

HVR100

Variable Capacitance Diode for AM tuner

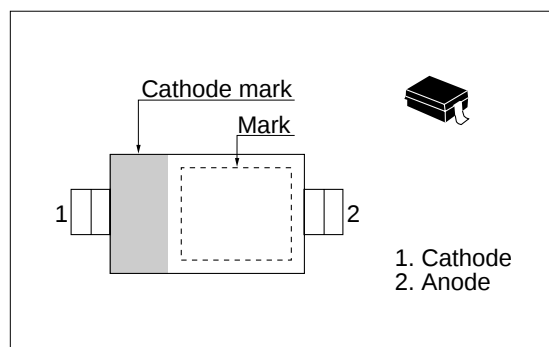
HITACHI

Rev. 4
Oct. 1995**Features**

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

Ordering Information

Type No.	Laser Mark	Package Code
HVR100	2	SRP

Outline**Absolute Maximum Ratings** ($T_a = 25^\circ\text{C}$)

Item	Symbol	Value	Unit
Reverse voltage	V_R	15	V
Junction temperature	T_j	125	$^\circ\text{C}$
Storage temperature	T_{stg}	-55 to +125	$^\circ\text{C}$

Electrical Characteristics ($T_a = 25^\circ\text{C}$)

Item	Symbol	Min	Typ	Max	Unit	Test Condition
Reverse voltage	V_R	15	—	—	V	$I_R = 10 \mu\text{A}$
Reverse current	I_R	—	—	100	nA	$V_R = 9 \text{ V}$
Capacitance	C_1	421.5	—	524.6	pF	$V_R = 1 \text{ V}, f = 1 \text{ MHz}$
	C_3	182.0	—	275.7		$V_R = 3 \text{ V}, f = 1 \text{ MHz}$
	C_5	73.2	—	121.4		$V_R = 5 \text{ V}, f = 1 \text{ MHz}$
	C_6	42.2	—	72.2		$V_R = 6 \text{ V}, f = 1 \text{ MHz}$
	C_7	26.2	—	41.6		$V_R = 7 \text{ V}, f = 1 \text{ MHz}$
	C_8	20.4	—	28.2		$V_R = 8 \text{ V}, f = 1 \text{ MHz}$
Capacitance ratio	n	16.0	—	—	—	C_1 / C_8
Figure of merit	Q	200	—	—	—	$C = 450 \text{ pF}, f = 1 \text{ MHz}$
Matching error	$\Delta C/C^*$	—	—	3.0	%	$V_R = 1 \sim 8 \text{ V}$
ESD-Capability	—	80	—	—	V	* $C = 200 \text{ pF}$, Both forward and reverse direction 1 pulse.

* Failure Criterion ; $I_R \geq 100 \text{ nA}$ at $V_R = 9 \text{ V}$

** A set of HVR100 is of uniform C-V characteristics.

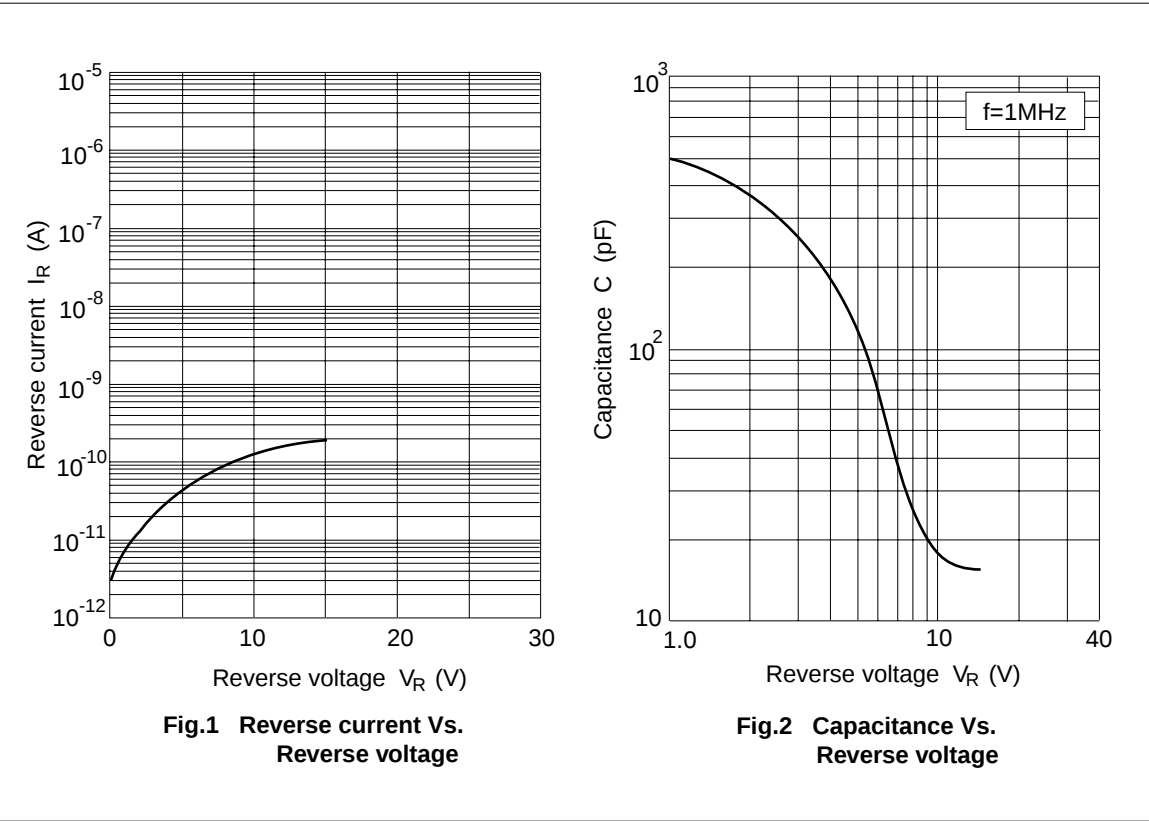
Measure max. value and min. value of capacitance at each bias point of $V_R = 1 \text{ V}$ through 8 V .

