

TOSHIBA VARIABLE CAPACITANCE DIODE SILICON EPITAXIAL PLANAR TYPE

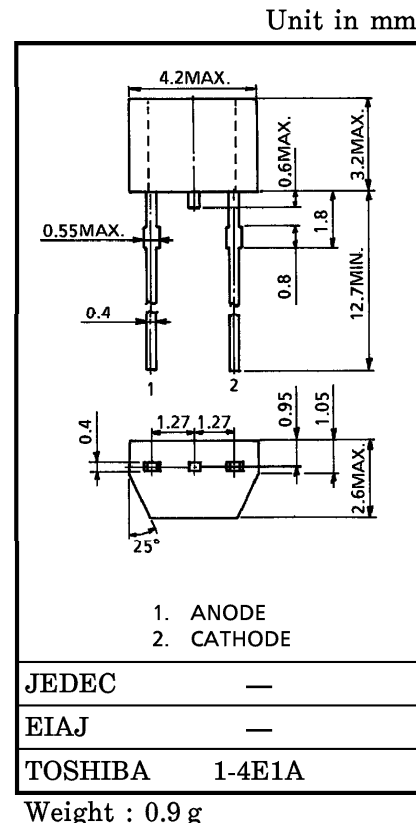
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FM TUNER APPLICATIONS

- High Capacitance Ratio : $C_{3V}/C_{9V} = 2.0 \sim 2.7$
- Low Series Resistance : $r_s = 0.3 \Omega$ (Typ.)
- Small Package.
- Low Tuning Voltage Range : 3 V-9 V

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

CHARACTERISTIC	SYMBOL	RATING	UNIT
Reverse Voltage	V_R	15	V
Junction Temperature	T_j	125	$^\circ\text{C}$
Storage Temperature Range	T_{stg}	$-55 \sim 125$	$^\circ\text{C}$

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

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Reverse Voltage	V_R	$I_R = 10 \mu\text{A}$	15	—	—	V
Reverse Current	I_R	$V_R = 15 \text{ V}$	—	—	10	nA
Capacitance	C_{3V}	$V_R = 3 \text{ V}, f = 1 \text{ MHz}$	28	—	32	pF
Capacitance	C_{9V}	$V_R = 9 \text{ V}, f = 1 \text{ MHz}$	12	—	14	pF
Capacitance Ratio	C_{3V}/C_{9V}	—	2.0	—	2.7	
Series Resistance	r_s	$C = 30 \text{ pF}, f = 50 \text{ MHz}$	—	0.3	0.5	Ω

(Note) : Units are compounded in one package and are matched to 3%.

$$\frac{C(\text{Max.}) - C(\text{Min.})}{C(\text{Min.})} \leq 0.03 \quad (V_R = 3 \text{ V-} 9 \text{ V})$$

and capacitance is classified as Table 1.

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Table 1 : Address classification of capacitance

TEST CONDITION : f = 1 MHz, Ta = 25°C

Unit : pF

No.	C _{3V}	C _{5V}	C _{7V}	C _{9V}
1	28.20~29.04	20.50~21.11	15.65~16.11	12.066~12.427
2	28.85~29.71	20.97~21.59	16.01~16.49	12.343~12.713
3	29.51~30.39	21.44~22.08	16.38~16.87	12.627~13.005
4	30.19~31.09	21.94~22.59	16.76~17.26	12.917~13.304
5	30.89~31.81	22.45~23.12	17.15~17.66	13.214~13.610
6		22.97~23.65	17.54~18.06	13.518~13.923
7		23.49~24.19	17.94~18.47	

- (1) The capacitance value of address classification is shown with confidence to at least $\pm 0.5\%$ accuracy.
- (2) The address is specified in the compounded package (or label).

Example 4 - 3 - 2 - 1
 (C_{3V}) (C_{5V}) (C_{7V}) (C_{9V})

