

# MBR1020CT/FCT/CD THRU MBR10200CT/FCT/CD



## SCHOTTKY RECTIFIERS

**VOLTAGE** 20~200Volts **CURRENT** 10 Ampers **TO-220AB/ITO-220AB/TO-263** Unit:(mm)

### FEATURES

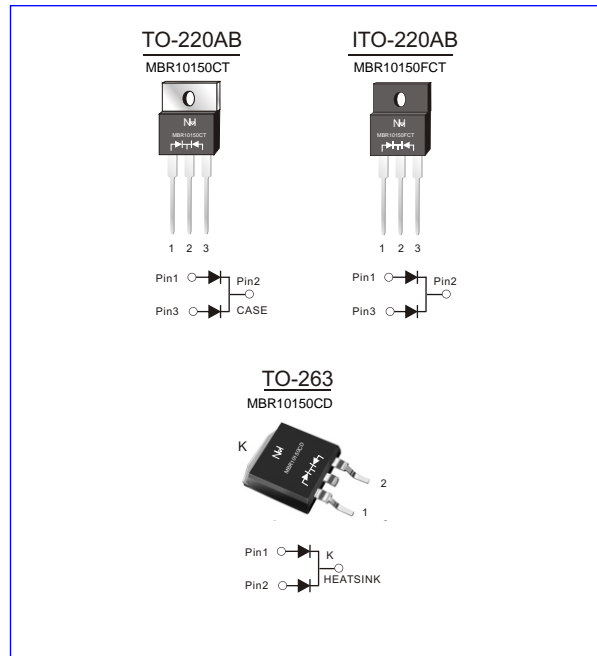
- Power pack
- Metal silicon junction ,majority carrier conduction
- Guard ring for overvoltage protection
- Low power loss ,high efficiency
- High current capability ,low forward voltage drop
- High forward surge capability
- High frequency operation
- Meets MSL Level 1, per J-STD-020, LF MAX peak of 245°C (for TO-263 package)
- Solder bath temperature 275°C maximum, 10s, per JESD22-B106 (for TO-220AB and ITO-220AB package)
- Component in accordance to RoHS 2011/65/EU

### MECHANICAL DATA

- Case: JEDEC TO-220AB、 ITO-220AB、 TO-263
- Molding compound meets UL94V-0 flammability rating
- Terminals: Lead solderable per J-STD-002 and JESD22-B102
- Polarity: As marked
- Mounting Torque: 10 in-lbs maximum

### TYPICAL APPLICATIONS

For use in low voltage ,high frequency inverters ,DC/DC converters, free wheeling ,and polarity protection applications



## Maximum Ratings and Electrical Characteristics

(Ratings at 25°C ambient temperature unless otherwise specified )

	Symbols	MBR 1020CT /FCT /CD	MBR 1030CT /FCT /CD	MBR 1040CT /FCT /CD	MBR 1050CT /FCT /CD	MBR 1060CT /FCT /CD	MBR 1080CT /FCT /CD	MBR 10100CT /FCT /CD	MBR 10150CT /FCT /CD	MBR 10200CT /FCT /CD	Units	
Maximum repetitive peak reverse voltage	V <sub>RRM</sub>	20	30	40	50	60	80	100	150	200	Volts	
Maximum RMS voltage	V <sub>RMS</sub>	14	21	28	35	42	56	70	105	140	Volts	
Maximum DC blocking voltage	V <sub>DC</sub>	20	30	40	50	60	80	100	150	200	Volts	
Maximum average forward rectified current(see Fig.1)	I(AV)	5.0					10.0					Amps
Peak forward surge current 8.3ms single half sine-wave superimposed on rated load (JEDEC method)	I <sub>FSM</sub>	150.0										Amps
Maximum instantaneous forward voltage at 10.0 A	V <sub>F</sub>	0.70			0.75		0.80		0.90		Volts	
Maximum instantaneous reverse current at rated DC blocking voltage(Note 1)	T <sub>c</sub> = 25°C	0.05										mA
	T <sub>c</sub> = 125°C	20										
Operating junction temperature range	T <sub>J</sub>	-65 to +150										°C
Storage temperature range	T <sub>STG</sub>	-65 to +150										°C

Notes: 1.Pulse test: 300 μs pulse width,1% duty cycle

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### RATING AND CHARACTERISTIC CURVES