Calculate Matching Error,

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

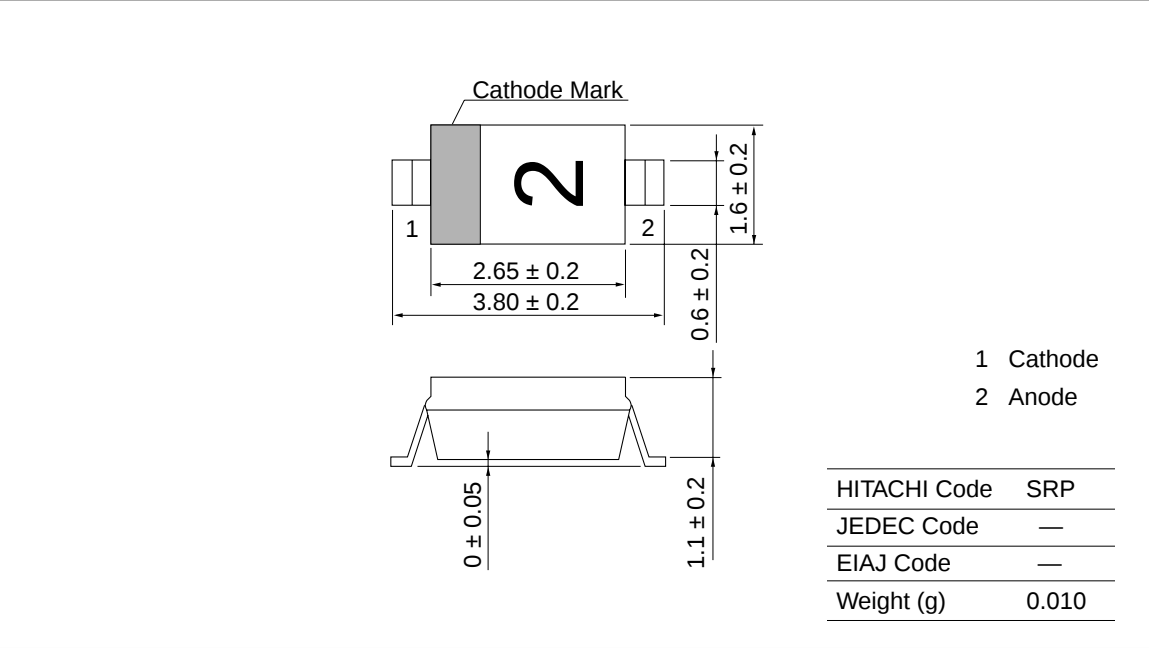
***Each group shall uniform a multiple of 3 diodes.

