

# CES520

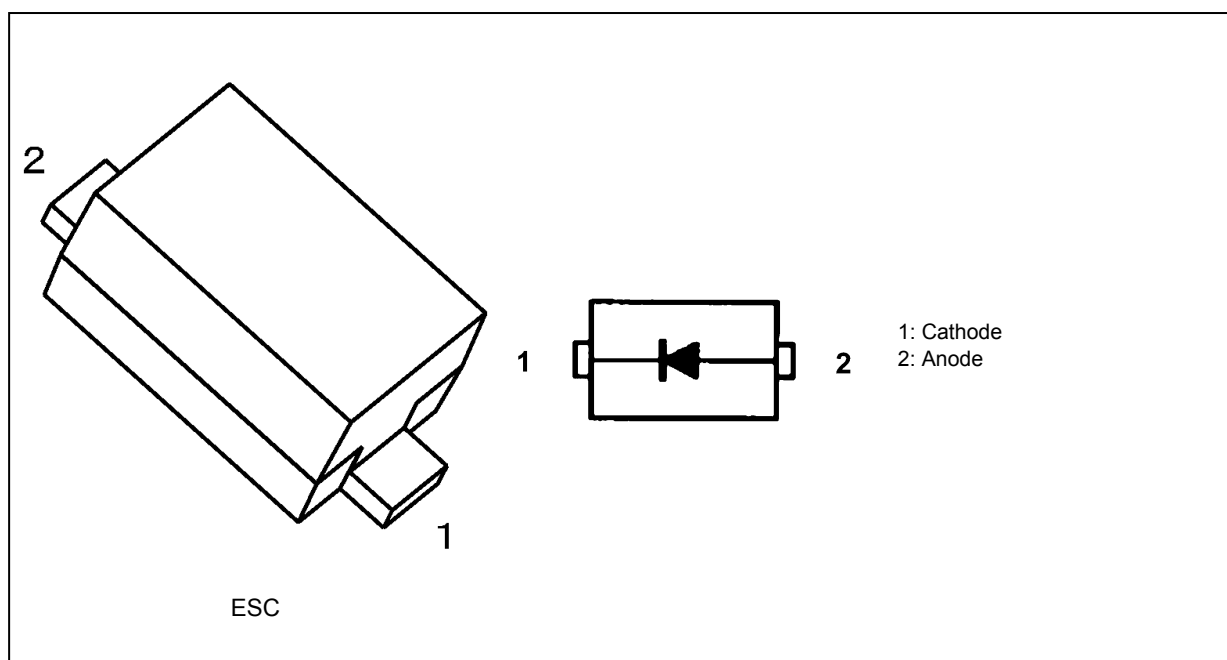
## 1. Applications

- High-Speed Switching

## 2. Features

- (1) Low reverse current:  $I_{R(2)} = 5 \mu\text{A}$  (max)
- (2) Small and compact ESC package, equivalent to SOD-523 and SC-79 packages.

## 3. Packaging and Internal Circuit



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

Characteristics	Symbol	Note	Rating	Unit
Reverse voltage	$V_R$	—	30	V
Peak forward current	$I_{FM}$	—	300	mA
Average rectified current	$I_O$	—	200	
Non-repetitive peak forward surge current	$I_{FSM}$	(Note 1)	1	A
Power dissipation	$P_D$	(Note 2)	150	mW
Junction temperature	$T_j$	—	125	$^\circ\text{C}$
Storage temperature	$T_{stg}$	—	-55 to 125	
Operating temperature	$T_{opr}$	—	-40 to 100	

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.).

Note 1: Measured with a 10ms pulse.

Note 2: Mounted on a glass epoxy circuit board of 20 mm × 20 mm, Pad dimension of 4 mm × 4 mm.

