

To all our customers

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Renesas Technology Corp.  
Customer Support Dept.  
April 1, 2003

## Cautions

Keep safety first in your circuit designs!

1. Renesas Technology Corporation puts the maximum effort into making semiconductor products better and more reliable, but there is always the possibility that trouble may occur with them. Trouble with semiconductors may lead to personal injury, fire or property damage.

Remember to give due consideration to safety when making your circuit designs, with appropriate measures such as (i) placement of substitutive, auxiliary circuits, (ii) use of nonflammable material or (iii) prevention against any malfunction or mishap.

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# HVC417C

Variable Capacitance Diode for tuner

**RENESAS**

ADE-208-1433 (Z)

Rev.0  
Apr. 2002

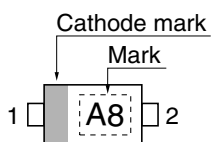
## Features

- High capacitance ratio. (n =13.0 min)
- Ultra small Flat Package (UFP) is suitable for surface mount design.

## Ordering Information

Type No.	Laser Mark	Package Code
HVC417C	A8	UFP

## Pin Arrangement



1. Cathode
2. Anode

## Absolute Maximum Ratings

(Ta = 25°C)

Item	Symbol	Value	Unit
Reverse voltage	V <sub>R</sub>	30	V
Junction temperature	T <sub>j</sub>	125	°C
Storage temperature	T <sub>stg</sub>	-55 to +125	°C

## Electrical Characteristics

(Ta = 25°C)

Item	Symbol	Min	Typ	Max	Unit	Test Condition
Reverse current	I <sub>R1</sub>	—	—	10	nA	V <sub>R</sub> = 25 V
	I <sub>R2</sub>	—	—	100		V <sub>R</sub> = 25 V, Ta = 60°C
Capacitance	C <sub>1</sub>	7.8	—	9.4	pF	V <sub>R</sub> = 1 V, f = 1 MHz
	C <sub>25</sub>	0.5	—	0.6		V <sub>R</sub> = 25 V, f = 1 MHz
Capacitance ratio	n	13.0	—	—	—	C <sub>1</sub> /C <sub>25</sub>
Series resistance	r <sub>s</sub>	—	—	1.5	Ω	V <sub>R</sub> = 5V, f = 470 MHz
Matching error	ΔC/C *1	—	—	6.0	%	V <sub>R</sub> = 1 to 25 V, f = 1 MHz

Note: 1. C.C system (Continuous Connected taping system) enable to make any 10 pcs of ΔC/C continuous in a reel, expect extention to another group.  
Calculate Matching Error,

