Anand Model: Theoretical Forumation and Application to Solder Joints

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Source Paper

Introduction to Anands Unified Viscoplasticity Model (1985)

Breakthrough Features of Anands Viscoplastic Model

Formulation pipeline for Anands viscoplastic model

Broad Strokes of Anands Unified Viscoplastic Model (1985)

Viscoelasticity: Stress Relaxation and Creep

Time-Dependent Strain in Elastic, Viscous, and Viscoelastic Materials

Primary Equations of Anand Model (1D)

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Material Parameters in Anands Viscoplastic Model

How Anands Model Unifies Creep and Plasticity

Case Study: Wang (2001)

Anand Model Parameters for Common Solders

Comparing Anand Model Predictions at Two Strain Rates

Anand Approximation

What If the Material Were Not Viscoplastic?

Summary of Motivation, Methods, Results, and Conclusions (Anand 1985)

Summary of Motivation, Methods, Results, and Conclusions (Wang 2001)

Summary of Anands Model

Delete

Constitutive Equations for Isotropic Thermo-Elasto-Viscoplasticity

Theoretical Stress-Strain Formulation

Stress as a Function of Plastic Strain ε^p Using the integrated model, the stress-strain relation becomes:

- σ_0: initial yield stress

- σ^*: saturation stress (UTS)

- c, h_0, a: shape and evolution constants