

To our customers,

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## Old Company Name in Catalogs and Other Documents

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Renesas Electronics website: <http://www.renesas.com>

April 1<sup>st</sup>, 2010  
Renesas Electronics Corporation

Issued by: Renesas Electronics Corporation (<http://www.renesas.com>)

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## HVC300B

Variable Capacitance Diode for VHF tuner

REJ03G0097-0200Z  
(Previous: ADE-208-603)  
Rev.1.00  
Sep.23.2003

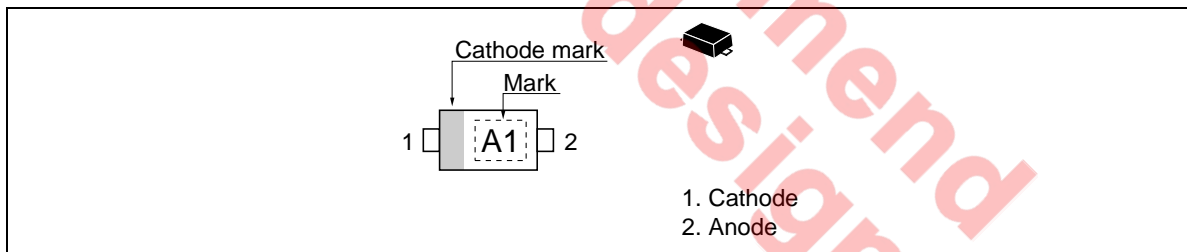
### Features

- Low matching error. ( $\Delta C/C = 2.0\%$  max)
- High capacitance ratio. ( $n = 17.0$  min)
- Low series resistance. ( $r_s = 1.1 \Omega$  max)
- Ultra small Flat Package (UFP) is suitable for surface mount design.

### Ordering Information

| Type No. | Laser Mark | Package Code |
|----------|------------|--------------|
| HVC300B  | A1         | UFP          |

### Pin Arrangement



## Absolute Maximum Ratings

(Ta = 25°C)

| Item                 | Symbol        | Value       | Unit |
|----------------------|---------------|-------------|------|
| Peak reverse voltage | $V_{RM}^{*1}$ | 35          | V    |
| Reverse voltage      | $V_R$         | 34          | V    |
| Junction temperature | Tj            | 125         | °C   |
| Storage temperature  | Tstg          | -55 to +125 | °C   |

Note: 1.  $R_L = 10\text{ k}\Omega$ 

## Electrical Characteristics

(Ta = 25°C)

| Item              | Symbol            | Min  | Typ | Max  | Unit     | Test Condition                                    |
|-------------------|-------------------|------|-----|------|----------|---|
| Reverse current   | $I_{R1}$          | —    | —   | 10   | nA       | $V_R = 32\text{ V}$                               |
|                   | $I_{R2}$          | —    | —   | 100  |          | $V_R = 32\text{ V}, T_a = 60^\circ\text{C}$       |
| Capacitance       | $C_2$             | 47.0 | —   | 53.0 | pF       | $V_R = 2\text{ V}, f = 1\text{ MHz}$              |
|                   | $C_{25}$          | 2.65 | —   | 3.0  |          | $V_R = 25\text{ V}, f = 1\text{ MHz}$             |
| Capacitance ratio | n                 | 17.0 | —   | —    | —        | $C_2/C_{25}$                                      |
| Series resistance | $r_s$             | —    | —   | 1.1  | $\Omega$ | $V_R = 5\text{ V}, f = 470\text{ MHz}$            |
| Matching error    | $\Delta C/C^{*1}$ | —    | —   | 2.0  | %        | $V_R = 2\text{ to }25\text{ V}, f = 1\text{ MHz}$ |

Note: 1. C.C system (Continuous Connected taping system) enable to make any 10 pcs of  $\Delta C/C$  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

