	Y
8																		Y
9	F.R.D		Y															Y
10	1SS193-TE85L																	Y
11																		Y
12	ZENER DIODE		Y													Y HICCUP		Y
13	1N476A																	Y
14																		Y
15	ZENER DIODE		Y									Y						Y
16	1N476A																	Y
17																		Y
18	ZENER DIODE		Y													Y VDS WAVEFORM UNSTABLE		Y
19	1N4735A																	Y
20																		Y
21	ZENER DIODE		Y									Y						Y
22	HZS5.1NB2																	Y
23																		Y
24	CAP., FILM		Y								Y							Y
25	ECQ-U2A334MX																	Y

*** A : SLIGHT B : PROLONGED

MODEL: LWT50H-522		ABNORMAL TESTING												TEST CONDITIONS		APPROVED BY	TESTED BY				
PARTS NAME		PAPT NC.	TEST MODE												LOAD = 100%	Vin = 200VAC Ta = 25°C	SFCN60 11/05/94	A. J. ...			
			S H O R T	O P E N	F I R E	S M O K E	S M O K E	S M O K E	B U R S T	S M E L L	R E D H O T	D A M A G E	F U S E	O C C U R	O U T P U T	N O C H A N G E	O T H E R S	N O T E	R E T O K	E S O O D	
1	CAP., FILM	C2	Y	Y									Y			Y				Y	
2	ECQ-U2A224MT													Y							Y
3																					
4	CAP., CERAMIC	C3	Y	Y												Y					Y
5	CD16-E2GA222MYAS															Y					Y
6																					
7	CAP., CERAMIC	C4	Y	Y												Y					Y
8	CD16-E2GA222MYAS															Y					Y
9																					
10	CAP., CERAMIC	C5	Y	Y												Y					Y
11	CD19-E2GA472MYAS															Y					Y
12																					
13	CAP., CERAMIC	C6	Y	Y												Y					Y
14	CD19-E2GA472MYAS															Y					Y
15																					
16	CAP., CERAMIC	C7	Y	Y									Y								Y
17	LGE2915.1MHSC															Y					Y
18																					
19	CAP., CERAMIC	C8	Y	Y									Y								Y
20	-GE2915.1MHSC																				Y
21																					
22	CAP., ELECT	C9	Y	Y							Y	Y									Y
23	400VB-R47															Y					Y
24																					
25	CAP., FILM	C10	Y	Y																	Y
26	MMHF-103K630															Y					Y
27																					

*** A: SLIGHT B: PRO-ONGED

MODE : LWT50H - 522		ABNORMAL TESTING										TEST CONDITIONS			APPROVED BY	TESTED BY						
												LOAD = 100%	11/05/94	SCN5	01/04/94							
												Vin = 200VAC										
												Ta = 25°C										
PARTSNAME	PART NO.	TEST MODE		O P E N E R T	S M O K E E A	S M O K E E B	B U R S T	S M E L L	H O T	R E D A M A G E	F U S B L O W N	O . V . P .	O . C . P .	N O O U T P U T	N O C H A N G E	O T H E R S	N O T E	O K	R E T	S O O D		
		S H O R T	S M O K E A																			
1	CAP., FILM			Y											Y					Y		
2	MMHF - 333K630			Y											Y						Y	
3																						
4	CAP., FILM			Y											Y						Y	
5	MMHF - 333K630														Y						Y	
6																						
7	CHIP CAP., CERAMIC			Y								Y									Y	
8	GRM42 - 6R104K50PT												Y								Y	
9																						
10	CHIP CAP., CERAMIC			Y											Y						Y	
11	CM21W5R331K200B														Y						Y	
12																						
13	CAP., ELECT			Y								Y									Y	
14	LXF35VB1000														Y						Y	
15																						
16	CAP., ELECT			Y								Y									Y	
17	LXF35VB150														Y						Y	
18																						
19	CHIP CAP., CERAMIC			Y								Y									Y	
20	GRM42 - 6R104K50PT														Y						Y	
21																						
22	CAP., ELECT			Y								Y									Y	
23	LXF35VB1000														Y						Y	
24																						
25																						

