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.

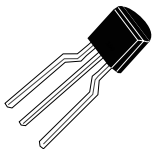
The KV1590NT is available in a TO92-3 package.

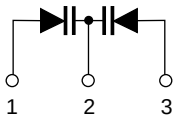
CLASSIFICATION

(Unit: pF)

C \ RANK		1	2	3
C_1	MIN	433.00	457.00	481.00
	MAX	463.00	487.00	511.00

KV1590NT





ORDERING INFORMATION
KV1590NT

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

ABSOLUTE MAXIMUM RATINGS

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

ELECTRICAL CHARACTERISTICS

Test conditions: T_A = 25 °C

SYMBOL	PARAMETER	TEST CONDITIONS	MIN	TYP	MAX	UNITS
V_{REV}	Reverse Voltage	I_{REV} = 10 µA	20			V
I_{REV}	Reverse Current	V_{REV} = 16.0 V			50	nA
C_1	Diode Capacitance 1	V_{REV} = 1.0 V, f = 1 MHz	433.00	472.00	511.00	pF
$C_{6.5}$	Diode Capacitance 6.5	V_{REV} = 6.5 V, f = 1 MHz	21.00	24.00	27.00	pF
ΔC1.0	Capacitance Tolerance (Note 2)	V_{REV} = 1.0 V, f = 1 MHz			1.0	%
ΔC3.0		V_{REV} = 3.0 V, f = 1 MHz			2.0	%
ΔC6.5		V_{REV} = 6.5 V, f = 1 MHz			2.0	%
Q	Quality Factor	V_{REV} = 1.0 V, f = 1MHz	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).

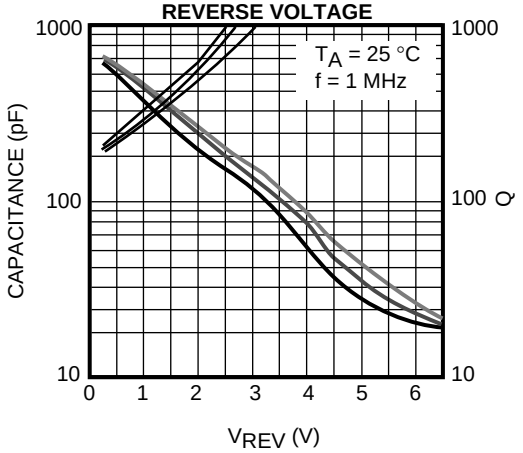
Note 2: $\Delta C = \frac{Cmax\ (D_1, D_2) - Cmin\ (D_1, D_2)}{Cmin\ (D_1, D_2)} \times 100$

*D_1, D_2: Please refer to the Pin Layout shown below.

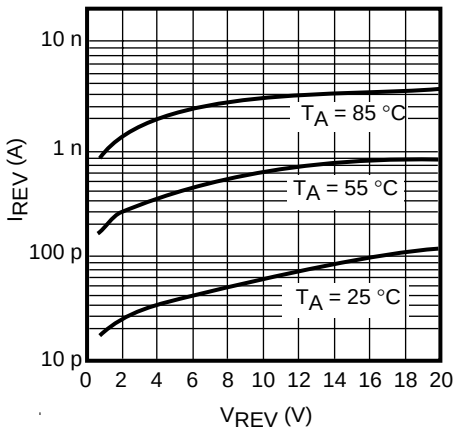
	Symbol	Anode Pin	Cathode Pin
Diode 1	D_1	①	②
Diode 2	D_2	③	②

TYPICAL PERFORMANCE CHARACTERISTICS

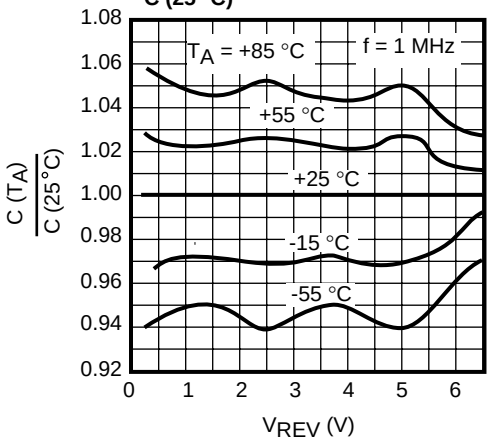
CAPACITANCE AND QUALITY FACTOR vs. REVERSE VOLTAGE



