

## 10A 200V SchottkyBarrierDiode

### 1 Description

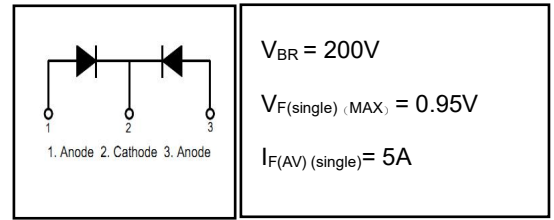
Dual center tab Schottky rectifier suited for High Frequency server and telecom base station SMPS. Packaged in TO Inside the package, this device combines high current rating and low volume to enhance both reliability and power density of the application.

### 2 Features

- High junction temperature capability
- Low leakage current
- Low thermal resistance
- High frequency operation
- Avalanche specification

### 3 Applications

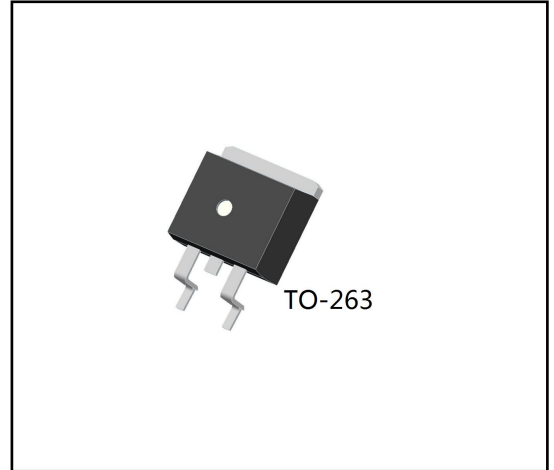
- Switching Power Supply
- Power Switching Circuits
- General Purpose



$V_{BR} = 200V$

$V_{F(\text{single}) (\text{MAX})} = 0.95V$

$I_{F(\text{AV}) (\text{single})} = 5A$



## 4 Electrical Characteristics

### 4.1 Absolute Maximum Ratings (Tc=25°C, unless otherwise noted)

PARAMETER		SYMBOL	VALUE	UNIT
Peak Repetitive Reverse Voltage		$V_{RRM}$	200	V
RMS Reverse Voltage		$V_{R(\text{RMS})}$	160	V
DC Blocking Voltage		$V_R$	200	V
Average Rectified Forward Current(single)		$I_{F(\text{AV})}$	5	A
Average Rectified Forward Current(double)			10	A
Repetitive Peak Surge Current(single)		$I_{FRM}$	10	A
Nonrepetitive Peak Surge Current(single)	tp=8.3ms	$I_{FSM}$	120	A
Avalanche Energy(single)	L=1mH	$E_{AS}$	15	mJ
Operating Junction Temperature Range		$T_j$	-55~150	°C
Storage Temperature Range		$T_{stg}$	-55~150	°C
ESD (Machine Model=C)			>400	V
ESD (Human Body Model=3B)			>8000	V
ESD(Noncontact)			>15000	V

### 4.2 Thermal Characteristics

PARAMETER	SYMBOL	VALUE	UNIT
Thermal Resistance, Junction to Case-sink	$R_{thJC}$	2.0	°C/W

**4.3 Electrical Characteristics** (Tc=25°C, unless otherwise noted)

PARAMETER	SYMBOL	TEST CONDITION	MIN	TYP	MAX	UNIT
Maximum Instantaneous Forward Voltage	V <sub>F</sub>	I <sub>F</sub> = 5A	-	0.85	0.95	V
		I <sub>F</sub> = 5A, T <sub>C</sub> = 125°C	-	0.75	-	V
		I <sub>F</sub> = 10A	-	0.97	1.20	V
Maximum Instantaneous Reverse	I <sub>R</sub>	V <sub>R</sub> = 200V	-	5	50	uA
		V <sub>R</sub> = 200V, T <sub>C</sub> = 125°C	-	-	10	mA
Total capacitance	C <sub>tot</sub>	V <sub>R</sub> =0V f=1MHz	-	58	-	pF
DC Blocking Voltage	V <sub>BR</sub>	I <sub>R</sub> =100uA	200	240	-	V

**DEFINITIONS**

V<sub>F</sub> = Instantaneous forward voltage (pw = 300μs, D = 2%).

I<sub>R</sub> = Instantaneous reverse current.

RθJC = Thermal resistance junction to case.

pw = pulse width.

D = duty cycle.

