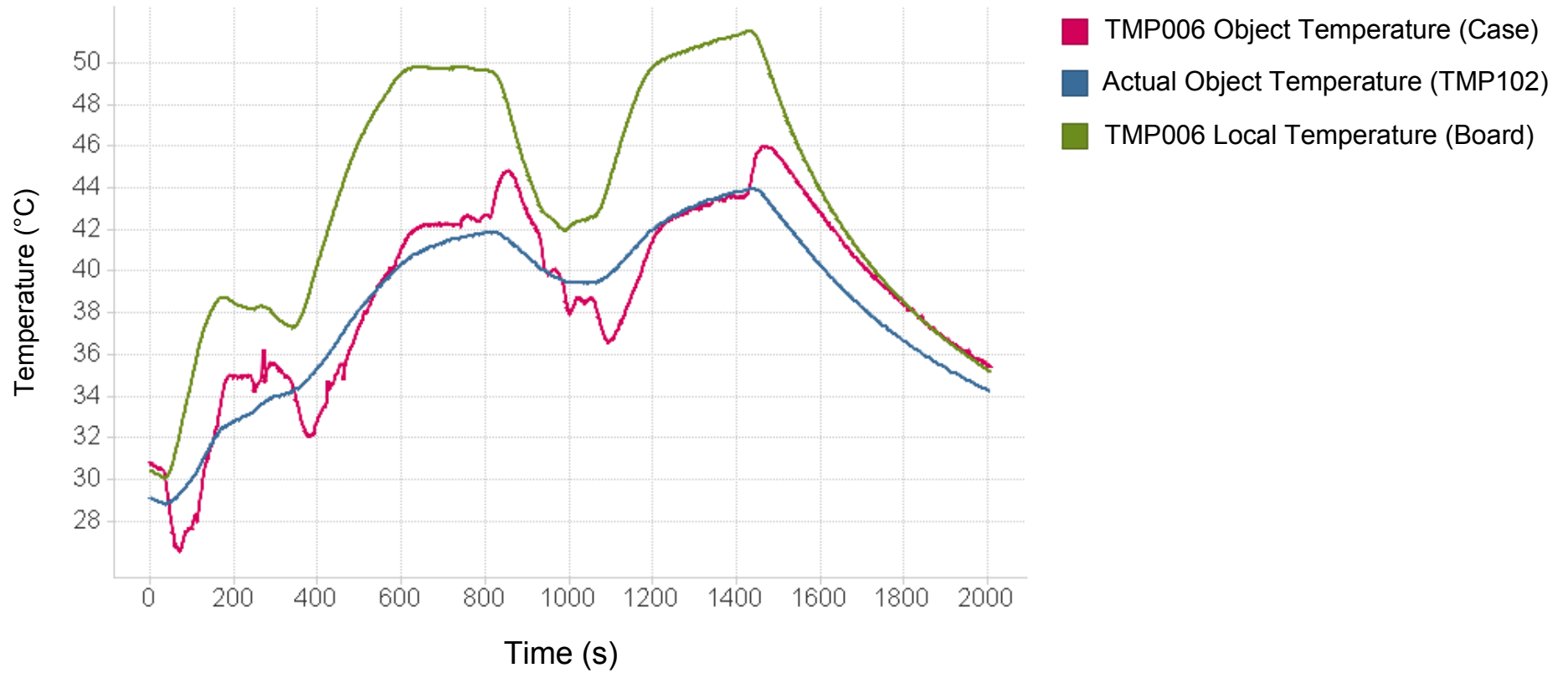
