

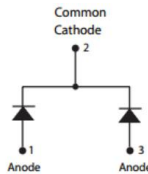
## MBR4045WT SCHOTTKY RECTIFIER



### Features

- 150 °C T<sub>J</sub> operation
- Low forward voltage drop
- High purity, high temperature epoxy encapsulation for enhanced mechanical strength and moisture resistance
- High frequency operation
- Guard ring for enhanced ruggedness and long term reliability
- This is a Pb – Free Device
- All SMC parts are traceable to the wafer lot
- Additional testing can be offered upon request

### Circuit Diagram



### Applications

- Switching power supply
- Converters
- Free-Wheeling diodes
- Reverse battery protection
- Center tap configuration

### Maximum Ratings:

Characteristics	Symbol	Condition	Max.	Units
Peak Repetitive Reverse Voltage Working Peak Reverse Voltage DC Blocking Voltage	V <sub>RRM</sub> V <sub>RWM</sub> V <sub>R</sub>	-	45	V
Average Rectified Forward Current	I <sub>F(AV)</sub>	50% duty cycle @T <sub>C</sub> =125°C, rectangular wave form	20(per leg) 40(per device)	A
Peak One Cycle Non-Repetitive Surge Current(Per leg)	I <sub>FSM</sub>	8.3 ms, half Sine pulse	318	A
Non-Repetitive Avalanche Energy (Per leg)	E <sub>AS</sub>	T <sub>J</sub> = 25°C, I <sub>AS</sub> = 3 A, L = 4.40 mH	20	mJ
Repetitive Avalanche Current (Per leg)	I <sub>AR</sub>	Current decaying linearly to zero in 1 µsec Frequency limited by T <sub>J max.</sub> V <sub>A</sub> = 1.5 x V <sub>R</sub> typical	3	A

**Electrical Characteristics:**

Characteristics	Symbol	Condition	Typ.	Max.	Units
Forward Voltage Drop (per leg) *	V <sub>F1</sub>	@ 20A, Pulse, T <sub>J</sub> = 25 °C @ 40A, Pulse, T <sub>J</sub> = 25 °C	0.58 -	0.70 0.80	V
	V <sub>F2</sub>	@ 20A, Pulse, T <sub>J</sub> = 125 °C @ 40A, Pulse, T <sub>J</sub> = 125 °C	0.51 -	0.60 0.75	V
Reverse Current (per leg) *	I <sub>R1</sub>	@V <sub>R</sub> = rated VR T <sub>J</sub> = 25 °C	0.05	1.0	mA
	I <sub>R2</sub>	@V <sub>R</sub> = rated VR T <sub>J</sub> = 100 °C	9	50	mA
	I <sub>R3</sub>	@V <sub>R</sub> = rated VR T <sub>J</sub> = 125 °C	35	85	mA
Junction Capacitance (per leg)	C <sub>T</sub>	@V <sub>R</sub> = 5 V, T <sub>C</sub> = 25 °C f <sub>SIG</sub> = 1MHz	650	1100	pF
Typical Series Inductance (per leg)	L <sub>S</sub>	Measured lead to lead 5 mm from package body	7.5	-	nH
Voltage Rate of Change	dv/dt	-	-	10,000	V/μs