**5 Typical characteristics diagrams**

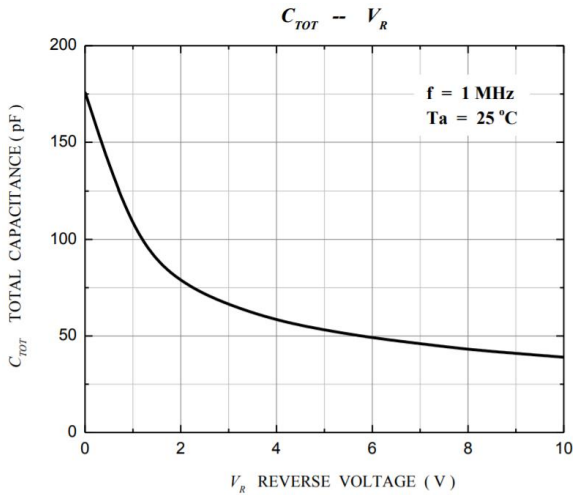


FIGURE 1. Total capacitance vs Voltage

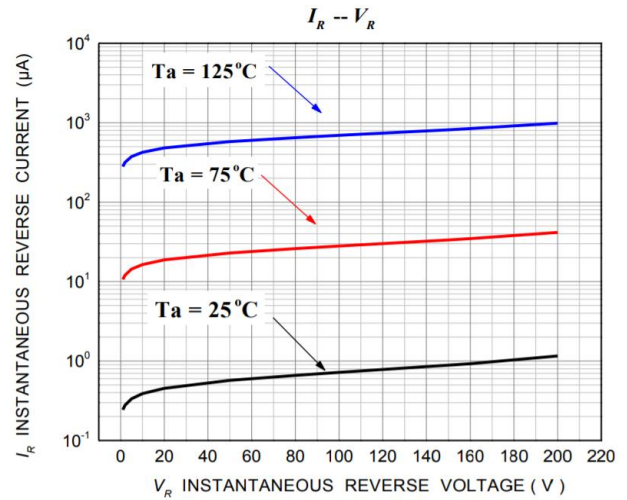


FIGURE 2. REVERSE CURRENT vs REVERSE VOLTAGE

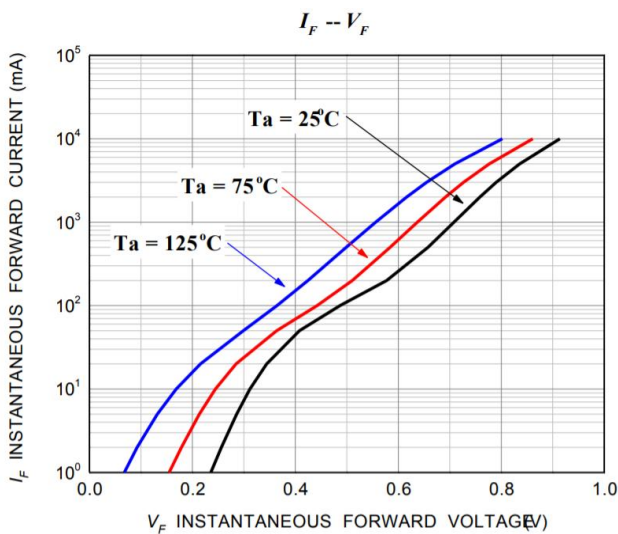


FIGURE 3. FORWARD CURRENT vs FORWARD VOLTAGE

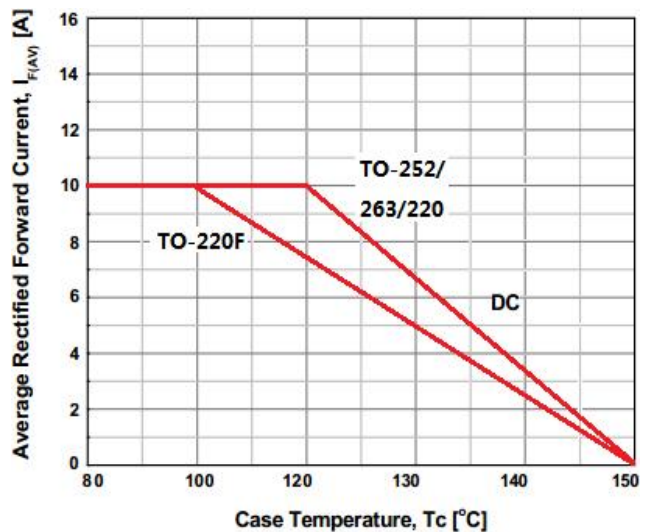


FIGURE 4. CURRENT DERATING CURVE

## 6 Typical Test Circuit and Waveform

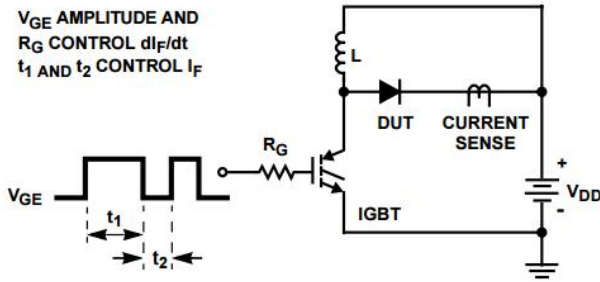


FIGURE 5. trr TEST CIRCUIT

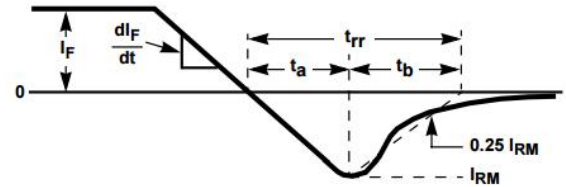


FIGURE 6. trr WAVEFORMS AND DEFINITIONS

$R < 0.1\Omega$   
 $E_{AVL} = 1/2LI^2 [V_{R(AVL)}/(V_{R(AVL)} - V_{DD})]$   
 $Q_1 = \text{IGBT (} BV_{CES} > \text{DUT } V_{R(AVL)})$

