

60A 200V SchottkyBarrierDiode

1 Description

Dual center tab Schottky rectifier suited for High Frequency server and telecom base station SMPS. Packaged in TO-3P/TO-247, this device combines

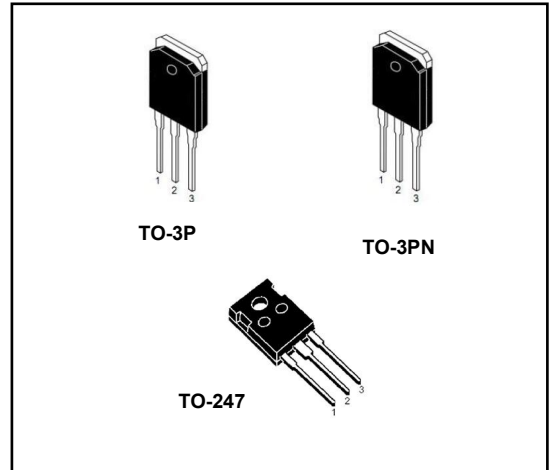
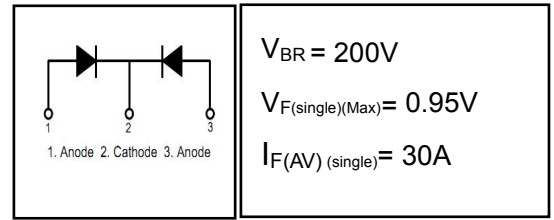
high current rating and low volume to enhance both reliability and power density of the application.

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



4 Electrical Characteristics

4.1 Absolute Maximum Ratings ($T_c=25^{\circ}C$, unless otherwise noted)

PARAMETER	SYMBOL	VALUE	UNIT
Peak Repetitive Reverse Voltage	V_{RRM}	200	V
RMS Reverse Voltage	$V_{R(RMS)}$	160	V
DC Blocking Voltage	V_R	200	V
Average Rectified Forward Current(single)	$T_C=120^{\circ}C$ $I_{F(AV)}$	30	A
Average Rectified Forward Current(double)		60	A
Repetitive Peak Surge Current(single)	I_{FRM}	45	A
Nonrepetitive Peak Surge Current(single)	$t_p=8.3ms$ I_{FSM}	350	A
Avalanche Energy(single)	$L=1mH$ E_{AS}	72	mJ
Operating Junction Temperature Range	T_j	-55~150	$^{\circ}C$
Storage Temperature Range	T_{stg}	-55~150	$^{\circ}C$

4.2 Thermal Characteristics

PARAMETER	SYMBOL	VALUE		UNIT
		TO-3P/3PN	TO-247	
Thermal Resistance, Junction to Case-sink	R_{thJC}	0.85	0.75	$^{\circ}C/W$

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

PARAMETER	SYMBOL	TEST CONDITION	MIN	TYP	MAX	UNIT
Maximum Instantaneous Forward Voltage	V _F	I _F = 30A	-	0.86	0.95	V
		I _F = 30A, T _C = 125°C	-	-	0.75	V
		I _F = 40A	-	0.91	1.1	V
Maximum Instantaneous Reverse	I _R	V _R = 200V	-	2	100	uA
		V _R = 200V, T _C = 125°C	-	-	20	mA
Total capacitance	C _{tot}	V _R =4V f=1MHz	-	335	-	pF
DC Blocking Voltage	V _{BR}	I _R =100uA	205	240	-	V

DEFINITIONS

V_F = Instantaneous forward voltage (pw = 300µs, D = 2%).

I_R = Instantaneous reverse current.

RθJC = Thermal resistance junction to case.

pw = pulse width.

D = duty cycle.

