MTBF Prediction Report

Model Name: GTM96600-6024

Customer: Standard model

Stage: MVT

PCB Rev.: A

Part List Rev.: 1

Spec Rev.: F

Conclusion: ☑ PASS ☐ FAIL

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CMTBF TEST REPORT				Test Engineer:	Maichael
Model Name:	GTM96600-6024	Customer:		Test Date:	2018/1/3
Quantity:	1	Ser. No.:			

1. Purpose:

Verify PSU whether or not to meet the customer CMTBF specification.

2. Conditions:

Input: 240V AC

Output: 24V/2.5A

Ambient: 25 degree C

3. Equipment:

Oscilloscope: Tek3054B, AC source: HP6813A, Electronic load:Chroma6310

Multimeter: Agilent34401A, Current Probe Amplifier:Tek TM502A

4. Criteria:

The life time of the power supply component shall exceed 300,000 hours when 240vac and maximun load at 25℃ .Calculated using the formula by SR-332 Issue3, January 2011

5. REGISTER:

Details,please refer to the report content.

6. Result:

The MTBF value meets customer spec..

MODEL : GTM96600-6024
DATE : 2018/1/3
REFERENCE DOCUMENT : Telcordia Reliability Prediction
TECHNICAL REFERENCE : SR-332 Issue3, January 2011
TEST CONDITION :

INPUT VOLTAGE : 240Vac
FREQUENCY : 50 Hz
TEMPERATURE : 25ºC
LOAD CONDITION : 24V/2.5A

ITEM 1 : MICROELECTRONIC DEVICES (IC)

$$\lambda_{SS} = \pi_E \sum_{i=1}^{n} N_i \lambda_{SSi}$$

$$= 12.73$$

ITEM 2 : MOSFET (FET)

$$\lambda_{SS} = \pi_E \sum_{i=1}^{n} N_i \lambda_{SSi}$$

$$= 2.10$$

ITEM 3 : DIODES

$$\lambda_{SS} = \pi_E \sum_{i=1}^{n} N_i \lambda_{SSi}$$

$$= 1.24$$

ITEM 4 : OPTO-ELECTRONIC DEVICES

$$\lambda_{SS} = \pi_E \sum_{i=1}^{n} N_i \lambda_{SSi}$$

$$= 67.74$$

ITEM 5 : RESISTORS

$$\lambda_{SS} = \pi_E \sum_{i=1}^{n} N_i \lambda_{SSi}$$

$$= 1.69$$

ITEM 6 : ALUMINUM ELECTROLYTIC CAPACITORS (AL)

$$\lambda_{SS} = \pi_E \sum_{i=1}^{n} N_i \lambda_{SSi}$$

$$= 126.66$$

ITEM 7 : CAPACITORS (EXCEPT AL)

$$\lambda_{SS} = \pi_E \sum_{i=1}^{n} N_i \lambda_{SSi}$$

$$= 2.27$$

ITEM 8 : INDUCTIVE DEVICES (Inductive)

$$\lambda_{SS} = \pi_E \sum_{i=1}^{n} N_i \lambda_{SSi}$$

$$= 23.74$$

ITEM 9 : FUSE & CONNECTORS&CRYSTAL (Fuse)

$$\lambda_{SS} = \pi_E \sum_{i=1}^{n} N_i \lambda_{SSi}$$

$$= 5.20$$

TOTAL	**317.051609**	**FAILURES/10^9 HOURS**
MTBF	**3154060.63**	**HOURS**

$$\lambda_{SSi} = \lambda_{Gi} \pi_{Qi} \pi_{Si} \pi_{Ti}$$

λ_{SSi} : UNIT STEADY - STATE FAILURE RATE
λ_{Gi} : BASE FAILURE RATE FOR DEVICE
π_{Qi} : QUALITY FACTOR
π_{Si} : ELECTRICAL STRESS FACTOR ..
π_{Ti} : THERMAL ACCELERATION FACTO .

$$\lambda_{SS} = \pi_E \sum_{i=1}^{n} N_i \lambda_{SSi}$$

λ_{SS} : FAILURE RATE FOR UNIT
π_E : UNIT ENVIRONMENT FACTOR
N_i : QUANTITY OR DEVICE TYPE
n : NUMBER OF DIFFERENT DEVICE TYPES IN THE UNIT