

TOSHIBA SCHOTTKY BARRIER RECTIFIER SCHOTTKY BARRIER TYPE

# 5GWJZ47

## HIGH SPEED RECTIFIER APPLICATION

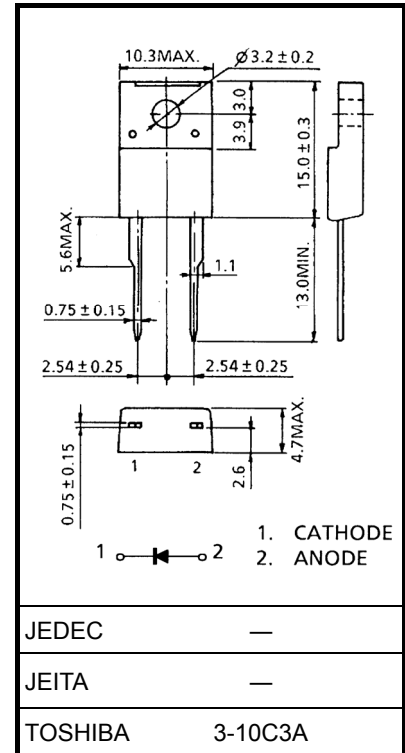
- Repetitive Peak Reverse Voltage :  $V_{RRM} = 40\text{ V}$
- Average Forward Current :  $I_F (AV) = 5\text{ A}$
- Low Forward Voltage :  $V_{FM} = 0.55\text{ V (Max.)}$

### ABSOLUTE MAXIMUM RATINGS ( $T_a = 25^\circ\text{C}$ )

CHARACTERISTIC	SYMBOL	RATING	UNIT
Repetitive Peak Reverse Voltage	$V_{RRM}$	40	V
Average Forward Current	$I_F (AV)$	5	A
Peak One Cycle Surge Forward Current (Non-Repetitive)	$I_{FSM}$	50 (50Hz)	A
		60 (60Hz)	
Junction Temperature	$T_j$	-40~125	$^\circ\text{C}$
Storage Temperature Range	$T_{stg}$	-40~150	$^\circ\text{C}$

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).

Unit: mm



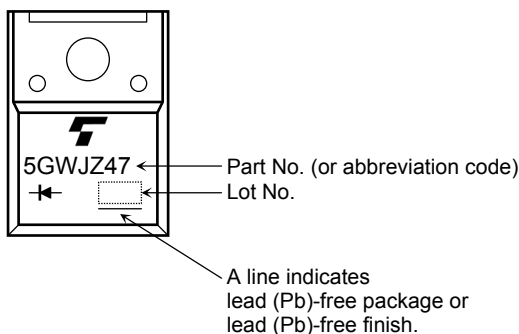
Weight: 2.0 g (typ.)

### ELECTRICAL CHARACTERISTICS ( $T_a = 25^\circ\text{C}$ )

CHARACTERISTIC	SYMBOL	TEST CONDITION	TYP.	MAX	UNIT
Peak Forward Voltage	$V_{FM}$	$I_{FM} = 5\text{ A}$	—	0.55	V
Repetitive Peak Reverse Current	$I_{RRM}$	$V_{RRM} = 40\text{ V}$	—	3.5	mA
Junction Capacitance	$C_j$	$V_R = 10\text{ V}, f = 1\text{ MHz}$	200	—	pF
Thermal Resistance (With Heat Sink)	$R_{th(j-c)}$	Junction to Case (Note 1)	—	4.0	$^\circ\text{C} / \text{W}$

Note 1: Apply silicone grease to the contact surface between heat sink and case of rectifier.