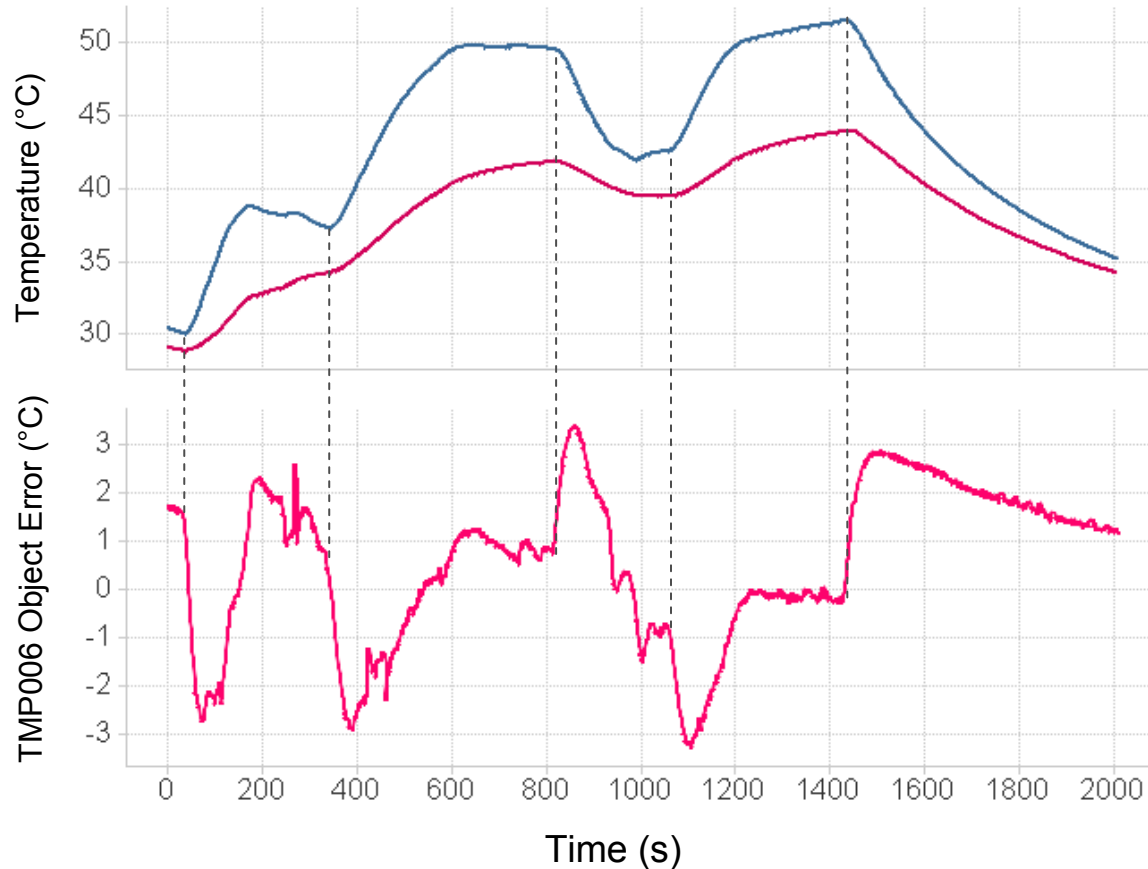


