

MBR3045ST

Preferred Device

SWITCHMODE™ Power Rectifier

... using the Schottky Barrier principle with a platinum barrier metal. This state-of-the-art device has the following features:

- Dual Diode Construction — Terminals 1 and 3 May Be Connected for Parallel Operation at Full Rating
- 45 V Blocking Voltage
- Low Forward Voltage Drop
- Guardring for Stress Protection
- 150°C Operating Junction Temperature

Mechanical Characteristics

- Case: Epoxy, Molded
- Weight: 1.9 grams (approximately)
- Finish: All External Surfaces Corrosion Resistant and Terminal Leads are Readily Solderable
- Lead Temperature for Soldering Purposes: 260°C Max. for 10 Seconds
- Shipped 50 Units Per Plastic Tube
- Marking: B3045

MAXIMUM RATINGS

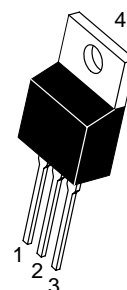
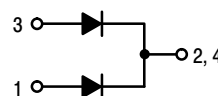
Rating	Symbol	Value	Unit
Peak Repetitive Reverse Voltage	V_{RRM}	45	V
Working Peak Reverse Voltage	V_{RWM}		
DC Blocking Voltage	V_R		
Average Rectified Current	$I_{F(AV)}$		A
($T_C = 130^\circ\text{C}$)		30	
Per Device		15	
Per Diode			
Peak Repetitive Forward Current, per Diode (Square Wave, $V_R = 45\text{ V}$, 20 kHz)	I_{FRM}	30	A
Non-Repetitive Peak Surge Current (Surge Applied at Rated Load Conditions, Halfwave, Single Phase, 60 Hz)	I_{FSM}	150	A
Peak Repetitive Reverse Current, per Diode (2.0 μs , 1.0 kHz)	I_{RRM}	2.0	A
Storage Temperature Range	T_{stg}	-65 to +175	°C
Operating Junction Temperature	T_J	-65 to +150	°C
Peak Surge Junction Temperature (Forward Current Applied)	$T_{J(pk)}$	175	°C
Voltage Rate of Change (Rated V_R)	dv/dt	10,000	V/ μs



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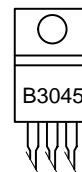
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SCHOTTKY BARRIER RECTIFIER 30 AMPERES 45 VOLTS



TO-220AB
CASE 221A
STYLE 6

MARKING DIAGRAM



B3045 = Device Code

ORDERING INFORMATION

Device	Package	Shipping
MBR3045ST	TO-220	50 Units/Rail

Preferred devices are recommended choices for future use and best overall value.

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THERMAL CHARACTERISTICS (Per Diode)

Characteristic	Symbol	Value	Unit
Thermal Resistance, Junction to Case	$R_{\theta JC}$	1.5	$^{\circ}C/W$

ELECTRICAL CHARACTERISTICS (Per Diode)

Instantaneous Forward Voltage (Note 1.) ($i_F = 30$ Amp, $T_C = 25^{\circ}C$) ($i_F = 30$ Amp, $T_C = 125^{\circ}C$) ($i_F = 20$ Amp, $T_C = 125^{\circ}C$)	v_F	0.76 0.72 0.60	Volts
Instantaneous Reverse Current (Note 1.) ($V_R = 45$ Volts, $T_C = 25^{\circ}C$) ($V_R = 45$ Volts, $T_C = 125^{\circ}C$)	I_R	0.2 40	mA