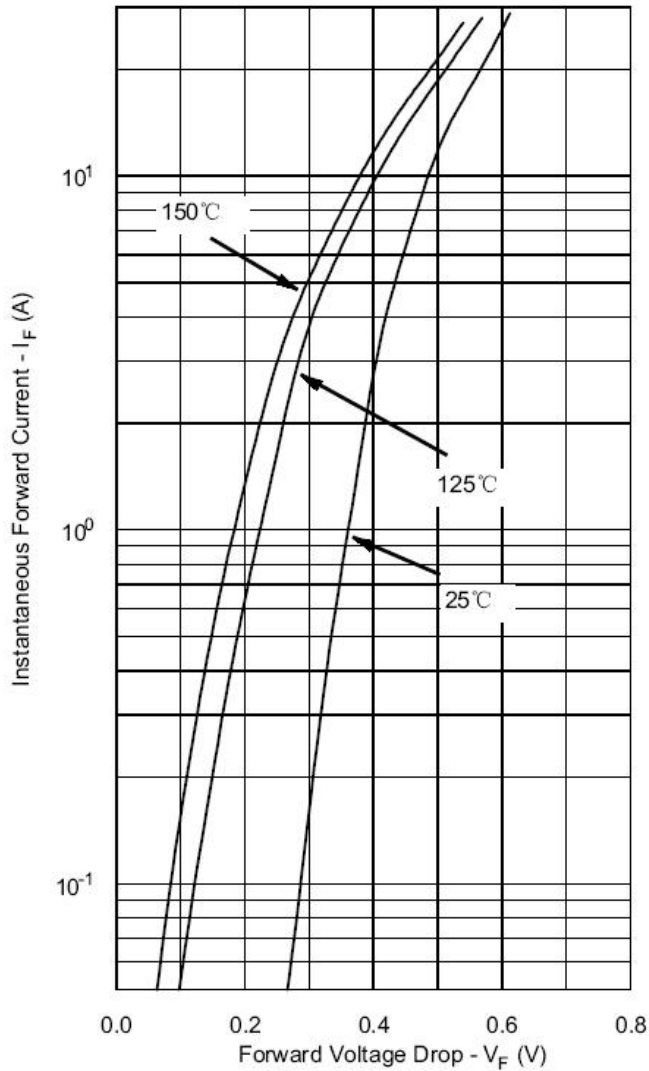
\* Pulse width < 300 μs, duty cycle < 2%

**Thermal-Mechanical Specifications:**

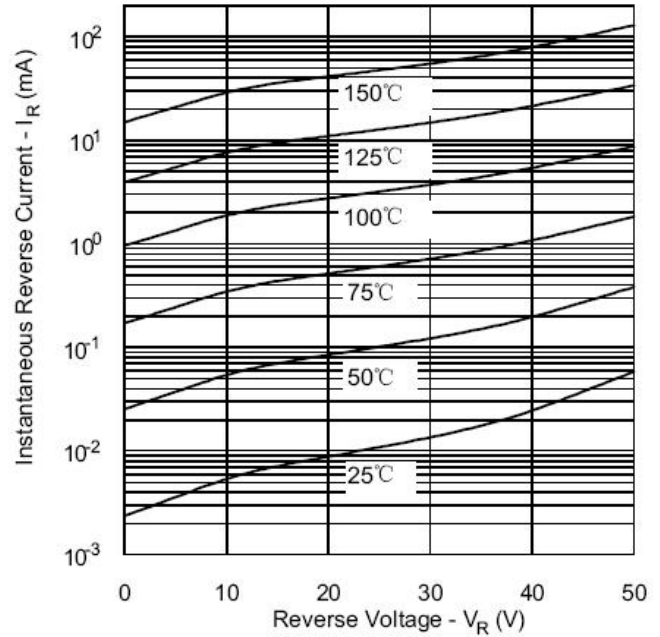
Characteristics	Symbol	Condition	Specification	Units
Junction Temperature	T <sub>J</sub>	-	-55 to +150	°C
Storage Temperature	T <sub>stg</sub>	-	-55 to +175	°C
Typical Thermal Resistance Junction to Case	R <sub>θJC</sub>	DC operation	1.4	°C/W
Typical Thermal Resistance, Case to Heat Sink	R <sub>θCS</sub>	Mounting surface, smooth and greased	0.7	°C/W
Approximate Weight	wt	-	6	g
Case Style	TO-247AD			

