TOSHIBA HIGH EFFICIENCY DIODE STACK (HED) SILICON EPITAXIAL TYPE

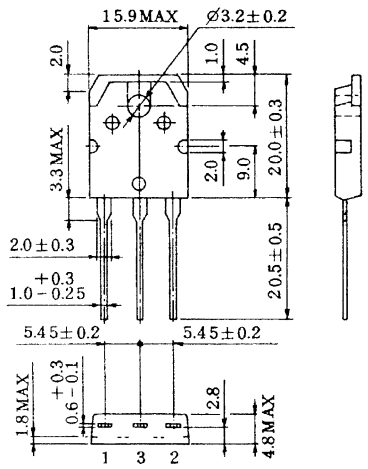
20DL2C41A,20FL2C41A,20GL2C41A

Unit: mm

Switching Mode Power Supply Applications

Converter & Chopper Applications

- Repetitive Peak Reverse Voltage: V_{RRM} = 200 V, 300 V, 400 V
- Average Output Rectified Current: I_O = 20 A
- Ultra Fast Reverse-Recovery Time: t_{rr} = 35 ns (Max)
- Low Switching Losses and Output Noise



1. ANODE
2. ANODE
3. CATHODE COMMON

JEDEC	—
JEITA	—
TOSHIBA	12-16D1A

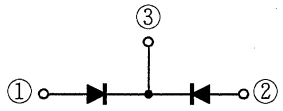
Weight: 4.85 g (typ.)

Absolute Maximum Ratings (Ta = 25°C)

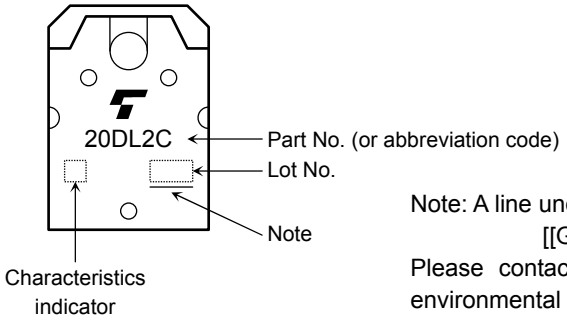
CHARACTERISTIC		SYMBOL	RATING	UNIT
Repetitive Peak Reverse Voltage	20DL2C41A	V_{RRM}	200	V
	20FL2C41A		300	
	20GL2C41A		400	
Average Output Rectified Current		I_O	20	A
Peak One Cycle Surge Forward Current (Non Repetitive)		I_{FSM}	100 (50 Hz)	A
			110 (60 Hz)	
Junction Temperature		T_j	−40 to 150	°C
Storage Temperature Range		T_{stg}	−40 to 150	°C
Screw Torque		−	0.8	N·m

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).

Polarity



Marking



Abbreviation Code	Part No.
20DL2C	20DL2C41A
20FL2C	20FL2C41A
20GL2C	20GL2C41A

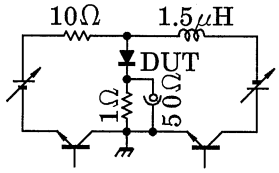
Note: A line under a Lot No. identifies the indication of product Labels.
[[G]]/RoHS COMPATIBLE or [[G]]/RoHS [[Pb]]
Please contact your TOSHIBA sales representative for details as to environmental matters such as the RoHS compatibility of Product.
The RoHS is the Directive 2002/95/EC of the European Parliament and of the Council of 27 January 2003 on the restriction of the use of certain hazardous substances in electrical and electronic equipment.

Electrical Characteristics (Ta = 25°C)

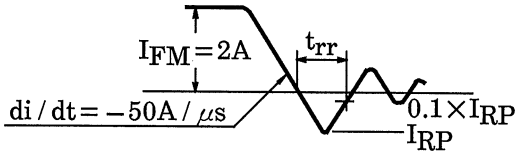
CHARACTERISTIC		SYMBOL	TEST CONDITION	TYP.	MAX	UNIT
Peak Forward Voltage (Note 1)	20DL2C41A	V_{FM}	I_{FM} = 10 A	—	0.98	V
	20FL2C41A			—	1.3	
	20GL2C41A			—	1.8	
Repetitive Peak Reverse Current (Note 1)		I_{RRM}	V_{RRM} = Rated	—	50	μA
Reverse Recovery Time (Note 1)		t_{rr}	I_F = 2.0 A, di / dt = − 50 A / μs	—	35	ns
Forward Recovery Time (Note 1)		t_{fr}	I_F = 1 A	—	100	ns
Thermal Resistance		$R_{th\ (j-c)}$	Total DC, Junction to Case	—	1.5	°C / W

Note 1: A value applied to one cell.