*** A : SLIGHT B : PROLONGED

MODEL : LWT50H - 522		ABNORMAL TESTING											TEST CONDITIONS		APPROVED BY	TESTED BY			
PARTS NAME		TEST MODE		LOAD = 100%	Vin = 200VAC	NOTE											RCN/ED	Almond	
PART NO.		S	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	
		H	P	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	
		O	E	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	
		R	A	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	
		T	M	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	
		S	M	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	
		M	O	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	
		O	K	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	
		K	E	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K	
		E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	
		S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	
		T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	
		S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	
		O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	
		R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	
		T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	
		S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	
		O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	
		R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	
		T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	
1	CAP., ELECT																		
2	LXF35VB150																		
3																			
4	CAP., FILM																		
5	MMHF - 333K630																		
6																			
7	CHIP CAP., CERAMIC																		
8	GRM42-6R104K50PT																		
9																			
10	CHIP CAP., CERAMIC																		
11	GRM42-6R104K50PT																		
12																			
13	C-IP CAP., CERAMIC																		
14	GRM42-6R104K50PT																		
15																			
16	C-IP CAP., CERAMIC																		
17	GRM42-6R104K50PT																		
18																			
19	C-IP CAP., CERAMIC																		
20	GRM42-6R104K50PT																		
21																			
22	CHIP CAP., CERAMIC																		
23	GRM42-6WSR332K100PT																		
24																			
25	CHIP CAP., CERAMIC																		
26	GRM42-6R104K50PT																		

*** A : SLIGHT B : PROLONGED

MODEL: LWT50H-522		ABNORMAL TESTING										TEST CONDITIONS			APPROVED BY	TESTED BY				
		TEST MODE												LOAD = 100%	Vin = 200VAC Ta = 25°C	SCNED 11/03/94	11/15/94			
PARTS NAME	PART NO.	S H O R T	S O P E N	F I R E	S M O K E	S M O K E	S B U R S T	S M E L L	R E D H O T	D A M A G E	F U S E	O C C U R	O V E R	N O U T P U T	N O C H A N G E	O T H E R S	NOTE		O K	R E T
1	CHIP CAP., CERAMIC		Y											Y					Y	
2	GRM42-6R104K50PT		Y												Y				Y	
3																				
4	CHIP CAP., CERAMIC		Y											Y					Y	
5	GRM40SLJ101K50PT														Y				Y	
6																				
7	CHIP CAP., CERAMIC		Y											Y					Y	
8	GRM40R22J50PT		Y													Y HICCUP			Y	
9																				
10	CHIP CAP., CERAMIC		Y							Y	Y					Q1,ZD1			Y	
11	GRM40SLJ101K50PT														Y				Y	
12														Y					Y	
13	CHIP CAP., CERAMIC		Y												Y				Y	
14	GRM42-6R104K50PT														Y				Y	
15																				
16	CHIP RES.		Y												Y				Y	
17	RK73B2HTE244J														Y				Y	
18																				
19	CHIP RES.		Y												Y				Y	
20	RK73B2HTE244J														Y				Y	
21																				
22	CHIP RES.		Y																Y	
23	RK73B2HTE564J														Y				Y	
24																				
25																				