# Laptop Experiment



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# Laptop Experiment



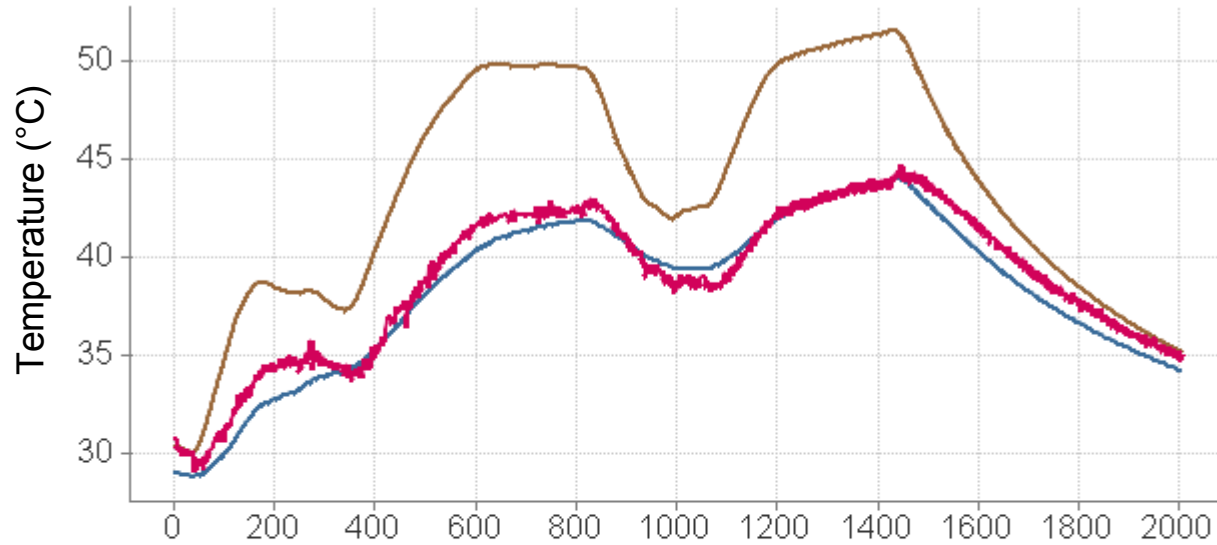
■ TMP006 Local Temperature (Board)  
■ Actual Object Temperature (TMP102)

- The temperature error will overshoot during large PCB board temperature transients until the system settles
- The overshoot errors can be minimized by using the recommended transient correction

# Steps to Correct Object Error Due to Transients

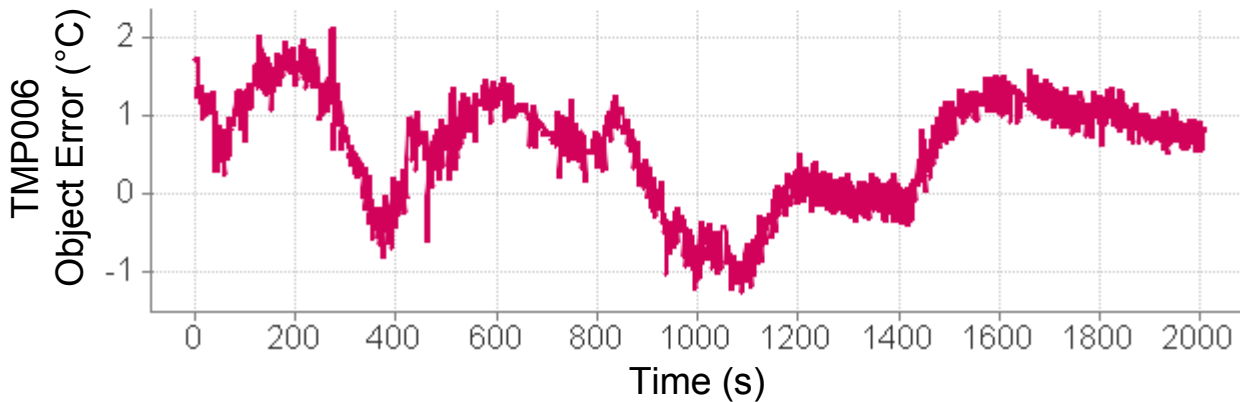
- Measure the slope of the local temperature versus time (recommend using 4 measurements)
  - For four, one second spaced readings:
    - $T_{Slope} = - (0.3 \times T_{die1}) - (0.1 \times T_{die2}) + (0.1 \times T_{die3}) + (0.3 \times T_{die4})$
- Correct the sensor object reading using:
  - $V_{obj\_corrected} = V_{obj} + T_{Slope} \times 2.96 \times 10^{-4}$
- After the correction apply  $V_{obj\_corrected}$  to the 3D equation as normal to correct out the transients.

# Laptop Experiment Post Transient Correction



- Object Temperature (TMP102)
- TMP006 Local
- TMP006 Object (Corrected)

- To calculate the local temperature slope this examples uses **4 consecutive** temperature readings
- The error post correction is within  $\pm 2^{\circ}\text{C}$
- No overshoots



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