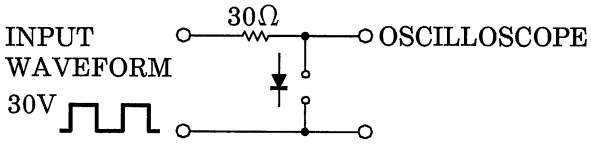
Note 2: trr Test Circuit



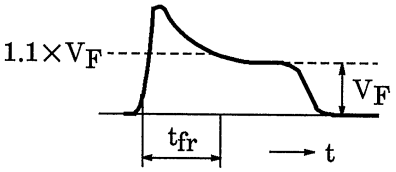
trr Waveform



Note 3: t_{fr} Test Circuit



t_{fr} Waveform



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.

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

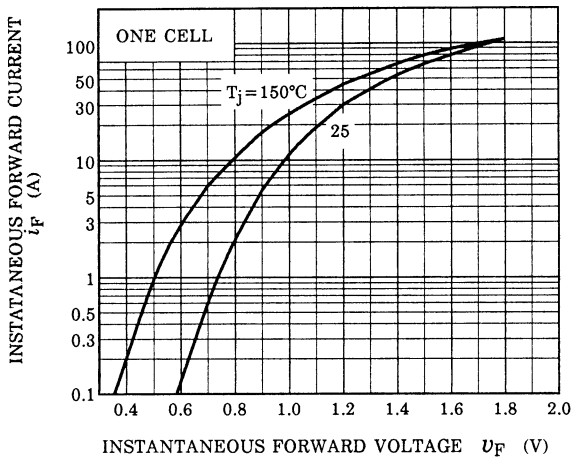
I_O: We recommend that the worst case current be no greater than 80% of the absolute maximum rating of I_O. Carry out adequate heat design. If you can't design a circuit with excellent heat radiation, set the margin by using an allowable Tc max-I_O curve.

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.

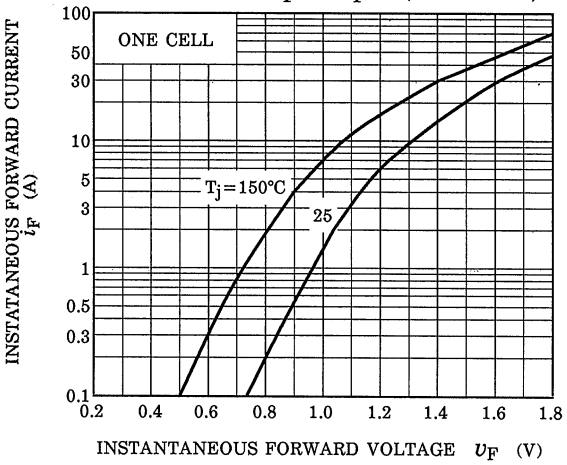
We recommend that a device be used at a Tj of below 120°C under the worst load and heat radiation conditions.

Please refer to the Rectifiers databook for further information.

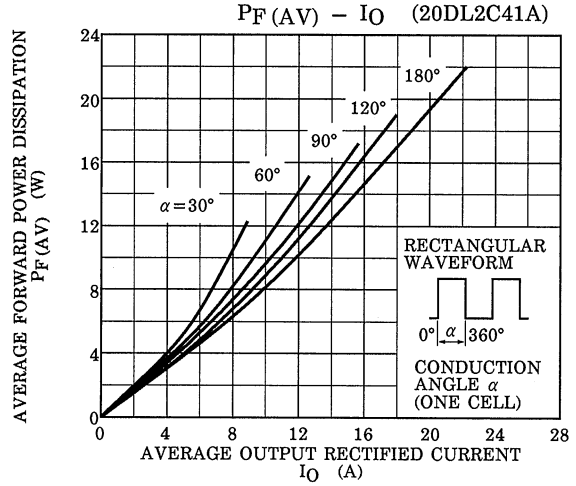
$i_F - v_F$ (20DL2C41A)