*** A: SLIGHT B: PROLONGED

MODEL: LWT50H-522		ABNORMAL TESTING										TEST CONDITIONS			APPROVED BY	TESTED BY														
												LOAD = 100%	Vin = 230VAC Ta = 25°C	CANBO 11/15/94	Alford 11/15/94															
PARTS NAME	PART NO.	TEST MODE								TEST RESULTS																				
		S H D R T	O P E N	S M O K E E A	S M O K E E B	B J R S T	S M E L L	R E D H O T	D A M A G E	F U S E L O W	O C C P .	O V P .	N O O U T P U T	N O C H A N G E	O T H E R S	NOTE		O K	R E T											
1	CHIP RES. FK73B2HTE244J		Y							Y			Y								Y									
2										Y				Y											Y					
3											Y																			
4	CHIP RES.	R5								Y																Y				
5	FK73B2HTE244J										Y																Y			
6																														
7	CHIP RES.	R6								Y																	Y			
8	FK73B2HTE244J										Y																Y			
9																												Y		
10	CHIP RES.	R7								Y																		Y		
11	RK73B2HTE244J										Y																	Y		
12																														
13	RES., FUSE	R8								Y																		Y		
14	FMR2B432J																		Y								Y			
15																														
16	CHIP RES.	R9								Y																		Y		
17	CR1/10W273JV										Y																	Y		
18																														
19	CHIP RES.	R10								Y																		Y		
20	RK73B3ATE203J																											Y		
21																														
22	CHIP RES.	R11								Y																		Y		
23	CR1/10W273JV										Y																	Y		
24																														
25																														

*** A : SLIGHT B : PROLONGED

MODEL : LWT50H - 522		ABNORMAL TESTING															TESTED BY	
PARTSNAME		TEST MODE		TEST CONDITIONS												APPROVED BY		
		PART NO.		LOAD = 100%	Vin = 200VAC Ta = 25°C	NO CHANGE	CTFE S	NCTE	OK	TEST	NO	OUTPUT	NO	TEST	TESTED BY			
1	NOT ASSIGNED	R12																
2																		
3	RES, M O	R13																
4	RSF-2E-R30J																	
5																		
6	NOT ASSIGNED	R14																
7																		
8	NOT ASSIGNED	R15																
9																		
10	NOT ASSIGNED	R16																
11																		
12	CHIP RES.	R17																
13	RK73B2TE240J																	
14																		
15	CHIP RES.	R18																
16	RK73B2HTE150J																	
17																		
18	NOT ASSIGNED	R19																
19																		
20	CHIP RES.	R20																
21	RK73B3ATE510J																	
22																		
23	CHIP RES.	R21																
24	RK73B2HTE472J																	
25																		

*** A : SLIGHT B : PROLONGED

MODEL: LWT50H-522		ABNORMAL TESTING										TEST CONDITIONS			APPROVED BY	TESTED BY								
PARTS NAME	PART NO.	TEST MODE		OPEN SHORT	FIRE	SMOKE	SMOKE A	SMOKE B	SUBURST	SMELL	RED HOT	DAMAGE	FUSE	O.C.P.	O.V.P.	NO OUTPUT	NO CHANGES	OTHERS	HICCUP	NOTE	OK	TESTED		
		SHO	F																					
1 RES., M.O	R22		Y											Y					HICCUP			Y		
2 ERG2SJ-162				Y												Y							Y	
3																								
4 NOT ASSIGNED	R23																							
5																								
6 CHIP RES.	R24		Y													Y							Y	
7 CR 1/10W/30JV				Y												Y							Y	
8																								
9 CHIP RES.	R25		Y											Y						HICCUP			Y	
10 ERJ8GEY102V				Y												Y							Y	
11																								
12 CHIP RES.	R26		Y												Y								Y	
13 ERJ8GEY102V				Y																HICCUP			Y	
14																								
15 CHIP RES.	R27		Y												Y								Y	
16 CR 1/10W/362JV				Y																			Y	
17																								
18 CHIP RES.	R28		Y																				Y	
19 CR 1/8W/121JV				Y												Y							Y	
20																								
21 CHIP RES.	R29		Y																				Y	
22 CR 1/10W/50JV				Y																			Y	
23																								
24 CHIP RES.	R50		Y													Y							Y	
25 CR 1/10W/202JV				Y																			Y	

