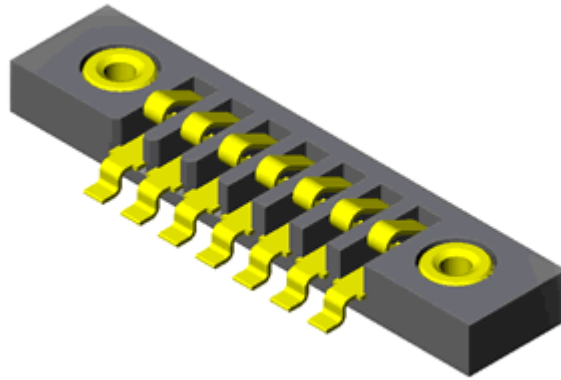




Project Number: Lead Free		Tracking Code: TC0310-Lead Free-0121	
Requested by: John Schmelz		Date: 3/4/2003	Product Rev: A
Part #: OPP-10-01-T-S-E		Lot #: NA	Tech: J.S. Eng: J.S.
Part description: OPP			Qty to test: 10
Test Start: 3/4/2003	Test Completed: 3/6/2003		



**Perform Solder Heat Resistance using three temperature profiles: 230°C, 260°C and 280°C.
Summary Report**

PART DESCRIPTION

OPP-10-01-T-S-E

CERTIFICATION

All instruments and measuring equipment were calibrated to National Institute for Standards and Technology (NIST) traceable standards according to ISO 10012-1 and ANSI/NCSL 2540-1, as applicable.

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SCOPE

Perform Solder Heat Resistance using three temperature profiles: 230° C, 260° C and 280° C.

APPLICABLE DOCUMENTS

Standards: EIA Publication 364

TEST SAMPLES AND PREPARATION.

- 1) Parts are visually inspected for cleanliness.

