

TOSHIBA HIGH EFFICIENCY DIODE STACK (HED) SILICON EPITAXIAL TYPE

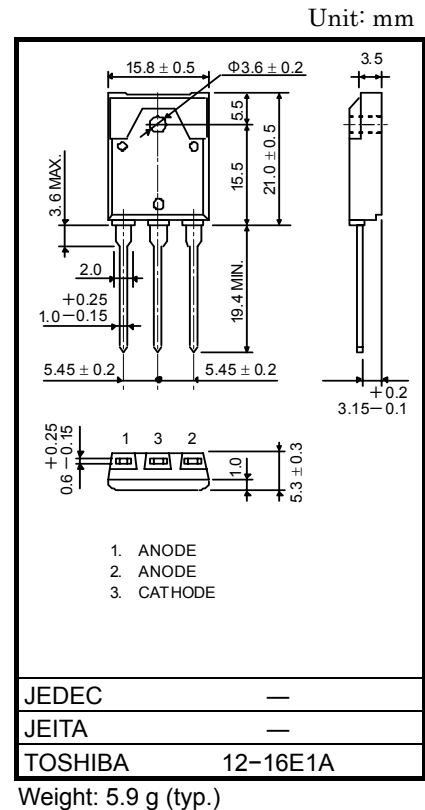
## 20DL2CZ51A, 20FL2CZ51A

Switching Mode Power Supply Applications  
 Converter & Chopper Applications

- Repetitive Peak Reverse Voltage:  $V_{RRM} = 200\text{ V}, 300\text{ V}$
- Average Output Rectified Current:  $I_O = 20\text{ A}$
- Ultra Fast Reverse-Recovery Time:  $t_{rr} = 35\text{ ns (Max)}$
- Low Switching Losses and Output Noise

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

CHARACTERISTIC	SYMBOL	RATING	UNIT
Repetitive Peak Reverse Voltage	20DL2CZ51A	200	V
	20FL2CZ51A	300	
Average Output Rectified Current	$I_O$	20	A
Peak One Cycle Surge Forward Current (Sine Wave)	$I_{FSM}$	100 (50 Hz)	A
		110 (60 Hz)	
Junction Temperature	$T_j$	-40 to 150	$^\circ\text{C}$
Storage Temperature Range	$T_{stg}$	-40 to 150	$^\circ\text{C}$



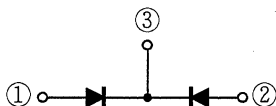
Note: Using continuously under heavy loads (e.g. the application of high temperature/current/voltage and the significant change in temperature, etc.) may cause this product to decrease in the reliability significantly even if the operating conditions (i.e. operating temperature/current/voltage, etc.)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

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

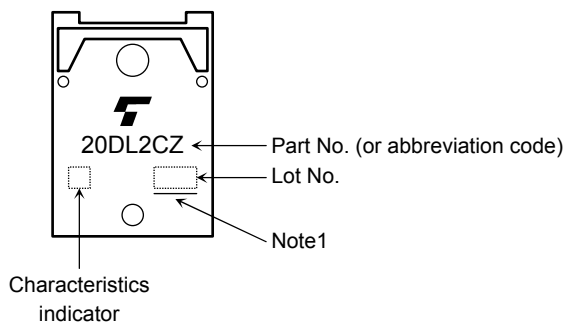
CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN	TYP.	MAX	UNIT
Peak Forward Voltage	20DL2CZ51A	$I_F = 10\text{ A}$	—	—	0.98	V
	20FL2CZ51A		—	—	1.3	
Repetitive Peak Reverse Current	$I_{RRM}$	$V_{RRM} = \text{Rated}$	—	—	50	$\mu\text{A}$
Reverse Recovery Time	$t_{rr}$	$I_F = 2\text{ A}, di/dt = -50\text{ A}/\mu\text{s}$	—	—	35	ns
Forward Recovery Time	$t_{fr}$	$I_F = 1\text{ A}$	—	—	100	ns
Thermal Resistance	$R_{th(j-c)}$	Total DC, Junction to Case	—	—	2.0	$^\circ\text{C}/\text{W}$

$V_{FM}, I_{RRM}, t_{rr}, t_{fr}$ : A value applied to one cell.

### POLARITY



## MARKING



Abbreviation Code	Part No.
20DL2CZ	20DL2CZ51A
20FL2CZ	20FL2CZ51A

Note1: A line under a Lot No. identifies the indication of product Labels.

[[G]]/RoHS COMPATIBLE or [[G]]/RoHS [[Pb]]

Please contact your TOSHIBA sales representative for details as to environmental matters such as the RoHS compatibility of Product.

The RoHS is the Directive 2002/95/EC of the European Parliament and of the Council of 27 January 2003 on the restriction of the use of certain hazardous substances in electrical and electronic equipment.

