

TOSHIBA Diode Silicon Epitaxial Schottky Barrier Type

# HN2S03FE

## High Speed Switching Applications

- HN2S03FE is composed of 3 independent diodes.
- Low forward voltage :  $V_F(3) = 0.50V$  (typ.)
- Low reverse current :  $I_R = 0.5\mu A$  (max)
- Small total capacitance :  $C_T = 3.9pF$  (typ.)

## Absolute Maximum Ratings (Ta = 25°C)

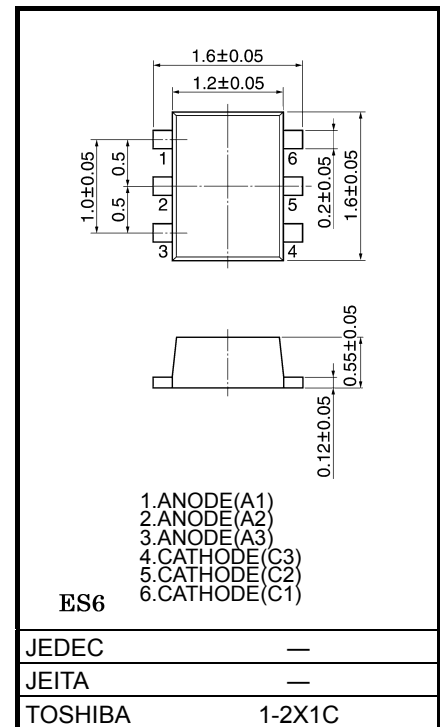
Characteristic	Symbol	Rating	Unit
Maximum (peak) reverse Voltage	$V_{RM}$	25	V
Reverse voltage	$V_R$	20	V
Maximum (peak) forward current	$I_{FM}$	100 *	mA
Average forward current	$I_O$	50 *	mA
Surge current (10ms)	$I_{FSM}$	1 *	A
Power dissipation	P	100 **	mW
Junction temperature	$T_j$	125	°C
Storage temperature range	$T_{stg}$	-55~125	°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).

\* : This is the absolute maximum rating for a single diode (Q1, Q2 or Q3).  
If two or three diodes are used, the absolute maximum rating per diode is 75 % that of the single diode.

\*\* :Total rating

Unit: mm



## Electrical Characteristics (Q1, Q2, Q3 Common, Ta = 25°C)

Characteristic	Symbol	Test Circuit	Test Condition	Min	Typ.	Max	Unit
Forward voltage	$V_F(1)$	—	$I_F = 1mA$	—	0.33	—	V
	$V_F(2)$	—	$I_F = 5mA$	—	0.38	—	
	$V_F(3)$	—	$I_F = 50mA$	—	0.50	0.55	
Reverse current	$I_R$	—	$V_R = 20V$	—	—	0.5	μA
Total capacitance	$C_T$	—	$V_R = 0, f = 1MHz$	—	3.9	—	pF

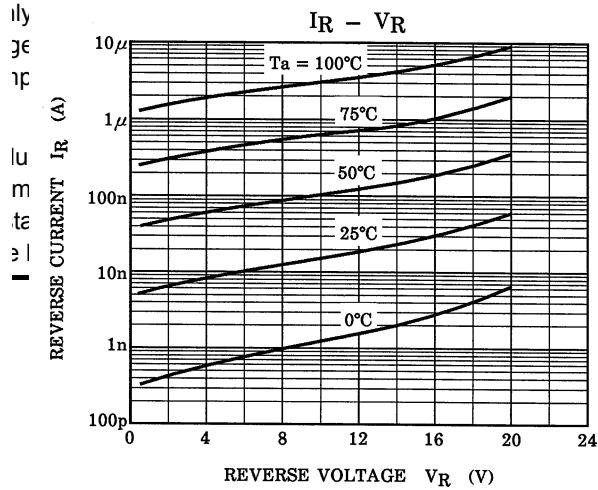
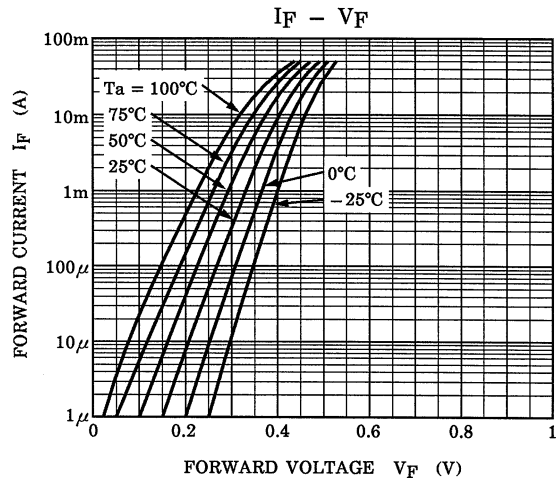
stress. It is the responsibility of the buyer, when utilizing TOSHIBA products, to comply with the conditions of safety in making a safe design for the entire system, and to avoid situations in which a malfunction or failure of such TOSHIBA products could cause loss of human life, bodily injury or damage to property.

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For other TOSHIBA designs, please ensure that TOSHIBA products are used within specified operating conditions 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.

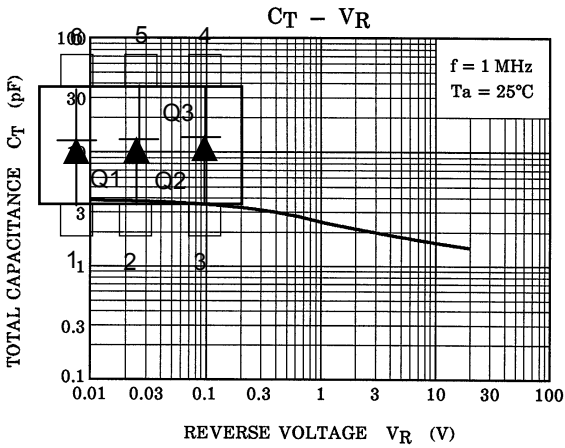
- The TOSHIBA products listed in this document are intended for usage in general electronics applications (computer, personal equipment, office equipment, measuring equipment, industrial robotics, domestic appliances, etc.). These TOSHIBA products are neither intended nor warranted for usage in equipment that requires extraordinarily high quality and/or reliability or a malfunction or failure of which may cause loss of human life or bodily injury ("Unintended Usage"). Unintended Usage include atomic energy control instruments, airplane or spaceship instruments, transportation instruments, traffic signal instruments, combustion control instruments, medical instruments, all types of safety devices, etc.. Unintended Usage of TOSHIBA products listed in this document shall be made at the customer's own risk.
- The products described in this document shall not be used or embedded to any downstream products of which manufacture, use and/or sale are prohibited under any applicable laws and regulations.



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**Pin Assignment (Top View)**

**Marking**



$P_C^* - T_a$

\*: Total Rating