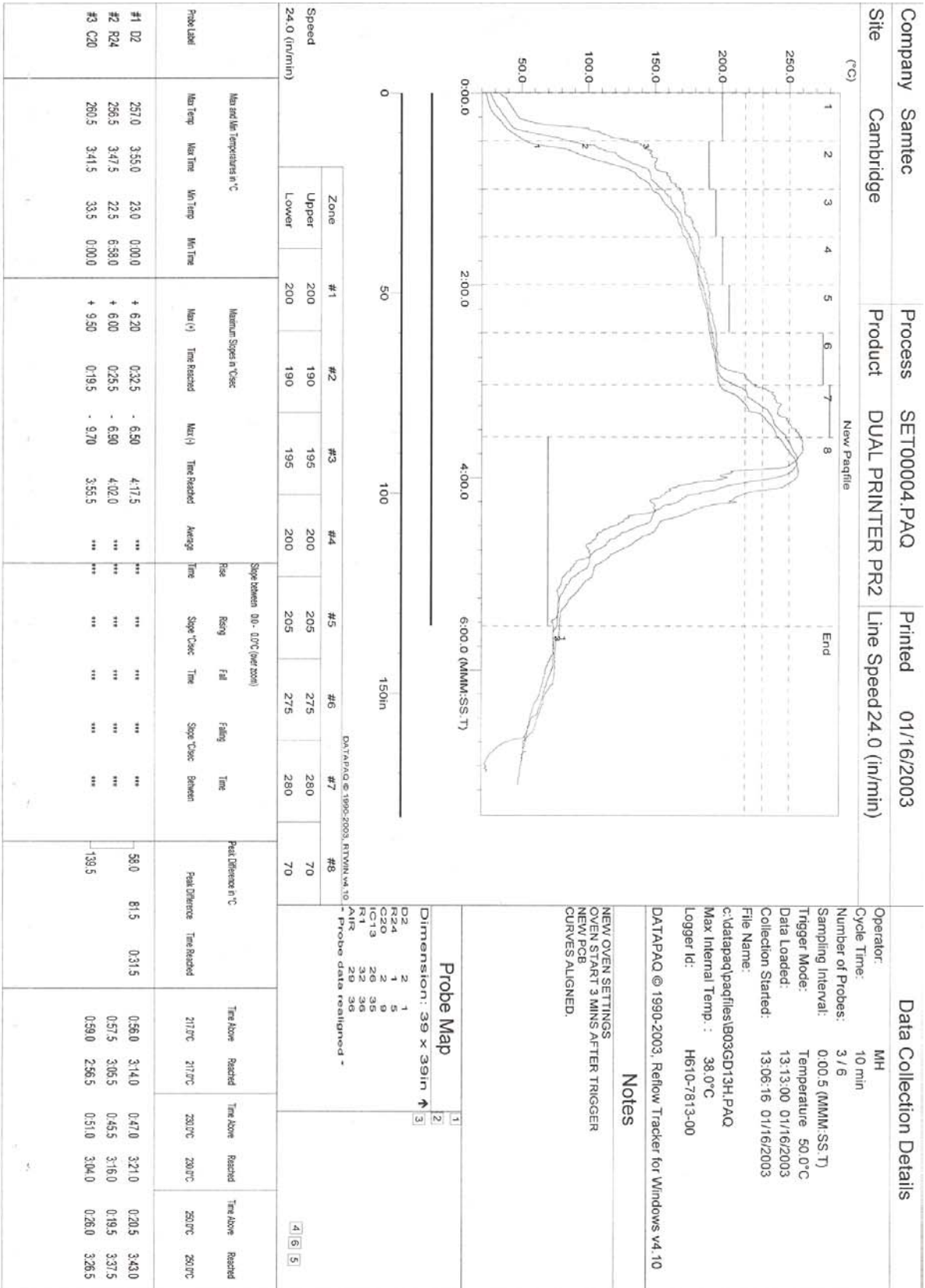
FLOWCHART

TEST STEP	260 °C		280 °C GROUP D	230 °C GROUP E Control
01	1 Pass	Group A	1 Pass	1 Pass
02	Solder Heat Resistance		Solder Heat Resistance	Solder Heat Resistance
03	2nd Pass	Group B		
04	Solder Heat Resistance			
05	3rd Pass	Group C		
06	Solder Heat Resistance			

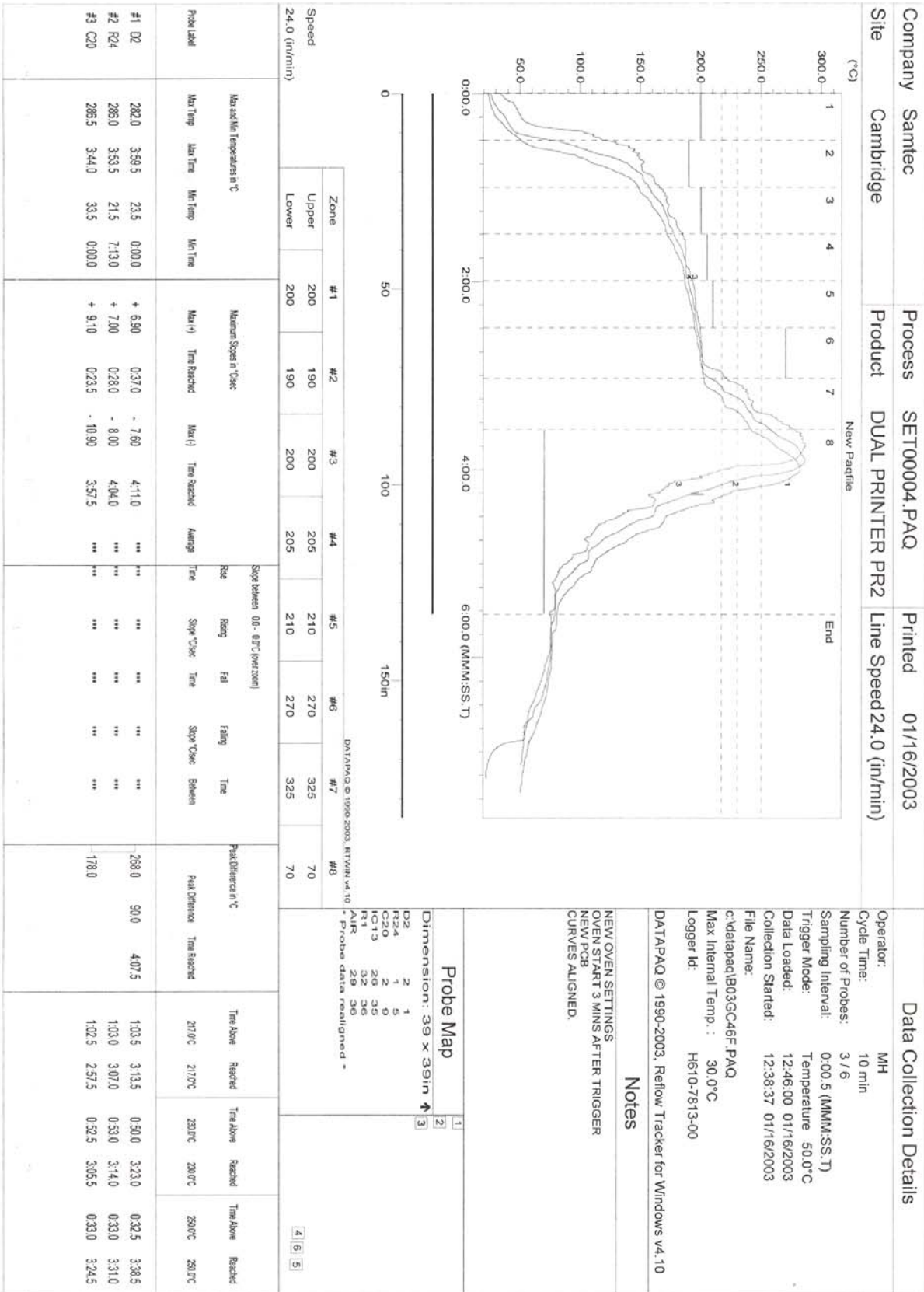
Solder Heat Resistance (Visual): Blistering, Distortion (Bowed or Twisted), Discoloration

