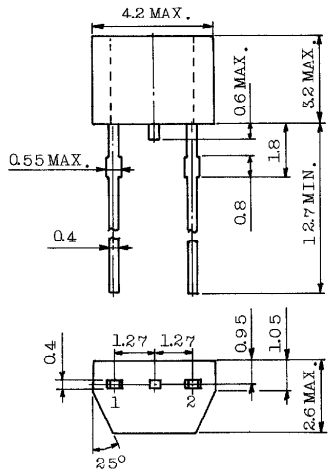
TOSHIBA VARIABLE CAPACITANCE DIODE SILICON EPITAXIAL PLANAR TYPE

# 1SV149

AM RADIO BAND TUNING APPLICATIONS.

Unit in mm

- High Capacitance Ratio : $C_{1V}/C_{8V}=15$ (Min.)
- High Q : $Q=200$ (Min.)
- Small Package
- Low Voltage Operation : 1V-8V




1. ANODE
2. CATHODE

| | |
|---|---|
| JEDEC | — |
| EIAJ | — |
| TOSHIBA | 1-4E1A |

Weight : 0.09g

MAXIMUM RATINGS (Ta = 25°C)

| CHARACTERISTIC | SYMBOL | RATING | UNIT |
|---|---|---|---|
| Reverse Voltage | $V_R$ | 15 | V |
| Junction Temperature | $T_j$ | 125 | °C |
| Storage Temperature Range | $T_{stg}$ | −55~125 | °C |

ELECTRICAL CHARACTERISTICS (Ta = 25°C)

| CHARACTERISTIC | SYMBOL | TEST CONDITION | MIN. | TYP. | MAX. | UNIT |
|---|---|---|---|---|---|---|
| Reverse Voltage | $V_R$ | $I_R=10\mu A$ | 15 | — | — | V |
| Reverse Current | $I_R$ | $V_R=15V$ | — | — | 50 | nA |
| Capacitance | $C_{1V}$ | $V_R=1V$, f=1MHz | 435 | — | 540 | pF |
| Capacitance | $C_{8V}$ | $V_R=8V$, f=1MHz | 19.9 | — | 30.0 | pF |
| Capacitance Ratio | $C_{1V}/C_{8V}$ | — | 15.0 | 19.5 | — | — |
| Figure of Merit | Q | $V_R=1V$, f=1MHz | 200 | — | — | — |

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

$$\frac{C_{(Max.)}-C_{(Min.)}}{C_{(Min.)}} \leqq 0.025\ (V_R=1V\sim8V)$$

and capacitance is classified as Table 1.

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Table 1: Capacitance Data

TEST CONDITION (f = 1MHz, Ta = 25°C) Unit : pF

| No. | $C_{1V}$ | $C_{3V}$ | $C_{5V}$ | $C_{8V}$ |
|---|---|---|---|---|
| 1 | 438.0 ~ 448.9 | 140.00 ~ 143.51 | 55.00 ~ 56.37 | 20.00 ~ 20.50 |
| 2 | 446.7 ~ 457.9 | 142.81 ~ 146.38 | 56.09 ~ 57.49 | 20.40 ~ 20.91 |
| 3 | 455.7 ~ 467.0 | 145.66 ~ 149.31 | 57.21 ~ 58.64 | 20.81 ~ 21.33 |
| 4 | 464.8 ~ 476.3 | 148.57 ~ 152.29 | 58.36 ~ 59.81 | 21.23 ~ 21.76 |
| 5 | 474.1 ~ 485.9 | 151.55 ~ 155.34 | 59.53 ~ 61.01 | 21.66 ~ 22.19 |
| 6 | 483.5 ~ 495.6 | 154.58 ~ 158.45 | 60.71 ~ 62.23 | 22.09 ~ 22.63 |
| 7 | 493.2 ~ 505.5 | 157.67 ~ 161.6 | 61.93 ~ 63.47 | 22.53 ~ 23.08 |
| 8 | 503.1 ~ 515.6 | 160.8 ~ 164.8 | 63.17 ~ 64.75 | 22.98 ~ 23.54 |
| 9 | 513.2 ~ 526.0 | 164.0 ~ 168.1 | 64.43 ~ 66.04 | 23.44 ~ 24.01 |
| 10 | 523.4 ~ 536.5 | 167.3 ~ 171.5 | 65.72 ~ 67.36 | 23.91 ~ 24.50 |
| 11 | | 170.7 ~ 174.9 | 67.04 ~ 68.71 | 24.38 ~ 24.99 |
| 12 | | 174.1 ~ 178.4 | 68.37 ~ 70.08 | 24.87 ~ 25.49 |
| 13 | | 177.6 ~ 182.0 | 69.74 ~ 71.48 | 25.37 ~ 26.00 |
| 14 | | 181.2 ~ 185.6 | 71.14 ~ 72.92 | 25.88 ~ 26.52 |
| 15 | | 184.8 ~ 189.3 | 72.56 ~ 74.37 | 26.40 ~ 27.05 |
| 16 | | 188.5 ~ 193.1 | 74.01 ~ 75.85 | 26.93 ~ 27.59 |
| 17 | | 192.3 ~ 197.0 | 75.49 ~ 77.37 | 27.47 ~ 28.15 |
| 18 | | 196.2 ~ 201.0 | 76.99 ~ 78.91 | 28.01 ~ 28.71 |
| 19 | | 200.0 ~ 205.0 | 78.53 ~ 80.49 | 28.57 ~ 29.28 |
| 20 | | 204.0 ~ 209.1 | 80.09 ~ 82.10 | 29.14 ~ 29.86 |
| 21 | | 208.1 ~ 213.3 | 81.70 ~ 83.74 | |
| 22 | | 212.3 ~ 217.6 | 83.34 ~ 85.42 | |
| 23 | | 216.6 ~ 221.9 | 85.00 ~ 87.12 | |
| 24 | | 220.9 ~ 226.3 | 86.70 ~ 88.87 | |
| 25 | | 225.3 ~ 230.8 | 88.43 ~ 90.64 | |
| 26 | | 229.8 ~ 235.4 | 90.20 ~ 92.46 | |
| 27 | | 234.4 ~ 240.1 | 92.00 ~ 94.30 | |
| 28 | | 239.1 ~ 245.0 | 93.84 ~ 96.18 | |
| 29 | | 243.8 ~ 249.9 | 95.72 ~ 98.11 | |
| 30 | | | 97.63 ~ 100.07 | |
| 31 | | | 99.59 ~ 102.08 | |
| 32 | | | 101.58 ~ 104.12 | |

