1. Background

Stability analysis of temperature-insensitive MOS reference current source circuit

1. Background

Reliability problems in electronic circuits

- Process
- Voltage
- Temperature

Constant current source

2. Research Objective

Research Objective

- Proposal of temperature-insensitive MOS reference current source circuit.
- Show its configuration and effectiveness with SPICE simulation.
- Analyze its stability.
- Realize start-up circuit using CMOS Inverters.

3. Proposed Circuit

Proposed Circuit

Parameter Value

4. Analysis & Design

Simulation (Proposed Circuit)

Stability Analysis Circuit

Start-up Circuit

Simulation (Start-up Circuit)

 transient analysis Time: 0s to 1s

5. Simulation Verification

Simulation (Stability Analysis Circuit)

Reconnect Feedback process (Proposed Circuit)

Need about 360ms to stabilize

6. Conclusion

- Proposal of temperature-insensitive MOS reference current source circuit.
- Show its configuration and effectiveness with SPICE simulation.
- Analyze its stability.
- Realize start-up circuit using CMOS Inverters.

Future work

- Improvement the circuit for lower-supply voltage insensitivity.