

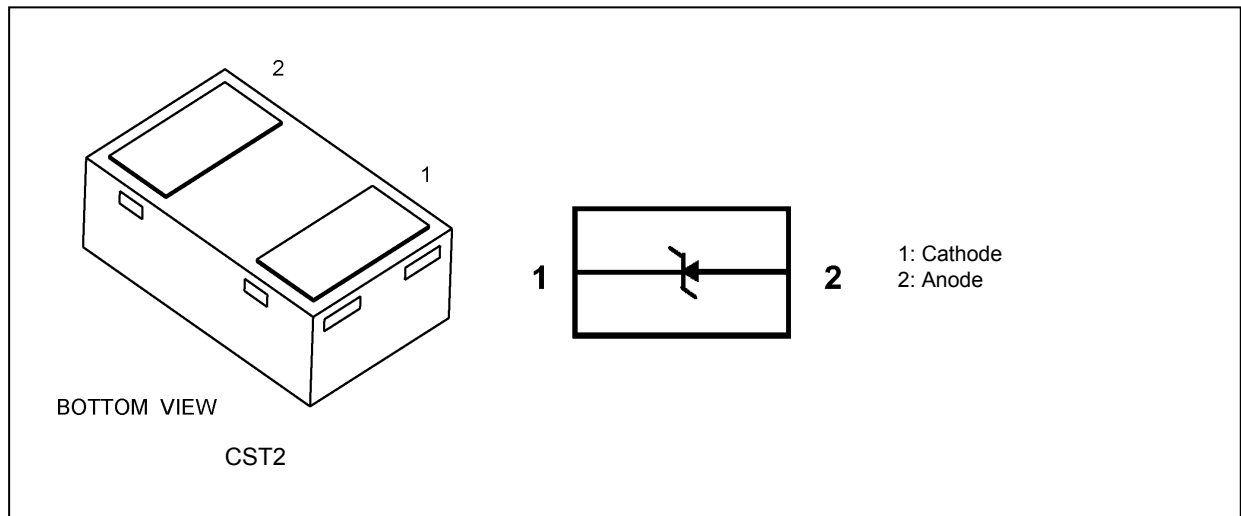
# DF2S20CT

## 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. Packaging and Internal Circuit



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

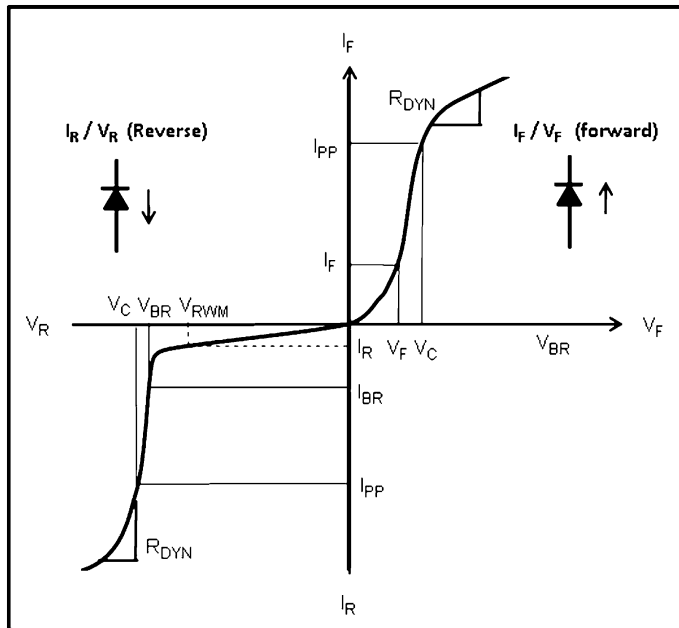
Characteristics	Symbol	Rating	Unit
Electrostatic discharge voltage (IEC61000-4-2)(Contact)	$V_{ESD}$	$\pm 12$	kV
Junction temperature	$T_j$	150	$^\circ\text{C}$
Storage temperature	$T_{stg}$	-55 to 150	$^\circ\text{C}$

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).

