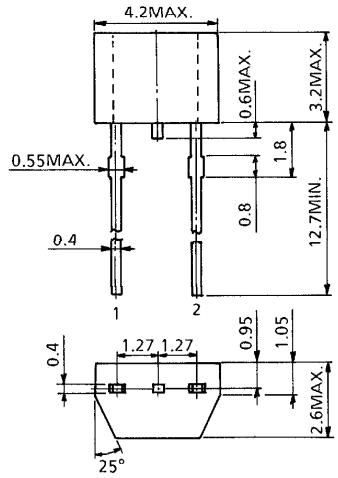
TOSHIBA VARIABLE CAPACITANCE DIODE SILICON EPITAXIAL PLANAR TYPE

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 : 1 V-8 V



1. ANODE
2. CATHODE

JEDEC	—
EIAJ	—
TOSHIBA	1-4E1A

Weight : 0.09 g

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	$V_R = 15$ V	—	—	50	nA
Capacitance	C_{1V}	$V_R = 1$ V, f = 1 MHz	435	—	540	pF
Capacitance	C_{8V}	$V_R = 8$ V, f = 1 MHz	19.9	—	30.0	pF
Capacitance Ratio	C_{1V}/C_{8V}	—	15.0	19.5	—	—
Figure of Merit	Q	$V_R = 1$ V, f = 1 MHz	200	—	—	—

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

$$\frac{C\,(\text{Max.}) - C\,(\text{Min.})}{C\,(\text{Min.})} \leqq 0.025\ (V_R = 1\text{ V}\sim 8\text{ V})$$

and capacitance is classified as Table 1.

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Table 1: Capacitance Data

TEST CONDITION (f = 1 MHz, 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.

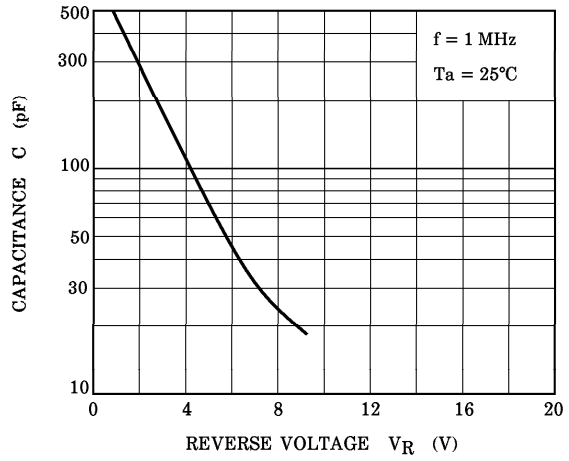
EXAMPLE: 4 – 3 – 2 – 1
(C_{1V}) (C_{3V}) (C_{5V}) (C_{8V})

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

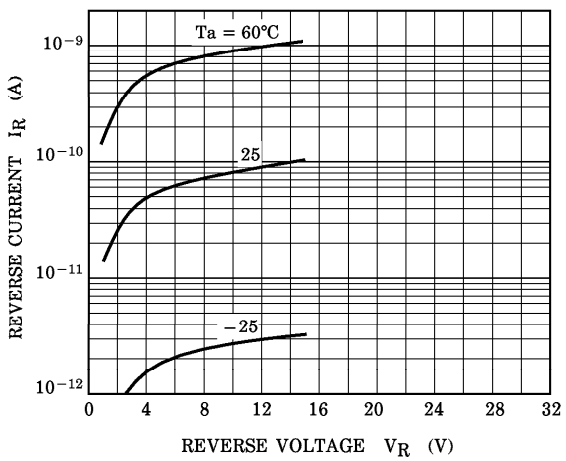
(4) C_{8V} Classification

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

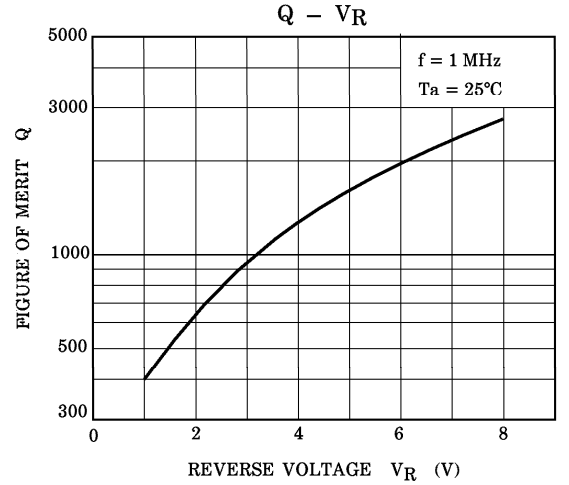
C – V_R



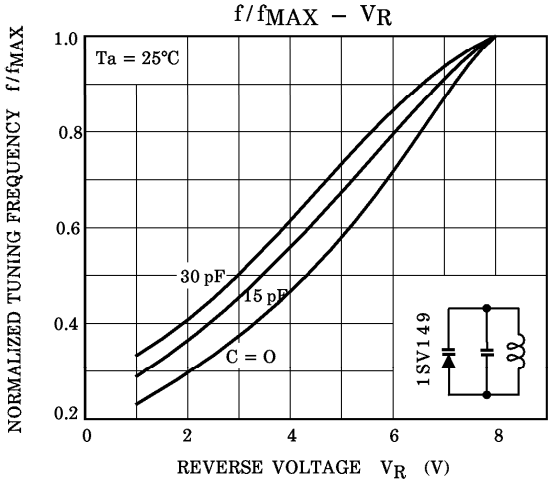
I_R – V_R



Q – V_R



f/f_{MAX} – V_R



$\delta C_{(Temp.)}/C_{(25°C)}$ – Ta