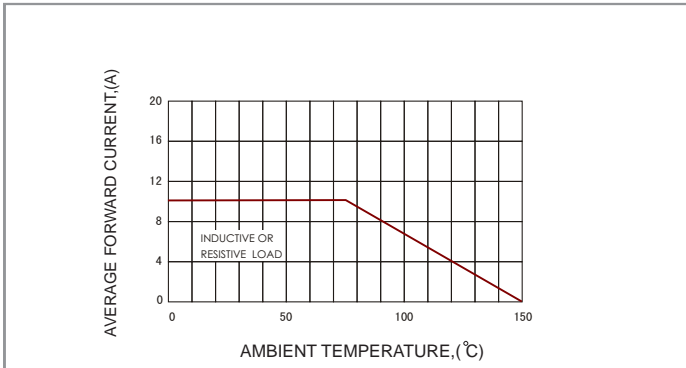


Fig. 1 FORWARD CURRENT DERATING CURVE

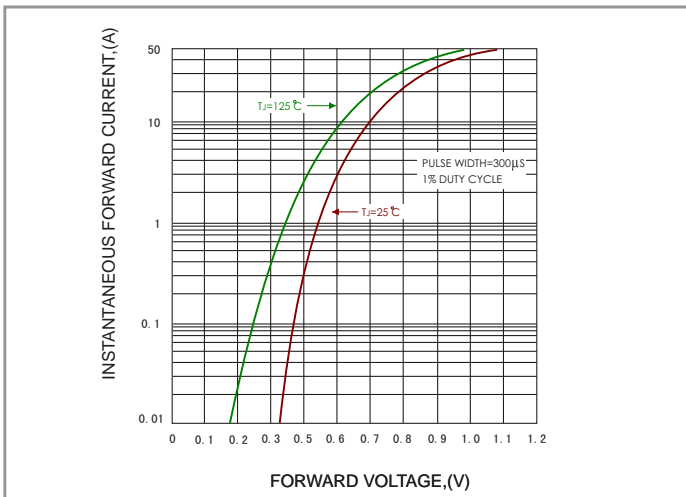


Fig. 2-TYPICAL INSTANTANEOUS FORWARD

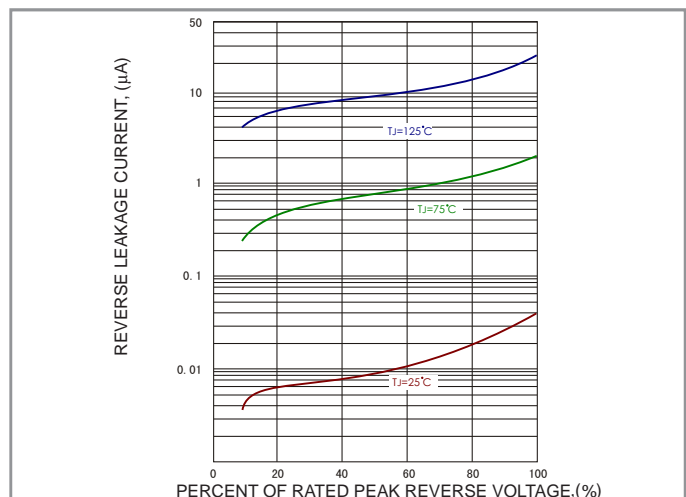


Fig.3 TYPICAL REVERSE CHARACTERISTICS

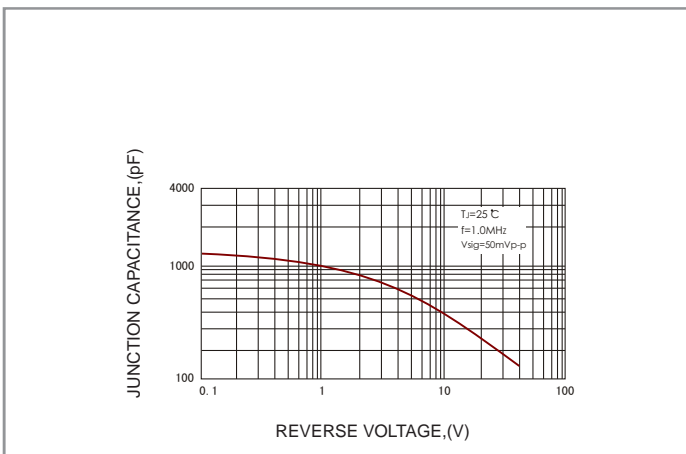


Fig.4 TYPICAL JUNCTION CAPACITANCE

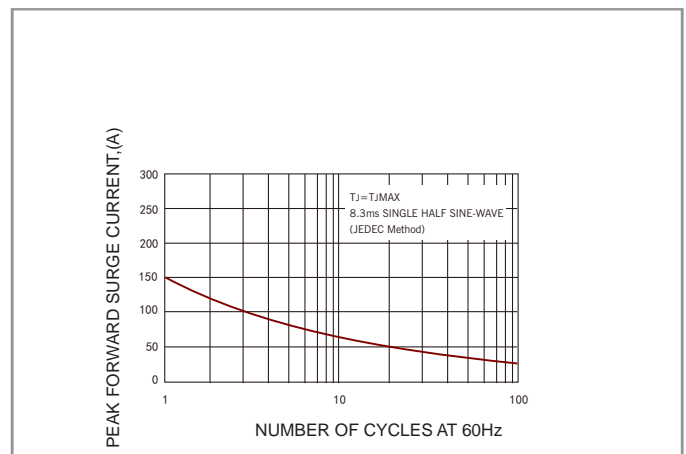


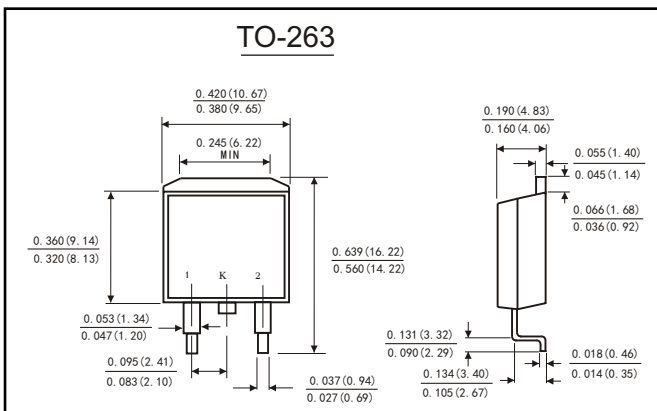
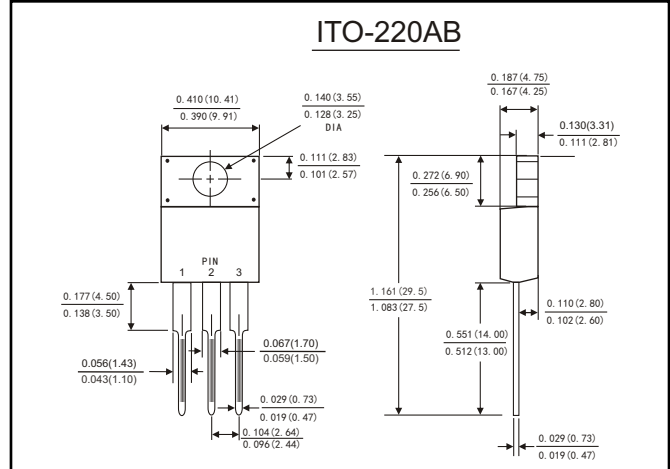
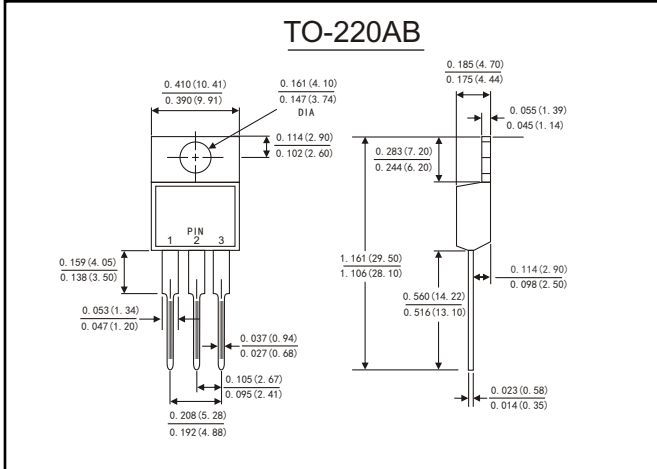
Fig.5- MAXIMUM NON - REPETITIVE SURGE CURRENT

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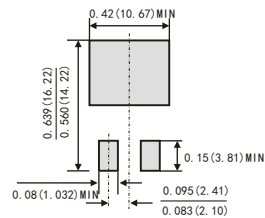
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### OUTLINE DRAWINGS



### Suggested Pad Layout

(TO-263)



### • Thermal Characteristics (Ratings at 25°C ambient temperature unless otherwise specified)

Parameter	Symbol	TO-220AB	ITO-220AB	TO-263	Unit
Typical thermal resistance <sup>2)</sup>	R <sub>θjc</sub>	2.5	4.5	2.5	°C/W

2. Thermal resistance from junction to case

### • Packing Information

Product code	Pack	Box Size L×W×H (mm)	Quantity (pcs/box)	Carton Size L×W×H (mm)	Quantity (box/carton)
TO-220AB	P/T	550×150×40	1000	580×230×175	5
ITO-220AB	P/T	550×150×40	1000	580×230×175	5
TO-263	P/T	550×150×40	1000	580×230×175	5

