

DF3S6.8ECT

1. Applications

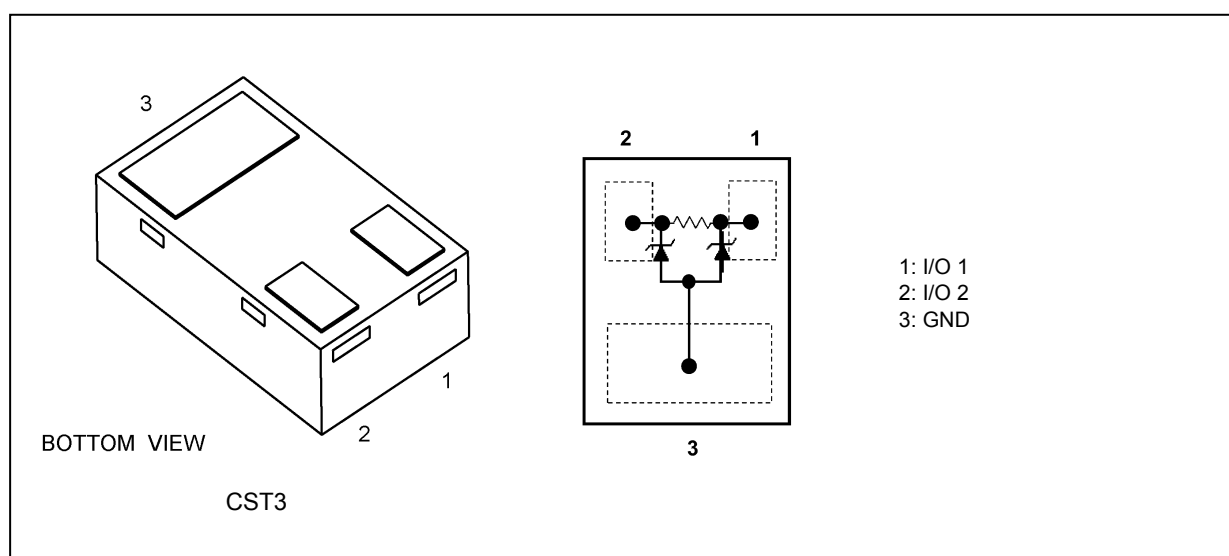
- ESD Protection

Note: This product is designed for protection against electrostatic discharge (ESD) and is not intended for any other purpose, including, but not limited to, voltage regulation.

2. Features

- (1) Reverse stand - off voltage : $V_{RWM} = 5 \text{ V (max)}$.
- (2) Filter response (800 MHz to 2 GHz) : -20 dB.
- (3) ESD protection in an ultra - compact package.

3. Packaging and Internal Circuit



4. Absolute Maximum Ratings (Note) (Unless otherwise specified, $T_a = 25^\circ\text{C}$)

Characteristics	Symbol	Rating	Unit
Electrostatic discharge voltage (IEC61000-4-2)(Contact)	V_{ESD}	± 8	kV
Junction temperature	T_j	150	$^\circ\text{C}$
Storage temperature	T_{stg}	-55 to 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).

5. Electrical Characteristics (Unless otherwise specified, $T_a = 25^\circ\text{C}$)

V_{RWM} : Working peak reverse voltage
 V_{BR} : Reverse breakdown voltage
 I_{BR} : Reverse breakdown current
 I_R : Reverse current
 V_C : Clamp voltage
 I_{PP} : Peak pulse current
 R_{DYN} : Dynamic resistance
 I_F : Forward current
 V_F : Forward voltage

