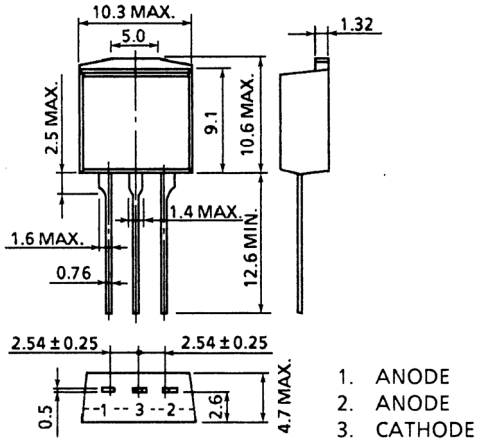
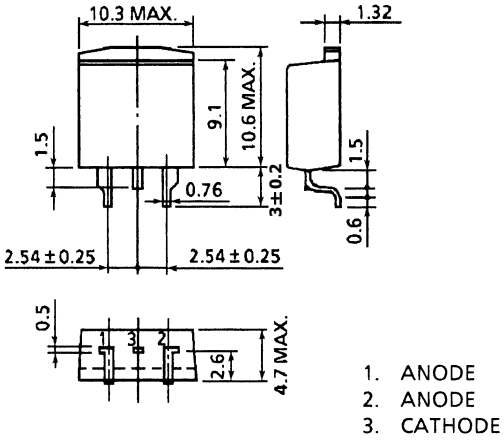
TOSHIBA SCHOTTKY BARRIER RECTIFIER STACK SCHOTTKY BARRIER TYPE

5GWJ2C48C, U5GWJ2C48C

SWITCHING MODE POWER SUPPLY APPLICATON
CONVERTER & CHOPPER APPLICATION

- Repetitive Peak Reverse Voltage : V_{RRM} = 40 V
- Average Output Rectified Current : I_O = 5 A
- Low Switching Losses and Output Noise

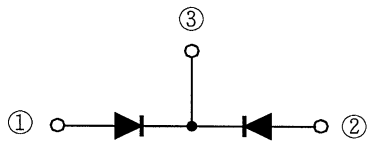
Unit: mm

5GWJ2C48C	U5GWJ2C48C
	
JEDEC —	JEDEC —
JEITA —	JEITA —
TOSHIBA 12-10D1A	TOSHIBA 12-10D2A

ABSOLUTE MAXIMUM RATINGS (Ta = 25°C)

CHARACTERISTIC	SYMBOL	RATING	UNIT
Repetitive Peak Reverse Voltage	V_{RRM}	40	V
Repetitive Peak Reverse Surge Voltage (Note 1)	V_{RRSM}	48	V
Average Output Rectified Current	I_O	5	A
Peak One Cycle Surge Forward Current (Sin Wave)	I_{FSM}	50 (50Hz)	A
		55 (60Hz)	
Junction Temperature	T_j	−40~125	°C
Storage Temperature Range	T_{stg}	−40~150	°C

POLARITY



Note 1: Pulse Width (t_w) ≤500ns, duty (t_w / T) ≤1 / 25

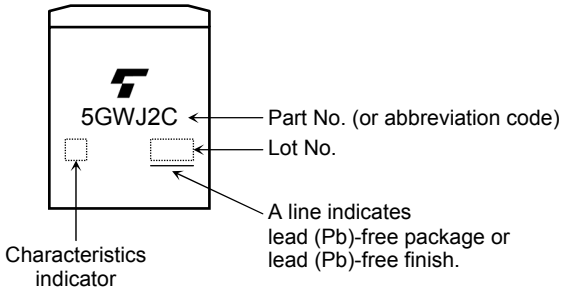
Note 2: Using continuously under heavy loads (e.g. the application of high temperature/current/voltage and the significant change in temperature, etc.) may cause this product to decrease in the reliability significantly even if the operating conditions (i.e. operating temperature/current/voltage, etc.) 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).

ELECTRICAL CHARACTERISTICS (Ta = 25°C)

CHARACTERISTIC	SYMBOL	TEST CONDITION	TYP.	MAX.	UNIT
Peak Forward Voltage	V_{FM}	I_{FM}=2.5A	—	0.55	V
Repetitive Peak Reverse Current	I_{RRM}	V_{RRM}=Rated	—	3.5	mA
Junction Capacitance	C_j	V_R=10V, f=1.0MHz	100	—	pF
Thermal Resistance	$R_{th\ (j-c)}$	Total DC, Junction to Case	—	3.0	°C / W

V_{FM}, I_{RRM}, C_j : A value applied to one cell.

