

# HVR100

## Variable Capacitance Diode for AM tuner

REJ03G0102-0700

Rev.7.00

Feb 21, 2005

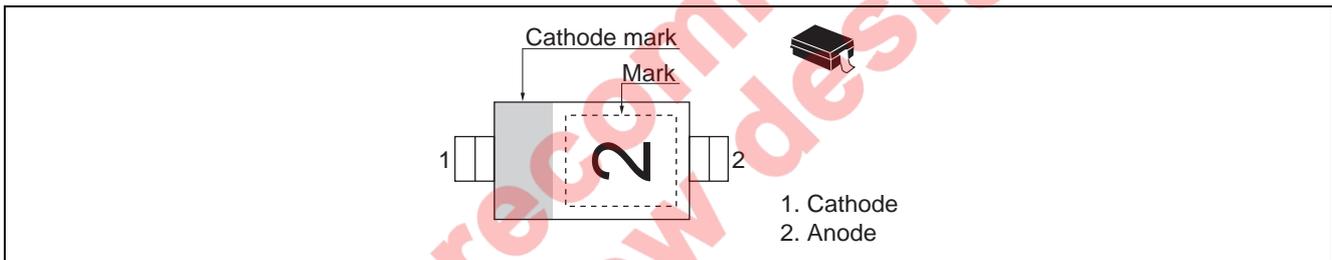
### Features

- High capacitance ratio. ( $n = 16.0$  min)
- High figure of merit. ( $Q = 200$  min)
- To be usable at low voltage.
- Small Resin Package (SRP) is suitable for surface mount design.

### Ordering Information

Type No.	Laser Mark	Renesas Code	Previous Code
HVR100	2	PLSP0002ZA-A	SRP

### Pin Arrangement



## Absolute Maximum Ratings

(Ta = 25°C)

Item	Symbol	Value	Unit
Reverse voltage	V <sub>R</sub>	15	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 voltage	V <sub>R</sub>	15	—	—	V	I <sub>R</sub> = 10 μA
Reverse current	I <sub>R</sub>	—	—	100	nA	V <sub>R</sub> = 9 V
Capacitance	C <sub>1</sub>	421.5	—	524.6	pF	V <sub>R</sub> = 1 V, f = 1 MHz
	C <sub>3</sub>	182.0	—	275.7		V <sub>R</sub> = 3 V, f = 1 MHz
	C <sub>5</sub>	73.2	—	121.4		V <sub>R</sub> = 5 V, f = 1 MHz
	C <sub>6</sub>	42.2	—	72.2		V <sub>R</sub> = 6 V, f = 1 MHz
	C <sub>7</sub>	26.2	—	41.6		V <sub>R</sub> = 7 V, f = 1 MHz
	C <sub>8</sub>	20.4	—	28.2		V <sub>R</sub> = 8 V, f = 1 MHz
Capacitance ratio	n	16	—	—	—	C <sub>1</sub> / C <sub>8</sub>
Figure of merit	Q	200	—	—	—	C = 450 pF, f = 1 MHz
Matching error	ΔC/C *1	—	—	3.0	%	V <sub>R</sub> = 1 to 8 V, f = 1 MHz
ESD-Capability *2	—	80	—	—	V	C = 200 pF, Both forward and reverse direction 1 pulse.

Note: 1. Each group shall uniform a multiple of 3 diodes.  
 A set of HVR100 is of uniform C-V characteristics.  
 Measure max. value and min. value of capacitance at each bias point of V<sub>R</sub> = 1V through 8 V.  
 Calculate Matching Error,

