



# 30A SCHOTTKY BARRIER RECTIFIER

## MBRF3040CT THRU MBRF30200CT

VOLTAGE RANGE

40 to 200 Volts

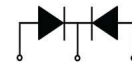
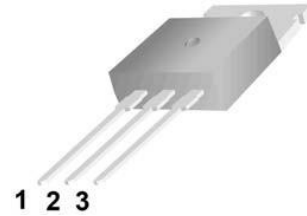
CURRENT

30 Ampere

### Features

- Low power loss, high efficiency, High surge capacitance
- For use in low voltage, high frequency inverters, free wheeling, and polarity protection applications
- Metal silicon junction, majority carrier conduction
- High current Capability, low forward voltage drop
- Guard ring for over voltage protection

TO-220F



1. Anode 2. Cathode 3. Anode

### Mechanical Data

- Case: Plastic Shell
- Molding compound meets UL 94 V-0 flammability rating, Halogen-free, RoHS-compliant, and commercial grade

### Maximum Ratings and Electrical Characteristics

- Ratings at 25°C ambient temperature unless otherwise specified
- Single Phase, half wave, 60Hz, resistive or inductive load
- For capacitive load derate current by 20%

TYPE NUMBER	SYMBOLS	MBRF30 40CT	MBRF30 50CT	MBRF30 60CT	MBRF30 80CT	MBRF30 100CT	MBRF30 150CT	MBRF30 200CT	UNIT
Maximum Repetitive Peak Reverse Voltage	$V_{RRM}$	40	50	60	80	100	150	200	Volts
Maximum RMS Voltage	$V_{RMS}$	28	35	42	56	70	105	140	Volts
Maximum DC Blocking Voltage	$V_{DC}$	40	50	60	80	100	150	200	Volts
Maximum Average Forward Current	Per leg	15							Amps
	Total device	30							
Peak Forward Surge Current 8.3ms single half sine-wave superimposed on rated load (JEDEC method)	$I_{FSM}$	280							Amps
Maximum Forward Voltage at 15A per leg <sup>(Note1)</sup>	$V_F$	0.55	0.75	0.85		0.95		Volts	
Maximum DC Reverse Current at Rated DC Blocking Voltage <sup>(Note2)</sup>	$T_A = 25^\circ C$	0.15					0.05		mA
	$T_A = 125^\circ C$	20			5				
Typical Thermal Resistance <sup>(Note 3)</sup>	$R_{\theta JC}$	1.5							$^\circ C/W$
Maximum Operating Junction Temperature	$T_J$	150			175				$^\circ C$
Operating Junction Temperature Range	$T_{STG}$	-55 to +175							$^\circ C$

#### Notes:

1. Pulse test: 300μs pulse width, 1% duty cycle
2. Pulse test: pulse width ≤ 40ms
3. Thermal resistance from junction to case



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Ratings and Characteristic Curves ( $T_A=25^\circ\text{C}$  unless otherwise noted)