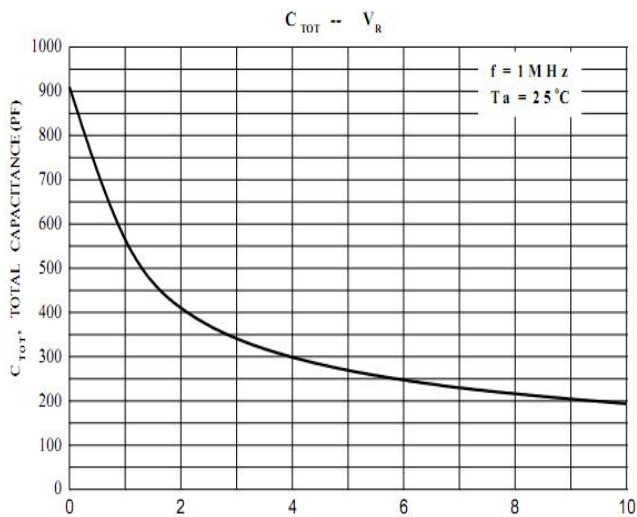
5 Typical characteristics diagrams


FIGURE 1. Total capacitance vs Voltage

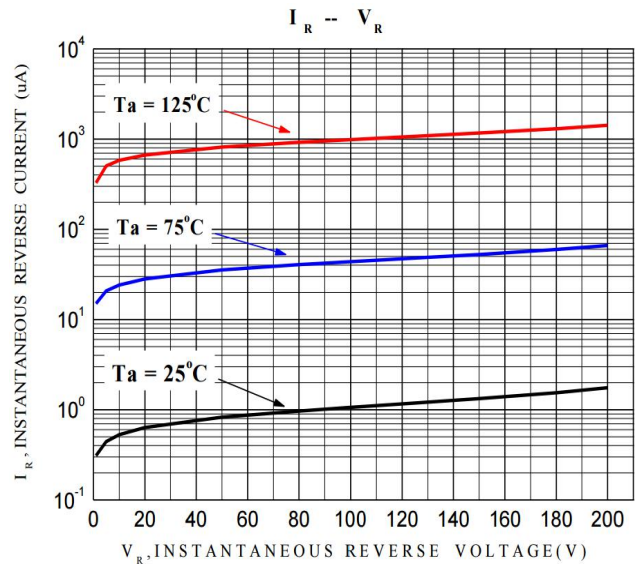


FIGURE 2. REVERSE CURRENT vs REVERSE VOLTAGE

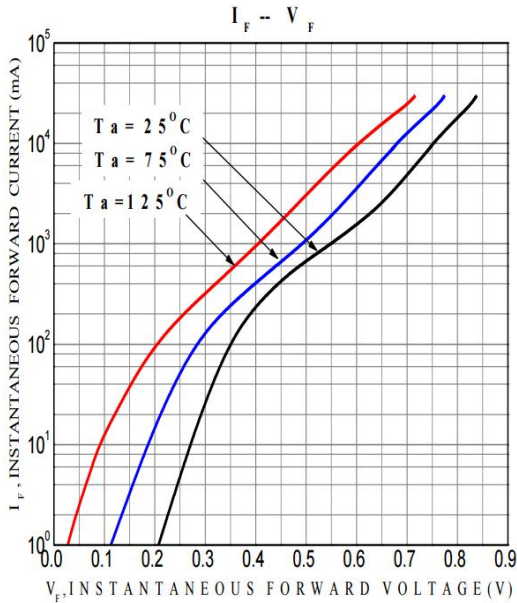


FIGURE 3. FORWARD CURRENT vs FORWARD VOLTAGE

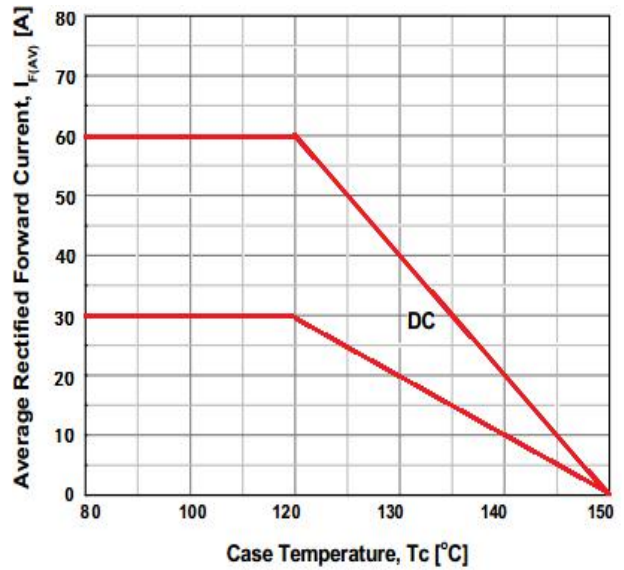


FIGURE 4. CURRENT DERATING CURVE

