

**Part Number: CJ4459A**

**Package Type: SOT-23**

## 1. Reliability Test Method And Description:

|                                                  |                   |
|--------------------------------------------------|-------------------|
| Stress Test Item:                                | HTRB              |
| Test Duration (Hours):                           | 1000              |
| Sample Q'ty (Pcs):                               | 77                |
| Failure Q'ty (Pcs):                              | 0                 |
| Total Device Hours (Hrs):                        | 77000             |
| Accelerated Temp. (Ta)(°C):                      | 150               |
| Normal Operation Temp. (Tu)(°C):                 | 55                |
| Eactivation Energy (Ea):                         | 0.7               |
| K (Boltzmanns Constant):                         | 8.617164E-5 eV/°K |
| Chi-Square Constant @confidence level:60% (chi): | 1.833             |
| Chi-Square Constant @confidence level:90% (chi): | 4.605             |

Acceleration Factor ,Af at Tu list:

| Tu | 55°C  | 85°C | 100°C | 125°C | 150°C |
|----|-------|------|-------|-------|-------|
| Af | 259.2 | 32.6 | 13.1  | 3.3   | 1.0   |

## 2. Results(Use Conditions Tu=55°C & confidence level:90%):

|                                          |         |       |
|------------------------------------------|---------|-------|
| Failure Rate FIT (@Operation Condition): | 115.4   | FIT   |
| Mean Time to Failure (MTTF):             | 8668504 | Hours |
|                                          | 990     | Years |

## 3. MTTF/FIT Calculate Equations:

|                           |                                                      |
|---------------------------|------------------------------------------------------|
| Af                        | $\exp[(Ea/K) \cdot (1/(Tu+273.15) - 1/(Ta+273.15))]$ |
| FIT @ Operation Condition | $Chi \cdot 10^9 / (2 \cdot Hrs \cdot Af)$            |
| MTTF Hours                | $10^9 / FIT$                                         |
| MTTF Years                | $10^9 / (FIT \cdot 24 \cdot 365)$                    |

Remark: JSCJ Laboratory reserves the right of final interpretation of this report