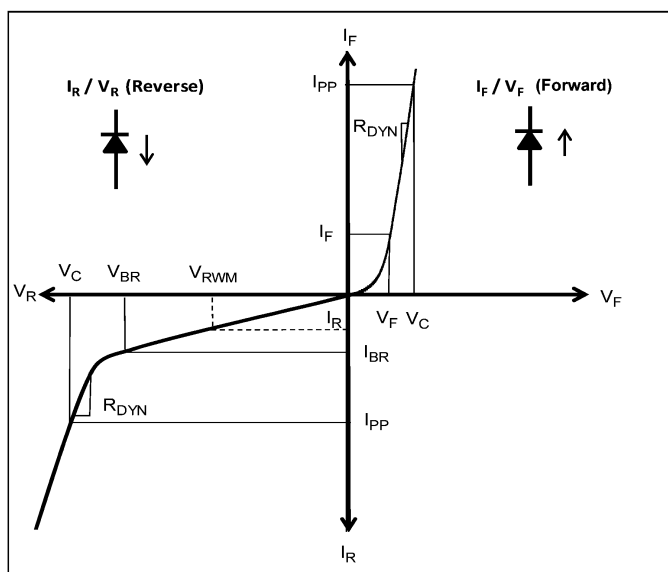


Fig. 5.1 Definitions of Electrical Characteristics

Characteristics	Symbol	Test Condition	Min	Typ.	Max	Unit
Working peak reverse voltage	V_{RWM}	—	—	—	5	V
Reverse breakdown voltage	V_{BR}	$I_{BR} = 1 \text{ mA}$	5.3	—	—	V
Reverse current	I_R	$V_{RWM} = 5 \text{ V}$	—	—	0.5	μA
Input/output-to-ground capacitance	C_{T-GND}	$V_R = 0 \text{ V}$, $f = 1 \text{ MHz}$	—	37	—	pF
Series resistance	$R_{I/O}$	$I = 20 \text{ mA}$	—	100	—	Ω

6. Guaranteed ESD Protection (Note)

Test Condition	ESD Protection
IEC61000-4-2 (Contact discharge)	$\pm 8 \text{ kV}$

Note: Criterion: No damage to devices.

7. Marking

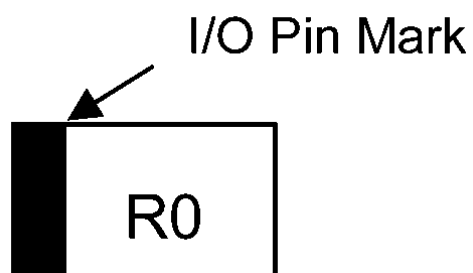


Fig. 7.1 Marking

Marking Code	Part Number
R0	DF3S6.8ECT

8. Land Pattern Dimensions (for reference only)

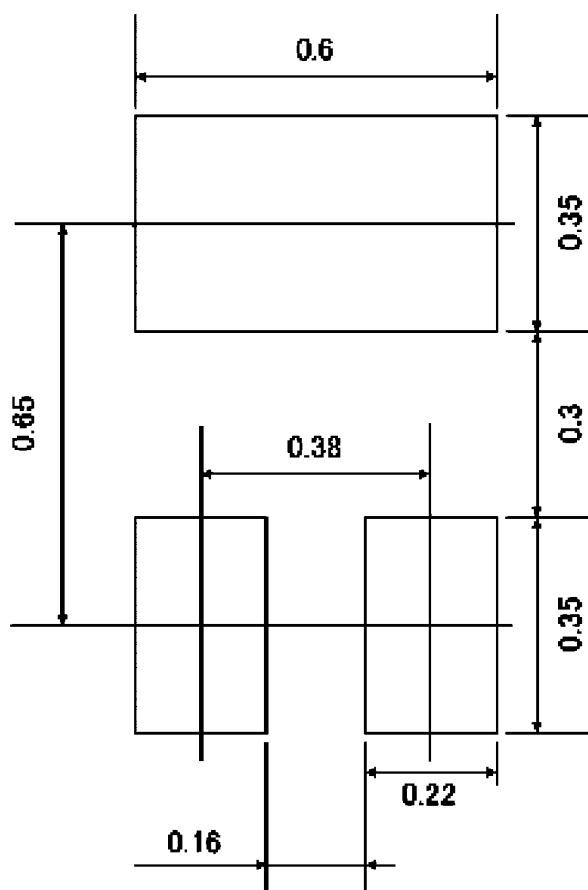


Fig. 8.1 Land Pattern Dimensions (Unit: mm)