OVEN THERMAL PROFILE (Control):

1) The Following Thermal Profiles were used to stress the parts.



**OVEN THERMAL PROFILE, SUPPLEMENTAL TEST Continued:
Solder Heat Resistance (Visual) at 280 °C**



ATTRIBUTE DEFINITION**SOLDER HEAT RESISTANCE (Visual):**

- 1) Blistering
 - a) Pass/Fail
- 2) Distortion
 - a) Bowed or Twisted
- 3) Discoloration
 - a) Pass/Fail

RESULTS

Solder Heat Resistance, 260 °C Thermal Stressing

- **Blistering**
 - One Thermal Stress-----Pass
 - Two Thermal Stresses-----Pass
 - Three Thermal Stresses-----Pass
- **Distortion**
 - One Thermal Stress-----Pass
 - Two Thermal Stresses-----Pass
 - Three Thermal Stresses-----Pass
- **Discoloration**
 - One Thermal Stress-----Pass
 - Two Thermal Stresses-----Pass
 - Three Thermal Stresses-----Pass

Supplemental Tests

Solder Heat Resistance, 230°C Thermal Stressing

- **Blistering**
 - One Thermal Stress-----Pass
- **Distortion**
 - One Thermal Stress-----Pass
- **Discoloration**
 - One Thermal Stress-----Pass

Solder Heat Resistance, 280 °C Thermal Stressing

- **Blistering**
 - One Thermal Stress-----Pass
- **Distortion**
 - One Thermal Stress-----Pass
- **Discoloration**
 - One Thermal Stress-----Pass

EQUIPMENT AND CALIBRATION SCHEDULES**Equipment #:** THL-01**Description:** Temperature/Humidity Chart Recorder**Manufacturer:** Dickson**Model:** THDX**Serial #:** 9316255**Accuracy:** Temp: +/- 1C; Humidity: +/-2% RH (0 - 60%) +/- 3% RH (61 - 95%).

... Last Cal: 7/15/02, Next Cal: 7/15/03

Equipment #: OV-5**Description:** Nitrogen Purge IR Reflow**Manufacturer:** Vitronics Soltec**Model:** XPM-730**Serial #:** XN 70328**Accuracy:** +/- 5° C