

TOSHIBA HIGH EFFICIENCY DIODE STACK (HED) SILICON EPITAXIAL TYPE

# 10JL2C48A, U10JL2C48A

SWITCHING MODE POWER SUPPLY APPLICATION  
CONVERTER and CHOPPER APPLICATION

- Repetitive Peak Reverse Voltage :  $V_{RRM} = 600V$
- Average Output Rectified Current :  $I_O = 10A$
- Ultra Fast Reverse-Recovery Time :  $t_{rr} = 35ns$  (Max)
- Low Switching Losses and Output Noise

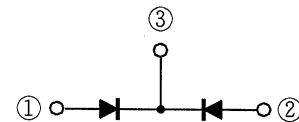
Unit in mm

10JL2C48A		U10JL2C48A	
JEDEC	—	JEDEC	—
JEITA	—	JEITA	—
TOSHIBA	12-10D1A	TOSHIBA	12-10D2A

## ABSOLUTE MAXIMUM RATINGS (Ta = 25°C)

CHARACTERISTIC	SYMBOL	RATING	UNIT
Repetitive Peak Reverse Voltage	$V_{RRM}$	600	V
Average Output Rectified Current	$I_O$	10	A
Peak One Cycle Surge Forward Current (Non-Repetitive, Sine Wave)	$I_{FSM}$	40	A
Junction Temperature	$T_j$	-40~150	°C
Storage Temperature Range	$T_{stg}$	-40~150	°C

## POLARITY



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.

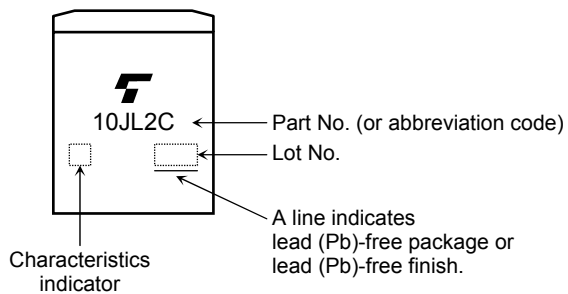
Please design the appropriate reliability upon reviewing the Toshiba Semiconductor Reliability Handbook ("Handling Precautions"/Derating Concept and Methods) and individual reliability data (i.e. reliability test report and estimated failure rate, etc).

## ELECTRICAL CHARACTERISTICS (Ta = 25°C)

CHARACTERISTIC		SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Peak Forward Voltage	(Note)	V <sub>FM</sub>	I <sub>FM</sub> = 5A	—	—	4.0	V
Repetitive Peak Reverse Current	(Note)	I <sub>R</sub> RM	V <sub>R</sub> RM = 600V	—	—	50	μA
Reverse Recovery Time	(Note)	t <sub>rr</sub>	I <sub>F</sub> = 2A, di / dt = -20A / μs	—	—	35	ns
Junction Capacitance		C <sub>j</sub>	V <sub>R</sub> = 10V, f = 1.0MHz	—	36	—	pF
Thermal Resistance		R <sub>th(j-c)</sub>	DC Total	—	—	2.5	°C / W

Note: A value of one cell.

## MARKING



Abbreviation Code	Part No.
10JL2C	10JL2C48A
10JL2C	U10JL2C48A

## Handling Precaution

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.

