

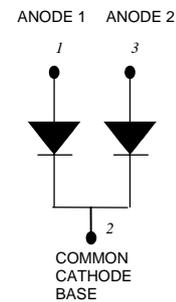
## MBR4045WT SCHOTTKY RECTIFIER

### Applications:

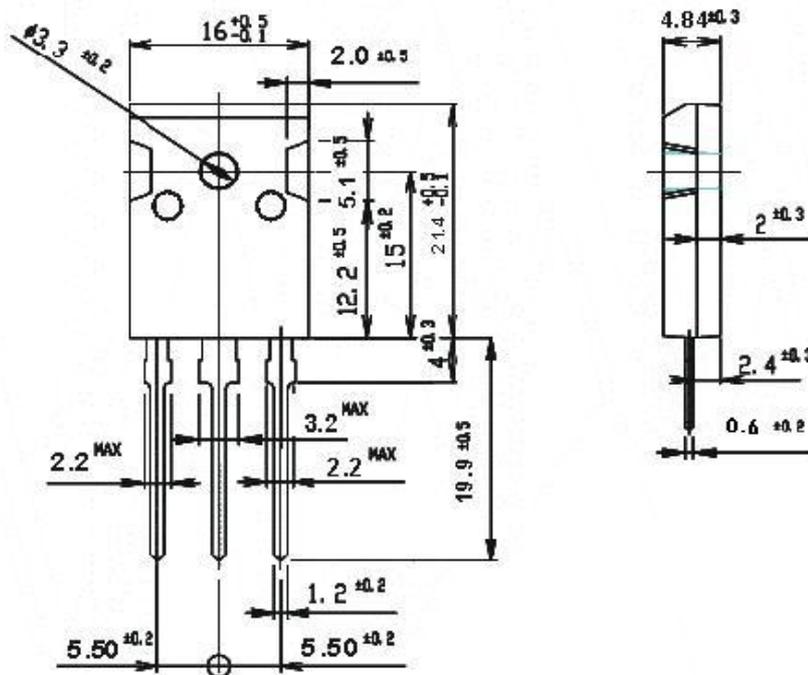
- Switching power supply
- Converters
- Free-Wheeling diodes
- Reverse battery protection
- Center tap configuration

### Features:

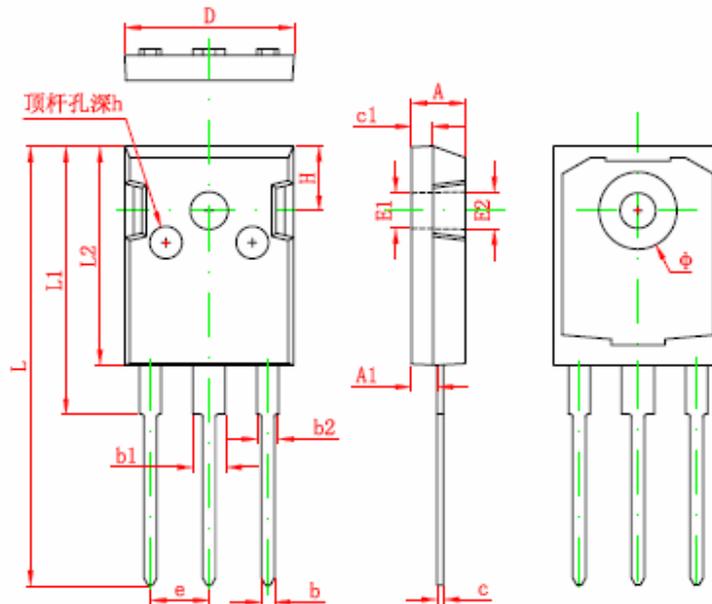
- 150°C T<sub>J</sub> operation
- Center tap TO-247AD package
- Low forward voltage drop
- High purity, high temperature epoxy encapsulation for enhanced mechanical strength and moisture resistance
- High frequency operation
- Guard ring for enhanced ruggedness and long term reliability
- This is a Pb - Free Device
- All SMC parts are traceable to the wafer lot
- Additional testing can be offered upon request