1. Pulse Test: Pulse Width = 300 μs , Duty Cycle $\leq 2.0\%$

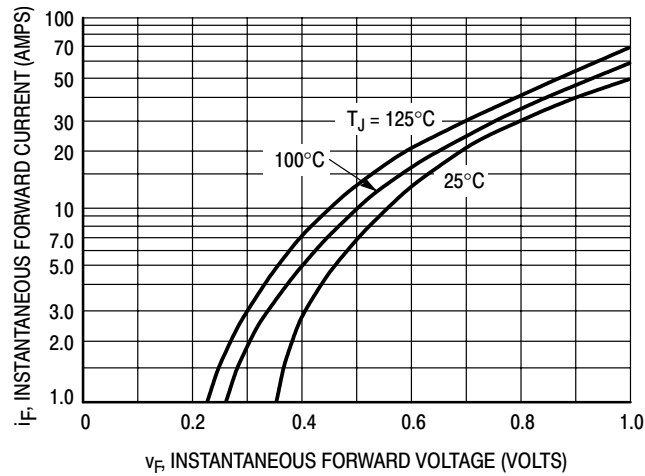


Figure 1. Typical Forward Voltage

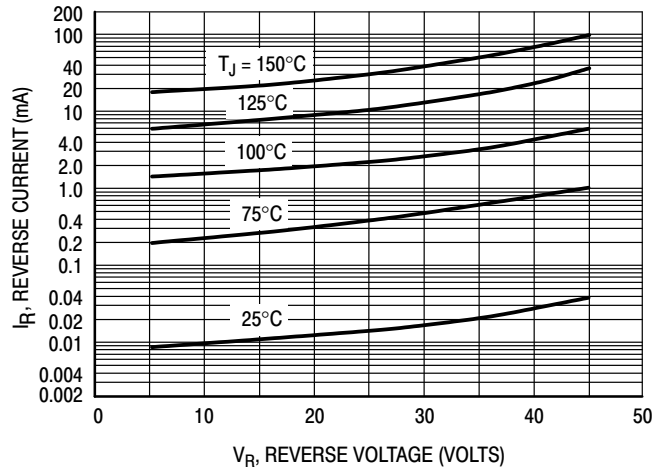


Figure 2. Typical Reverse Current

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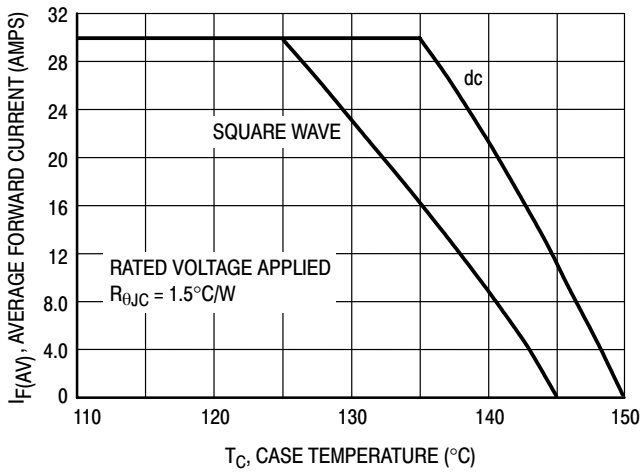


Figure 3. Current Derating, Case

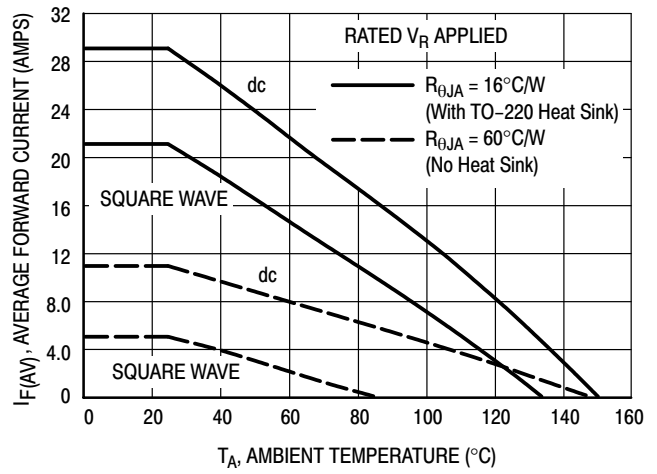


Figure 4. Current Derating, Ambient

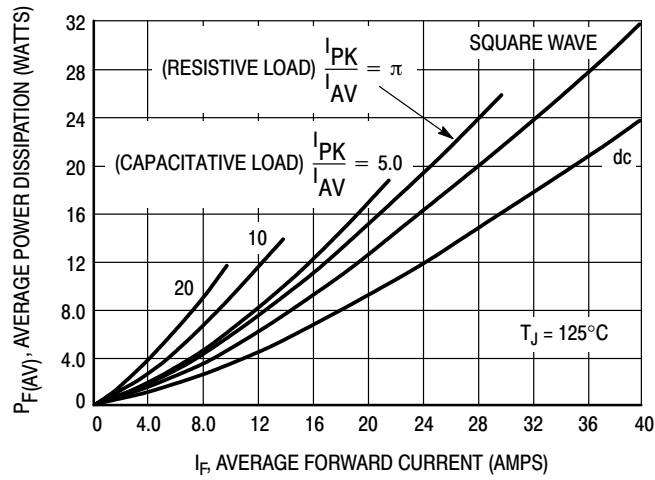
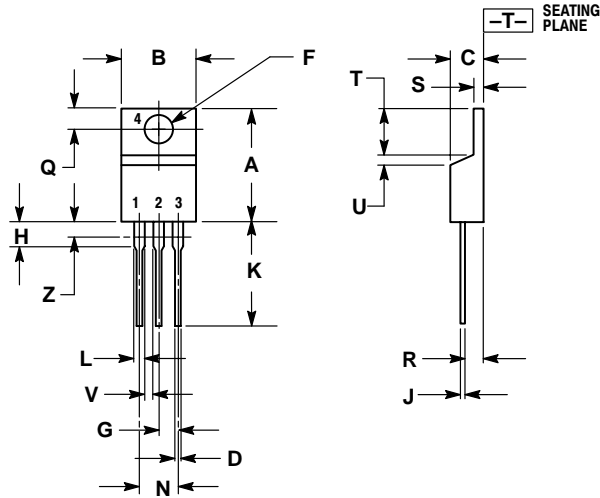


Figure 5. Forward Power Dissipation

MBR3045ST

PACKAGE DIMENSIONS

TO-220
PLASTIC
CASE 221A-09
ISSUE AA




- NOTES:
1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
 2. CONTROLLING DIMENSION: INCH.
 3. DIMENSION Z DEFINES A ZONE WHERE ALL BODY AND LEAD IRREGULARITIES ARE ALLOWED.

DIM	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	0.570	0.620	14.48	15.75
B	0.380	0.405	9.66	10.28
C	0.160	0.190	4.07	4.82
D	0.025	0.035	0.64	0.88
F	0.142	0.147	3.61	3.73
G	0.095	0.105	2.42	2.66
H	0.110	0.155	2.80	3.93
J	0.018	0.025	0.46	0.64
K	0.500	0.562	12.70	14.27
L	0.045	0.060	1.15	1.52
N	0.190	0.210	4.83	5.33
Q	0.100	0.120	2.54	3.04
R	0.080	0.110	2.04	2.79
S	0.045	0.055	1.15	1.39
T	0.235	0.255	5.97	6.47
U	0.000	0.050	0.00	1.27
V	0.045	---	1.15	---
Z	---	0.080	---	2.04

- STYLE 6:
1. ANODE
 2. CATHODE
 3. ANODE
 4. CATHODE

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