

### FEATURES

- Available as "HR" (high reliability) screened per MIL-PRF-19500, JANTX level. Add "HR" suffix to base part number.
- Available as non-RoHS (Sn/Pb plating), standard, and as RoHS by adding "-PBF" suffix.

### MAXIMUM RATINGS

Rating	Symbol	MBR4045PT	Unit
Peak repetitive reverse voltage	$V_{RRM}$	45	V
Working peak reverse voltage	$V_{RWM}$		
DC blocking voltage	$V_R$		
Average rectified forward current (Rated $V_R$ )	$I_{F(AV)}$	40 @ $T_C = 125^\circ\text{C}$	A
Peak repetitive forward current (Rated $V_R$ , square wave, 20 kHz)	$I_{FRM}$	40 @ $T_C = 90^\circ\text{C}$	A
Peak repetitive reverse surge current (2.0 $\mu\text{s}$ , 1.0 kHz)	$I_{RRM}$	2	A
Non-repetitive peak surge current (surge applied at rated load conditions, halfwave, single phase, 60Hz)	$I_{FSM}$	400	A
Operating junction temperature range <sup>(1)</sup>	$T_J$	-65 to +175	$^\circ\text{C}$
Storage junction temperature range	$T_{stg}$	-65 to +175	$^\circ\text{C}$
Peak surge junction temperature (forward current applied)	$T_{J(pk)}$	175	$^\circ\text{C}$
Voltage rate of change (Rated $V_R$ )	$dv/dt$	10000	V/ $\mu\text{s}$
Maximum thermal resistance			
Junction to case	$R_{\theta JC}$	1.4	$^\circ\text{C}/\text{W}$
Junction to ambient	$R_{\theta JA}$	55	

### ELECTRICAL CHARACTERISTICS ( $T_A = 25^\circ\text{C}$ unless otherwise specified)

Parameter	Symbol	MBR4045PT		Unit
		Typical	Maximum	
Instantaneous forward voltage <sup>(2)</sup> ( $I_F = 20\text{A}$ , $T_C = 25^\circ\text{C}$ ) ( $I_F = 20\text{A}$ , $T_C = 125^\circ\text{C}$ ) ( $I_F = 40\text{A}$ , $T_C = 25^\circ\text{C}$ ) ( $I_F = 40\text{A}$ , $T_C = 125^\circ\text{C}$ )	$V_F$	0.53 0.46 0.64 0.62	0.70 0.60 0.80 0.75	V
Instantaneous reverse current <sup>(2)</sup> (Rated dc voltage, $T_C = 25^\circ\text{C}$ ) (Rated dc voltage, $T_C = 100^\circ\text{C}$ )	$I_R$	0.09 30	1.0 50	mA

Note 1: The heat generated must be less than the thermal conductivity from junction-to-ambient:  $dP_o/dT_J < 1/R_{\theta JA}$ .

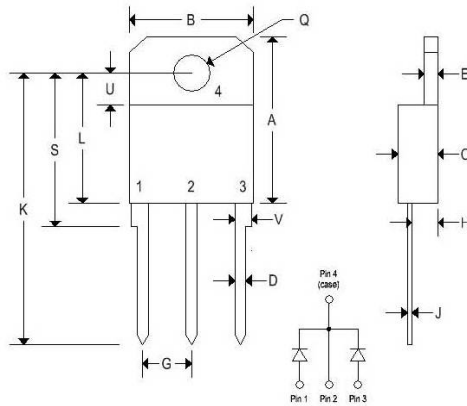
Note 2: Pulse test: Pulse width = 300 $\mu\text{s}$ , duty cycle  $\leq 2.0\%$ .