MARKING



Abbreviation Code	Part No.
5GWJ2C	5GWJ2C48C
5GWJ2C	U5GWJ2C48C

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_{RRM}: Use this rating with reference to the above. V_{RRM} has a temperature coefficient of 0.1%/°C. Take this temperature coefficient into account designing a device at low temperature.

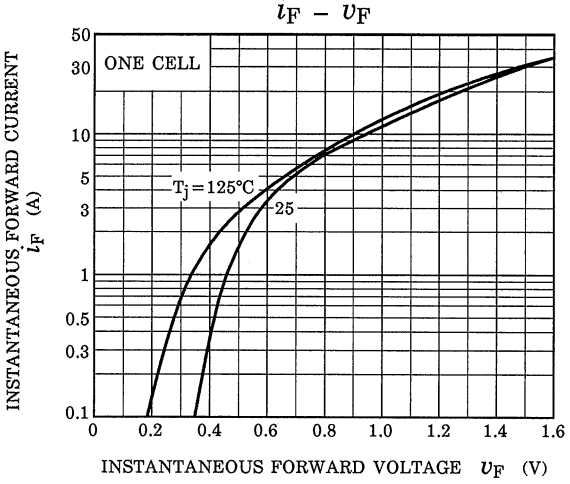
I_O: We recommend that the worst case current be no greater than 80% of the absolute maximum rating of I_O and T_j be below 100°C. When using this device, take the margin into consideration by using an allowable Tamax-I_O curve.

I_{FSM}: 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.

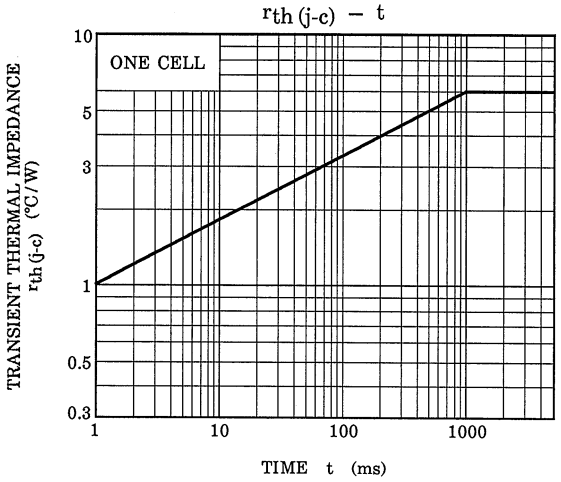
T_j: Derate this rating when using a device in order to ensure high reliability. We recommend that the device be used at a T_j of below 100°C.

Please refer to the Rectifiers databook for further information.