9. Characteristics Curves (Note)

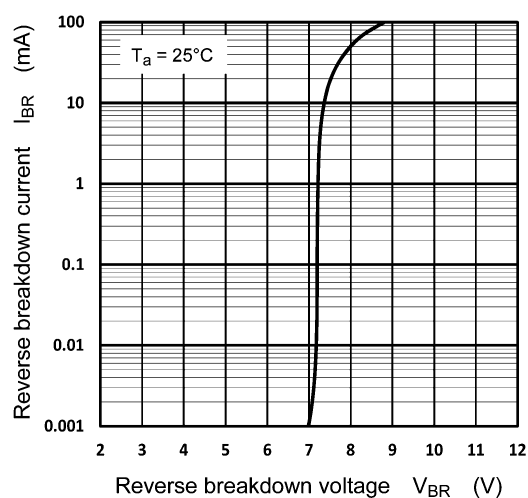


Fig. 9.1 $I_{BR} - V_{BR}$

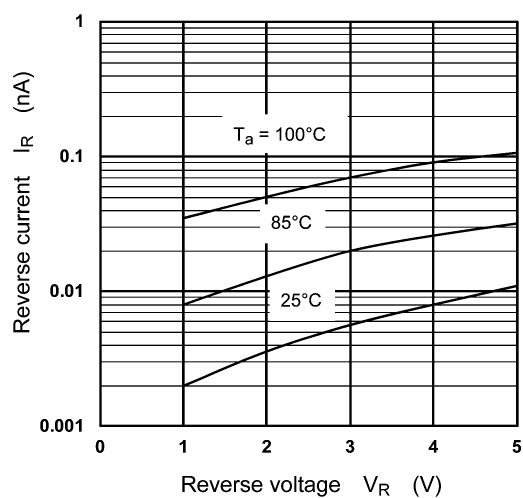


Fig. 9.2 $I_R - V_R$

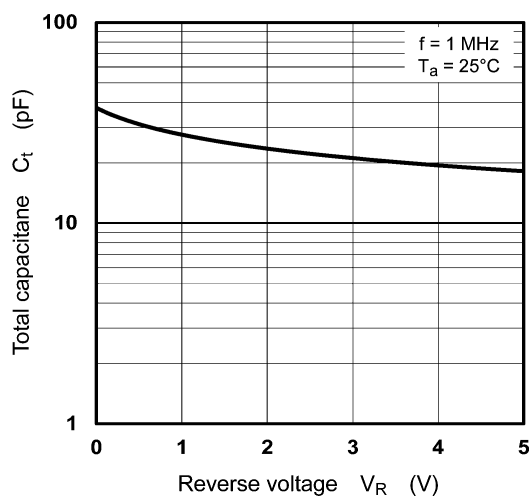


Fig. 9.3 $C_t - V_R$

Note: The above characteristics curves are presented for reference only and not guaranteed by production test, unless otherwise noted.

10. Filtering response (Note)

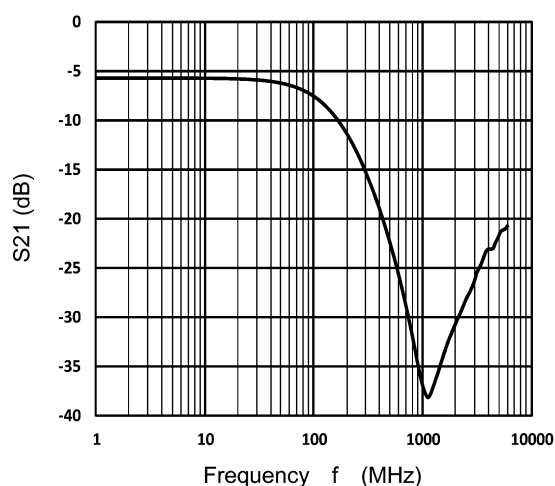
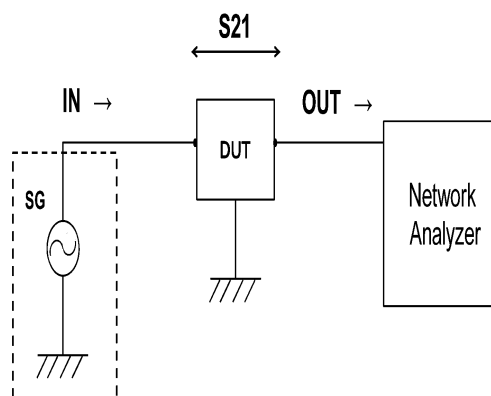


