

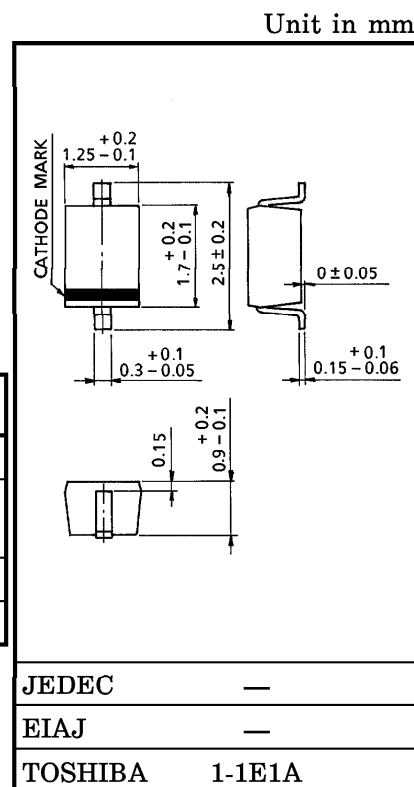
## 1SV231

## CATV TUNING

- High Capacitance Ratio :  $C_{2V} / C_{25V} = 15$  (Typ.)
- Excellent C-V Characteristics, and Small Tracking Error.
- Useful for Small Size Tuner.

MAXIMUM RATINGS ( $T_a = 25^\circ\text{C}$ )

| CHARACTERISTIC            | SYMBOL    | RATING                      | UNIT             |
|---------------------------|-----------|-----------------------------|------------------|
| Reverse Voltage           | $V_R$     | 30                          | V                |
| Peak Reverse Voltage      | $V_{RM}$  | 35<br>( $R_L = 10k\Omega$ ) | V                |
| Junction Temperature      | $T_j$     | 125                         | $^\circ\text{C}$ |
| Storage Temperature Range | $T_{stg}$ | $-55 \sim 125$              | $^\circ\text{C}$ |



Weight : 0.004g

ELECTRICAL CHARACTERISTICS ( $T_a = 25^\circ\text{C}$ )

| CHARACTERISTIC    | SYMBOL             | TEST CONDITION                       | MIN. | TYP. | MAX. | UNIT     |
|-------------------|--------------------|--------------------------------------|------|------|------|----------|
| Reverse Voltage   | $V_R$              | $I_R = 1\mu\text{A}$                 | 30   | —    | —    | V        |
| Reverse Current   | $I_R$              | $V_R = 28\text{V}$                   | —    | —    | 10   | nA       |
| Capacitance       | $C_{2V}$           | $V_R = 2\text{V}, f = 1\text{MHz}$   | 41.0 | 45.0 | 49.5 | pF       |
| Capacitance       | $C_{25V}$          | $V_R = 25\text{V}, f = 1\text{MHz}$  | 2.7  | 3.0  | 3.4  | pF       |
| Capacitance Ratio | $C_{2V} / C_{25V}$ | —                                    | 14   | 15   | —    | —        |
| Series Resistance | $r_s$              | $V_R = 5\text{V}, f = 470\text{MHz}$ | —    | 1.05 | 1.25 | $\Omega$ |

(Note 1) : Available in matched group for capacitance to 2.5%.

