

## VARIABLE CAPACITANCE DIODE

### FEATURES

- Very Low Series Resistance
- Excellent Linearity (CV Curve)
- Large Capacitance Ratio ( $A = 1.65$  minimum)
- Two Diodes in a Miniature Package (SOT23-3)
- Very Small Capacitance Deviation at Tape/Reel

### APPLICATIONS

- FM Radio
- Voltage Controlled Oscillator

### DESCRIPTION

The KV1740S is specially made to be used as a tuning element in radio cassettes, stereos, car radios, and other consumer radios.

The KV1740S minimizes cross modulation, allowing good signal-to-noise ratio in the overall design.

The KV1740S is available in the miniature SOT23-3 surface mount package.

### CLASSIFICATION

(Unit: pF)

C \ RANK		1	2	3
C <sub>2</sub>	MIN	42.92	44.13	45.37
	MAX	44.58	45.84	47.13

Note: Rank is determined after testing and marked on the reel. All the diodes on a reel have the same rank, but rank can not be specified when ordering.

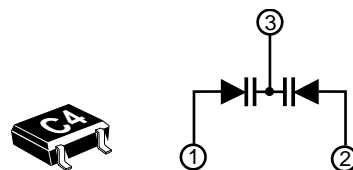
### ORDERING INFORMATION

KV1740S□□

Tape/Reel Code

TAPE/REEL CODE  
TL: Tape Left

KV1740S



# KV1740S

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## ABSOLUTE MAXIMUM RATINGS

Reverse Voltage ..... 14V  
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:  $T_A = 25\text{ °C}$

SYMBOL	PARAMETER	TEST CONDITIONS	MIN	TYP	MAX	UNITS
$V_{REV}$	Reverse Voltage	$I_{REV} = 10\text{ }\mu\text{A}$	12			V
$I_{REV}$	Reverse Current	$V_{REV} = 10\text{ V}$			10	nA
$C_2$	Diode Capacitance 2	$V_{REV} = 2.0\text{ V}$ , $f = 1\text{ MHz}$	42.92		47.13	pF
$C_8$	Diode Capacitance 8	$V_{REV} = 8.0\text{ V}$ , $f = 1\text{ MHz}$	24.61		28.57	pF
$R_S$	Series Resistance	$V_{REV} = 2.0\text{ V}$ , $f = 100\text{ MHz}$			0.28	$\Omega$
A	Capacitance Ratio	$C_2 / C_8$	1.65		1.75	

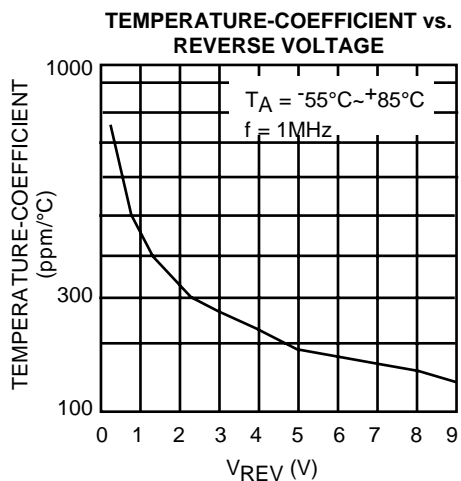
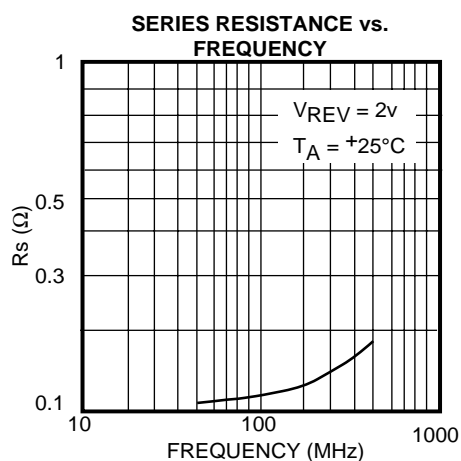
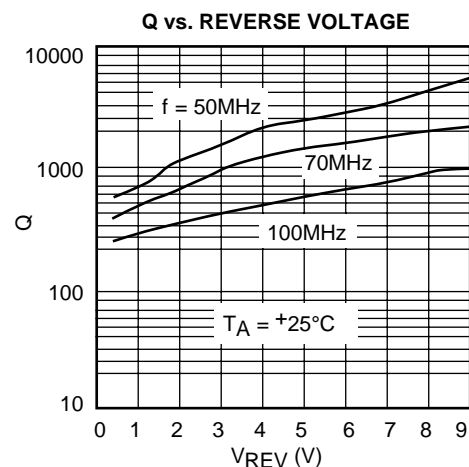
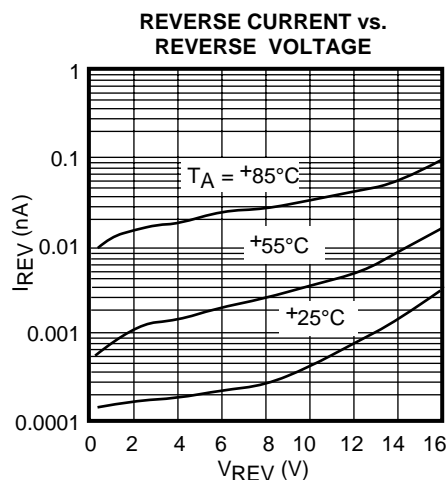
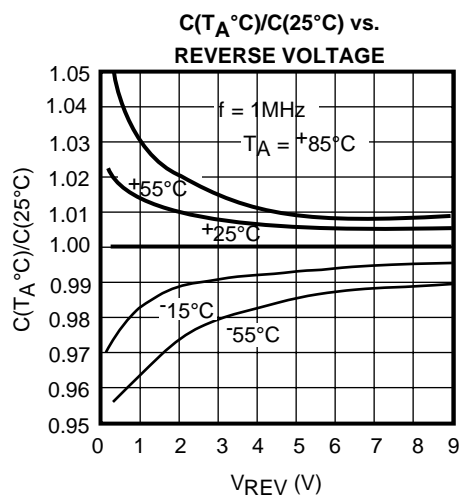
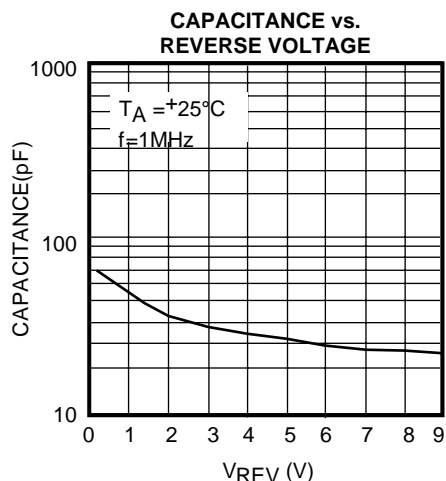
Note 1: Diode Capacitance measured with HP 4279A or equivalent instruments (at OSC level 20 mVrms,  $\pm 5\text{ mVrms}$ ).