Fig. 10.1 S_{21} - f



Note: The above characteristics curves are presented for reference only and not guaranteed by production test, unless otherwise noted.

11. ESD Clamp Waveform (Note)

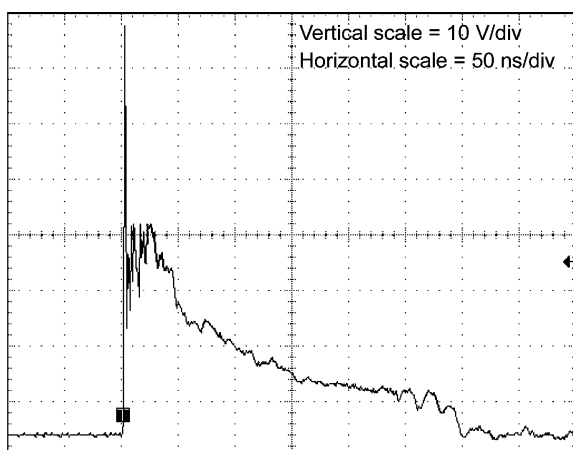


Fig. 11.1 +8 kV

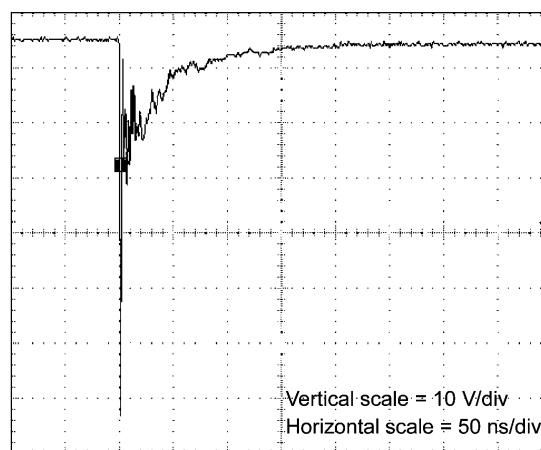


Fig. 11.2 -8 kV

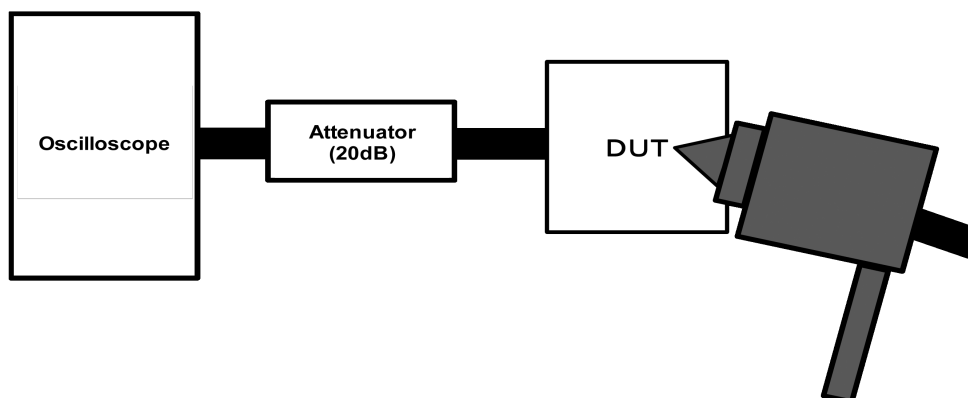