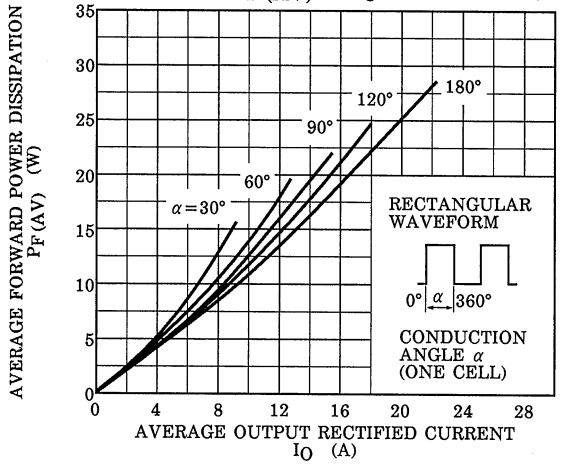
$i_F - v_F$ (20FL2C41A)



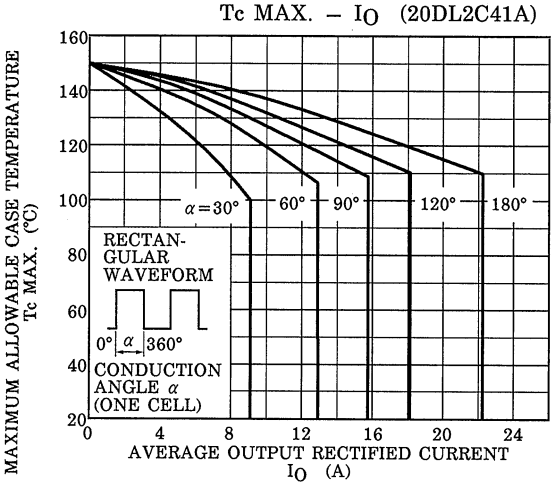
$P_{F(AV)} - I_O$ (20DL2C41A)



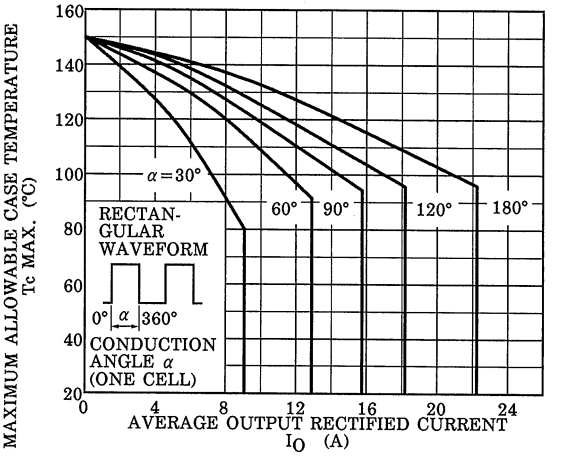
$P_{F(AV)} - I_O$ (20FL2C41A)



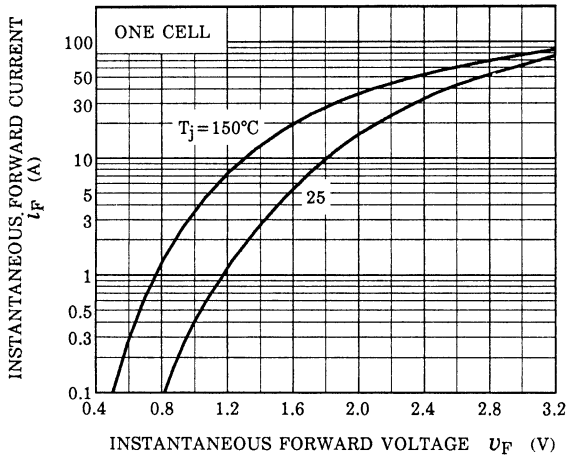
Tc MAX. – I_O (20DL2C41A)



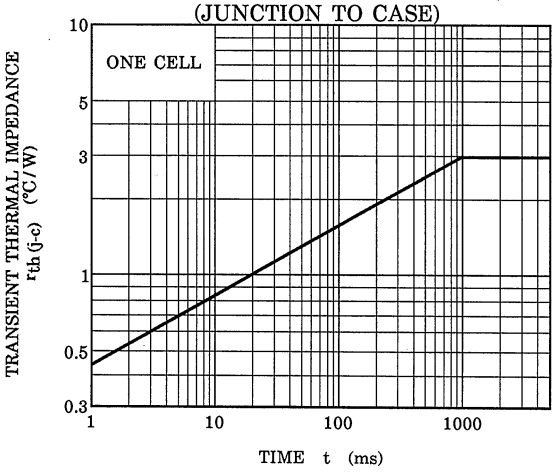
Tc MAX. – I_O (20FL2C41A)



