

TOSHIBA Diodes for Protecting against ESD Epitaxial Planar Type

DF2S12S

Product for Use Only as Protection against Electrostatic Discharge (ESD).

* This product is for protection against electrostatic discharge (ESD) only and is not intended for any other usage, including without limitation, the constant voltage diode application.

- 2terminal ultra small package suitable for mounting on small space.
- Low total capacitance: $C_T = 15 \text{ pF}$ (typ.)

Absolute Maximum Ratings ($T_a = 25^\circ\text{C}$)

Characteristic	Symbol	Rating	Unit
Power dissipation	P^*	150	mW
Junction temperature	T_j	150	$^\circ\text{C}$
Storage temperature range	T_{stg}	-55~150	$^\circ\text{C}$

Note: Using continuously under heavy loads (e.g. the application of high temperature/current/voltage and the significant change in temperature, etc.) may cause this product to decrease in the reliability significantly even if the operating conditions (i.e. operating temperature/current/voltage, etc.) are within the absolute maximum ratings.

Please design the appropriate reliability upon reviewing the Toshiba Semiconductor Reliability Handbook ("Handling Precautions"/"Derating Concept and Methods") and individual reliability data (i.e. reliability test report and estimated failure rate, etc).

*: Mounted on a glass-epoxy circuit board of $20 \times 20 \text{ mm}$, pad dimensions of $4 \times 4 \text{ mm}$.

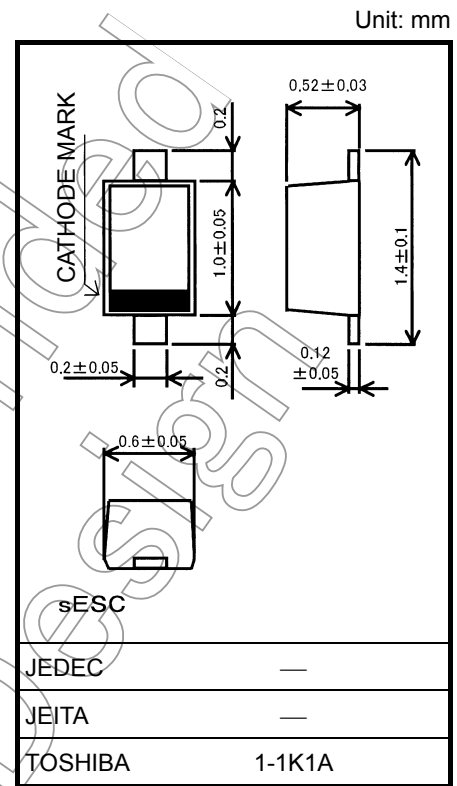
Electrical Characteristics ($T_a = 25^\circ\text{C}$)

Characteristic	Symbol	Test Circuit	Test Condition	Min	Typ.	Max	Unit
Zener voltage	V_Z	—	$I_Z = 5 \text{ mA}$	11.4	12.0	12.6	V
Dynamic impedance	Z_Z	—	$I_Z = 5 \text{ mA}$	—	—	25	Ω
Reverse current	I_R	—	$V_R = 9 \text{ V}$	—	—	0.05	μA
Total capacitance	C_T	—	$V_R = 0 \text{ V}, f = 1 \text{ MHz}$	—	15	—	pF

Guaranteed Level of ESD Immunity

Test Condition	ESD Immunity Level
IEC61000-4-2 (contact discharge)	$\pm 20 \text{ kV}$

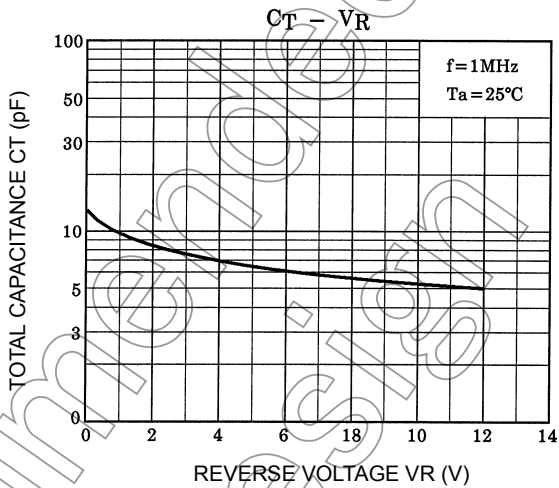
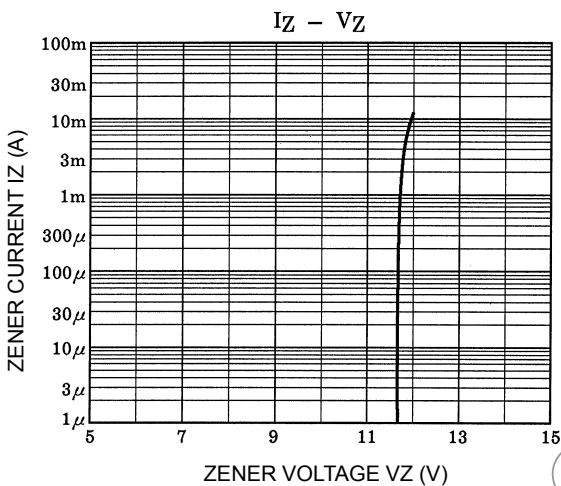
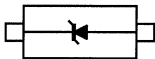
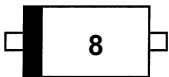
Criterion: No damage to device elements



Weight: 0.001 g (typ.)

Marking

Equivalent Circuit (Top View)



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