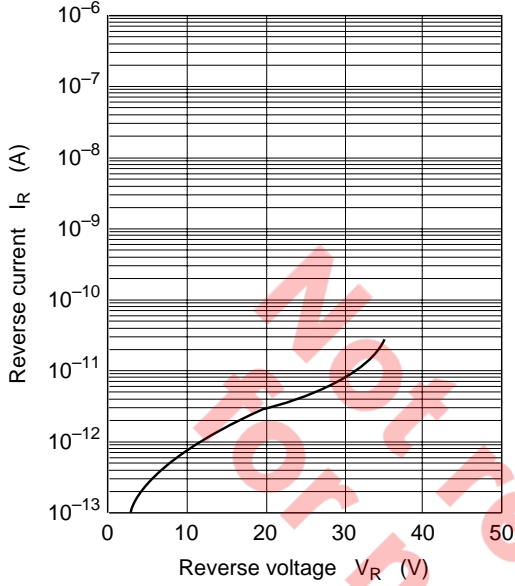


Fig.1 Reverse current vs. Reverse voltage

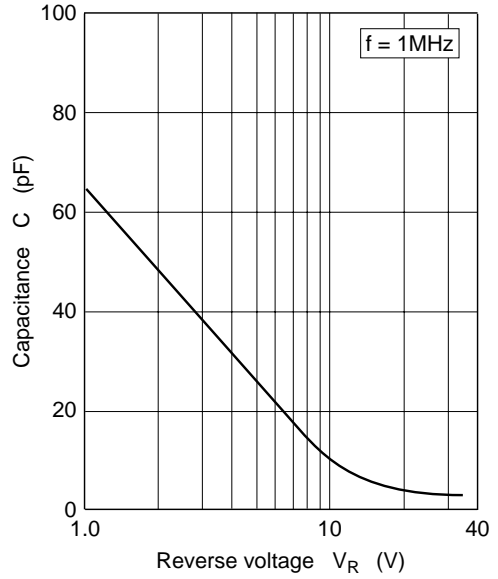


Fig.2 Capacitance vs. Reverse voltage

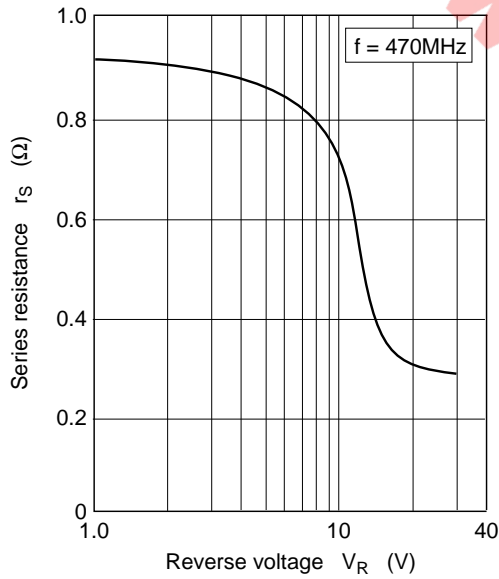


Fig.3 Series resistance vs. Reverse voltage

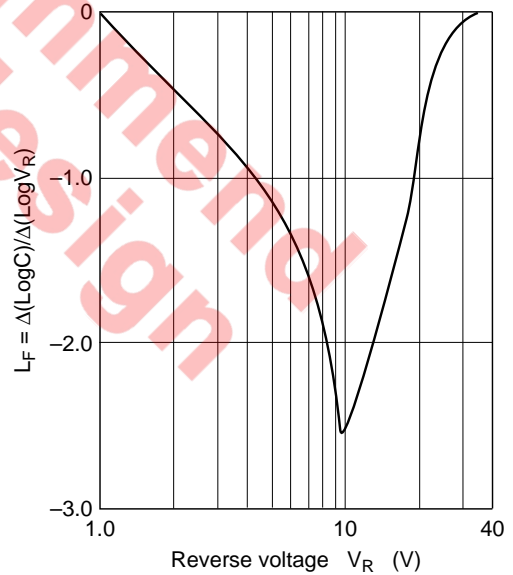
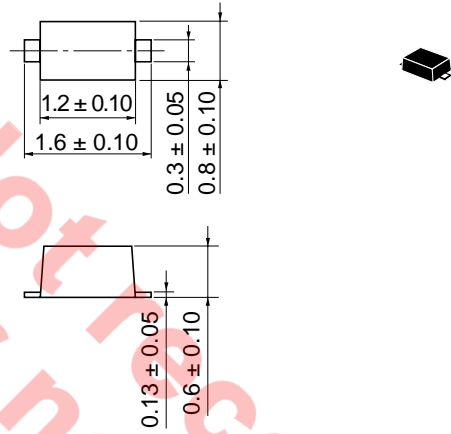


Fig.4 Linearity factor vs. Reverse voltage

Package Dimensions

As of January, 2003  
Unit: mm



|                        |          |
|------------------------|----------|
| Package Code           | UFP      |
| JEDEC                  | —        |
| JEITA                  | Conforms |
| Mass (reference value) | 0.0016 g |

Not for new design

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