$$\Delta C/C = \frac{(C_{\max} - C_{\min})}{C_{\min}} \times 100 (\%)$$

Main Characteristic

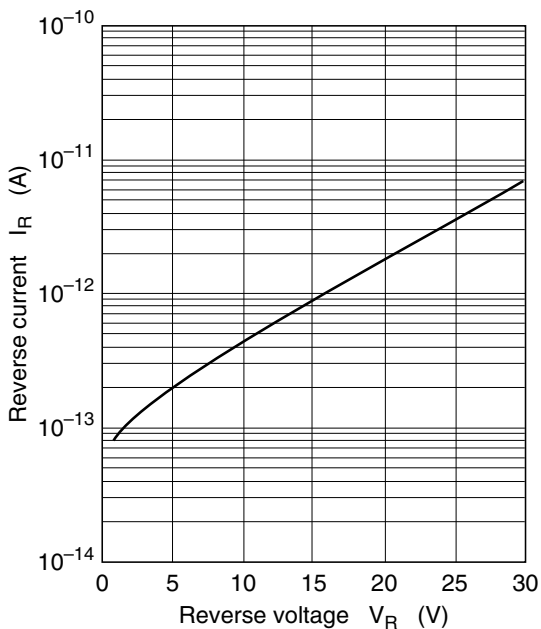


Fig.1 Reverse current vs. Reverse voltage

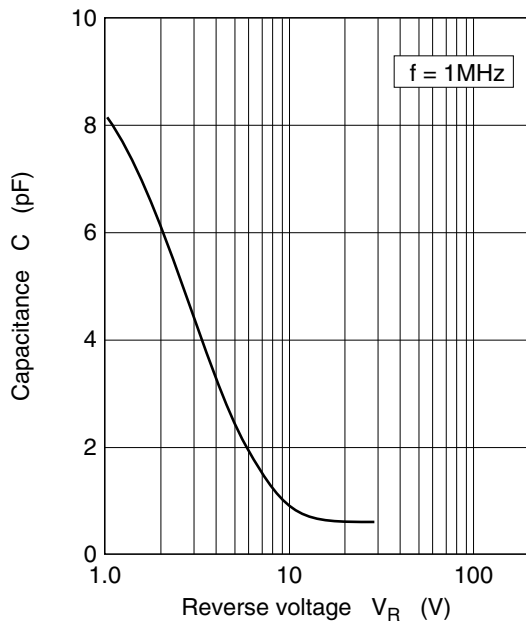


Fig.2 Capacitance vs. Reverse voltage

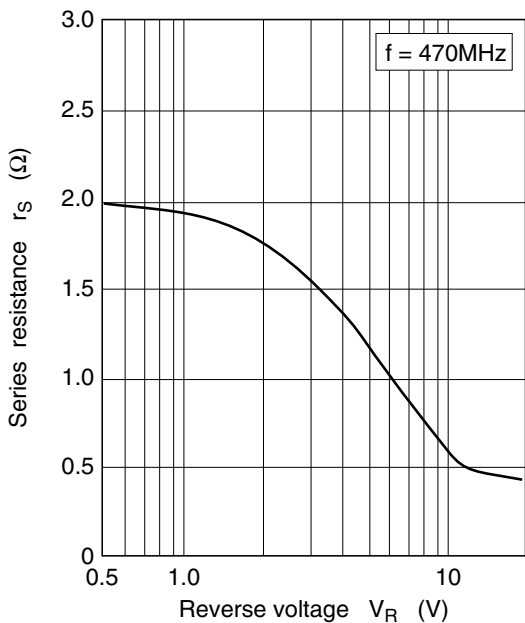


Fig.3 Series resistance vs. Reverse voltage

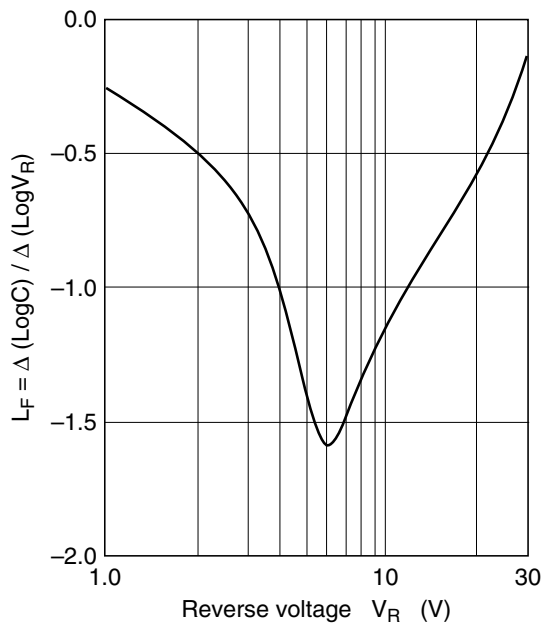
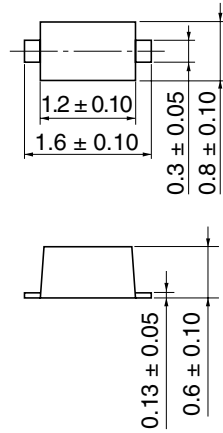


Fig.4 Linearity factor vs. Reverse voltage

## Package Dimensions

As of January, 2002

Unit: mm



Hitachi Code	UFP
JEDEC	—
JEITA	Conforms
Mass (reference value)	0.0016 g

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