

VARIABLE CAPACITANCE DIODE

FEATURES

- Very Wide Operating Voltage Range (1 to 6.5 V)
- Excellent Linearity (CV Curve)
- Large Capacitance Ratio (A = 17 minimum)
- Two Diodes in a 3 Lead Through-Hole Discrete Package (TO92-3)
- Very Small Capacitance Deviation at Tape/Reel

APPLICATIONS

- AM Radio
- Voltage Controlled Oscillator

DESCRIPTION

The KV1590NT variable capacitance diode was specially developed for use as tuning elements in car radios, radio cassettes, and other consumer radios. Single package construction includes an antenna and oscillating tuning element.

The KV1590NT is available in a TO92-3 package.

CLASSIFICATION

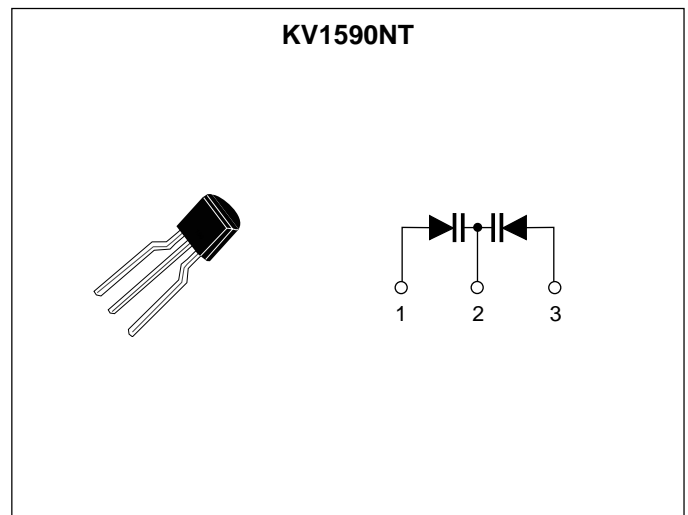
(Unit: pF)

| C | | RANK | | |
|----------------|-----|--------|--------|--------|
| | | 1 | 2 | 3 |
| C ₁ | MIN | 433.00 | 457.00 | 481.00 |
| | MAX | 463.00 | 487.00 | 511.00 |

ORDERING INFORMATION

KV1590NT

Note: The KV1590NT is supplied on folded paper tape (25 pieces per fold), 1500 pcs per box.



KV1590NT

ABSOLUTE MAXIMUM RATINGS

| | | | |
|-------------------------|--------|---|----------------|
| Reverse Voltage | 30 V | Storage Temperature Range | -55 to +150 °C |
| Forward Current | 50 mA | Operating Temperature Range | -55 to +85 °C |
| Power Dissipation | 100 mW | Lead Soldering Temperature (10 s) | 235 °C |