*** A: SLIGHT B: PROLONGED

MODEL : LWT50H-522		ABNORMAL TESTING												TEST CONDITIONS				APPROVED BY		TESTED BY								
PARTS NAME		PART NO	TEST MODE	LOAD = 100% $V_{in} = 200VAC$ $T_a = 25^{\circ}C$												APPROVED BY RCA SO 11/01/84	TESTED BY D... n/s/84											
				SHO RT	SO PE NE	FI RE KE E	SM OK E E	SM OK E T	B UR S T	S ME L L	RE D H OT	DA M A GE	F U S B L O W N	O . V . P .	O N O U T P U T			N O CH A N G E	O T H E R S									
1	CHIP RES.	R51		Y											Y													
2	CR1/10W682JV			Y																								
3																												
4	CHIP RES.	R52		Y																		Y						
5	ERJ8GEYJ100V			Y																		Y						
6																												
7	CHIP RES.	R53		Y																								
8	ERJ8GEYJ300V			Y																								
9																												
10	CHIP RES.	R54		Y																								
11	CR1/10W102JV			Y																								
12																												
13	CHIP RES.	R55		Y																								
14	CR1/10W182JV			Y																								
15																												
16	CHIP RES.	R56		Y																								
17	CR1/10W352JV			Y																								
18																												
19	RES., VARIABLE	VR1	1,2-3	Y																								
20	CT-6P-202		1,2-3	Y																								
21																												
22	THERMISTOR	TH1		Y																								
23	8D-13			Y																								
24																												
25																												

*** A : SLIGHT B : PROLONGED

MODEL: LWT50H-522		ABNORMAL TESTING										TEST CONDITIONS			APPROVED BY	TESTED BY												
PARTS NAME		TEST MODE		PART NO.	S H O R T	O P E N	F I R E	S M O K E	S M O K E	S M O K E	B U R S T	S M E L L	R E D H O T	D A M A G E	F U S E	W I R E	O C C U R	O V E R	O U T P U T	N O C H A N G E	O T H E R S	V _{in} = 200VAC T _a = 25°C	LOAD = 100%	NOTE	APPROVED BY C. N. B. / 11/03/94	TESTED BY A. J. B. / 11/15/94		
		TEST MODE	TEST MODE																									
TRANSFORMER		1-2	Y	T1																								
PA78701		4-5	Y																									
		7-8	Y																									
		8-9	Y																									
		9-10	Y																									
		11-12	Y																									
		1	Y																									
		2	Y																									
		4	Y																									
		5	Y																									
		7	Y																									
		8	Y																									
		9	Y																									
		10	Y																									
		11	Y																									
		12	Y																									
		13	Y																									
		14	Y																									
		15	Y																									
		16	Y																									
		17	Y																									
BALUN COIL		1-2	Y																									
ELF-18DG404N		3-4	Y																									
		1-4	Y																									
		2-3	Y																									
		1	Y																									
		2	Y																									
		3	Y																									
		4	Y																									

*** A : SLIGHT B : PROLONGED

MODEL : LWT50H - 522		ABNORMAL TESTING										TEST CONDITIONS		APPROVED BY	TESTED BY			
												LOAD = 100%	Vin = 200VAC Ta = 25°C	SCNGD 11/05/74	W/S 104 11/05/74			
PARTS NAME	PART ND.	TEST MODE	TEST MODE										NOTE	O K	R E T			
			S H O R T	O P E N	S M O K E A	S M O K E B	B U R S T	S M E L L	R E D H O T	D A M A G E	F U S B L O W N	O . V . P .				O .	N O U T P U T	N O C H A N G E
1																		
	BALUN COIL		1-2	Y													Y	
2	SC-02-620		3-4	Y													Y	
3			1-4	Y													Y	
4			2-3	Y													Y	
5			1	Y													Y	
6			2	Y													Y	
7			3	Y													Y	
8			4	Y													Y	
9																		
10	CHOKE COIL			Y													Y	
11	RD110A1R5				Y												Y	
12																		
13	FUSE			Y													Y	
14	FGLMT250V3A				Y												Y	
15																		
16																		
17																		
18																		
19																		
20																		
21																		
22																		
23																		
24																		
25																		