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

2. Failure criterion ; I<sub>R</sub> < 100 nA at V<sub>R</sub> = 9 V

### Main Characteristic

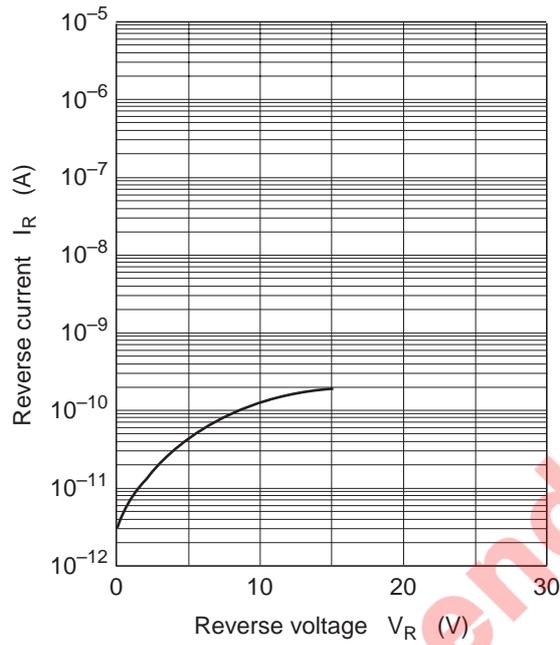


Fig.1 Reverse current vs. Reverse voltage

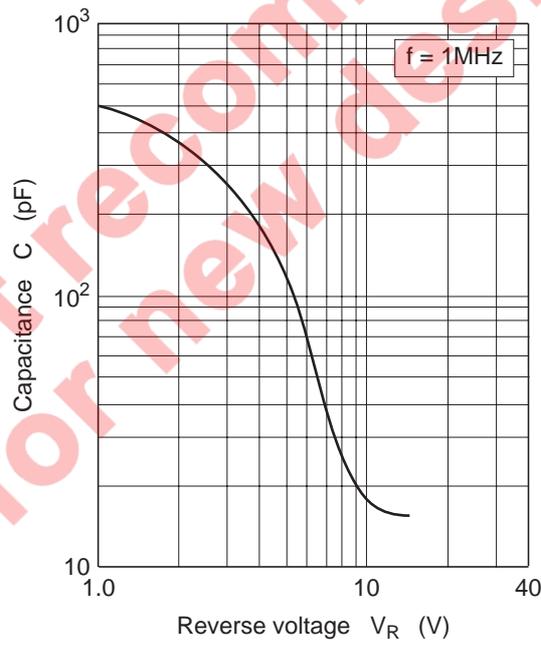
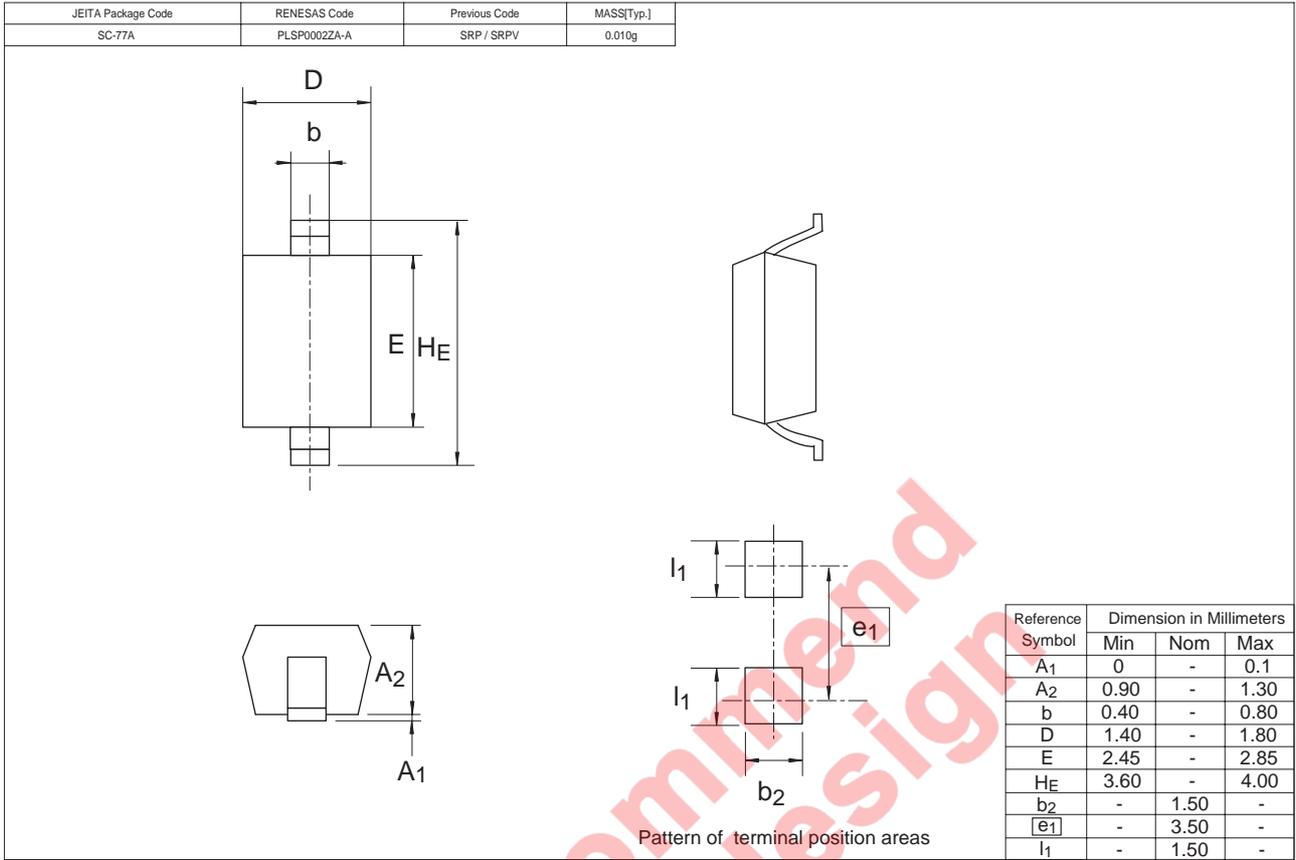


Fig.2 Capacitance vs. Reverse voltage

Package Dimensions



Not recommended for new designs

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