6 Typical Test Circuit and Waveform

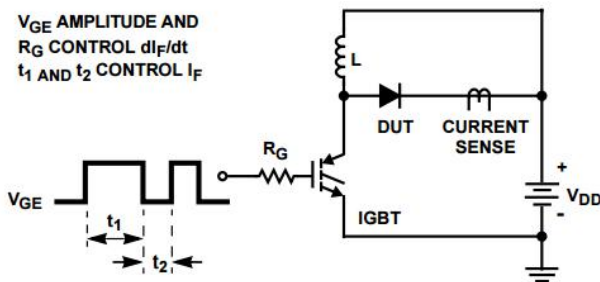


FIGURE 5. trr TEST CIRCUIT

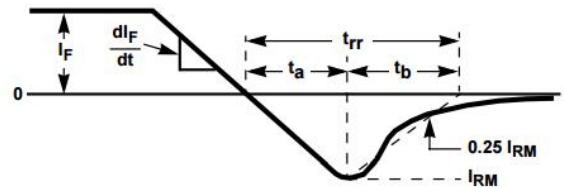


FIGURE 6. trr WAVEFORMS AND DEFINITIONS

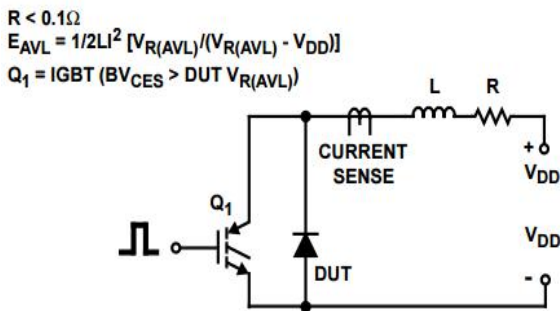


FIGURE 7. AVALANCHE ENERGY TEST CIRCUIT FIGURE

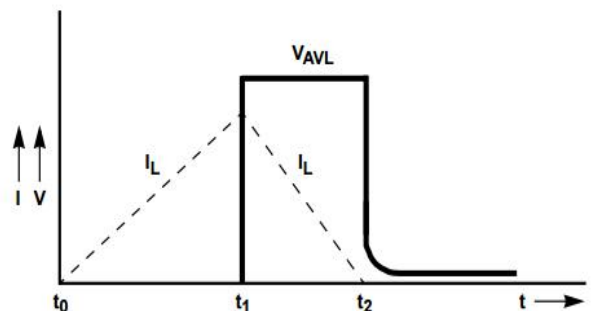
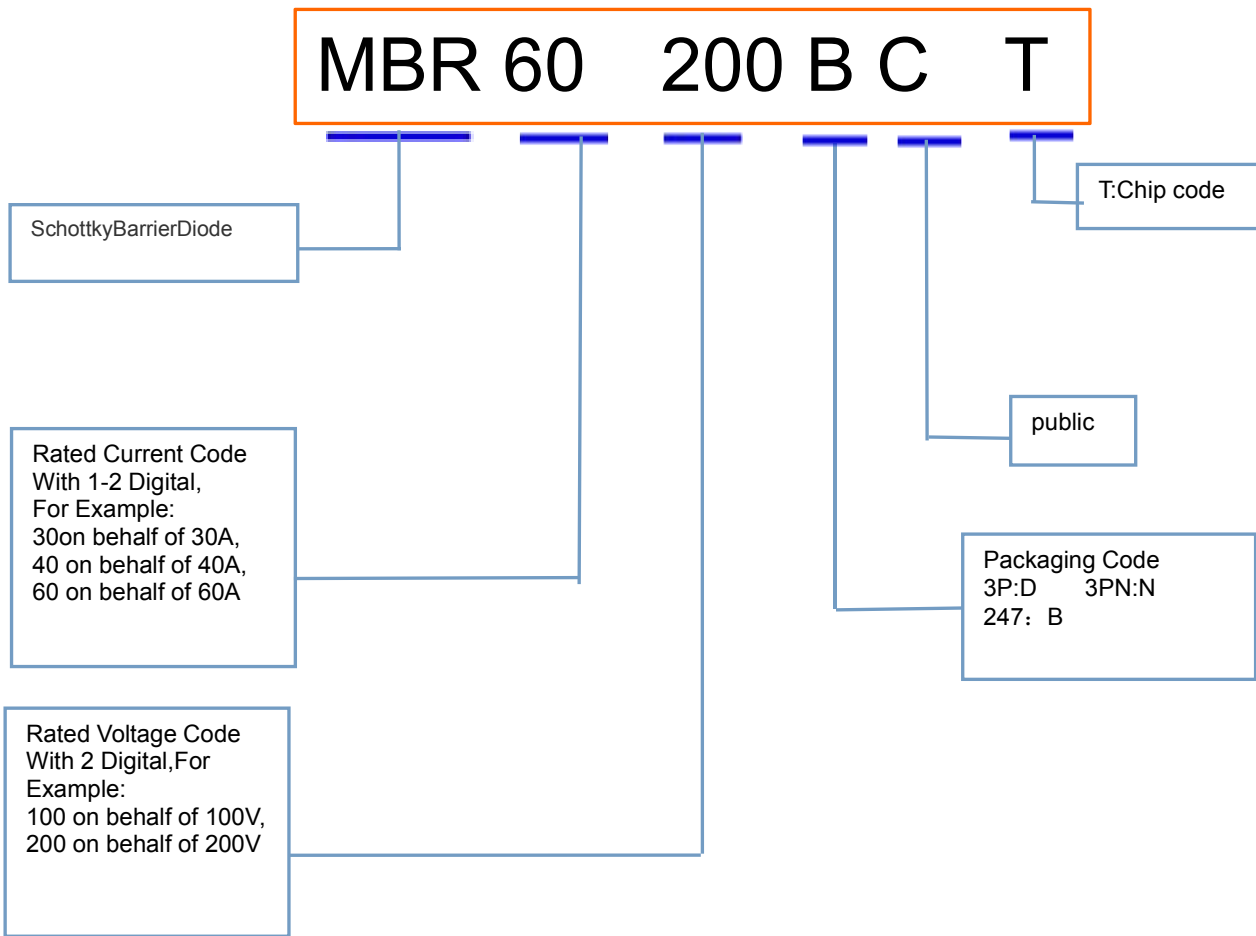