### MARKING



Abbreviation Code	Part No.
5GWJZ47	5GWJZ47

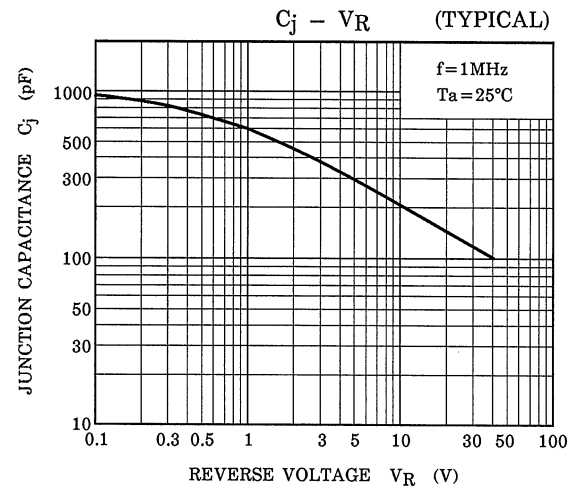
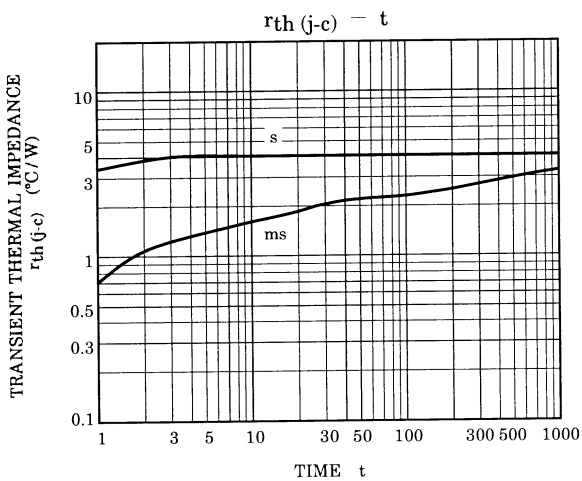
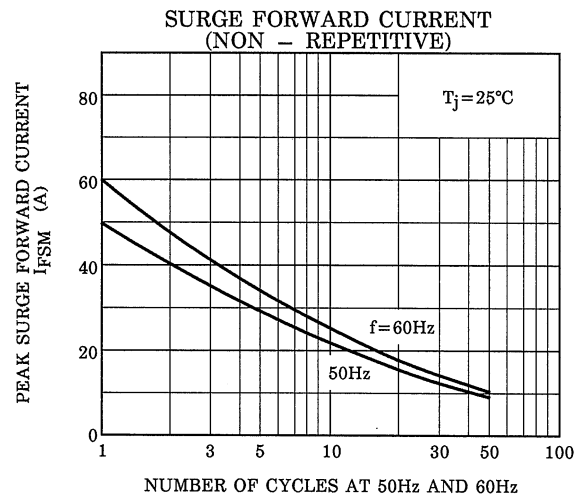
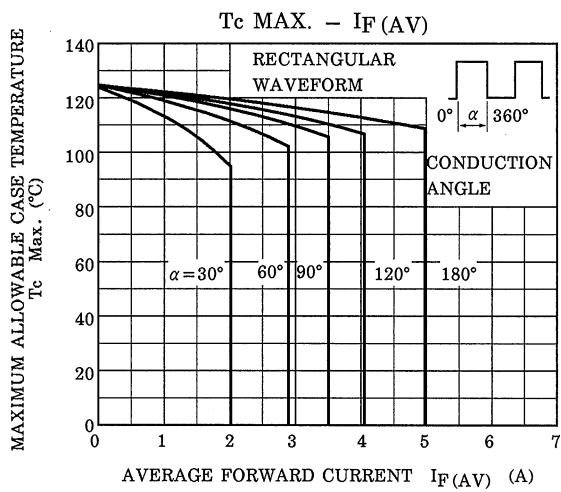
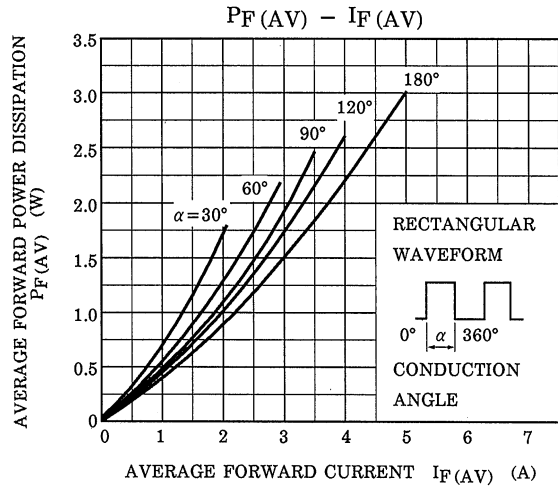
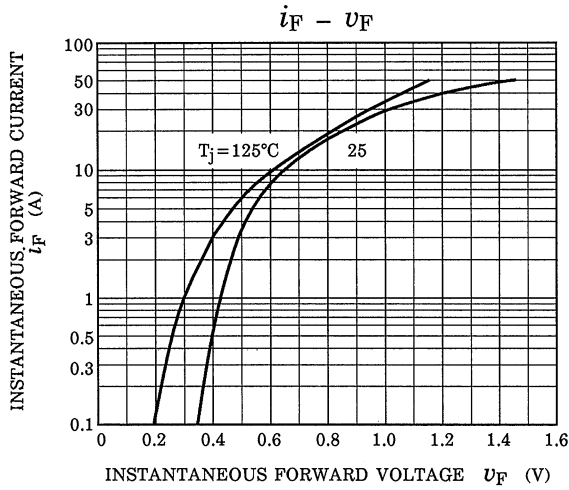
## Handling Precaution

Schottky barrier diodes have reverse current characteristics compared to other diodes. There is a possibility SBD may cause thermal runaway when it is used under high temperature or high voltage. Please take forward and reverse loss into consideration during design.

The absolute maximum ratings denote the absolute maximum ratings, which are rated values and must not be exceeded during operation, even for an instant. The following are the general derating methods that we recommend when you design a circuit with a device.

- V<sub>RRM</sub>: Use this rating with reference to the above. V<sub>RRM</sub> has a temperature coefficient of 0.1%/°C. Take this temperature coefficient into account designing a device at low temperature.
- I<sub>O</sub>: We recommend that the worst case current be no greater than 80% of the absolute maximum rating of I<sub>O</sub> and T<sub>j</sub> be below 100°C. When using this device, take the margin into consideration by using an allowable Tamax-I<sub>O</sub> curve.
- I<sub>FSM</sub>: This rating specifies the non-repetitive peak current. This is only applied for an abnormal operation, which seldom occurs during the lifespan of the device.
- T<sub>j</sub>: Derate this rating when using a device in order to ensure high reliability. We recommend that the device be used at a T<sub>j</sub> of below 100°C.

Please refer to the Rectifiers databook for further information.



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- TOSHIBA is continually working to improve the quality and reliability of its products. Nevertheless, semiconductor devices in general can malfunction or fail due to their inherent electrical sensitivity and vulnerability to physical stress. It is the responsibility of the buyer, when utilizing TOSHIBA products, to comply with the standards 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.  
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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