*** A : SLIGHT B : PROLONGED

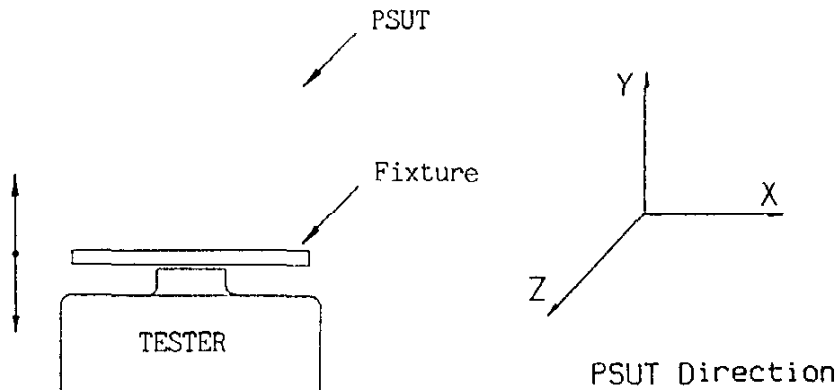
VIBRATION TEST

TYPES OF VIBRATION TEST :

A) OSCILLATOR FREQUENCY SWEEP

EQUIPMENT : EMIC CORPORATION VIBRATION TEST SYSTEM F-400-8M-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 nominal input and output)
3. Mechanical Condition (No breakage)

認 APPD	CCNEO 29.08.94	設 計 ENGR	Ramesh.A 9.7.94	図面番号 DWG-No.	- <input type="checkbox"/>
検 図 CHK	Madhu 1.8.94	製 図 DWG	Ramesh.A 9.7.94		

DATE

TEST RESULTS :
(after vibration)

A)

TEST POINT	OUTPUT VOLTAGE (V)			RIPPLE VOLTAGE (mV)			MECHANICAL CONDITION	NOTE
	CH1	CH2	CH3	CH1	CH2	CH3		
BEFORE DIRECT TEST	4.982	11.942	-4.955	25	40	50	OK	
X	4.982	11.942	-4.955	25	40	50	OK	
Y	4.982	11.942	-4.955	25	40	50	OK	
Z	4.982	11.942	-4.955	25	40	50	OK	

EVALUATION RESULT :

PASS

/ FAIL

VISUAL INSPECTION RESULT :

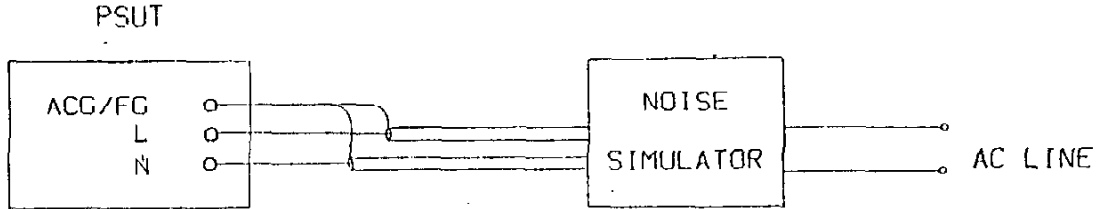
PASS

/ FAIL

認 APPD	KCN50 : 27.08.94	設計 ENGR	Ramesh.m 1.6.94	図面番号 DWG-No.
検 CHK	Asad 1.6.94	製 DWG	Ramesh.m 1.6.94	

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	CCN60	設 計 ENGR	Ramesh.m	図面番号 DWG-No.
	29.07.94		1.6.94	
検 図 CHK	Rajdin	製 図 DWG	Ramesh.m	-
	1.6.94		1.6.94	