### Mechanical Dimensions: In mm



### OPTION 1(SR)



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	4.850	5.150	0.191	0.200
A1	2.200	2.600	0.087	0.102
b	1.000	1.400	0.039	0.055
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	1.900	2.100	0.075	0.083
D	15.450	15.750	0.608	0.620
E1	3.500 REF		0.138 REF	
E2	3.600 REF		0.142 REF	
L	40.900	41.300	1.610	1.626
L1	24.800	25.100	0.976	0.988
L2	20.300	20.600	0.799	0.811
Φ	7.100	7.300	0.280	0.287
e	5.450 TYP		0.215 TYP	
H	5.980 REF		0.235 REF	
h	0.000	0.300	0.000	0.012

**OPTION 2(CJ)**

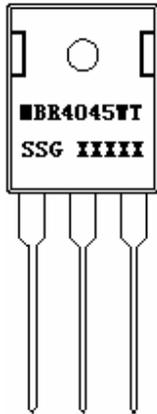
**TO-247AD**



Technical Data  
Data Sheet N0742, Rev. A

*Green Products*

**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

**Ordering Information:**

Device	Package	Shipping
MBR4045WT	TO-247AD (Pb-Free)	30pcs/ tube

For information on tape and reel specifications, including part orientation and tape sizes, please refer to our Tape and Reel Packaging Specification.

**Maximum Ratings:**

Characteristics	Symbol	Condition	Max.	Units
Peak Inverse Voltage	$V_{RWM}$	-	45	V
Max. Average Forward	$I_{F(AV)}$	50% duty cycle @ $T_C = 125^\circ\text{C}$ , rectangular wave form	20(per leg)	A
			40(per device)	
Max. Peak One Cycle Non-Repetitive Surge Current (per leg)	$I_{FSM}$	8.3 ms, half Sine pulse	318	A
Non-Repetitive Avalanche Energy (per leg)	$E_{AS}$	$T_J = 25^\circ\text{C}$ , $I_{AS} = 3\text{ A}$ , $L = 4.40\text{ mH}$	20	mJ
Repetitive Avalanche Current (per leg)	$I_{AR}$	Current decaying linearly to zero in 1 $\mu\text{sec}$ Frequency limited by $T_{J\text{max}}$ . $V_A = 1.5 \times V_R$ typical	3	A

**Electrical Characteristics:**

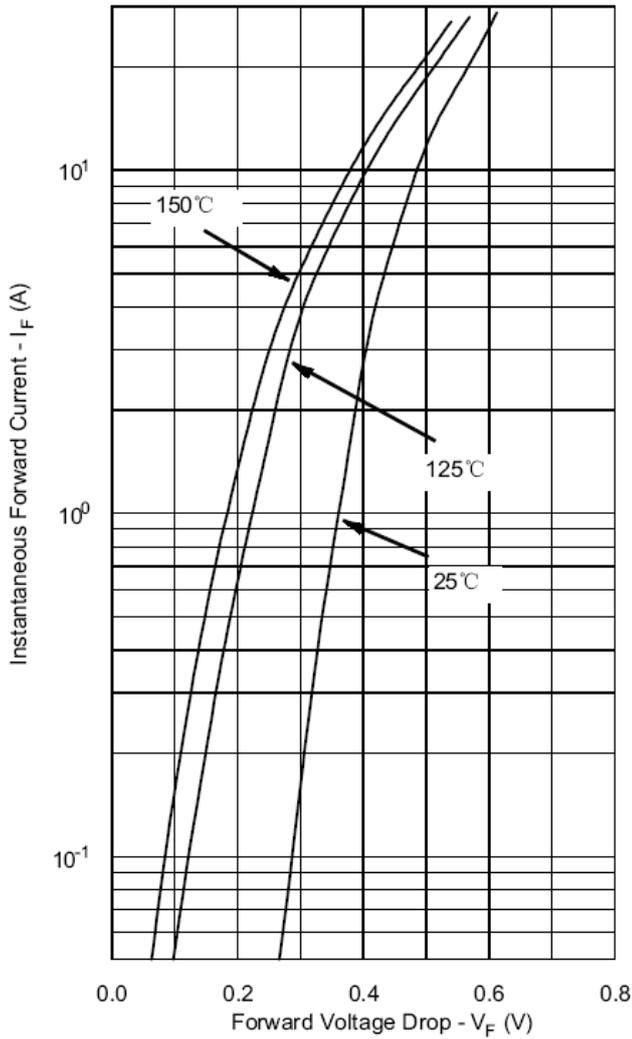
Characteristics	Symbol	Condition	Max.	Units
Max. Forward Voltage Drop (per leg) *	$V_{F1}$	@ 20A, Pulse, $T_J = 25\text{ }^\circ\text{C}$	0.70	V
		@ 40A, Pulse, $T_J = 25\text{ }^\circ\text{C}$	0.80	
	$V_{F2}$	@ 20A, Pulse, $T_J = 125\text{ }^\circ\text{C}$	0.60	V
		@ 40A, Pulse, $T_J = 125\text{ }^\circ\text{C}$	0.75	
Max. Reverse Current (per leg) *	$I_{R1}$	@ $V_R = \text{rated } V_R$ $T_J = 25\text{ }^\circ\text{C}$	1.0	mA
	$I_{R2}$	@ $V_R = \text{rated } V_R$ $T_J = 100\text{ }^\circ\text{C}$	50	mA
	$I_{R3}$	@ $V_R = \text{rated } V_R$ $T_J = 125\text{ }^\circ\text{C}$	85	mA
Max. Junction Capacitance (per leg)	$C_T$	@ $V_R = 5\text{ V}$ , $T_C = 25\text{ }^\circ\text{C}$ $f_{SIG} = 1\text{ MHz}$	900	pF
Typical Series Inductance (per leg)	$L_S$	Measured lead to lead 5 mm from package body	7.5	nH
Max. Voltage Rate of Change	dv/dt	-	10,000	V/ $\mu\text{s}$