ELECTRICAL CHARACTERISTICS

Test conditions: $T_A = 25\text{ °C}$

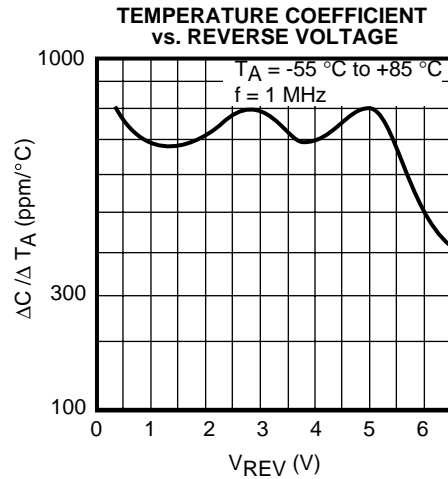
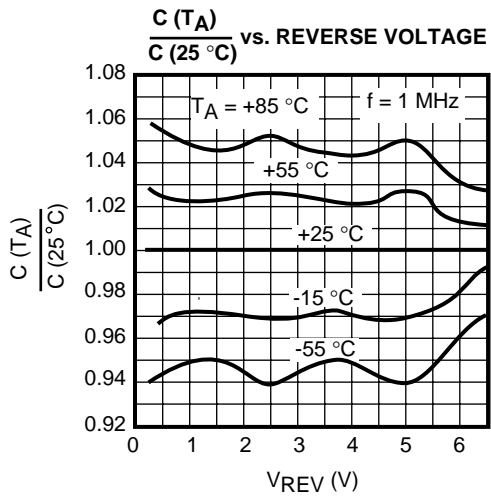
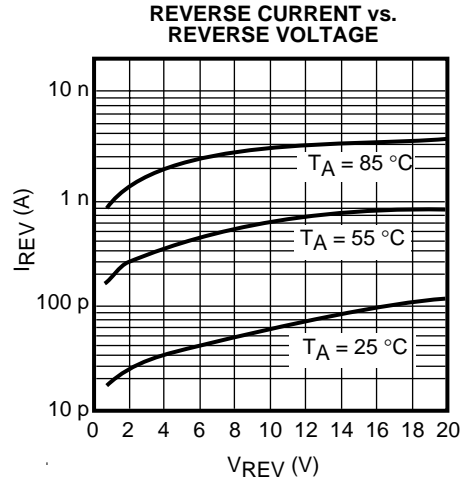
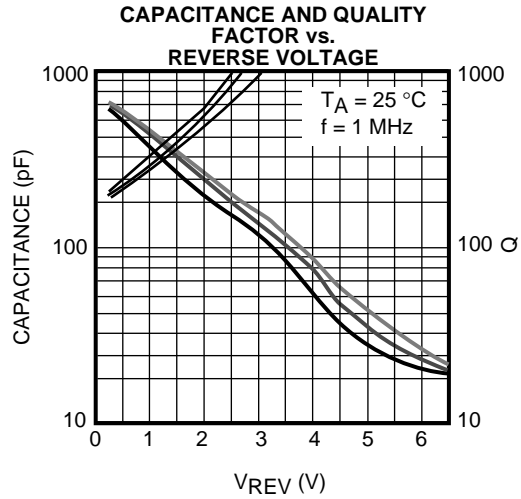
| SYMBOL | PARAMETER | TEST CONDITIONS | MIN | TYP | MAX | UNITS |
|------------------|-----------------------------------|--|--------|--------|--------|-------|
| V_{REV} | Reverse Voltage | $I_{REV} = 10\ \mu\text{A}$ | 20 | | | V |
| I_{REV} | Reverse Current | $V_{REV} = 16.0\ \text{V}$ | | | 50 | nA |
| C_1 | Diode Capacitance 1 | $V_{REV} = 1.0\ \text{V}, f = 1\ \text{MHz}$ | 433.00 | 472.00 | 511.00 | pF |
| $C_{6.5}$ | Diode Capacitance 6.5 | $V_{REV} = 6.5\ \text{V}, f = 1\ \text{MHz}$ | 21.00 | 24.00 | 27.00 | pF |
| $\Delta C_{1.0}$ | Capacitance Tolerance (Note 2) | $V_{REV} = 1.0\ \text{V}, f = 1\ \text{MHz}$ | | | 1.0 | % |
| $\Delta C_{3.0}$ | | $V_{REV} = 3.0\ \text{V}, f = 1\ \text{MHz}$ | | | 2.0 | % |
| $\Delta C_{6.5}$ | | $V_{REV} = 6.5\ \text{V}, f = 1\ \text{MHz}$ | | | 2.0 | % |
| Q | Quality Factor | $V_{REV} = 1.0\ \text{V}, f = 1\ \text{MHz}$ | 200 | | | |
| A | Capacitance Ratio | $C_1 / C_{6.5}$ | 17.00 | 17.50 | | |

Note 1: Diode Capacitance measured with HP 4279A or equivalent instruments (at OSC level 20 mVrms, ± 5 mVrms).

