

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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# HVL375B

## Variable Capacitance Diode for VCO



ADE-208-1565 (Z)

Rev.0  
Dec. 2002

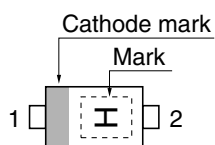
### Features

- Low tolerance.
- Low series resistance. ( $r_s = 1.1 \Omega$  max)
- Good C-V linearity.
- Extremely small Flat Package (EFP) is suitable for surface mount design.

### Ordering Information

Type No.	Laser Mark	Package Code
HVL375B	H	EFP

### Pin Arrangement



1. Cathode
2. Anode

**Absolute Maximum Ratings**

(Ta = 25°C)

Item	Symbol	Value	Unit
Reverse voltage	$V_R$	10	V
Junction temperature	Tj	125	°C
Storage temperature	Tstg	-55 to +125	°C

**Electrical Characteristics**

(Ta = 25°C)

Item	Symbol	Min	Typ	Max	Unit	Test Condition
Reverse current	$I_{R1}$	—	—	10	nA	$V_R = 10\text{ V}$
	$I_{R2}$	—	—	100		$V_R = 10\text{ V}$ , Ta = 60°C
Capacitance	$C_1$	15.0	—	16.5	pF	$V_R = 1\text{ V}$ , f = 1 MHz
	$C_3$	5.0	—	6.0		$V_R = 3\text{ V}$ , f = 1 MHz
	$C_4$	3.3	—	4.0		$V_R = 4\text{ V}$ , f = 1 MHz
Capacitance ratio	n	4.0	—	—	—	$C_1 / C_4$
Series resistance	$r_s$	—	—	1.1	$\Omega$	$V_R = 2\text{ V}$ , f = 470 MHz

- Notes: 1. Please do not use the soldering iron due to avoid high stress to the EFP package.  
2. The material of lead is exposed for cutting plane. Therefore, soldering nature of lead tip part is considered as unquestioned. Please kindly consider soldering nature.

## Main Characteristic

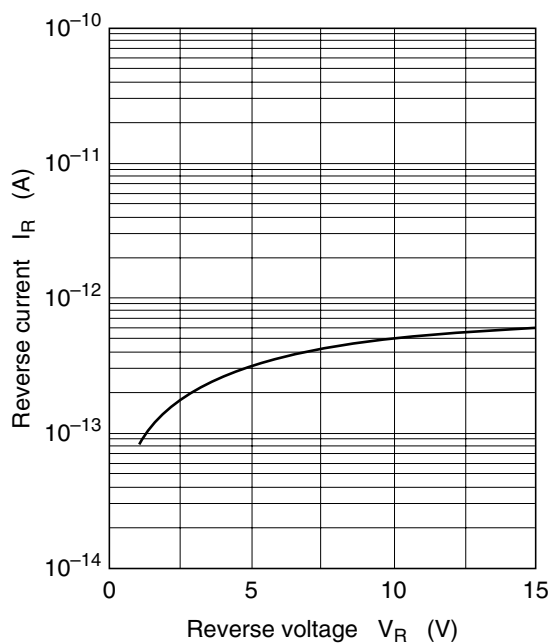


Fig.1 Reverse current vs. Reverse voltage

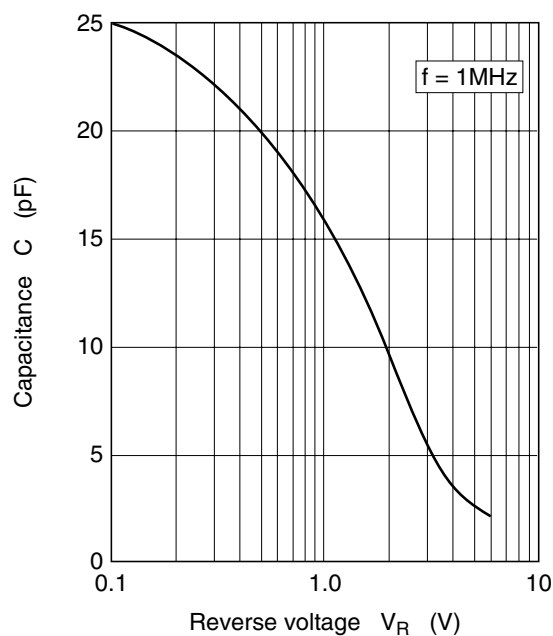


Fig.2 Capacitance vs. Reverse voltage

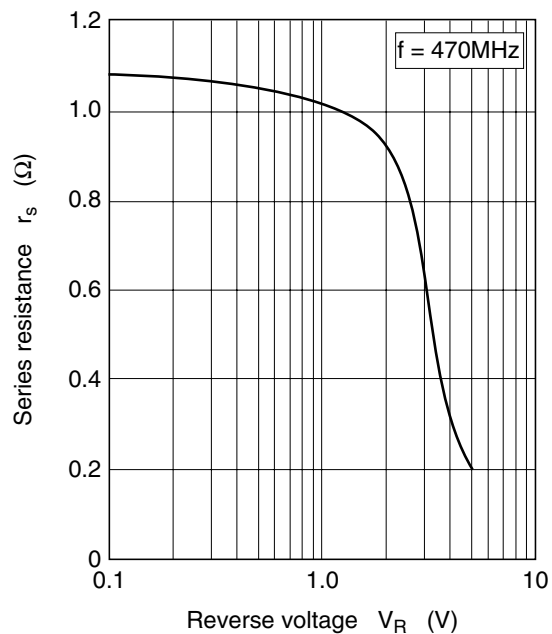
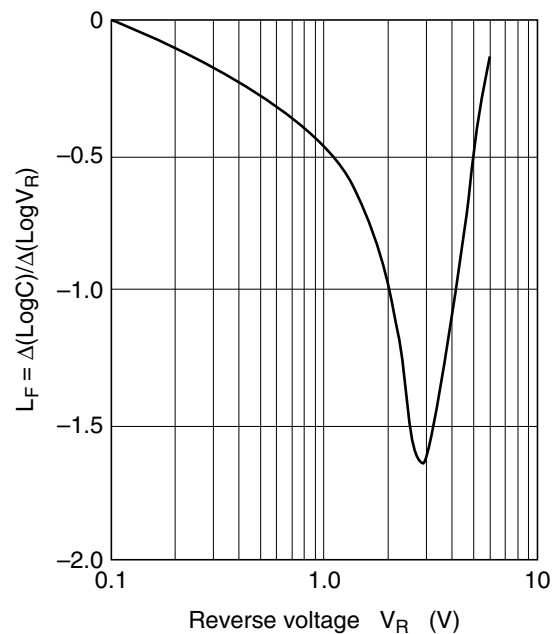
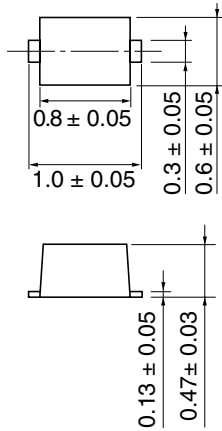


Fig.3 Series resistance vs. Reverse voltage

Fig.4  $L_F$  vs. Reverse voltage

Package Dimensions

As of July, 2002  
Unit: mm



Hitachi Code	EFP
JEDEC	—
JEITA	—
Mass (reference value)	0.0007 g

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