**Ratings and Characteristics Curves**

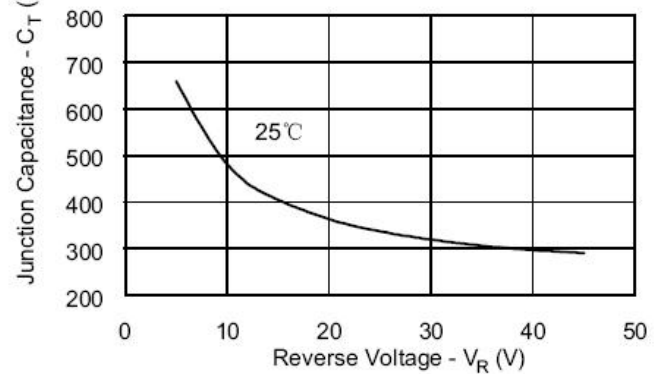
**Typical Forward Characteristics**

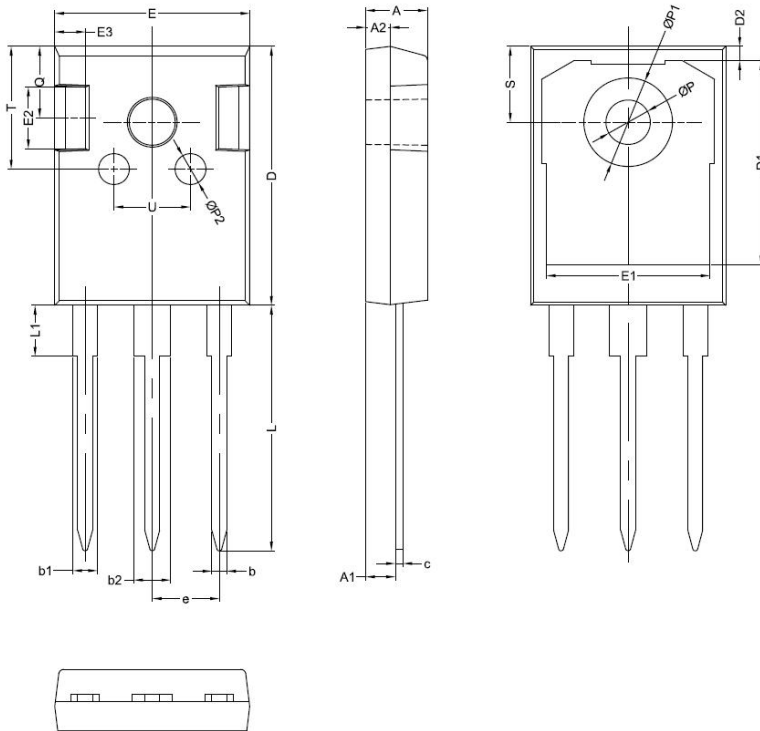


**Typical Reverse Characteristics**



**Typical Junction Capacitance**



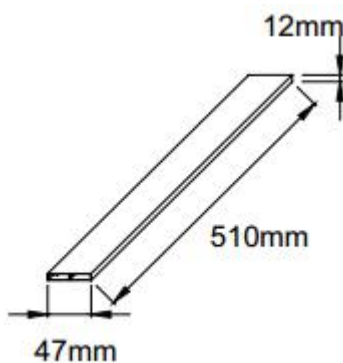
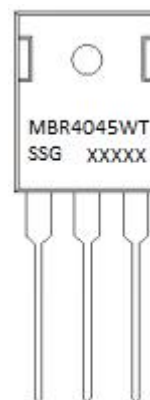
**Mechanical Dimensions TO-247AD**


SYMBOL	Millimeters		
	MIN.	TYP.	MAX.
A	4.80	5.00	5.20
A1	2.20	2.41	2.61
A2	1.90	2.00	2.10
b	1.10	1.20	1.40
b1	1.80	2.00	2.20
b2	2.80	3.00	3.20
c	0.50	0.60	0.75
D	20.30	21.00	21.20
D1		16.55	
D2		1.20	
E	15.45	15.80	16.00
E1		13.30	
E2		5.00	
E3		2.50	
e		5.44	
L	19.42	19.92	20.70
L1		4.13	
P	3.50	3.60	3.70
P1	7.1		7.40
P2		2.50	
Q		5.80	
S	6.05	6.15	6.25
T		10.00	
U		6.20	

**Ordering Information:**

Device	Package	Shipping
MBR4045WT	TO-247AD(Pb-Free)	25pcs / tube

For information on tape and reel specifications, including part orientation and tape sizes, please refer to our tape and reel packaging specification.

**Tube Specification**

**Marking Diagram**


Where XXXXX is YYWWL

MBR = Device Type  
 40 = Forward Current (40A)  
 45 = Reverse Voltage (45V)  
 WT = Configuration  
 SSG = SSG  
 YY = Year  
 WW = Week  
 L = Lot Number

**Cautions:** Molding resin  
 Epoxy resin UL:94V-0

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