

MBR2020CT/FCT/CD THRU MBR20200CT/FCT/CD



SCHOTTKY RECTIFIERS

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

FEATURES

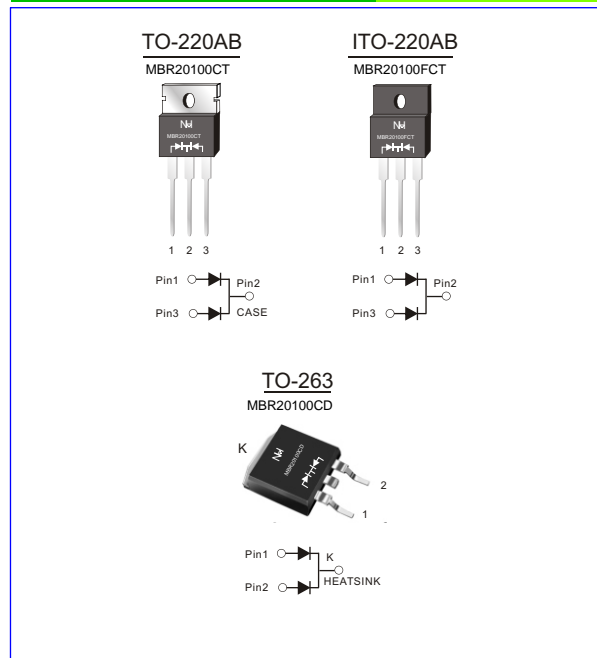
- Power pack
- Metal silicon junction ,majority carrier conduction
- Guard ring for overvoltage protection
- Low power loss ,high efficiency
- High current capability ,low forward voltage drop
- High forward surge capability
- High frequency operation
- Meets MSL Level 1, per J-STD-020, LF MAX peak of 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 2020CT /FCT /CD	MBR 2030CT /FCT /CD	MBR 2040CT /FCT /CD	MBR 2050CT /FCT /CD	MBR 2060CT /FCT /CD	MBR 2080CT /FCT /CD	MBR 20100CT /FCT /CD	MBR 20150CT /FCT /CD	MBR 20200CT /FCT /CD	Units	
Maximum repetitive peak reverse voltage	V _{RRM}	20	30	40	50	60	80	100	150	200	Volts	
Maximum RMS voltage	V _{RMS}	14	21	28	35	42	56	70	105	140	Volts	
Maximum DC blocking voltage	V _{DC}	20	30	40	50	60	80	100	150	200	Volts	
Maximum average forward rectified current(see Fig.1)	I <sub(av)< sub=""></sub(av)<>	Per leg									Amps	
		Total device										
Peak forward surge current 8.3ms single half sine-wave superimposed on rated load (JEDEC method)	I _{FSM}	10.0 20.0									Amps	
Maximum instantaneous forward voltage at 20.0 A	V _F	0.60			0.75		0.85		0.90		0.95	Volts
Maximum instantaneous reverse current at rated DC blocking voltage(Note 1)	I _R	T _c = 25°C									mA	
		30			50							
Typical thermal resistance (Note 2)	R _{θJC}	3.0									°C/W	
Operating junction temperature range	T _J	-65 to +150									°C	
Storage temperature range	T _{STG}	-65 to +150									°C	

Notes: 1.Pulse test: 300 μs pulse width,1% duty cycle
2.Pulse test: pulse width ≤ 40ms

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RATING AND CHARACTERISTIC CURVES