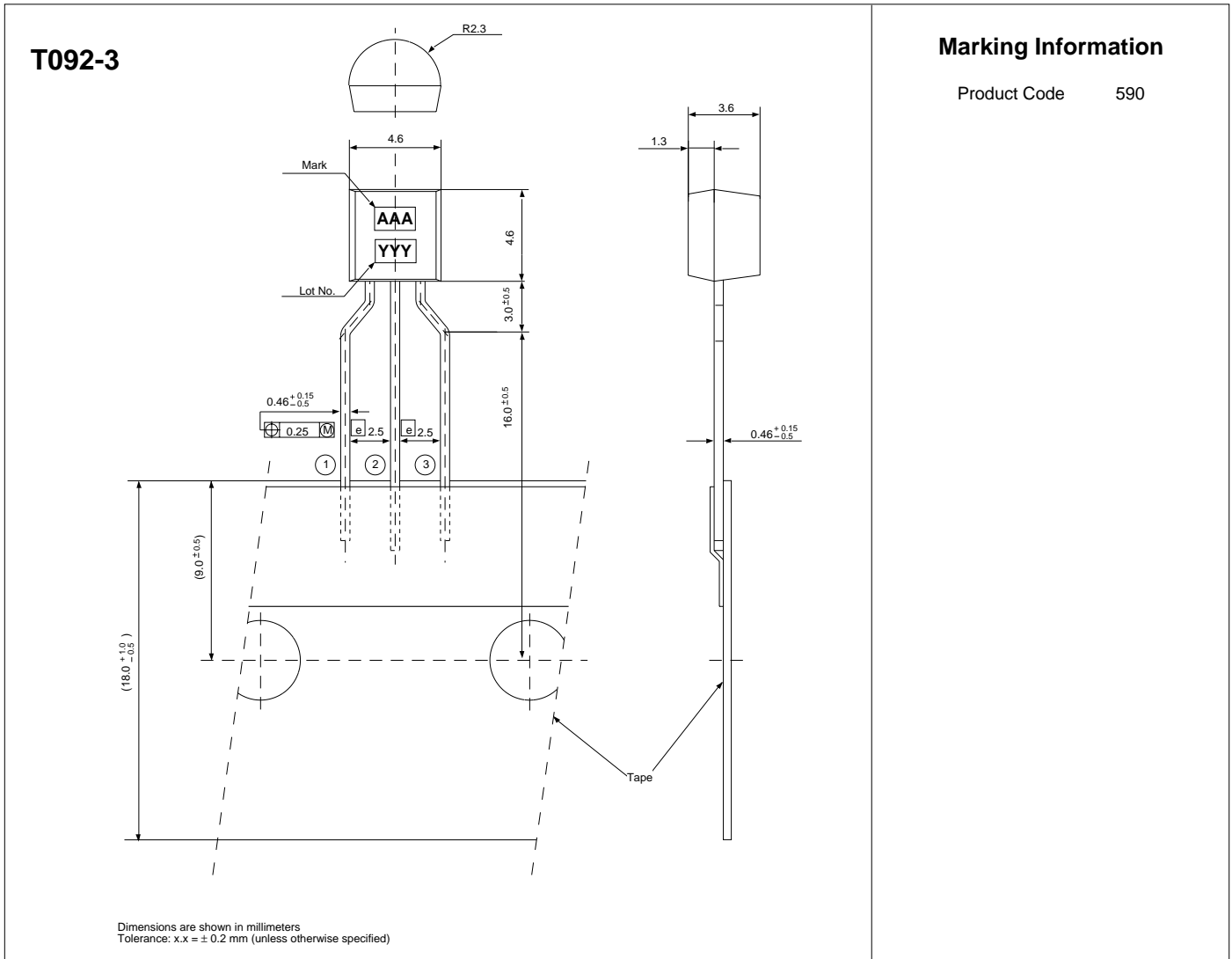
Note 2: $\Delta C = \frac{C_{\max}(D_1, D_2) - C_{\min}(D_1, D_2)}{C_{\min}(D_1, D_2)} \times 100$ * D_1, D_2 : Please refer to the Pin Layout shown below.

| | Symbol | Anode Pin | Cathode Pin |
|---------|--------|-----------|-------------|
| Diode 1 | D_1 | ① | ② |
| Diode 2 | D_2 | ③ | ② |

TYPICAL PERFORMANCE CHARACTERISTICS



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