Inelastic strain analysis of solder joint in NASA fatigue specimen - final report

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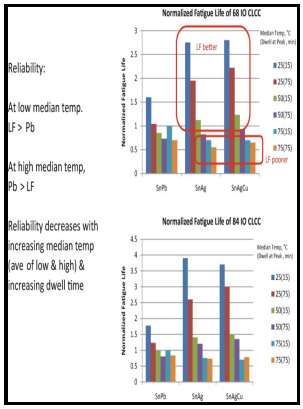

Description: -
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Jesuits -- Controversial literature.
Jesuits -- Middle East.
Viscoplasticity.
Thermal cycling tests.
Solders.
Plastic properties.
Finite element method.
Fatigue life.
Fatigue (Materials)
Elastic properties.
Creep analysis.
Solder and soldering.
Strains and stresses.Inelastic strain analysis of solder joint in NASA fatigue specimen - final report
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NASA contractor report -- NASA CR-187864.
NASA-CR -- 187864.Inelastic strain analysis of solder joint in NASA fatigue specimen - final report
Notes: Microfiche. [Washington, D.C.] : National Aeronautics and Space Administration, [1991]. 1 microfiche.
This edition was published in 1991

Tags: #Reliability #assessment #of #indium #solder #for #low #temperature #electronic #packaging

On the Constitutive Response of 63/37 Sn/Pb Eutectic Solder

However, the cracking energy density did provide the direction, which improves the accuracy when calculating the fatigue life under biaxial loading conditions.

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Lastly, the effect of underfill on the creep fatigue test is discussed. This means that the initiated crack is defined as the smallest crack depth where linear elastic fracture mechanics can be applied. For most of the solder materials, creep develops in three stages: primary, secondary, and tertiary creep.

Finite element analysis and simulation of adhesive bonding, soldering and brazing: A bibliography (1976

After being considered and debated for years, European Union's Waste in Electrical and Electronic Equipment WEEE and restriction of hazardous substances announced that by July 1, 2006, lead must be replaced in electronic equipment.

A new experimental method to evaluate creep fatigue life of flip

A new equation to estimate the fatigue life N c is put forward with consideration of both curve fit approximation and critical energy where σ f is true stress at fracture, ε f is true strain at fracture, E is modulus of elasticity, ε 0 and σ 0 are defined material parameter for monotonic strain, σ c is material parameter for cyclic strain, σ a is amplitude of alternating stress. When considering an approach using fracture mechanics, creep strain-based model is proposed where N f is the number of cycles to failure for both equations. In the tertiary creep, strain rates are dramatically increased with the stress, as the accumulation of internal cracks or voids decrease the effective area.

Dr Nazri Kamsah

. Fatigue-free life N f is the number of drops without any failure, which is viewed at a safe zone for the product and F equals to 0 at fatigue-free life. Fatigue life prediction models of solder joints were first put forward in the early 1960s, and since then, numbers of methods were used to model the fatigue mechanism of solder joints.

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For 60Sn—40Pb solder joint, C was given as 890% by the authors. All the models reviewed are grouped into four categories based on the factors affecting the fatigue life of solder joints, which are: plastic strain-based fatigue models, creep damage-based fatigue models, energy-based fatigue models, and damage accumulation-based fatigue models.

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Some models defined the fatigue failure of solder joints based on IPC JSTD standard lists requirements for the manufacture of electrical and electronic assemblies standard such as changes in resistance.

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