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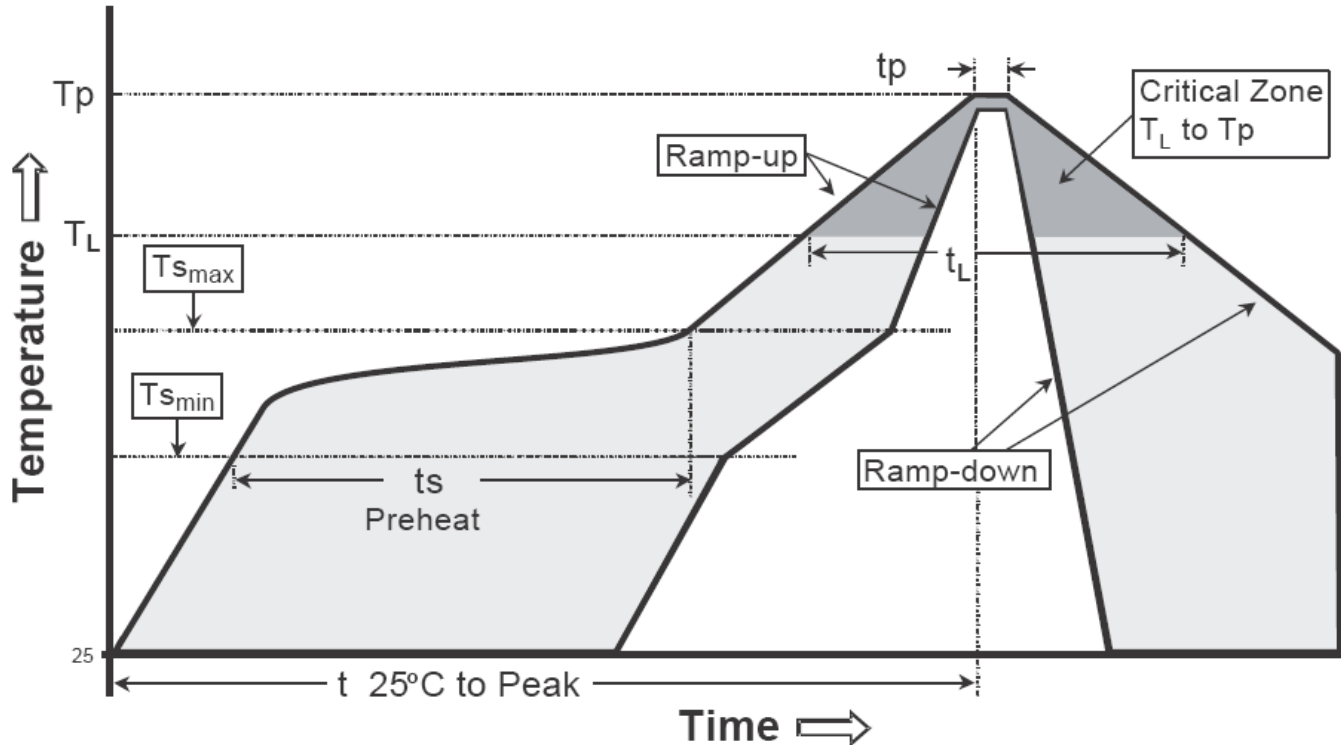
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## Recommended wave soldering condition

Product	Peak Temperature	Soldering Time
Pb-free devices	260 +0/-5 °C	5 +1/-1 seconds

## Recommended temperature profile for IR reflow



Profile feature	Sn-Pb eutectic Assembly	Pb-free Assembly
Average ramp-up rate (Tsmax to Tp)	3°C/second max.	3°C/second max.
Preheat		
-Temperature Min( $T_s$ min)	100°C	150°C
-Temperature Max( $T_s$ max)	150°C	200°C
-Time( $t_{s_{min}}$ to $t_{s_{max}}$ )	60-120 seconds	60-180 seconds
Time maintained above:		
-Temperature ( $T_L$ )	183°C	217°C
- Time ( $t_L$ )	60-150 seconds	60-150 seconds
Peak Temperature( $T_P$ )	240 +0/-5 °C	260 +0/-5 °C
Time within 5°C of actual peak temperature( $t_p$ )	10-30 seconds	20-40 seconds
Ramp down rate	6°C/second max.	6°C/second max.
Time 25 °C to peak temperature	6 minutes max.	8 minutes max.

Note : All temperatures refer to topside of the package, measured on the package body surface.

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