FIGURE 8. AVALANCHE CURRENT AND VOLTAGE WAVEFORMS

7 Product Names Rules

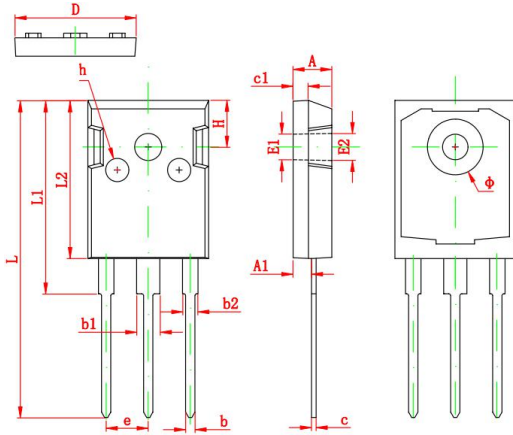


8 Product Specifications and Packaging Models

Product Model	Package Type	Mark Name	RoHS	Package	Quantity
MBR60200CT	TO-3P	MBR60200CT	Pb-free	Tube	300/box
MBR60200BCT	TO-247	MBR60200BCT	Pb-free	Tube	300/box
MBR60200NCT	TO-3PN	MBR60200NCT	Pb-free	Tube	300/box

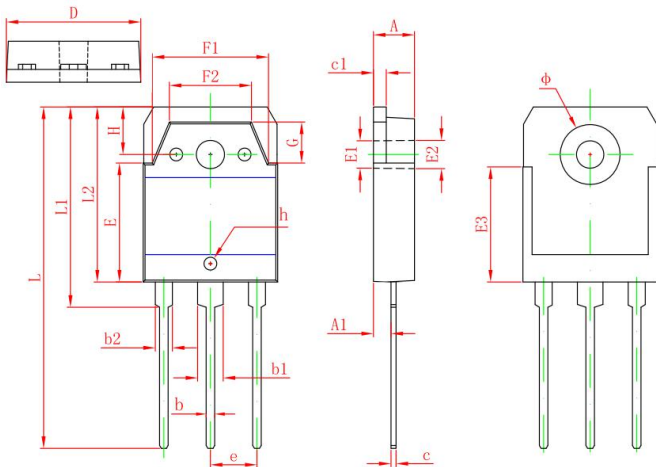
9 Dimensions

TO-247 PACKAGE OUTLINE DIMENSIONS



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	4.600	5.000	0.181	0.197
A1	2.200	2.600	0.087	0.102
b	0.800	1.200	0.031	0.047
b1	2.800	3.200	0.110	0.126
b2	1.800	2.200	0.071	0.087
c	0.500	0.700	0.020	0.028
c1	1.450	1.650	0.057	0.065
D	15.450	15.850	0.608	0.624
E	13.700	14.100	0.539	0.555
E1	3.200 REF		0.126 REF	
E2	3.300 REF		0.130 REF	
E3	13.450 REF		0.530 REF	
F1	13.400	13.800	0.528	0.543
F2	9.400	9.800	0.370	0.386
L	39.900	40.300	1.571	1.587
L1	23.200	23.600	0.913	0.929
L2	20.300	20.600	0.799	0.811
φ	6.900	7.100	0.272	0.280
G	5.150	5.550	0.203	0.219
e	5.450 TYP		0.215 TYP	
H	5.000 REF		0.197 REF	
h	0.000	0.300	0.000	0.012

TO-3P PACKAGE OUTLINE DIMENSIONS



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	4.600	5.000	0.181	0.197
A1	1.200	1.600	0.047	0.063
b	0.800	1.200	0.031	0.047
b1	2.800	3.200	0.110	0.126
b2	1.800	2.200	0.071	0.087
c	0.500	0.700	0.020	0.028
c1	1.450	1.650	0.057	0.065
D	15.450	15.850	0.608	0.624
E	13.700	14.100	0.539	0.555
E1	3.200 REF		0.126 REF	
E2	3.300 REF		0.130 REF	
E3	13.450 REF		0.530 REF	
F1	13.400	13.800	0.528	0.543
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G	5.150	5.550	0.203	0.219
e	5.450 TYP		0.215 TYP	
H	5.000 REF		0.197 REF	
h	0.000	0.300	0.000	0.012