HVR100



Package Dimensions

Unit: mm



HVU12

Variable Capacitance Diode for Electronic Tuning

HITACHI

ADE-208-063C(Z)
Rev 3
June 1996

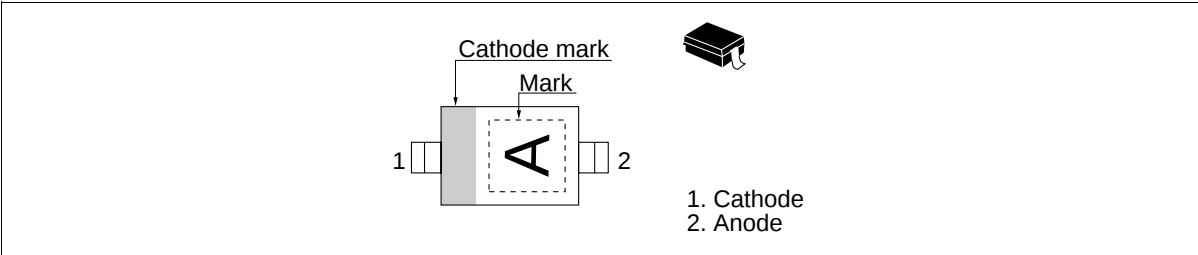
Features

- High capacitance ratio to wide tuning band width. (C1/C30=4.0min)
- Low series resistance. (rs=1.5Ωmax)
- Ultra small Resin Package (URP) is suitable for surface mount design.

Ordering Information

Type No.	Laser Mark	Package Code
HVU12	A	URP

Outline



HVU12

Absolute Maximum Ratings (Ta = 25°C)

Item	Symbol	Value	Unit
Reverse voltage	VR	35	V
Junction temperature	Tj	125	°C
Storage temperature	Tstg	-55~+125	°C

Electrical Characteristics (Ta = 25°C)

Item	Symbol	Min	Typ	Max	Unit	Test Condition
Reverse voltage	VR	35	∅	∅	V	IR = 10μA
Reverse current	IR1	∅	∅	50	nA	VR = 30V
Capacitance	C1	3.60	∅	5.60	pF	VR = 1V, f = 1 MHz
	C10	1.04	∅	1.64		VR = 10V, f = 1 MHz
	C30	0.45	∅	0.85		VR = 30V, f = 1 MHz
Capacitance ratio	n	4.0	∅	∅	∅	C1/ C30
Series resistance	rs	∅	∅	1.5	Ω	VR = 2V, f = 100 MHz
Matching error	ΔC/C*1	∅	∅	6.0	%	VR = 1~30V, 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

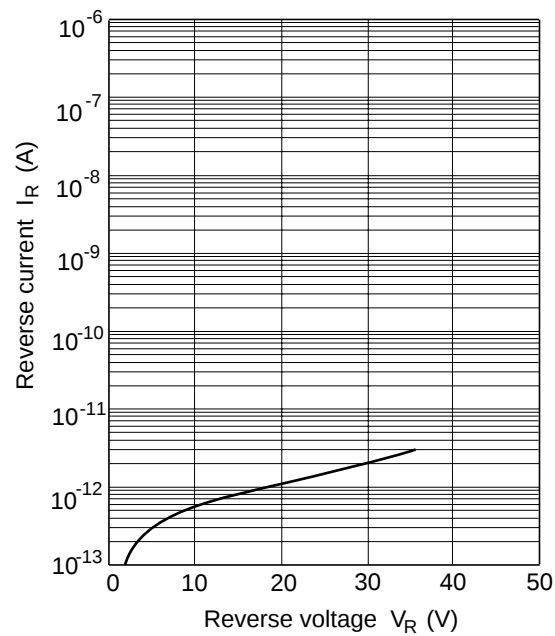


Fig.1 Reverse current Vs. Reverse voltage

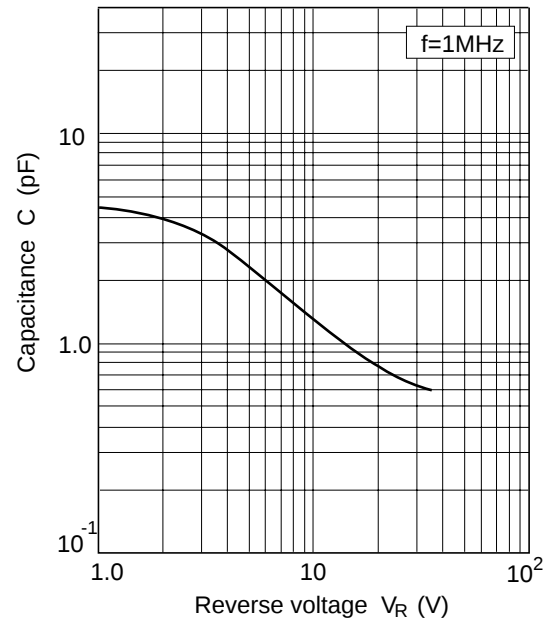


Fig.2 Capacitance Vs. Reverse voltage

HVU12

Package Dimensions

Unit : mm