(1) This table is not selection guide, which means only to show the data.

(2) The number on the vinyl package (on the label in the vinyl package) is to show the capacitance data at each voltage in a matched group.

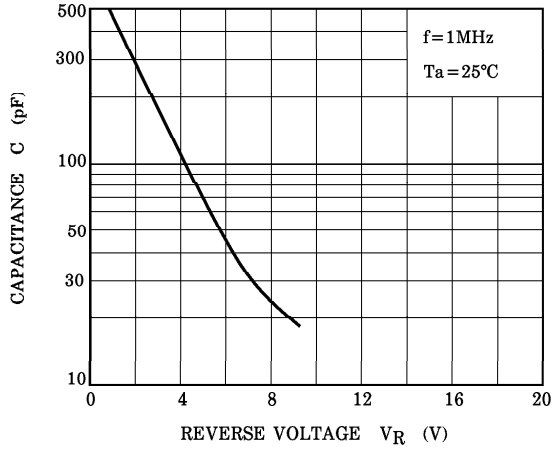
EXAMPLE: 4 – 3 – 2 – 1
($C_{1V}$) ($C_{3V}$) ($C_{5V}$) ($C_{8V}$)

(3) The absolute capacitance value is in ±0.5%.

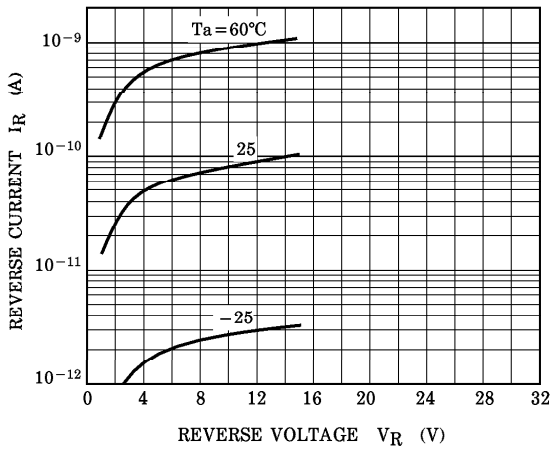
(4) $C_{8V}$ Classification

A : Address No.1~7
B : Address No.8~14
C : Address No.14~20

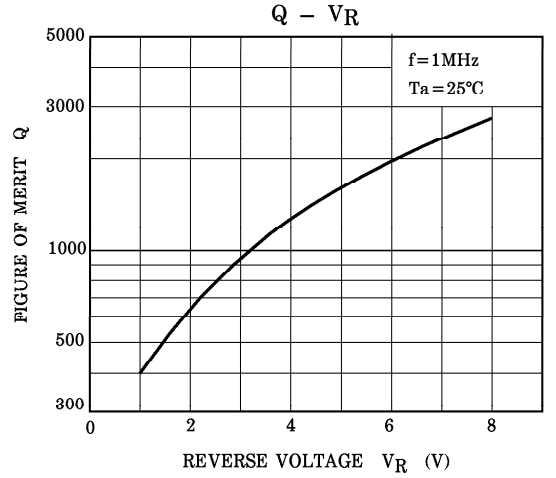
C – $V_R$



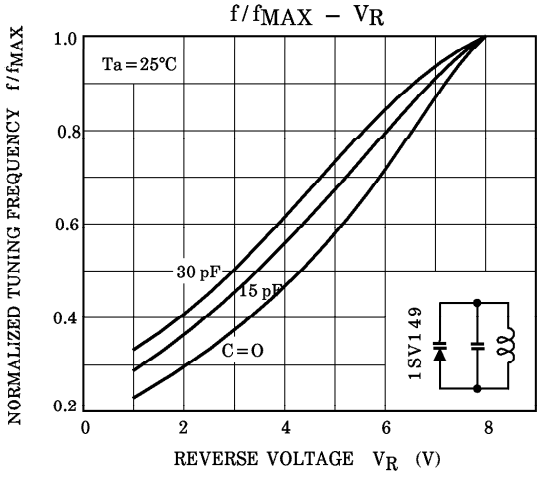

$I_R$ – $V_R$




Q – $V_R$




$f/f_{MAX}$ – $V_R$




$\delta C(Temp.)/C(25°C)$ – Ta

