

# RKV501KG

## Variable Capacitance Diode for VHF tuner

REJ03G1282-0100

Rev.1.00

Oct 13, 2005

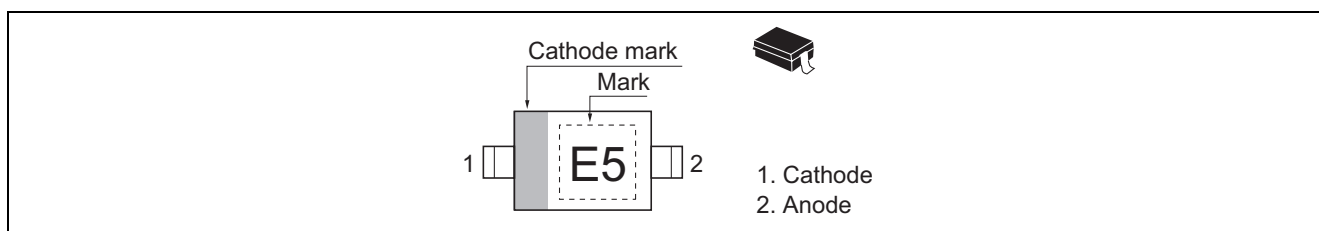
### Features

- High capacitance ratio ( $n = 11.0$  min).
- Low series resistance and good C-V linearity.
- Ultra small Resin Package (URP) is suitable for surface mount design.

### Ordering Information

| Type No. | Laser Mark | Package Name | Package Code<br>(Previous Code) |
|----------|------------|--------------|---------------------------------|
| RKV501KG | E5         | URP          | PTSP0002ZA-A<br>(URP)           |

### Pin Arrangement



## Absolute Maximum Ratings

(Ta = 25°C)

| Item                 | Symbol     | Value       | Unit |
|----------------------|------------|-------------|------|
| Peak reverse voltage | $V_{RM}^*$ | 35          | V    |
| Reverse voltage      | $V_R$      | 34          | V    |
| Junction temperature | $T_j$      | 150         | °C   |
| Storage temperature  | $T_{stg}$  | -55 to +150 | °C   |

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

## 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       | $C_2$          | 29.5 | —   | 34.0 | pF       | $V_R = 2\text{ V}$ , $f = 1\text{ MHz}$              |
|                   | $C_{25}$       | 2.45 | —   | 2.78 |          | $V_R = 25\text{ V}$ , $f = 1\text{ MHz}$             |
| Capacitance ratio | n              | 11.0 | —   | —    | —        | $C_2 / C_{25}$                                       |
| Series resistance | $r_s$          | —    | —   | 0.75 | $\Omega$ | $V_R = 5\text{ V}$ , $f = 470\text{ MHz}$            |
| Matching error    | $\Delta C/C^*$ | —    | —   | 1.8  | %        | $V_R = 2\text{ to }25\text{ V}$ , $f = 1\text{ MHz}$ |

