

Technical Data  
Data Sheet 2917, Rev. A

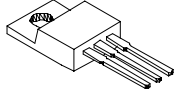
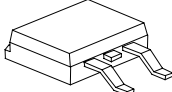
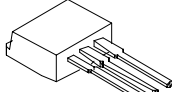
**MBR4045CT/MBRB4045CT/MBR4045CT-1**  
**SCHOTTKY RECTIFIER**

**Applications:**

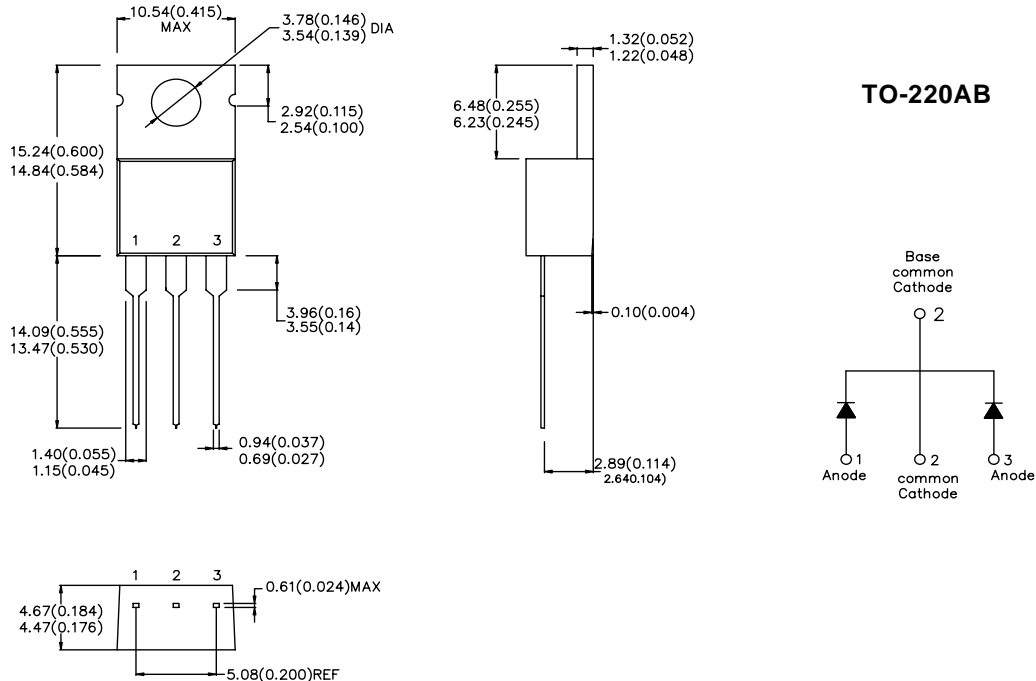
- Switching power supply • Converters • Free-Wheeling diodes • Reverse battery protection

**Features:**

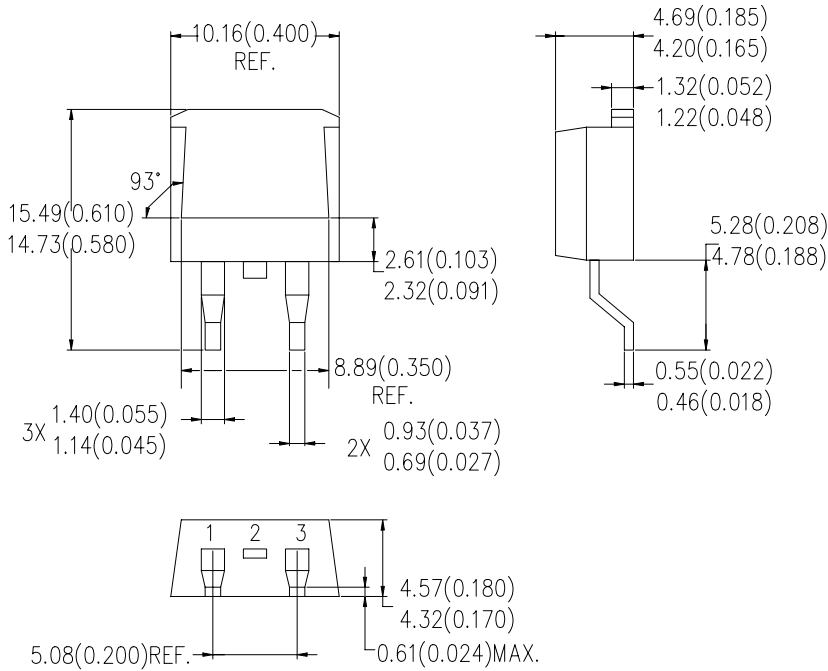
- 150 °C T<sub>J</sub> operation
- Center tap configuration
- Low forward voltage drop
- High purity, high temperature epoxy encapsulation for enhanced mechanical strength and moisture resistance
- High frequency operation
- Guard ring for enhanced ruggedness and long term reliability

