

FIT calculation example for SCA3300- D01

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FIT calculation example for SCA3300-D01



- **Temperature scaled FIT** = $\frac{\text{Non-temperature scaled FIT}}{\text{Acceleration factor}}$

- **The non-temperature scaled FIT**

$$\text{Lamda0} = \frac{X^2}{2 * D * H} * 10^9 \text{ FIT}$$

- D = Sample amount in life test
- H = Length of life test
- X² = Chi Square: for 0 failed devices: and Confidence level: 60% = 1,8326 90% = 4,605 99% = 9,21034

- **Acceleration factor**

$$A_f = e^{\frac{E_a}{k} \left(\frac{1}{T_{use}} - \frac{1}{T_{test}} \right)}$$

- E_a = Activation energy of the failure mode
- k (Boltzmann's Constant) = 8.617 x 10⁻⁵ eV/°K
- T_{use} = Use Temperature
- T_{test} = Test Temperature
- °K (degrees Kelvin) = 273 + °C
- eV = electron volts

FIT calculation example for SCA3300-D01



- If we calculate the values with:
 - Confidence 60%
 - Tested parts 231 pcs
 - Test time 1000h
 - Test temperature 125°C
 - Use temperature 50°C
 - Ea 0.7eV
- We will get:
 - Non-temperature scaled FIT = ~3966.67
 - Acceleration factor = ~114.17
 - Temperature scaled FIT = ~ 34.74
- Note: Calculation is valid also for SCA3100 series components

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