Note: 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

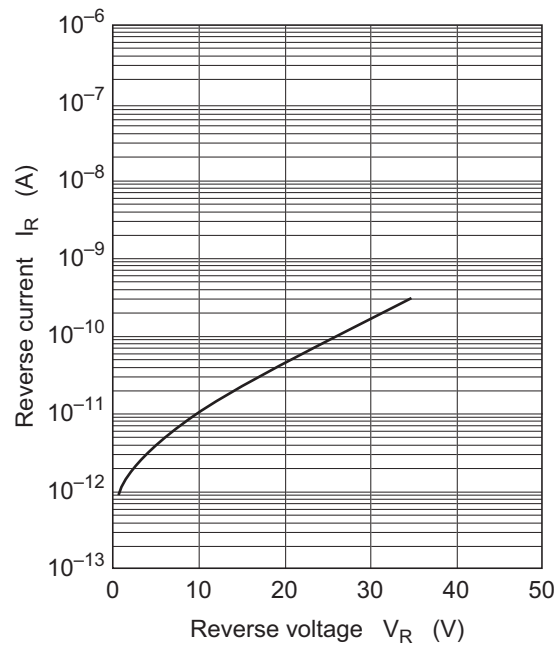


Fig.1 Reverse current vs. Reverse voltage

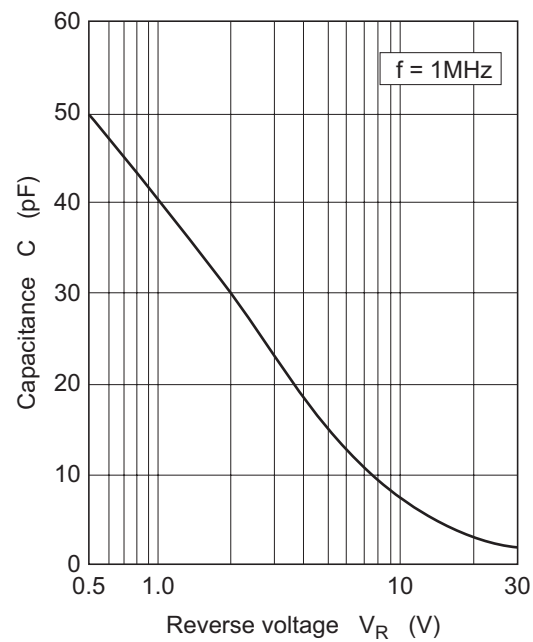


Fig.2 Capacitance vs. Reverse voltage

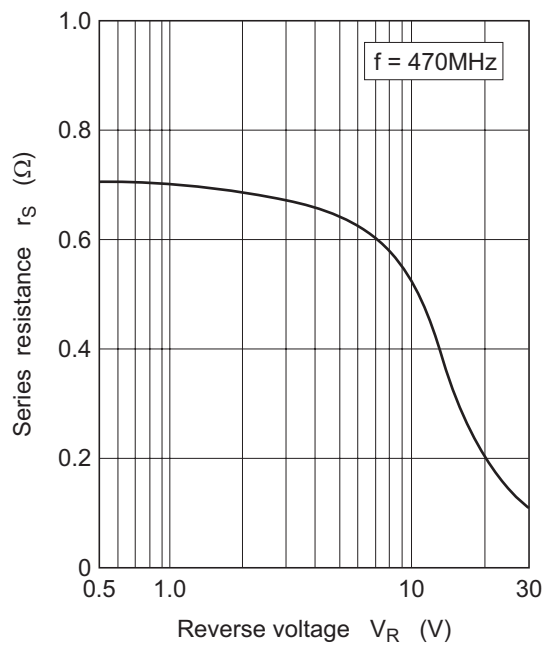


Fig.3 Series resistance vs. Reverse voltage

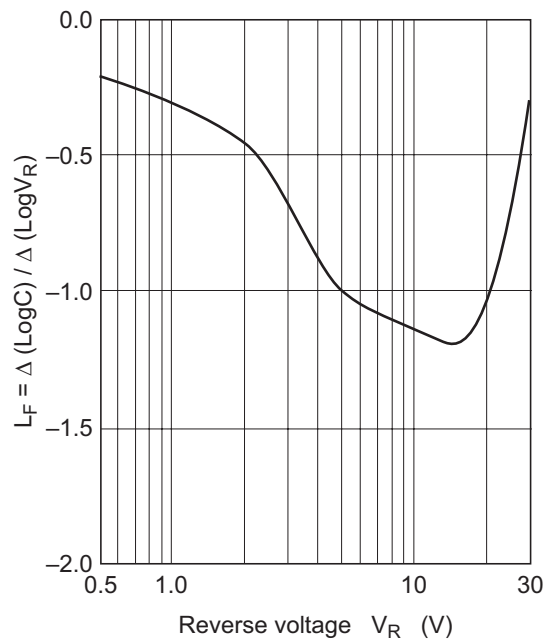
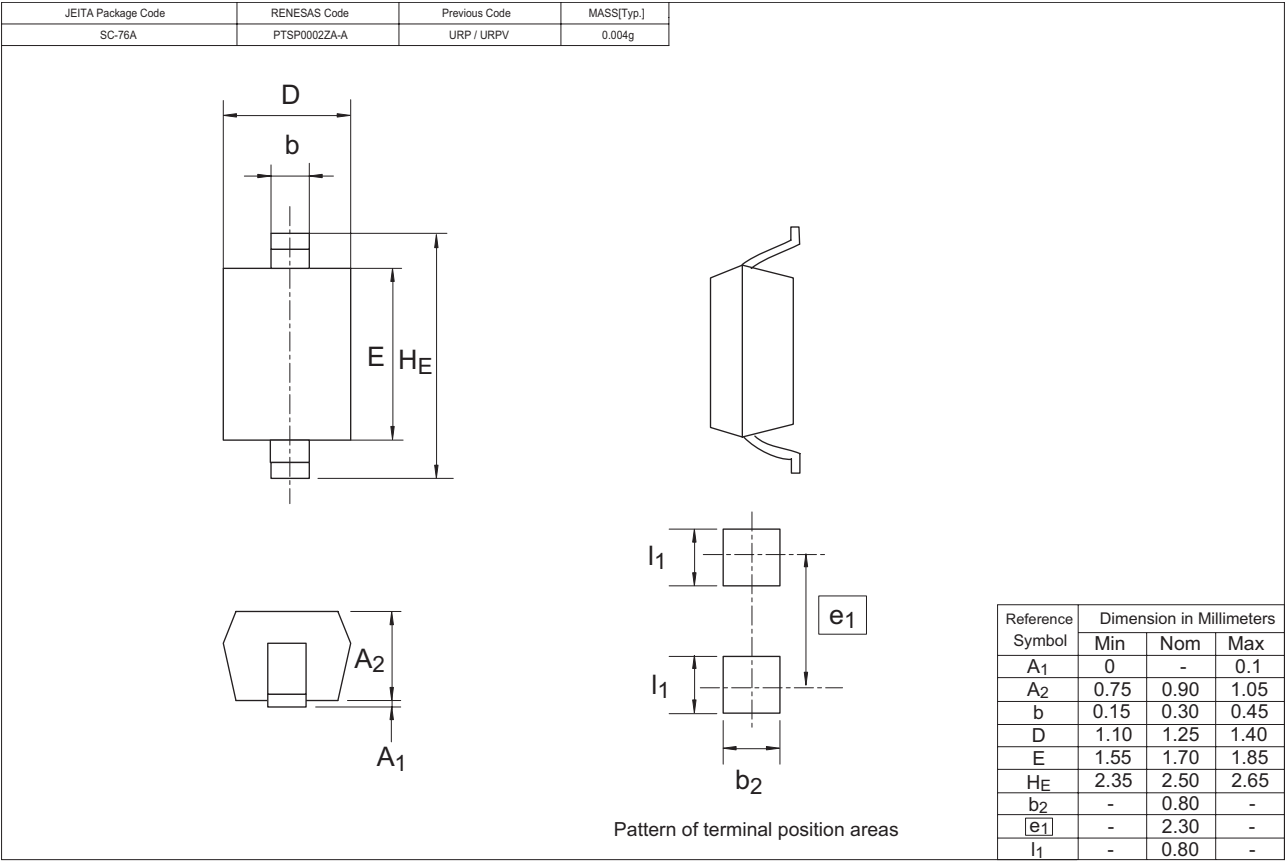


Fig.4 Linearity factor vs. Reverse voltage

Package Dimensions



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