ELECTROSTATIC DISCHARGE TEST

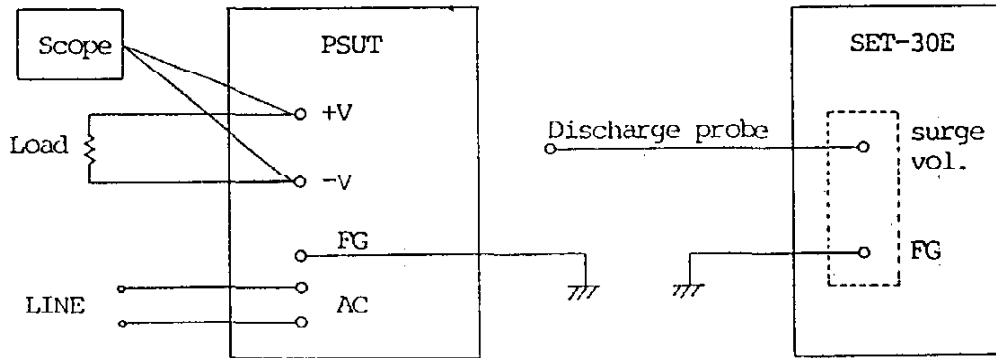
EQUIPMENT : SET-30E (SANKI ELECTRONIC)

Discharge Resistor : 250 ohm
Capacitor unit : 200 pF

CONDITIONS : Ambient Temperature : 25°C
Input Voltage : 100VAC
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.

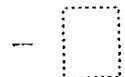


ACCEPTANCE CRITERIA : 1. No damage of PSUT
2. No output failure
3. No abnormalities

EVALUATION RESULT : (PASS) / FAIL

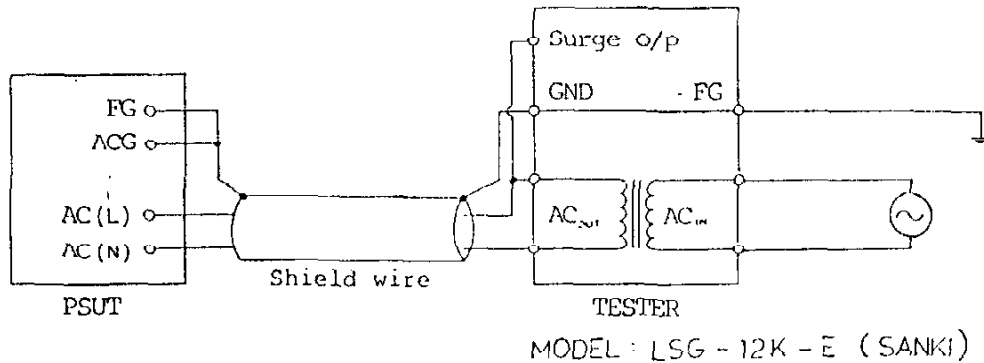
認 APPD	<i>Ramesh</i>	設 計 ENGR	<i>Ramesh</i>
検 図 CHK	<i>Ramesh</i>	製 図 DWG	<i>Ramesh</i>
	15.06.94		1.6.94
	1.6.94		1.6.94

図面番号
DWG - No.



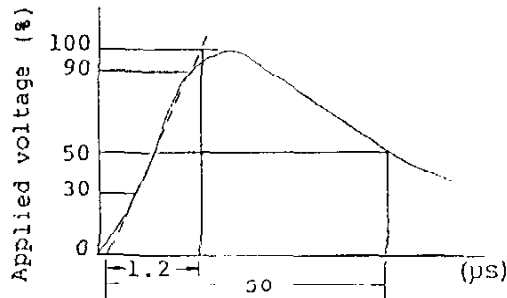
LIGHTNING SURGE TEST

TEST CIRCUIT, TEST EQUIPMENT



- CONDITIONS :
- Input Voltage : 100VAC
 - 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 : 5.0KV (PASS) / FAIL

認 APPD	CONF	設 計 ENGR	Ramesh.A
	29.07.94		1.6
檢 閱 CHK	Sanki	製 図 DWG	Ramesh.A
	1.6.94		1.6.94

図面番号
DWG - No.