## Handling Precaution

The absolute maximum ratings of a semiconductor device are a set of ratings that must not be exceeded, even for a moment. Do not exceed any of these ratings. The following are the general derating methods that we recommend when you design a circuit with a device.

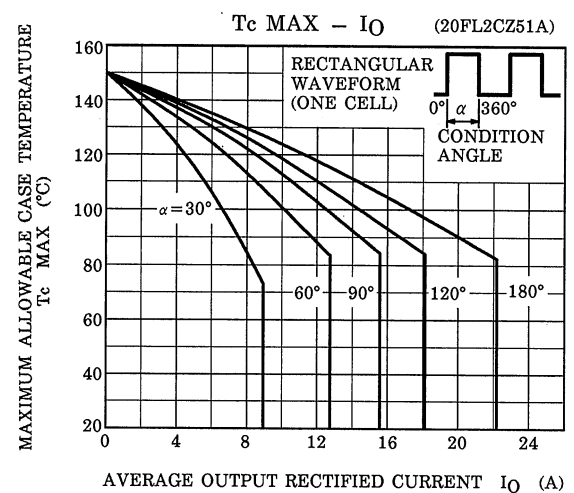
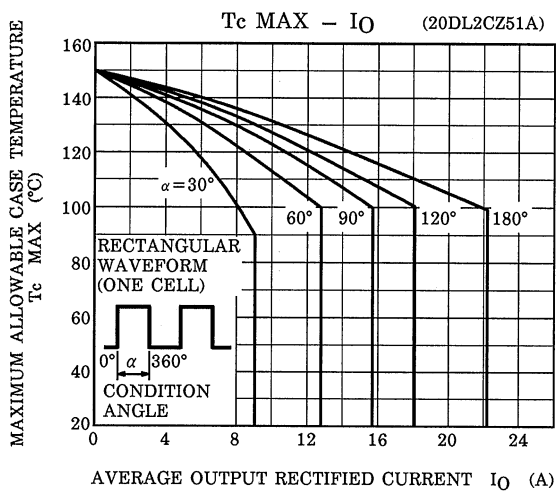
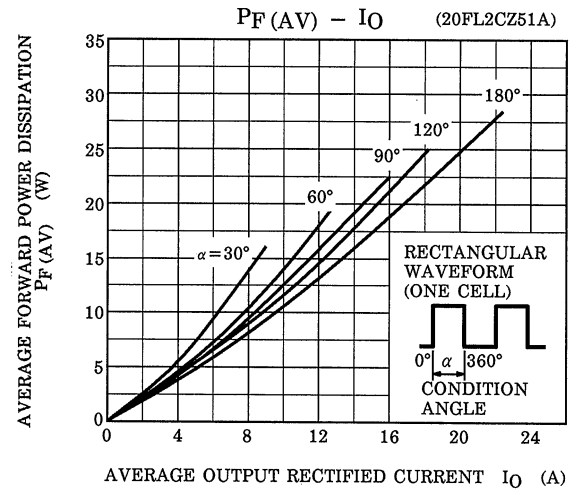
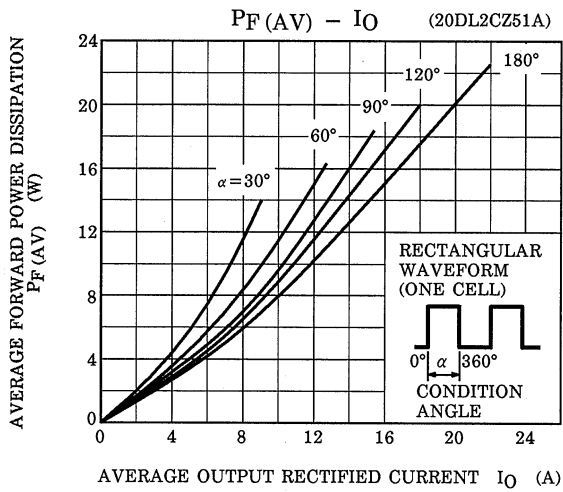
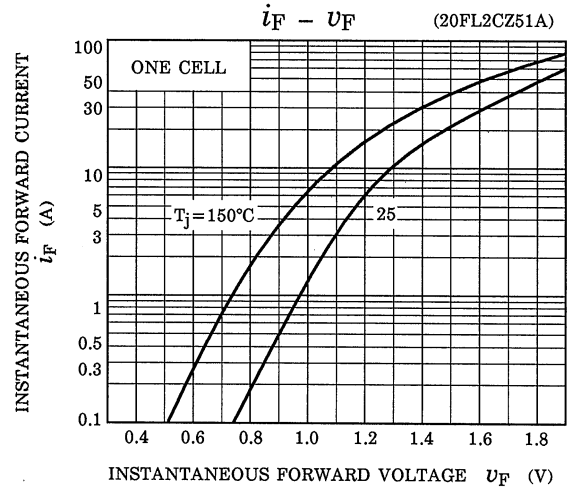
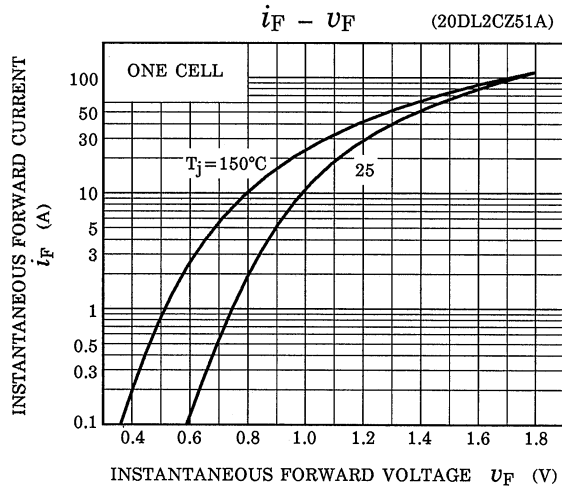
**VRRM:** We recommend that the worst case voltage, including surge voltage, be no greater than 80% of the absolute maximum rating of VRRM for a DC circuit and be no greater than 50% of that of VRRM for an AC circuit. VRRM has a temperature coefficient of 0.1%/°C. Take this temperature coefficient into account designing a device at low temperature.

