

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 (Ta = 25°C)

Characteristic	Symbol	Rating	Unit
Power dissipation	P*	150	mW
Junction temperature	T <sub>j</sub>	150	°C
Storage temperature range	T <sub>stg</sub>	-55~150	°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 × 20 mm, pad dimensions of 4 × 4 mm.

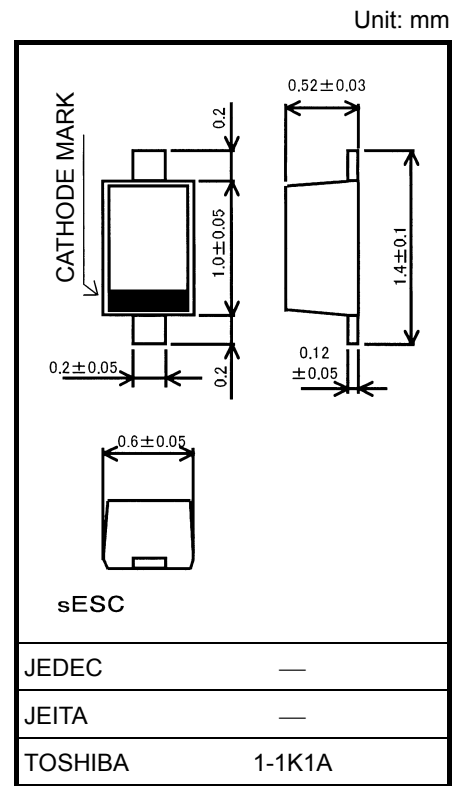
### Electrical Characteristics (Ta = 25°C)

Characteristic	Symbol	Test Circuit	Test Condition	Min	Typ.	Max	Unit
Zener voltage	V <sub>Z</sub>	—	I <sub>Z</sub> = 5 mA	11.4	12.0	12.6	V
Dynamic impedance	Z <sub>Z</sub>	—	I <sub>Z</sub> = 5 mA	—	—	25	Ω
Reverse current	I <sub>R</sub>	—	V <sub>R</sub> = 9 V	—	—	0.05	μA
Total capacitance	C <sub>T</sub>	—	V <sub>R</sub> = 0 V, f = 1 MHz	—	15	—	pF

### Guaranteed Level of ESD Immunity

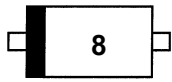
Test Condition	ESD Immunity Level
IEC61000-4-2 (contact discharge)	± 20 kV

Criterion: No damage to device elements

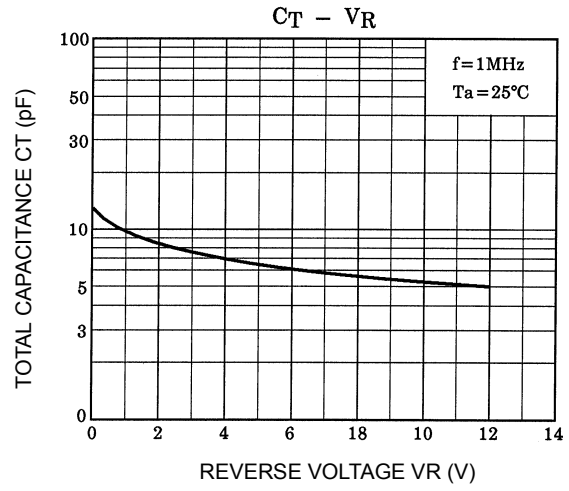
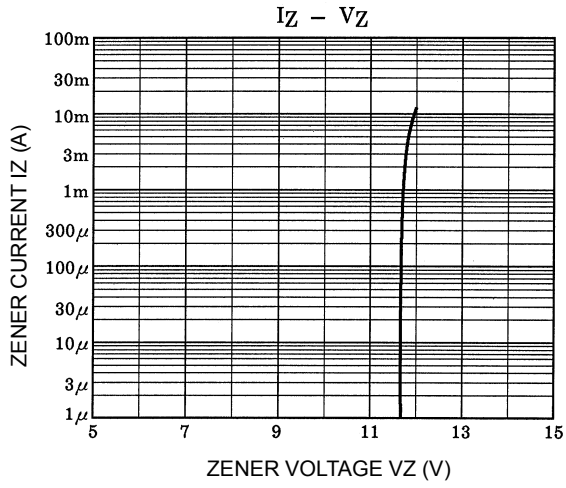
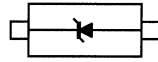


Weight: 0.001 g (typ.)

## Marking



## Equivalent Circuit (Top View)



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