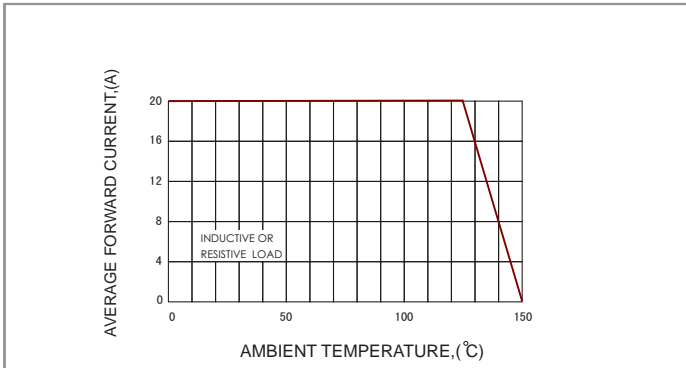


Fig. 1 FORWARD CURRENT DERATING CURVE

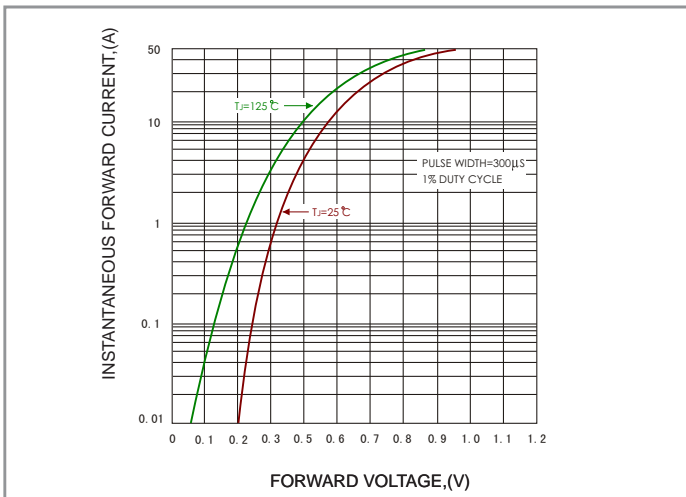


Fig. 2-TYPICAL INSTANTANEOUS FORWARD

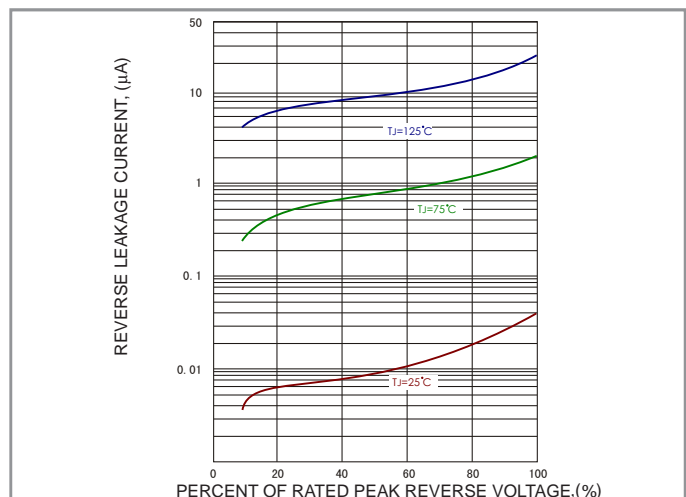


Fig.3 TYPICAL REVERSE CHARACTERISTICS

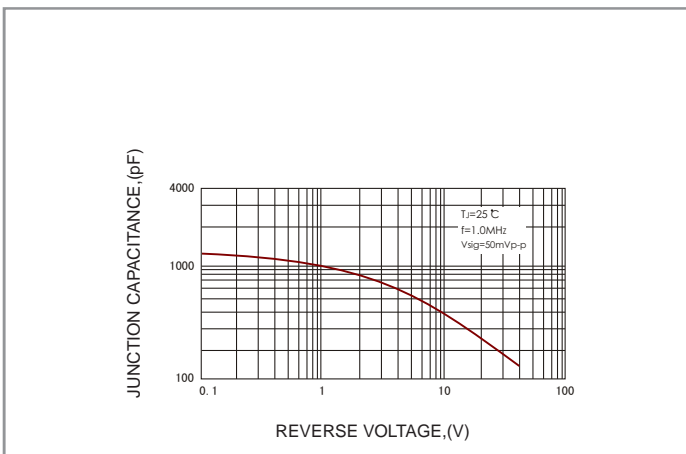