Start of commercial production

2010-10

5. Electrical Characteristics (Unless otherwise specified, Ta = 25°C)

Characteristics	Symbol	Note	Test Condition	Min	Typ.	Max	Unit
Forward voltage	$V_{F(1)}$	—	$I_F = 1\text{ mA}$	—	0.21	—	V
	$V_{F(2)}$	—	$I_F = 10\text{ mA}$	—	0.28	—	
	$V_{F(3)}$	—	$I_F = 200\text{ mA}$	—	0.52	0.6	
Reverse current	$I_{R(1)}$	—	$V_R = 10\text{ V}$	—	—	1	$\mu\text{A}$
	$I_{R(2)}$	—	$V_R = 30\text{ V}$	—	—	5	
Total capacitance	$C_t$	—	$V_R = 0\text{ V}, f = 1\text{ MHz}$	—	17	—	pF

6. Marking

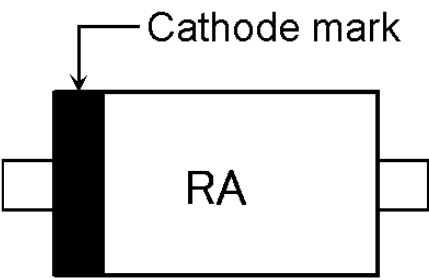


Fig. 6.1 Marking

Marking Code	Part Number
RA	CES520

7. Usage Considerations

- Schottky barrier diodes (SBDs) have reverse leakage greater than other types of diodes. This makes SBDs more susceptible to thermal runaway under high-temperature and high-voltage conditions. Thus, both forward and reverse power losses of SBDs should be considered for thermal and safety design.

8. Land pattern dimensions for reference only

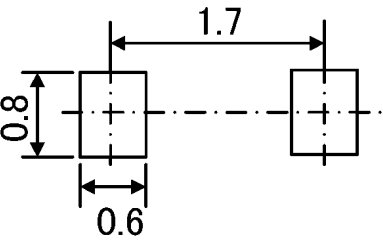
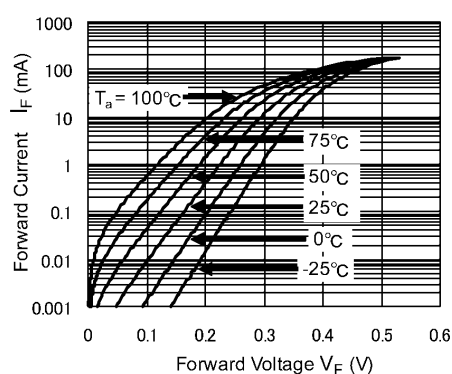
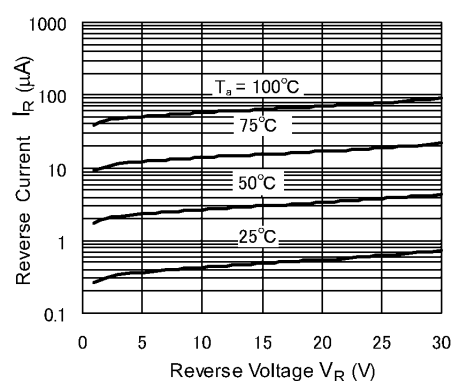


Fig. 8.1 Land pattern dimensions for reference only (Unit: mm)

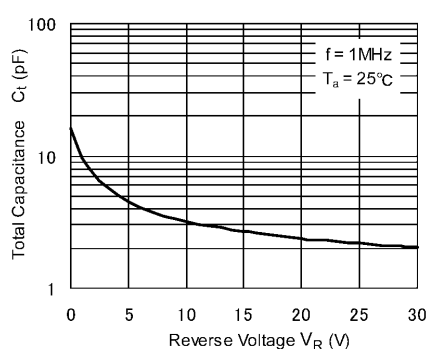
# 9. Characteristics Curves (Note)