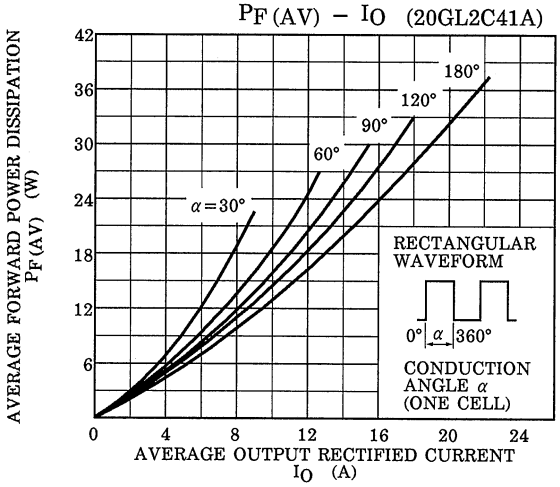
$i_F - v_F$ (20GL2C41A)



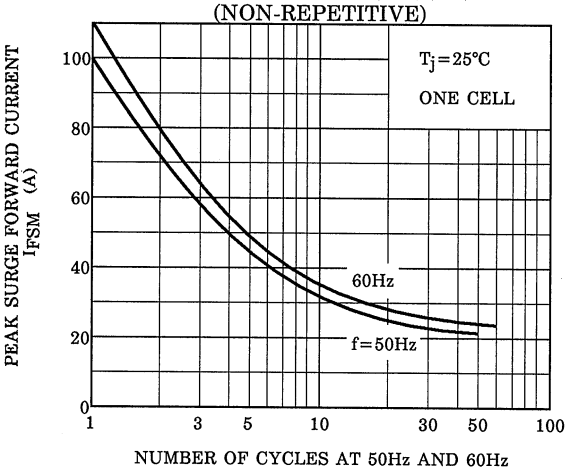
TRANSIENT THERMAL IMPEDANCE (JUNCTION TO CASE)



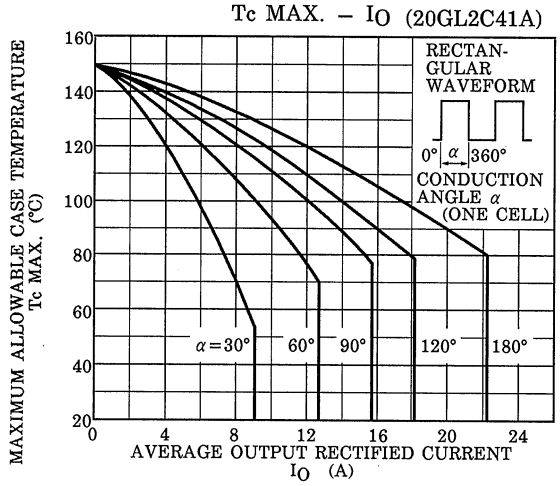
$P_{F(AV)} - I_O$ (20GL2C41A)



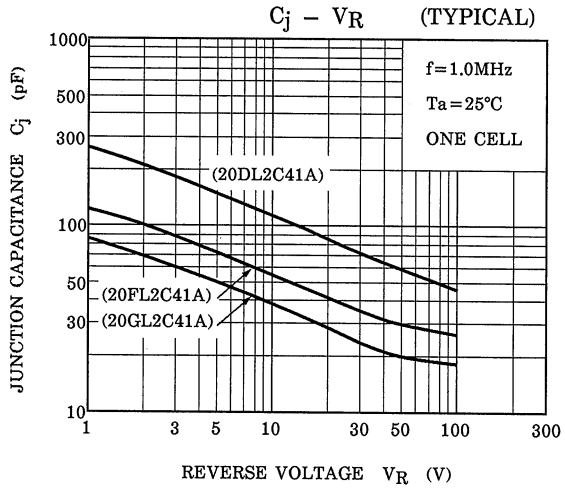
SURGE FORWARD CURRENT (NON-REPETITIVE)



Tc MAX. – I_O (20GL2C41A)



$C_j - V_R$ (TYPICAL)



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