Fig.4 TYPICAL JUNCTION CAPACITANCE

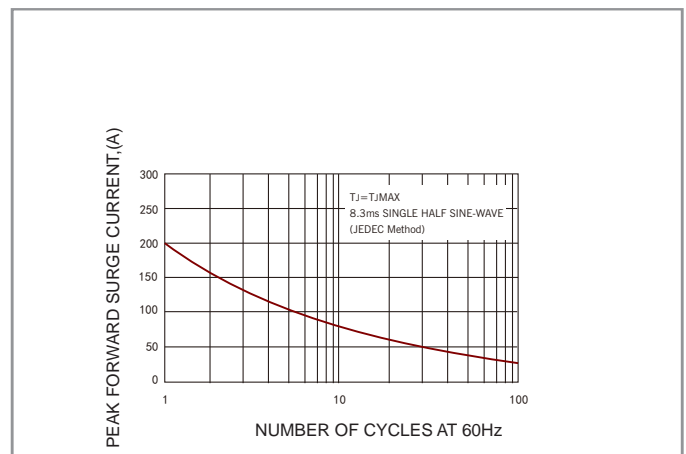


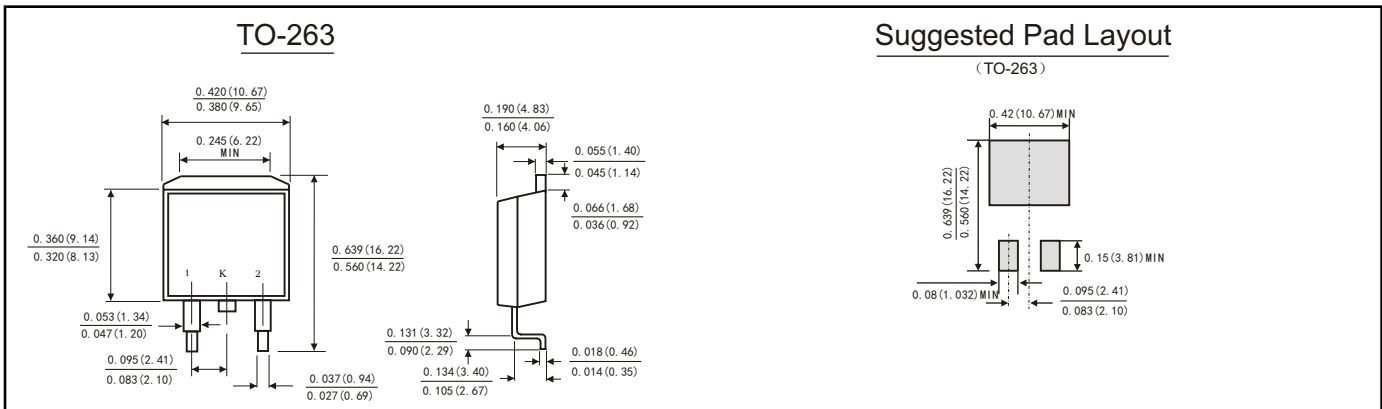
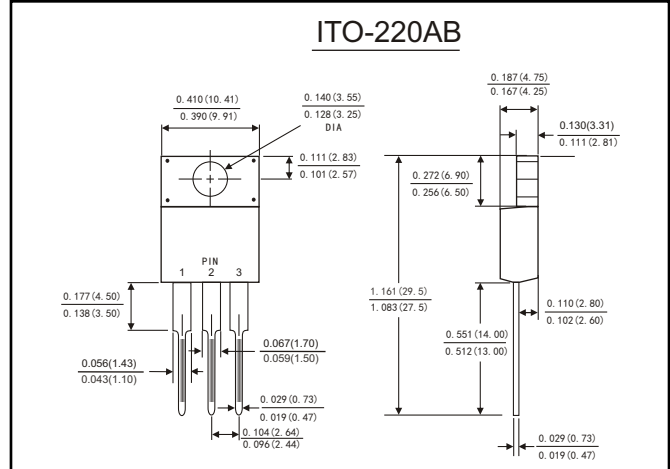
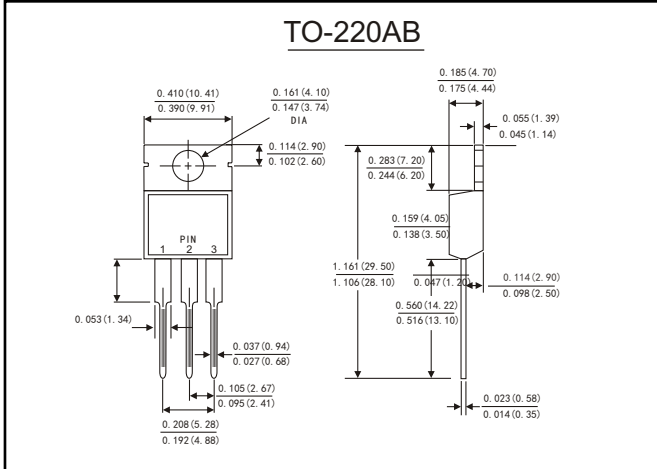
Fig.5- MAXIMUM NON - REPETITIVE SURGE CURRENT