FIG.1-FORWARD CURRENT DERATING CURVE

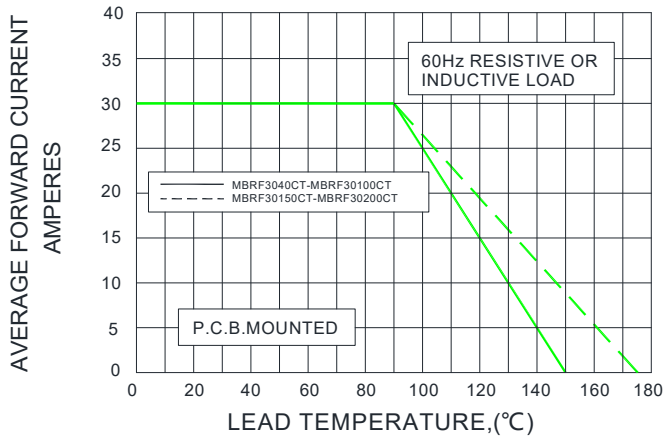


FIG.2-MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT

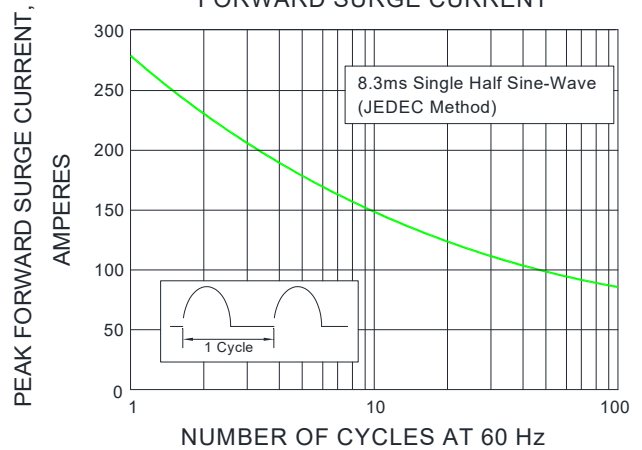


FIG.3-TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS

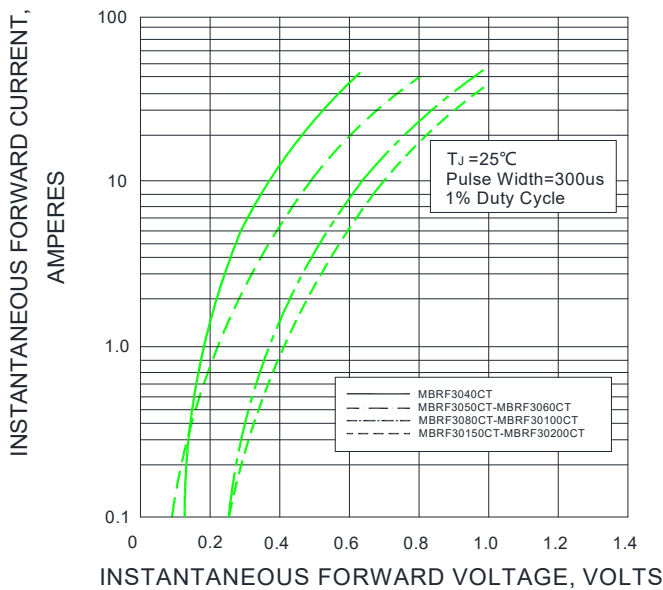


FIG.4-TYPICAL REVERSE CHARACTERISTICS

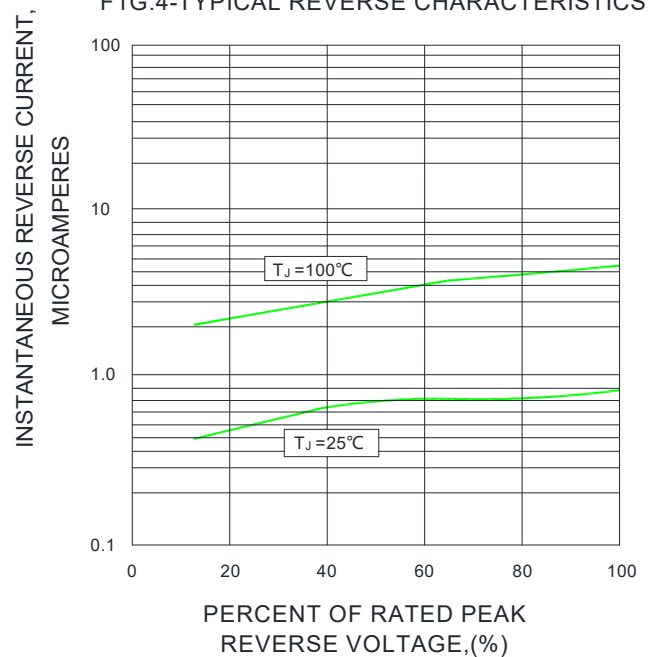
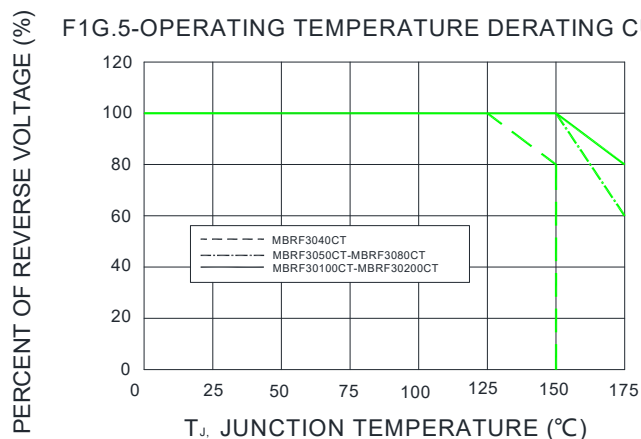