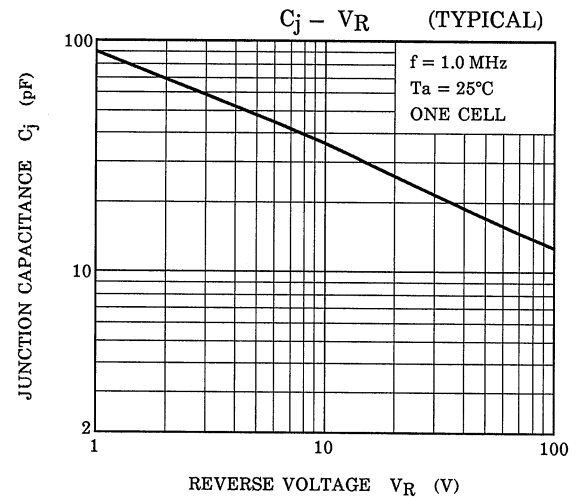
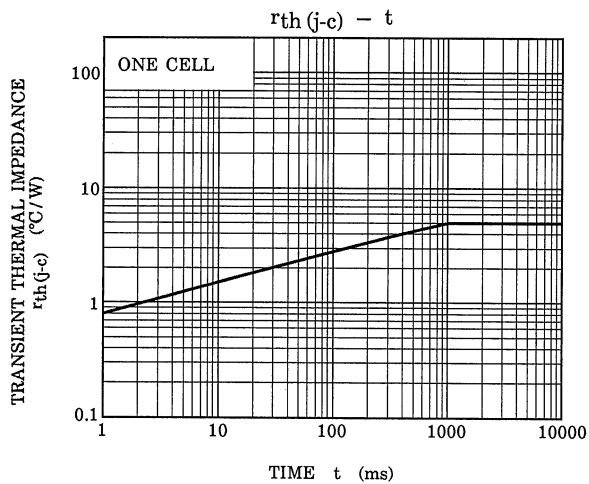
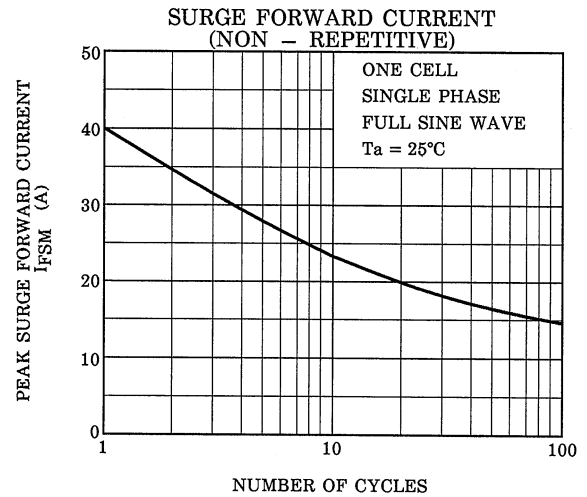
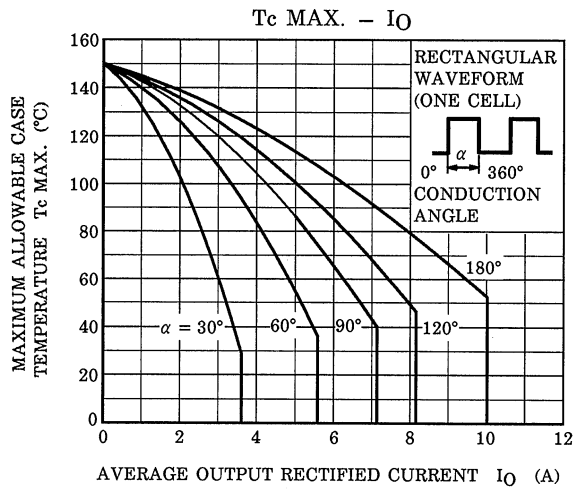
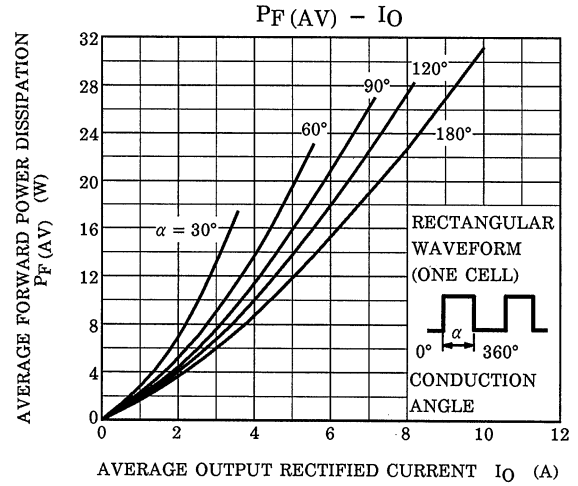
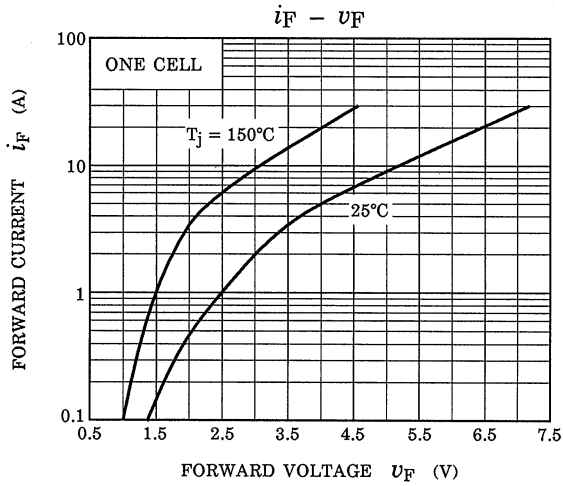
**V<sub>RRM</sub>:** We recommend that the worst case voltage, including surge voltage, be no greater than 80% of the absolute maximum rating of V<sub>RRM</sub> for a DC circuit and be no greater than 50% of that of V<sub>RRM</sub> for an AC circuit. V<sub>RRM</sub> has a temperature coefficient of 0.1%/°C. 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>. Carry out adequate heat design. If you can't design a circuit with excellent heat radiation, set the margin by using an allowable Tamax-I<sub>O</sub> curve.

This rating specifies the non-repetitive peak current in one cycle of a 50-Hz sine wave, condition angle 180. Therefore, this is only applied for an abnormal operation, which seldom occurs during the lifespan of the device.

We recommend that a device be used at a T<sub>j</sub> of below 120°C under the worst load and heat radiation conditions.

Please refer to the Rectifiers databook for further information.



**RESTRICTIONS ON PRODUCT USE**

20070701-EN GENERAL

- 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.  
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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