## MARKING

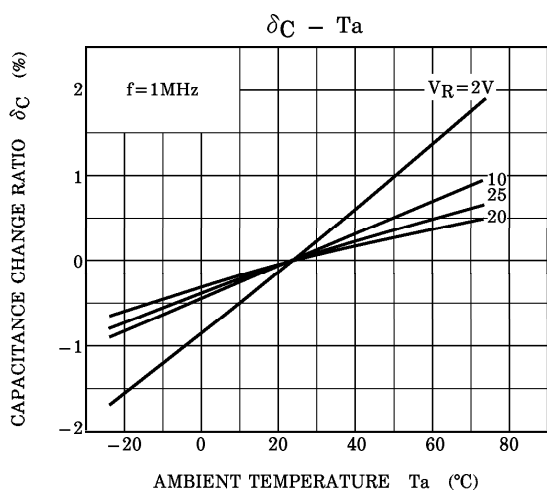
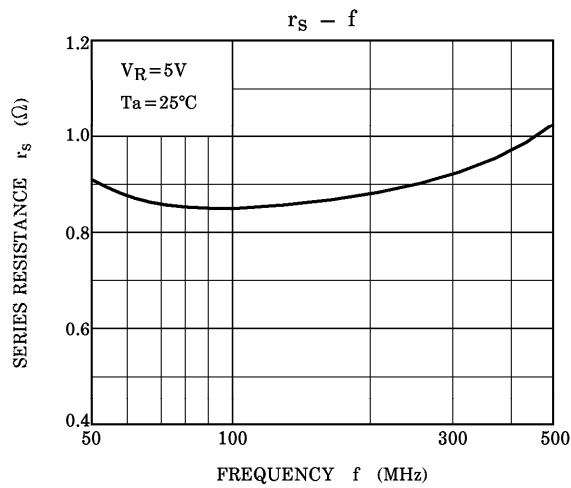
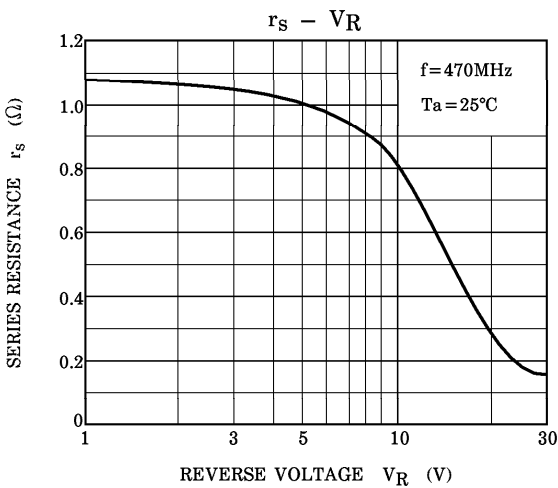
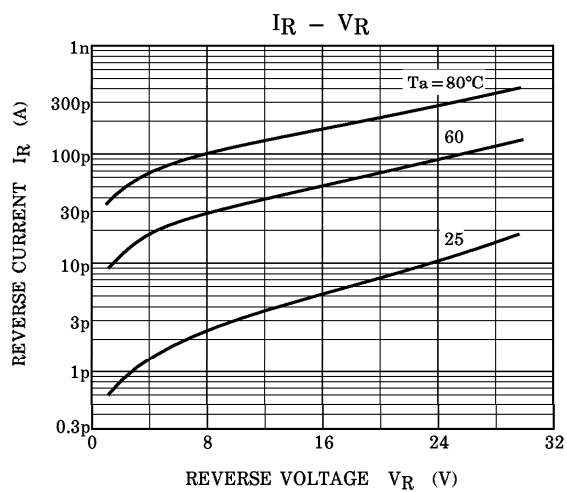
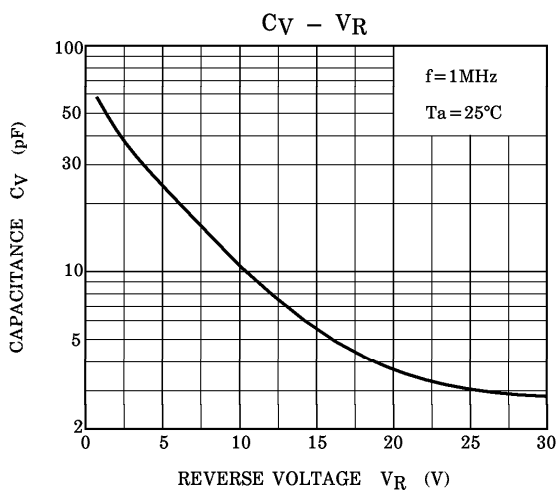
$$\frac{C(\text{Max.}) - C(\text{Min.})}{C(\text{Min.})} \leq 0.025$$

( $V_R = 2 \sim 25\text{V}$ )



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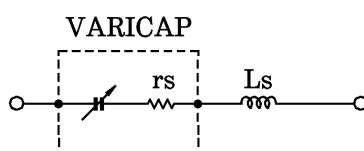
NOTE :  $\delta C (\%) = \frac{C(T_a) - C(25)}{C(25)} \times 100$

## SPICE PARAMETER

SPICE MODEL : BERKLEY SPICE.2G.6 DIODE MODEL  
 DATA FORMAT : MODEL FORMAT  
 SPICE SYMBOL :  $I_S$  (A),  $R_S$  ( $\Omega$ ),  $N$  (-),  $CJ0$  (F),  $V_J$  (V),  $M$  (-),  $B_V$  (V),  $I_{BV}$  (A)  
 FREQUENCY RANGE :  $f = 0.1 \sim 3$  GHz  
 REVERSE VOLTAGE RANGE :  $V_R = 2 \sim 25$  V  
 AMBIENT TEMPERATURE :  $T_a = 27^\circ\text{C}$

## PARAMETER

$I_S = 1.195\text{E} - 14$   
 $N = 1.072$   
 $B_V = 30$   
 $I_{BV} = 1.00\text{E} - 04$   
 $R_S = 1.05$   
 $CJ0 = 9.127\text{E} - 11$   
 $V_J = 5.096$   
 $M = 2.031$   
 -----  
 $L_s = 1.00\text{E} - 09$



- (Note 1) : These parameters from  $I_S$  to  $M$  mean die characteristic.  
 Actually device has lead inductance so  $L_s$  is necessary for simulation.  
 And please use default value except above parameters.  
 (Note 2) :  $R_S$  shows the value at the condition of  $V_R = 5$  V and  $f = 470$  MHz.  
 If another value is needed, please refer to  $R_S - V_R$  curve in this data sheets.