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1998

# PZT Performance Test Document

Control Document No: QD1

01: 44

## Linearity of Controlled Expansion Curves

**PI**

**Job: 93530-1**

### Order Data

| | |
|---|---|
| Customer : | ALT |
| Customer Ref No : | |
| PI Order No.: | 1375976 |

### PZT/Driver Specifications

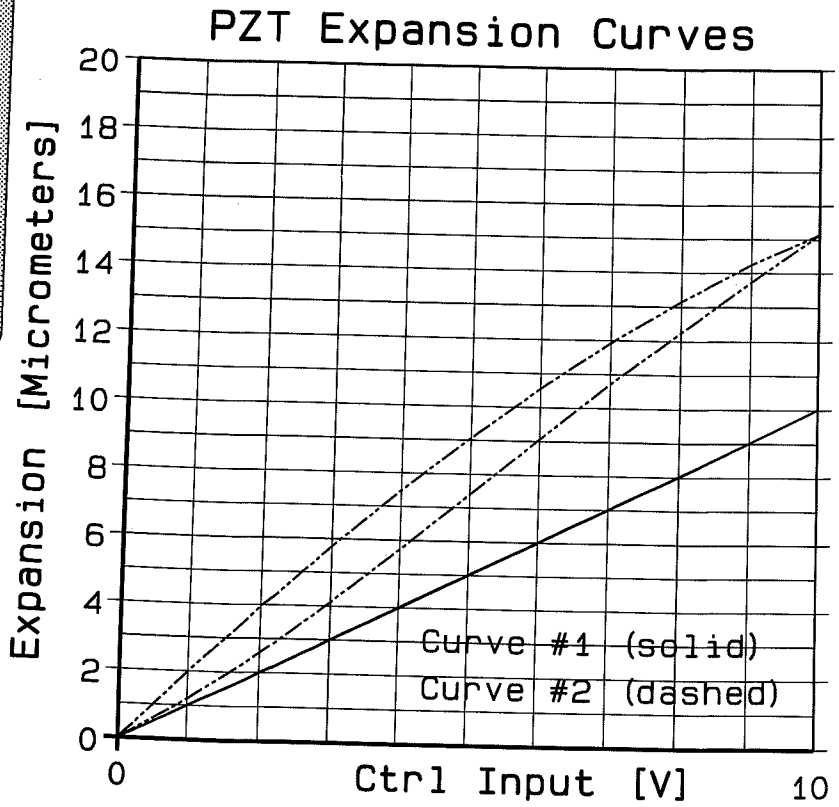
| | |
|---|---|
| PZT Model : | S-320.20 |
| Ser No : | 93530 |
| Nominal Oper. Voltage : | +100 Volts |
| Nominal Expansion : | 10 Micrometers |
| Sensor in PZT : | SGS |
| Driver Model : | E-509.S3X |
| Design Modifications : | Standard |

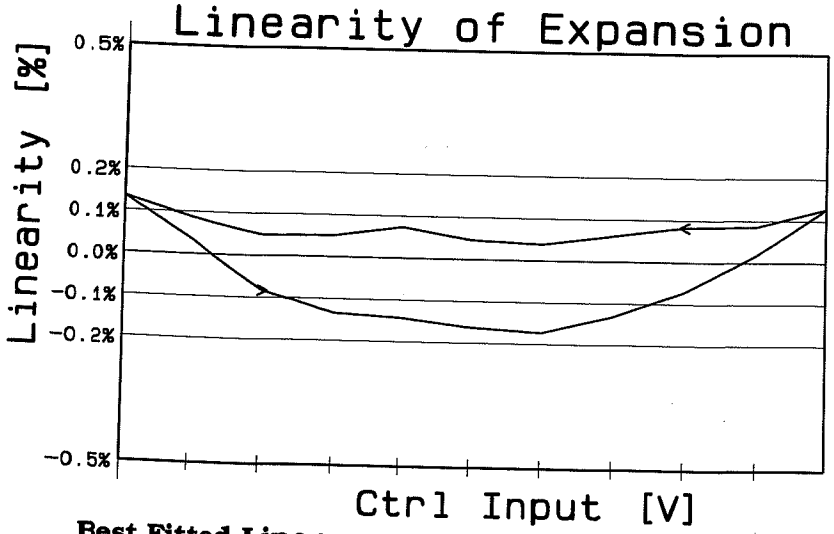
### Setup

| | |
|---|---|
| Measurement Device: | MILLITRON |
| Range MILLITRON : | 20.0 um [corr] |
| Min. Ctrl Input : | +0.0 Volt |
| Max. Ctrl Input : | +10.0 Volts |
| Step Size : | +1.0 Volts |
| No of Increments : | 10.0 |
| Time Delay : | 0.5 s |
| Temperature : | 23.0 Deg C |
| Data Source : | PZD data file |
| Source Date : | 19 MAY 1998 |
| Prog. ID : | PZTPROBE V 3.01 |

### Data

| Volt | Exp [µm] | Exp [µm] | Exp [µm] | Delta [µm] | Hys [%] |
|---|---|---|---|---|---|
| | **Curve #1:** | | | | |
| +0.0 | +0.00 | +0.00 | +0.00 | +0.00 | +0.00 |
| +1.0 | +0.99 | +1.00 | | +0.01 | +0.05 |
| +2.0 | +1.99 | +2.00 | | +0.01 | +0.13 |
| +3.0 | +2.98 | +3.00 | | +0.02 | +0.19 |
| +4.0 | +3.99 | +4.01 | | +0.02 | +0.22 |
| +5.0 | +4.99 | +5.01 | | +0.02 | +0.21 |
| +6.0 | +5.99 | +6.01 | | +0.02 | +0.21 |
| +7.0 | +7.00 | +7.02 | | +0.02 | +0.19 |
| +8.0 | +8.01 | +8.02 | | +0.02 | +0.15 |
| +9.0 | +9.02 | +9.03 | | +0.01 | +0.07 |
| +10.0 | +10.03 | +10.03 | | +0.00 | +0.00 |
| | **Curve #2:** | | | | |
| +0.0 | +0.00 | -0.00 | -0.00 | +0.00 | +0.00 |
| +1.0 | +1.19 | +1.99 | | +0.80 | +5.28 |
| +2.0 | +2.58 | +3.96 | | +1.38 | +9.08 |
| +3.0 | +4.12 | +5.77 | | +1.65 | +10.92 |
| +4.0 | +5.73 | +7.48 | | +1.75 | +11.57 |
| +5.0 | +7.40 | +9.07 | | +1.67 | +11.02 |
| +6.0 | +9.06 | +10.56 | | +1.50 | +9.89 |
| +7.0 | +10.71 | +11.92 | | +1.21 | +7.97 |
| +8.0 | +12.25 | +13.16 | | +0.91 | +6.01 |
| +9.0 | +13.74 | +14.25 | | +0.51 | +5.38 |
| +10.0 | +15.15 | +15.15 | | +0.00 | +0.00 |




**Best Fitted Line :**
**Expansion= +1.003 µm/V * Ctrl Input -0.013 µm**

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