FIG.5-OPERATING TEMPERATURE DERATING CURVE





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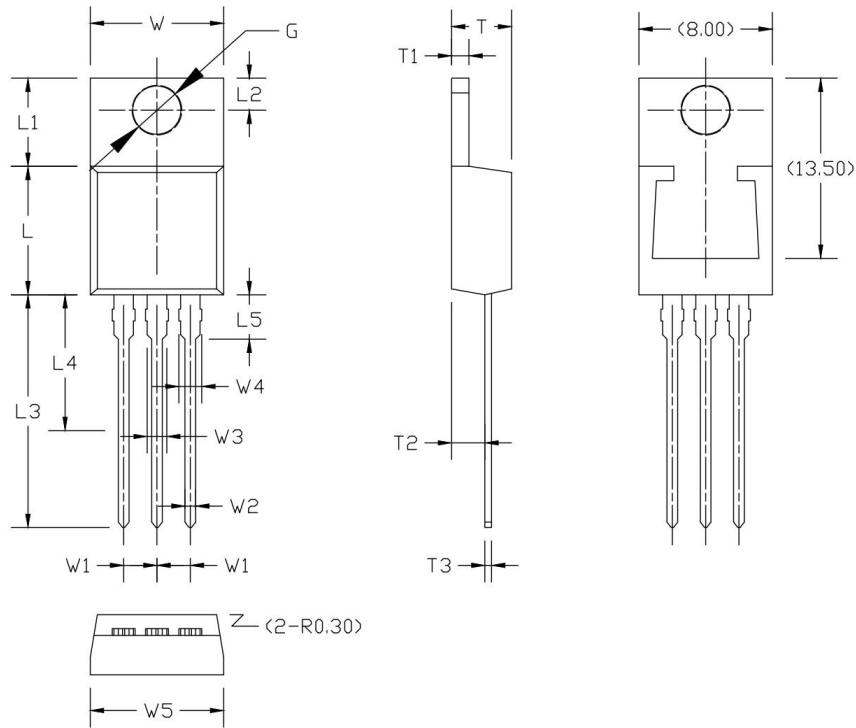
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CURRENT

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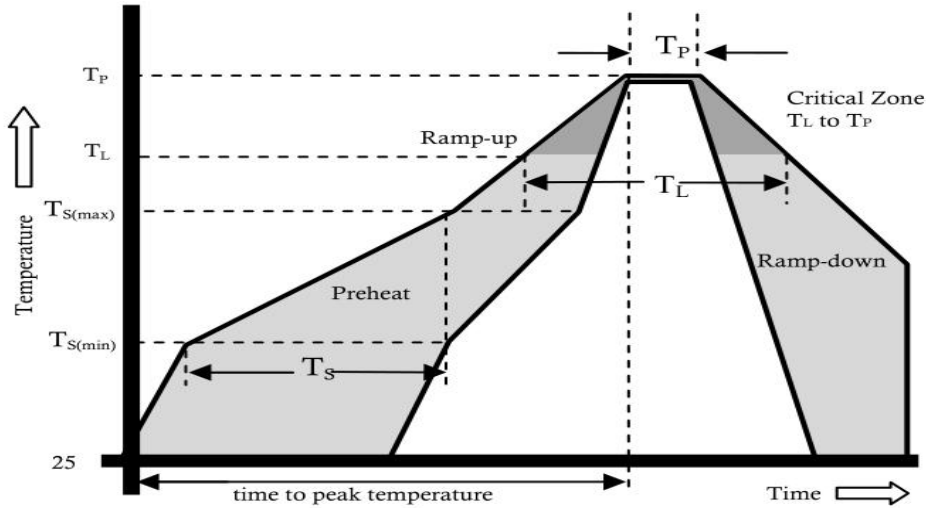
### Package Outline Dimensions millimeters



Symbol	Size		Symbol	Size		Symbol	Size		Symbol	Size	
	Min	Max		Min	Max		Min	Max		Min	Max
W	9.66	10.28	W5	9.80	10.20	L4	6.60	7.10	T3	0.35	0.45
W1	2.54 (TYP)		L	8.30	9.00	L5	3.69	4.10	G(Φ)	3.70	3.90
W2	0.70	0.95	L1	6.10	6.60	T	4.30	4.70			
W3	1.17	1.37	L2	2.70	2.90	T1	1.15	1.40			
W4*	1.32	1.72	L3	12.70	14.27	T2	2.20	2.80			



Reflow Profile



Reflow Condition		Pb-Free Assembly
Pre Heat	Temperature Min.	+150°C
	Temperature Max.	+200°C
	Time(Min to Max)	60-180 secs.
Average ramp up rate(Liquidus Temp( $T_L$ ) to peak)		3°C/sec. Max.
$T_{S(max)}$ to $T_L$ - Ramp-up Rate		3°C/sec. Max.
Reflow	Temperature ( $T_L$ (Liquidus))	+217°C
	Temperature ( $T_L$ )	60-150 secs.
Peak Temp ( $T_p$ )		+(260+0/-5)°C
Time within 5°C of actual Peak Temp ( $T_p$ )		25 secs.
Ramp-down Rate		6°C/sec. Max.
Time 25°C to peak Temp ( $T_p$ )		8 min. Max.
Do not exceed		+260°C



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## Disclaimer

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