サージイミュニティ試験 Surge Immunity Test (IEC 61000-4-5)

MODEL : LWT50H-***

(1) 使用計測器 Equipment Used

サージ発生器	LSS-15AX-A1 (ノイズ研究所)		
Surge Generator			
結合インピーダンス	コモン 12Ω	結合コンデンサ	コモン 9μF
Coupling Impedance	Common	Coupling Capacitance	Common
	ノーマル 2Ω		ノーマル 18μF
	Normal		Normal

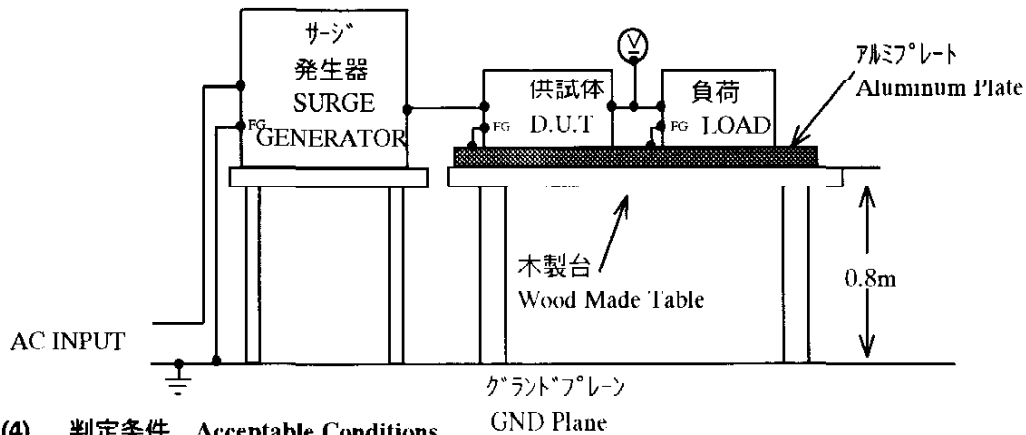
(2) 試験条件 Test Conditions

・入力電圧	: 230VAC	・出力電圧	: 定格
Input Voltage		Output Voltage	: Rated
・出力電流	: 100%	・試験回数	: 3回
Output Current		Number of Tests	: 3 times
・極性	: +,-	・モード	: コモン、ノーマル
Polarity		Mode	: Common, Normal
・位相	: 0,90 DEG	・周囲温度	: 25°C
Phase		Ambient Temperature	

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

コモンモード (N-FG, L-FG) 及びノーマルモード (N-L) に印加
Apply to Common mode (N-FG, L-FG) and Normal mode (N-L)

アナログ電圧計
Analog Voltage Meter



(4) 判定条件 Acceptable Conditions

- 試験中の出力電圧変動は初期値 (試験前) の±5%を限度とする事。
Output voltage regulation not to exceed ±5% of initial (before test) value during test.
- 試験後の出力電圧は初期値から変動していない事。
Output voltage to be within regulation specification after the test.
- 1、2共に発煙/発火及び出力ダウンなき事。
Along with 1 and 2, no discharge of fire or smoke, as well as no output failure.

(5) 試験結果 Test Result

Test Voltage (kV) Common	LWT50H-***	Test Voltage (kV) Normal	LWT50H-***
0.5	PASS	0.5	PASS
1.0	PASS	1.0	PASS
2.0	PASS	2.0	PASS
3.0	PASS	2.4	PASS
3.4	PASS		
3.6	FAIL		

FAIL: 出力ダウン Output Failure