**Fig. 9.1  $I_F - V_F$**



**Fig. 9.2  $I_R - V_R$**

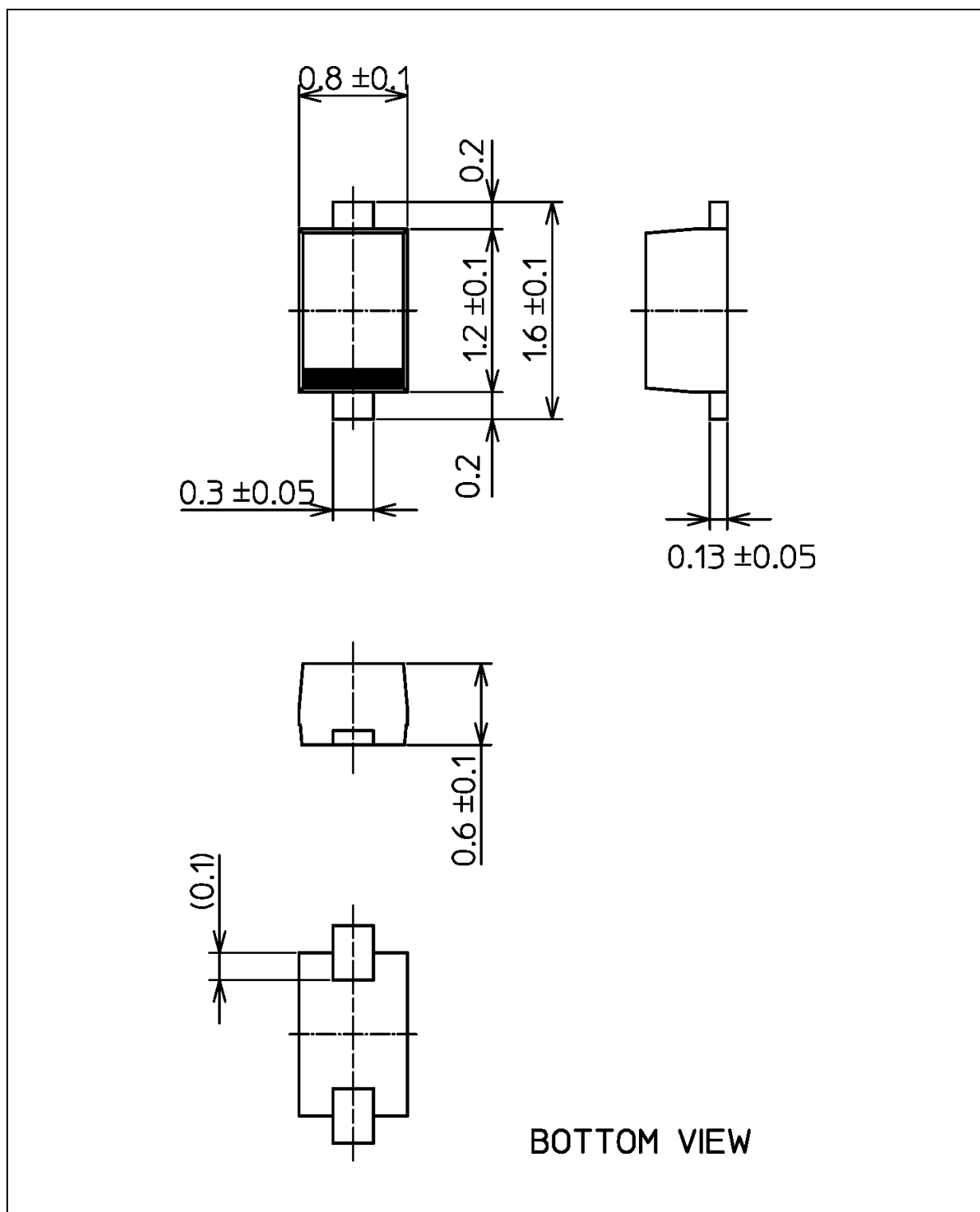


**Fig. 9.3  $C_t - V_R$**

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

## Package Dimensions

Unit: mm



Weight: 1.4 mg (typ.)

Package Name(s)
Nickname: ESC

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