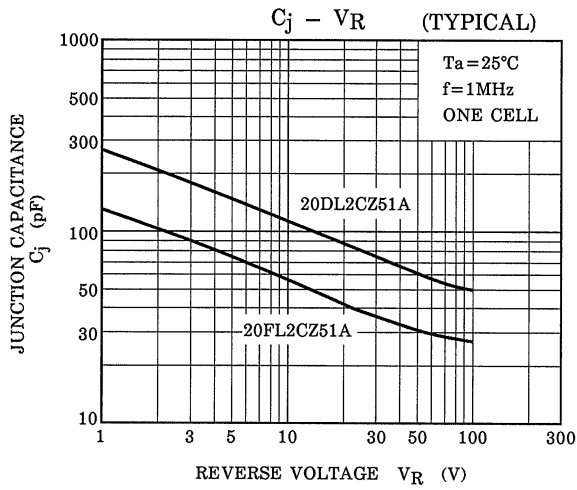
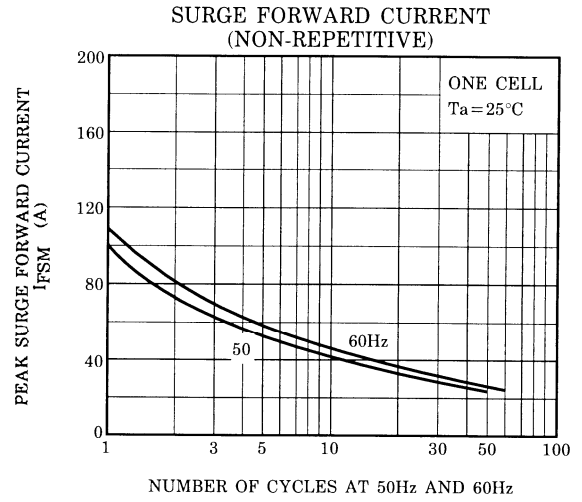
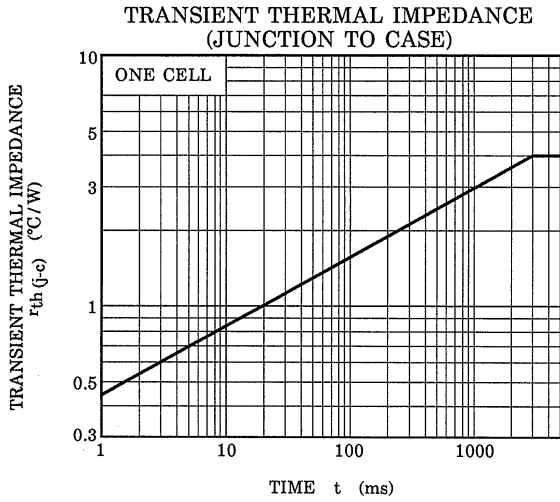
**IO:** We recommend that the worst case current be no greater than 80% of the absolute maximum rating of IO. Carry out adequate heat design. If you can't design a circuit with excellent heat radiation, set the margin by using an allowable Tc max-IO curve.

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 Tj of below 120°C under the worst load and heat radiation conditions.

Please refer to the Rectifiers databook for further information.





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