Case styles		
<b>MBR4045CT</b>    <b>TO-220AB</b>	<b>MBRB4045CT</b>    <b>D<sup>2</sup>PAK</b>	<b>MBR4045CT-1</b>    <b>TO-262</b>

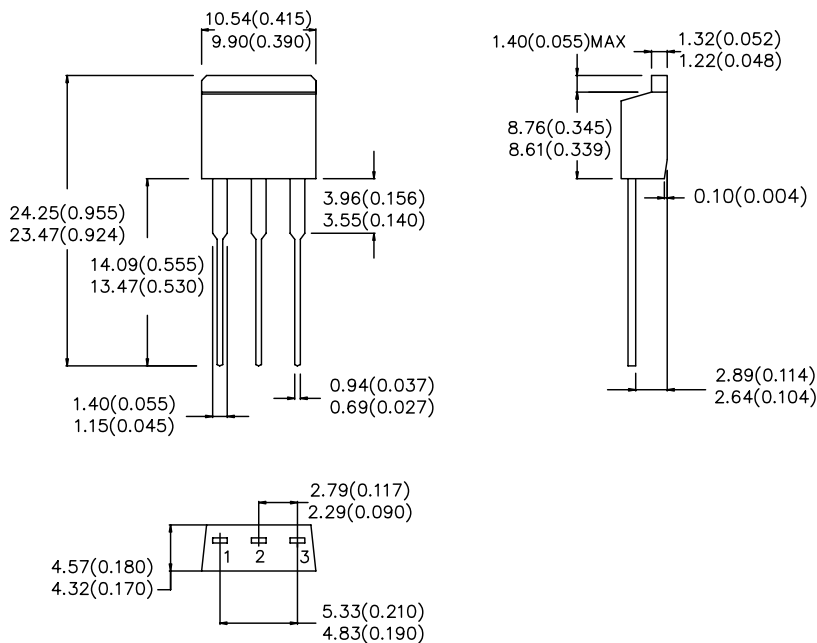
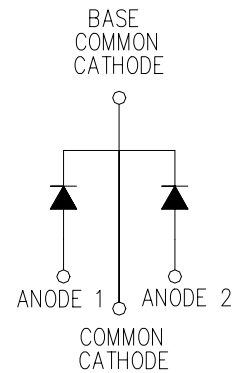
**Mechanical Dimensions: In Inches / mm**



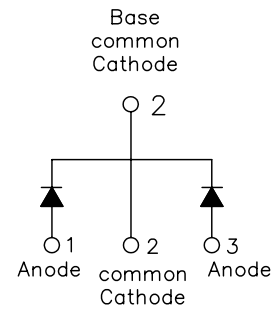
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**D<sup>2</sup>PAK**



**TO-262**



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**Maximum Ratings:**

Characteristics	Symbol	Condition	Max.	Units
Peak Inverse Voltage	$V_{RWM}$	-	45	V
Max. Average Forward Current	$I_{F(AV)}$	@ $T_C = 118^\circ\text{C}$ , Rated $V_R$	20 (per leg)	A
			40 (per device)	
Peak Repetitive Forward Current (per leg)	$I_{FRM}$	@ $T_C = 118^\circ\text{C}$ , Rated $V_R$ , square wave, 20kHz	40	A
Max. Peak One Cycle Non-Repetitive Surge Current (per leg)	$I_{FSM}$	8.3 ms, half Sine pulse	252	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 $T_J$ max. $V_A = 1.5 \times V_R$ typical	3	A

**Electrical Characteristics:**

Characteristics	Symbol	Condition	Max.	Units
Max. Forward Voltage Drop (per leg) *	$V_{F1}$	@ 20 A, Pulse, $T_J = 25^\circ\text{C}$	0.60	V
		@ 40 A, Pulse, $T_J = 25^\circ\text{C}$	0.78	
	$V_{F2}$	@ 20 A, Pulse, $T_J = 125^\circ\text{C}$	0.58	V
		@ 40 A, Pulse, $T_J = 125^\circ\text{C}$	0.75	
Max. Reverse Current (per leg) *	$I_{R1}$	@ $V_R = \text{rated } V_R$ $T_J = 25^\circ\text{C}$	1	mA
	$I_{R2}$	@ $V_R = \text{rated } V_R$ $T_J = 100^\circ\text{C}$	50	mA
	$I_{R3}$	@ $V_R = \text{rated } V_R$ $T_J = 125^\circ\text{C}$	95	mA
Max. Junction Capacitance (per leg)	$C_T$	@ $V_R = 5\text{ V}$ , $T_C = 25^\circ\text{C}$ $f_{SIG} = 1\text{ MHz}$	900	pF
Typical Series Inductance (per leg)	$L_S$	Measured lead to lead 5 mm from package body	8.0	nH
Max. Voltage Rate of Change (Rated $V_R$ )	dv/dt	-	10,000	V/ $\mu\text{s}$