\* Pulse Width < 300 $\mu\text{s}$ , Duty Cycle <2%

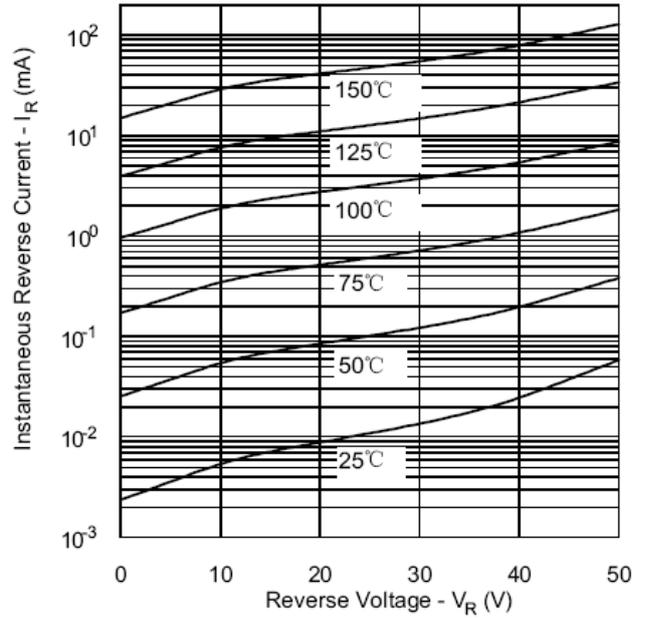
**Thermal-Mechanical Specifications:**

Characteristics	Symbol	Condition	Specification	Units
Max. Junction Temperature	$T_J$	-	-55 to +150	$^\circ\text{C}$
Max. Storage Temperature	$T_{stg}$	-	-55 to +175	$^\circ\text{C}$
Maximum Thermal Resistance Junction to Case	$R_{\theta JC}$	DC operation	1.4	$^\circ\text{C/W}$
Maximum Thermal Resistance, Case to Heat Sink	$R_{\theta CS}$	Mounting surface, smooth and greased	0.7	$^\circ\text{C/W}$
Approximate Weight	wt	-	6	g
Case Style	TO-247AD			

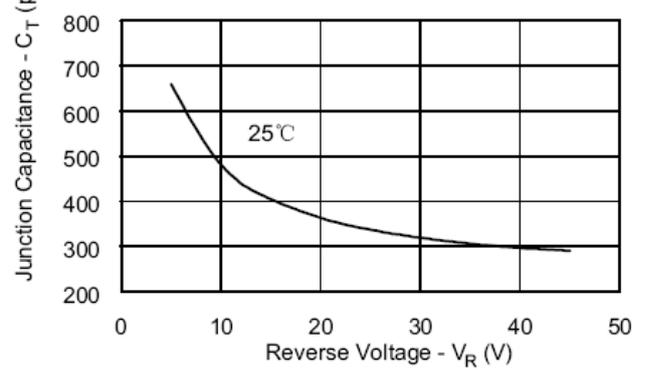
**Typical Forward Characteristics**



**Typical Reverse Characteristics**



**Typical Junction Capacitance**



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