Note 2: Series Resistance measured with HP 4291B or equivalent instruments.

Note 3: The tolerance of two adjacent parts on a reel is within 3% at C2 and C8.

Note 4: The value of capacitance is the average of 2 back to back type diodes.

## TYPICAL PERFORMANCE CHARACTERISTICS



## SOT23-3

Top view of the SOT23-3 package. The package is rectangular with a central dashed rectangle indicating the marking area. Three pins are shown: Pin 1 (bottom left), Pin 2 (bottom right), and Pin 3 (top center). The distance between the centerlines of Pin 1 and Pin 2 is 2.9 mm. The distance from the centerline of Pin 2 to the centerline of Pin 3 is 0.4 mm, with a tolerance of  $+0.10$  and  $-0.05$ . The distance from the centerline of Pin 1 to the centerline of Pin 2 is 0.95 mm, with a tolerance of  $\pm 0.05$ . A marking area is indicated by a dashed rectangle with a "Mark" label. A circular feature with a diameter of 0.1 mm and a maximum depth of 0.1 mm is shown near Pin 2.

Side view of the SOT23-3 package. The package is shown in profile, highlighting the mounting pads. The total width of the package is 2.9 mm. The mounting pads are shown with a height of 0.1 mm and a width of 0.15 mm, with a tolerance of  $+0.10$  and  $-0.05$ . The distance between the centerlines of the mounting pads is 0.95 mm, with a tolerance of  $\pm 0.05$ .

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

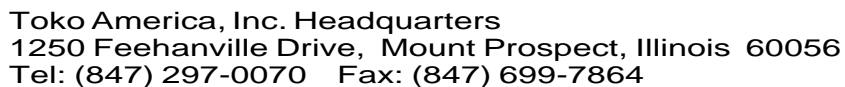
## Marking Information

Product Code

C4

Recommended mounting pad diagram. The diagram shows a rectangular mounting pad with a width of 0.8 mm and a height of 1.0 mm. The distance between the centerlines of the mounting pads is 0.95 mm, with a tolerance of  $\pm 0.05$ . The total width of the package is 2.9 mm. The distance from the centerline of the mounting pad to the centerline of the package is 0.4 mm, with a tolerance of  $+0.10$  and  $-0.05$ . The diagram is labeled "Recommended Mounting Pad".

Side view of the SOT23-3 package. The package is shown in profile, highlighting the mounting pads. The total width of the package is 2.9 mm. The mounting pads are shown with a height of 0.1 mm and a width of 0.15 mm, with a tolerance of  $+0.10$  and  $-0.05$ . The distance between the centerlines of the mounting pads is 0.95 mm, with a tolerance of  $\pm 0.05$ . The distance from the centerline of the mounting pad to the centerline of the package is 0.4 mm, with a tolerance of  $+0.10$  and  $-0.05$ . The diagram is labeled "Recommended Mounting Pad".



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