**4. 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



**Fig. 4.1 Definitions of Electrical Characteristics**

Characteristics	Symbol	Note	Test Condition	Min	Typ.	Max	Unit
Zener voltage	$V_Z$		$I_Z = 5 \text{ mA}$	18.8	—	21.2	V
Dynamic impedance	$Z_Z$		$I_Z = 5 \text{ mA}$	—	—	55	$\Omega$
Reverse current	$I_R$		$V_R = 15 \text{ V}$	—	—	0.5	$\mu\text{A}$
Total capacitance	$C_t$		$V_R = 0 \text{ V}, f = 1 \text{ MHz}$	—	9	—	pF

**5. Guaranteed ESD Protection (Note)**

Test Condition	ESD Protection
IEC61000-4-2 (Contact discharge)	$\pm 12 \text{ kV}$

Note: Criterion: No damage to devices.

6. Marking

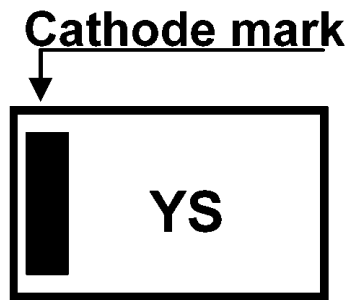


Fig. 6.1 Marking

Marking Code	Part Number
YS	DF2S20CT

7. Land Pattern Dimensions (for reference only)

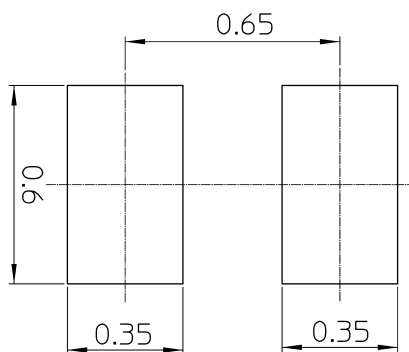


Fig. 7.1 Land Pattern Dimensions (Unit: mm)