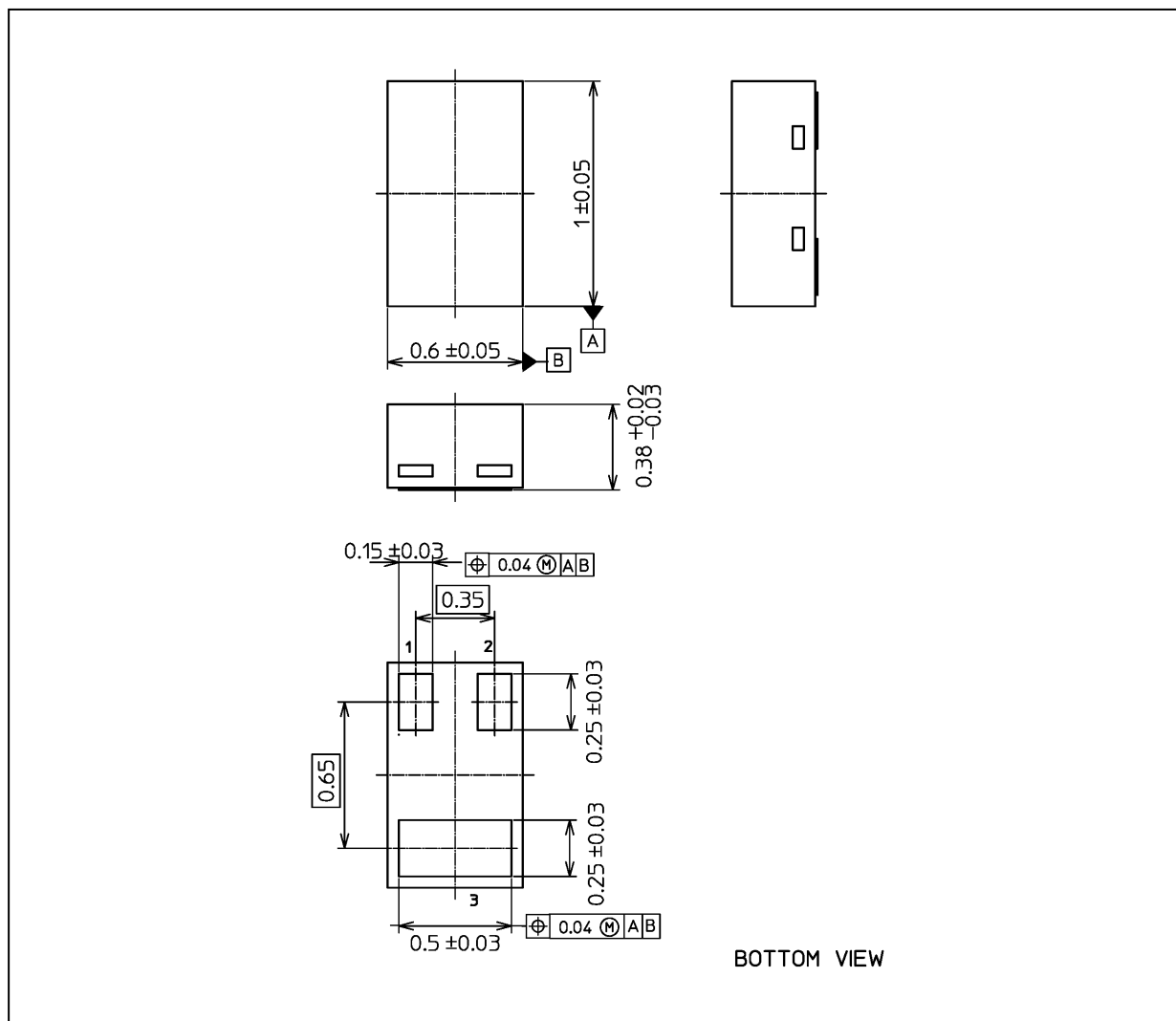


Fig. 11.3 IEC61000-4-2 (Contact)

Note: The above characteristics curves are presented for reference only and not guaranteed by production test, unless otherwise noted.

Package Dimensions

Unit: mm



Weight: 0.75 mg (typ.)

Package Name(s)
TOSHIBA: 1-1S1S
Nickname: CST3

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