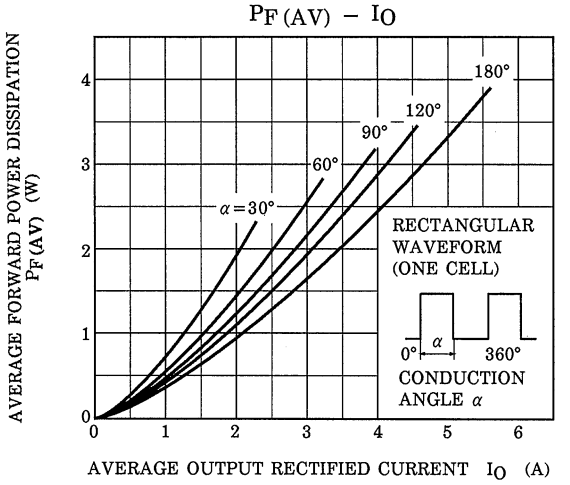
$i_F - v_F$



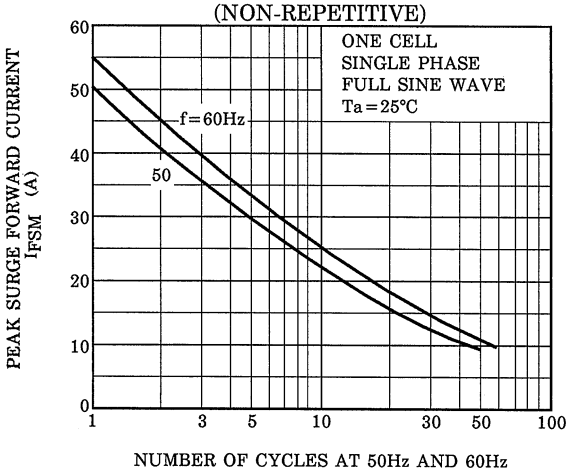
$r_{th\,(j\text{-}c)} - t$



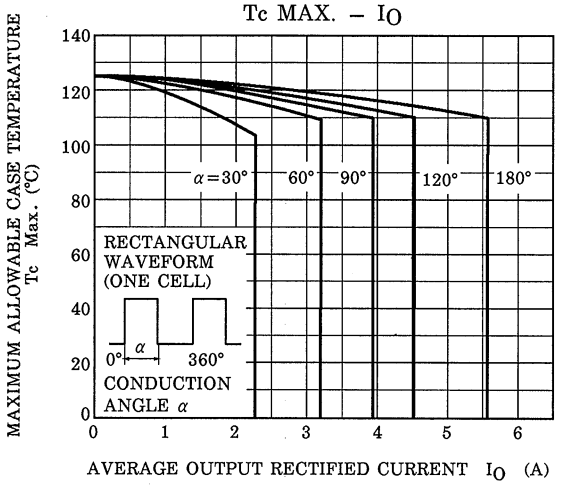
$P_{F\,(AV)} - I_O$



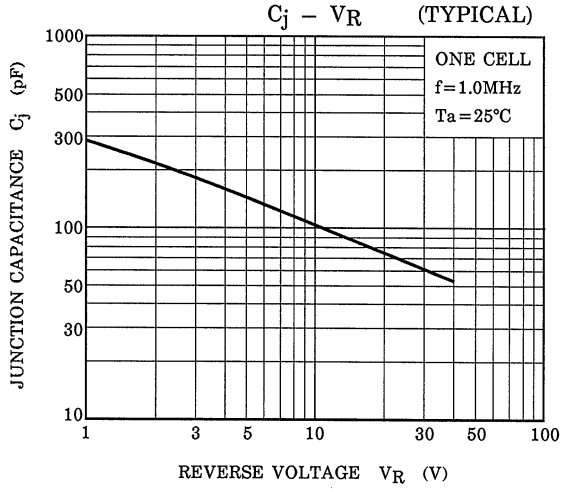
SURGE FORWARD CURRENT (NON-REPETITIVE)



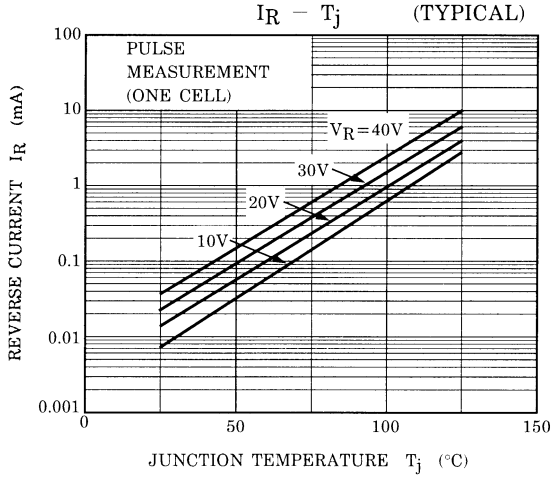
Tc MAX. – I_O



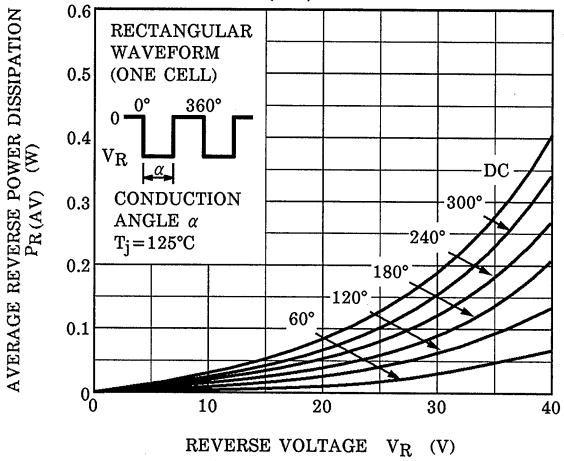
$C_j - V_R$ (TYPICAL)



I_R – T_j (TYPICAL)



$P_{R(AV)}$ – V_R (TYPICAL)



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20070701-EN

- The information contained herein is subject to change without notice.
- 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.
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