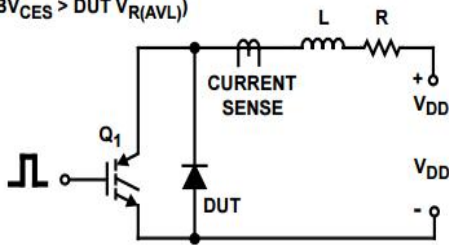


FIGURE 7. AVALANCHE ENERGY TEST CIRCUIT FIGURE

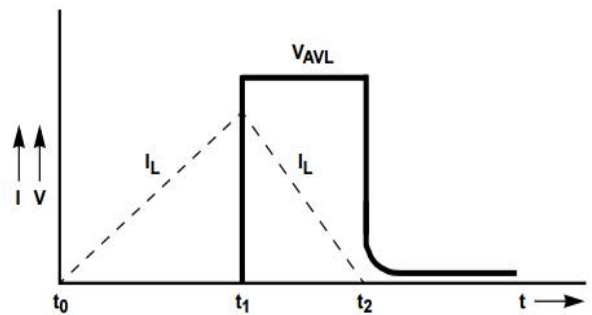


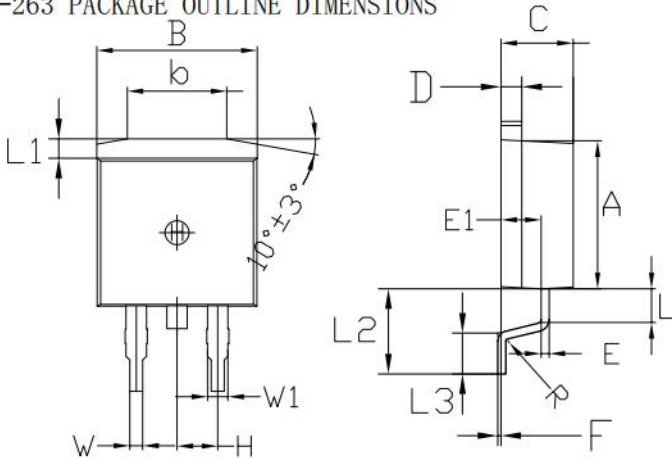
FIGURE8. AVALANCHE CURRENT AND VOLTAGE WAVEFORMS

## 7 Product Specifications and Packaging Models

Product Model	Package Type	Mark Name	RoHS	Package	Quantity
MBR10200CT	TO-252B	MBR10200CT	Pb-free	Braid	2500/disc
MBRE10200CT	TO-263	MBRE10200CT	Pb-free	Tube	1000/box
MBRE10200CT	TO-263	MBRE10200CT	Pb-free	Braid	800/box

## 8 Dimensions

TO-263 PACKAGE OUTLINE DIMENSIONS



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	min.	max.	min.	max.
A	8.80	9.30	0.346	0.366
B	9.70	10.30	0.382	0.406
C	4.25	4.75	0.167	0.187
D	1.20	1.45	0.047	0.057
E	0.40	0.60	0.016	0.024
L	1.90	2.30	0.075	0.091
L1	0.80	1.15	0.031	0.045
R	0.24	0.26	0.0095	0.0102
W	0.80	0.82	0.0315	0.0323
W1	1.20	1.30	0.047	0.051
H	2.54 TYP		0.200 TYP	
b	5.50	6.50	0.216	0.256
E1	2.4	2.6	0.0946	0.1024
L2	5.00	5.50	0.197	0.216
L3	2.05	2.70	0.080	0.106
F	0.03	0.23	0.0012	0.0091

## 9 Attentions

- Jiangsu Donghai Semiconductor Co.,Ltd. reserves the right to change the specification without prior notice! The customer should obtain the latest version of the information before making the order and verify that the information is complete and up to date.
- It is the responsibility of the purchaser for any failure or failure of any semiconductor product under certain conditions. It is the responsibility of the purchaser to comply with safety standards and to take safety measures in the system design and machine manufacturing of WXDH products in order to avoid potential risk of failure. Injury or property damage.
- Product promotion is endless, our company will be dedicated to provide customers with better products.

## 10 Appendix

Revision history:

Date	REV.	Description	Page
2023.5.22	1.0	Original	
2023.7.31	1.1	Revise package outline dimensions	4 ALL