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OUTLINE DRAWINGS



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

Parameter	Symbol	TO-220AB	ITO-220AB	TO-263	Unit
Typical thermal resistance ³⁾	R _{θjc}	2.5	4.5	2.5	°C/W

3. 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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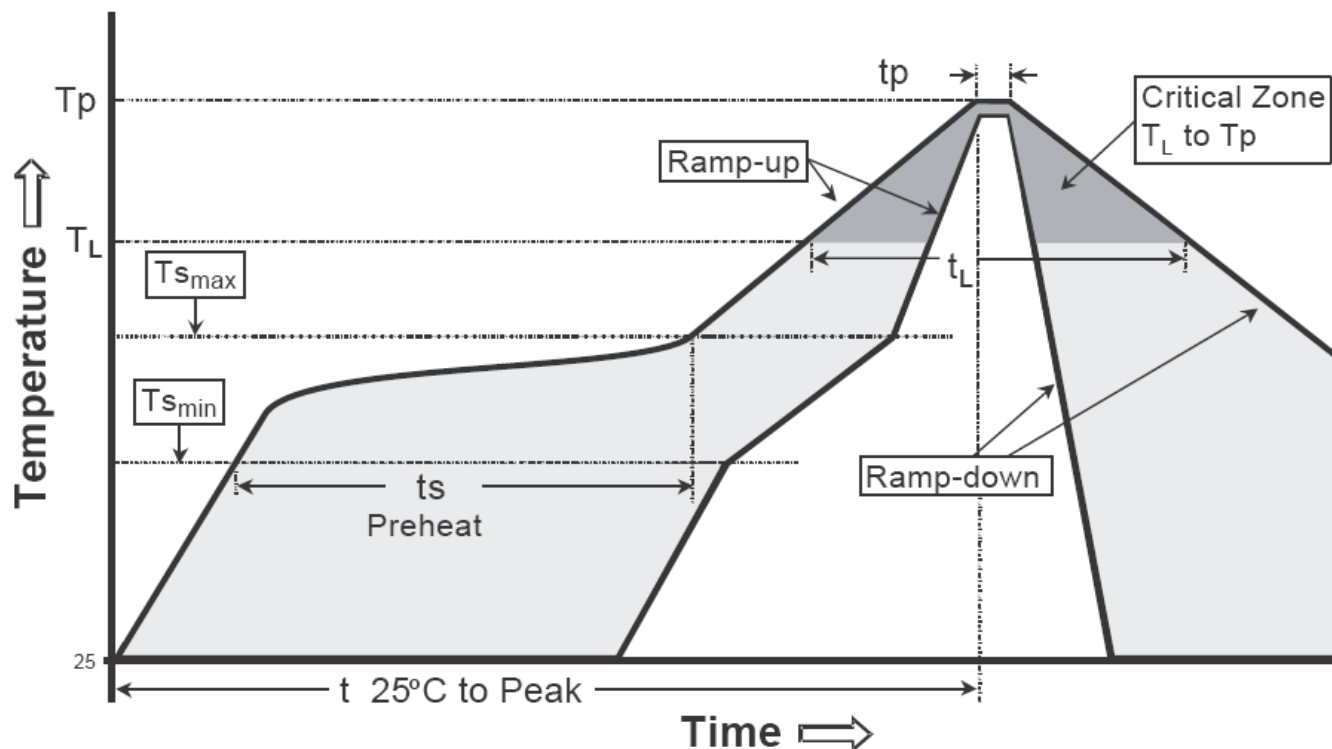


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Recommended wave soldering condition

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(Ts min)	100°C	150°C
-Temperature Max(Ts max)	150°C	200°C
-Time(ts min to ts max)	60-120 seconds	60-180 seconds
Time maintained above:		
-Temperature (TL)	183°C	217°C
- Time (tL)	60-150 seconds	60-150 seconds
Peak Temperature(TP)	240 +0/-5 °C	260 +0/-5 °C
Time within 5°C of actual peak temperature(tp)	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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