8. Characteristics Curves (Note)

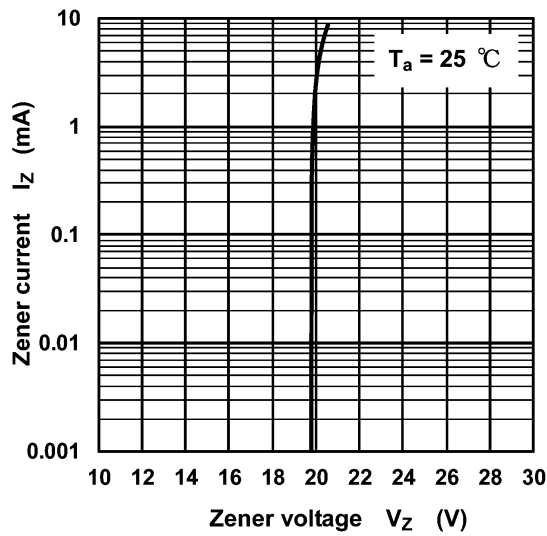


Fig. 8.1  $I_Z - V_Z$

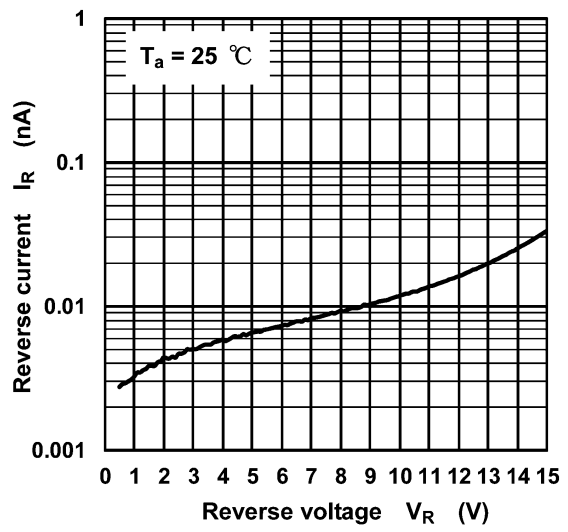


Fig. 8.2  $I_R - V_R$

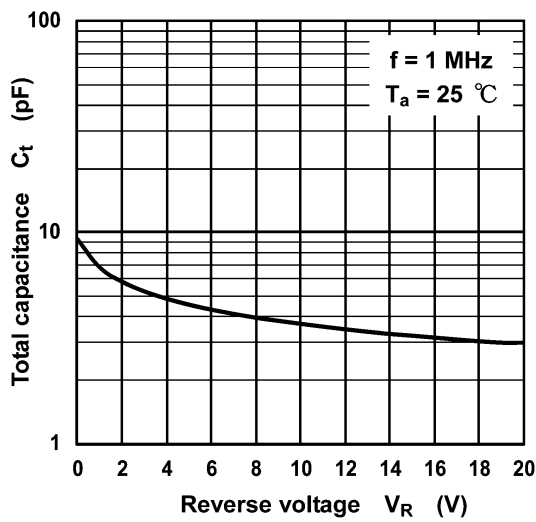
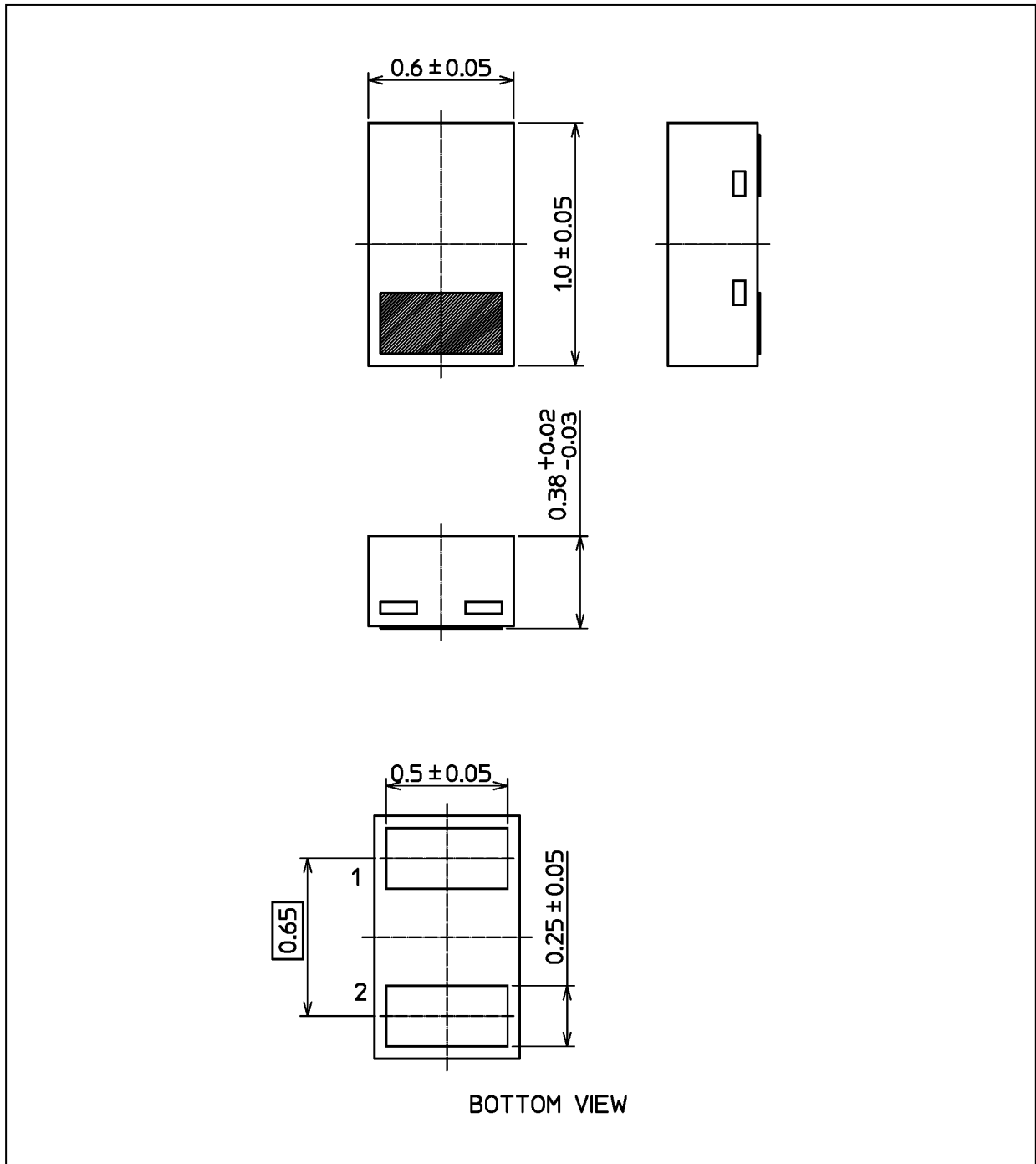


Fig. 8.3  $C_t - V_R$

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

Package Dimensions

Unit: mm



Weight: 0.7 mg (typ.)

Package Name(s)
TOSHIBA: 1-1P1S
Nickname: CST2

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