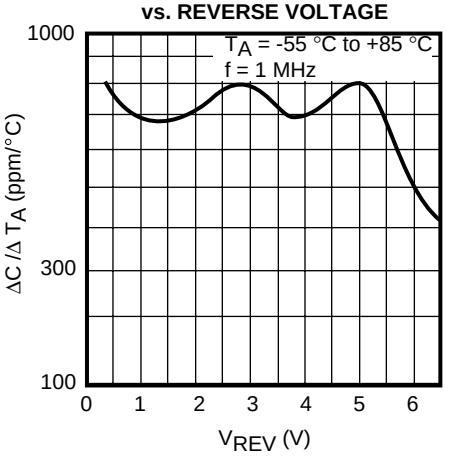
REVERSE CURRENT vs. REVERSE VOLTAGE



$\frac{C\ (T_A)}{C\ (25\ °C)}$ vs. REVERSE VOLTAGE

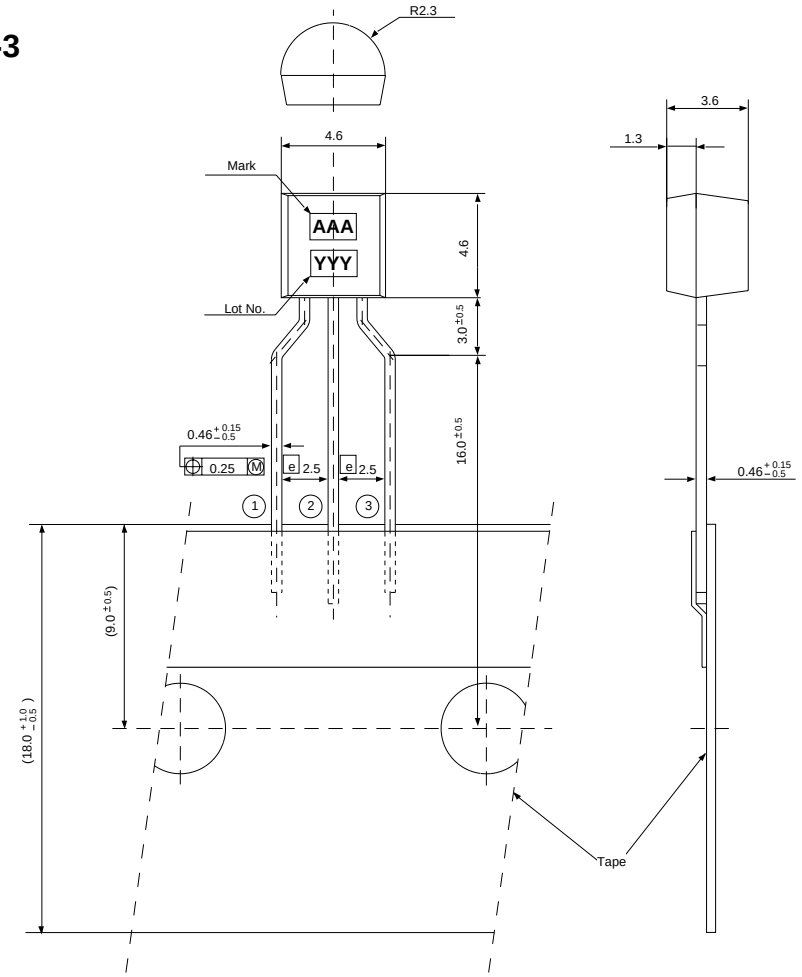


TEMPERATURE COEFFICIENT vs. REVERSE VOLTAGE



PACKAGE OUTLINE

T092-3



Dimensions are shown in millimeters
Tolerance: x.x = ± 0.2 mm (unless otherwise specified)

Marking Information

Product Code 590

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