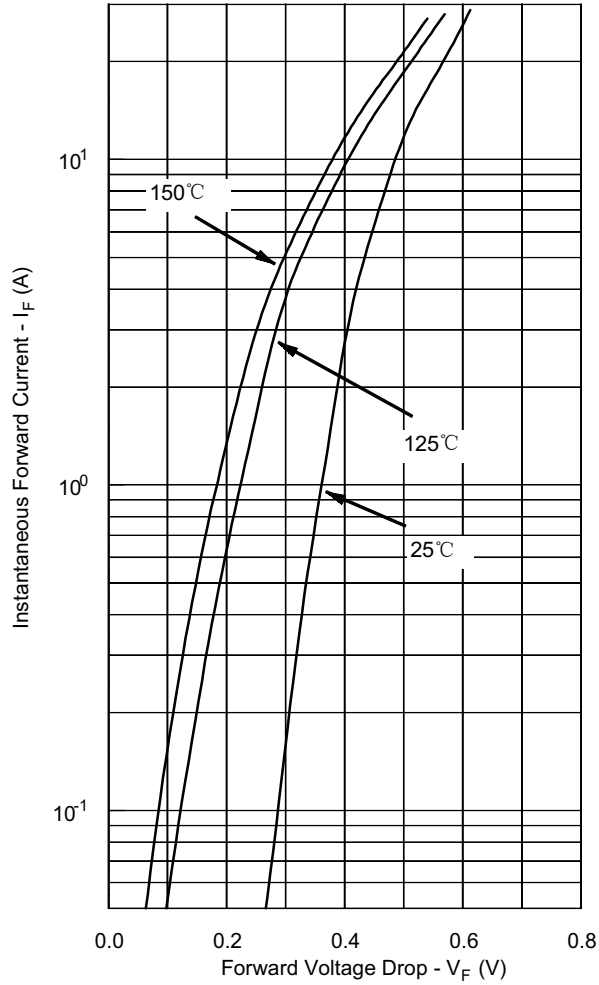
\* Pulse Width < 300 $\mu\text{s}$ , Duty Cycle <2%

**Thermal-Mechanical Specifications:**

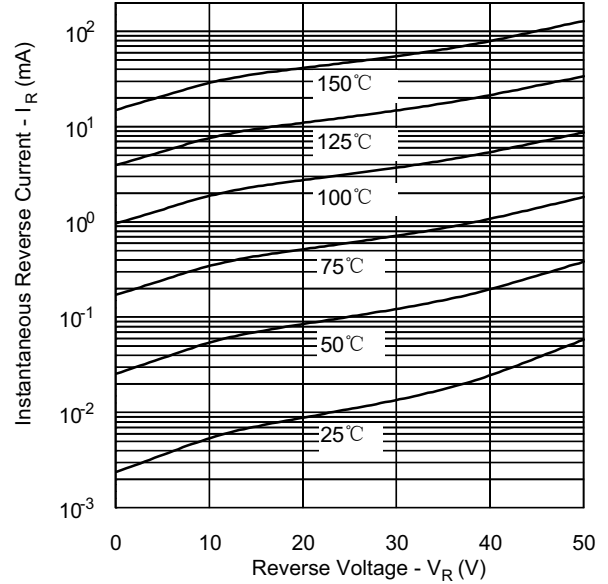
Characteristics	Symbol	Condition	Specification	Units
Max. Junction Temperature	$T_J$	-	-65 to +150	$^\circ\text{C}$
Max. Storage Temperature	$T_{stg}$	-	-65 to +175	$^\circ\text{C}$
Maximum Thermal Resistance Junction to Case (per leg)	$R_{\theta JC}$	DC operation	1.5	$^\circ\text{C/W}$
Max. Thermal Resistance Junction to Ambient	$R_{\theta JA}$	DC operation For D <sup>2</sup> PAK and TO-262	50	$^\circ\text{C/W}$
Maximum Thermal Resistance, Case to Heat Sink	$R_{\theta CS}$	Mounting surface, smooth and greased Only for TO-220	0.50	$^\circ\text{C/W}$
Approximate Weight	wt	-	2	g
Mounting Torque	$T_M$	-	6 (min) 12 (max)	Kg-cm
Case Style	TO-220AB D <sup>2</sup> PAK TO-262 (Suffix "-1" for TO-262;"MBRB x" for D <sup>2</sup> PAK)			

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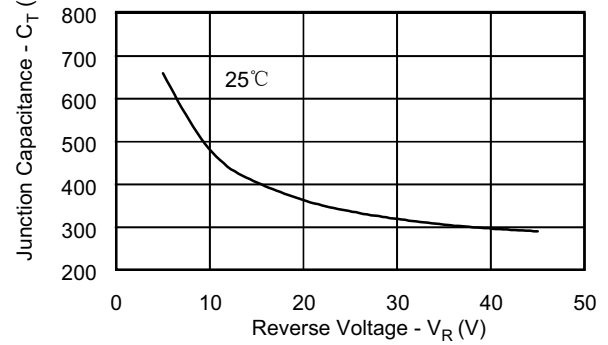
**Typical Forward Characteristics**



**Typical Reverse Characteristics**



**Typical Junction Capacitance**



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