# MBR4045PT

## 40 A SCHOTTKY RECTIFIER

### MECHANICAL CHARACTERISTICS

Case	TO-218AC
Marking	Alpha-numeric
Pin out	See below



	TO-218AC			
	Inches		Millimeters	
	Min	Max	Min	Max
A	0.749	0.771	19.000	19.600
B	0.551	0.570	14.000	14.500
C	0.165	0.185	4.200	4.700
D	0.040	0.051	1.000	1.300
E	0.058	0.064	1.450	1.650
G	0.206	0.225	5.210	5.720
H	0.103	0.118	2.600	3.000
J	0.016	0.023	0.400	0.600
K	1.123	1.259	28.500	32.000
L	0.579	0.602	14.700	15.300
Q	0.158	0.167	4.000	4.250
S	0.689	0.712	17.500	18.100
U	0.134	0.149	3.400	3.800
V	0.060	0.078	1.500	2.000

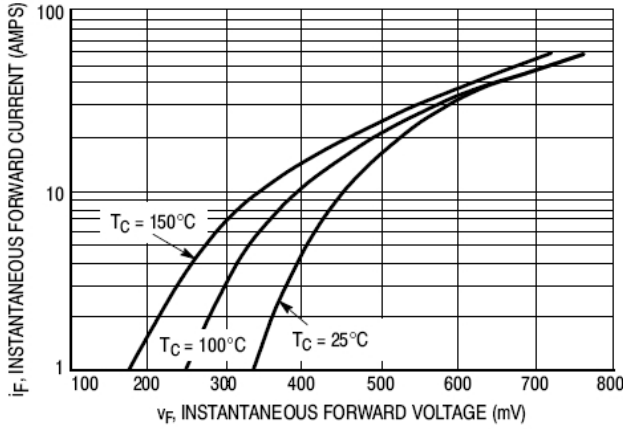


Figure 1. Typical Forward Voltage

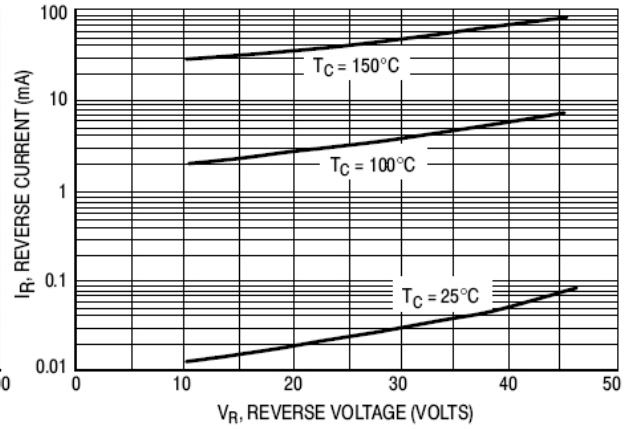


Figure 2. Typical Reverse Current

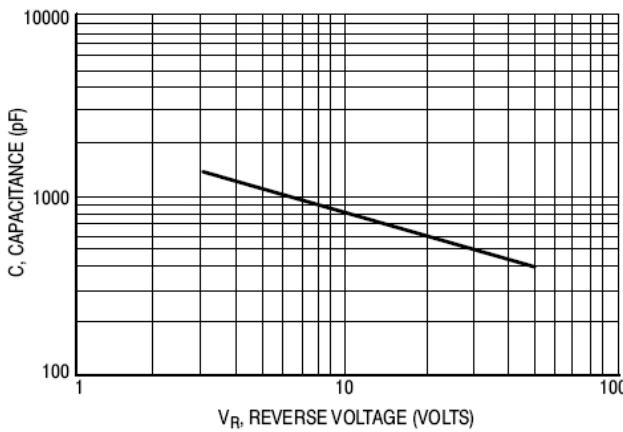


Figure 3. Typical Capacitance Per Leg

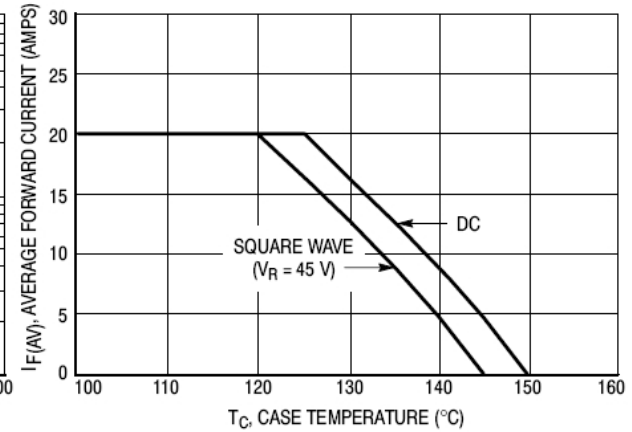


Figure 4. Current Derating Per Leg