

DF2S12FU

Diodes for Protecting Against ESD

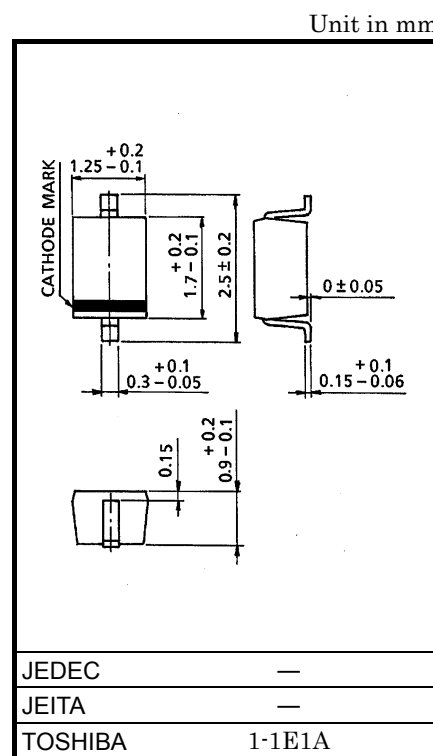
- Two-pin ultra-small packages are suitable for higher mounting densities.
- Small total capacitance: $C_T = 15\text{pF}$ (typ.)
- Zener voltage correspond to E24 series.

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

Characteristic	Symbol	Rating	Unit
Power dissipation	P	150	mW
Junction temperature	T_j	125	$^\circ\text{C}$
Storage temperature range	T_{stg}	-55~125	$^\circ\text{C}$

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.).

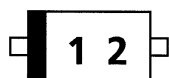


Weight: 4.5 mg

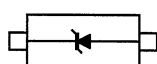
Electrical Characteristics ($T_a = 25^\circ\text{C}$)

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	—	$I_Z = 5\text{mA}$	—	10	—	Ω
Knee dynamic impedance	Z_{ZK}	—	$I_Z = 0.5\text{mA}$	—	20	—	Ω
Reverse current	I_R	—	$V_R = 9\text{V}$	—	—	0.05	μA
Total capacitance	C_T	—	$V_R = 0\text{V}$	—	15	—	pF

Marking



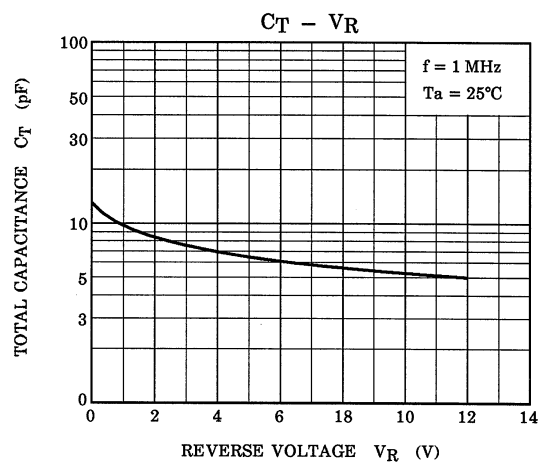
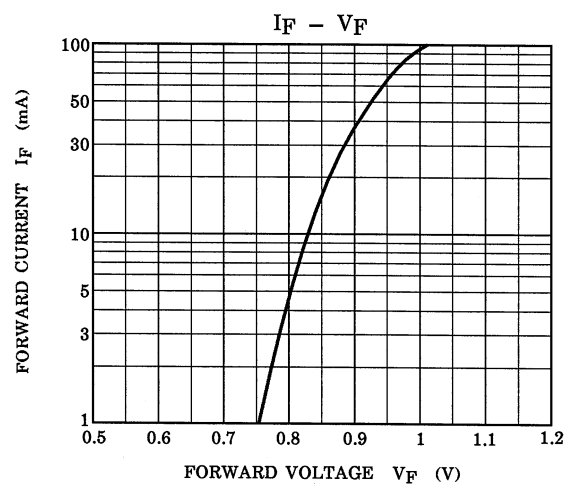
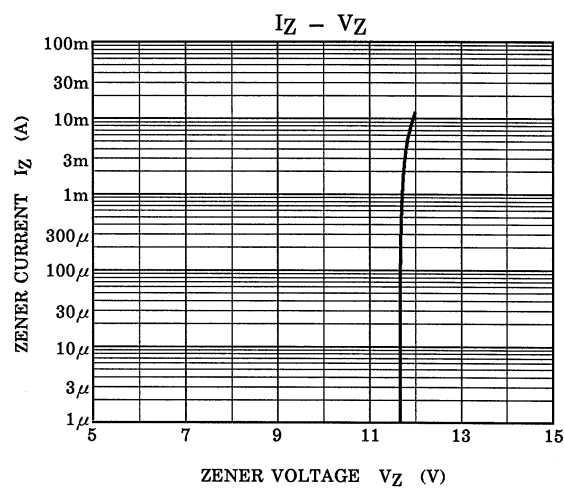
Equivalent Circuit (Top View)



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



RESTRICTIONS ON PRODUCT USE

20070701-EN GENERAL

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In developing your designs, please ensure that TOSHIBA products are used within specified operating ranges as set forth in the most recent TOSHIBA products specifications. Also, please keep in mind the precautions and conditions set forth in the "Handling Guide for Semiconductor Devices," or "TOSHIBA Semiconductor Reliability Handbook" etc.
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