

MBR20L100CT, MBR20L100FCT
SCHOTTKY BARRIER RECTIFIERS



VOLTAGE: 100 Volts **CURRENT:** 20.0 Amperes

FEATURES

- Low forward voltage drop for high efficiency
- Low power loss for high reliability
- High forward surge capability for high reliability
- High frequency operation
- Solder bath temperature 260°C maximum, 10s, per JESD22-B106
- Component in accordance to RoHS 2011/65/EU

MECHANICAL DATA

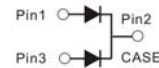
- **Terminals:** Plated Leads Solderable per MIL-STD-202, Method 208
- **Mounting Position:** Any
- **Lead Free:** Lead Free Finish, RoHS Compliant
- **Polarity:** As marked

TYPICAL APPLICATIONS

- For use in high frequency inverters ,
AC/DC converters, LED driver etc. applications

Marking and Polarity

TO-220AB
MBR20L100CT



TO-220F
MBR20L100FCT



Remark:

- ①. NH=niuhang trademark;
- ②. FF=Product line code, According to actual changes
YWW=Date code, According to actual changes
EDDQK=Internal code, According to actual changes
- ③. MBR20L100CT/FCT=Model.

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

Parameter	Symbol	MBR20L100CT, MBR20L100FCT	Unit
Maximum repetitive peak reverse voltage	V_{RRM}	100	V
Maximum average forward rectified current (see fig.1)	$I_{F(AV)}$	20	A
Peak forward surge current 8.3ms single half sine-wave superimposed on rated load (JEDEC method at rated TL)	I_{FSM}	160	A
Peak repetitive reverse current per diode at $t_p=2\mu s$ 1KHz	I_{RRM}	50	μA
Maximum Mounting torque, M3 screw	T_{MM}	1.1	N.m

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

Parameter	Test Conditions	Symbol	MBR20L100CT, MBR20L100FCT			Unit
			Min.	Typ.	Max.	
Instantaneous forward voltage per diode (note1)	$T_A=25^\circ C$ $I_F=10A$	V_F	--	0.67	0.72	V
	$T_A=125^\circ C$		--	0.61	0.66	
Reverse current per diode (note1)	$T_A=25^\circ C$ $V_R=V_{RRM}$	I_R	--	20	50	μA
	$T_A=125^\circ C$ $V_R=80\%V_{RRM}$		--	1	5	mA
Typical junction capacitance	1V, 10KHz	C_J	--	750	--	pF

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

Parameter	Symbol	MBR20L100CT, MBR20L100FCT		Unit
Operating junction	T_J	-55	to 150	$^\circ C$
Storage temperature range	T_{STD}	-55	to 150	
Typical thermal resistance (note3)	$R_{\theta JC}$	TO-220AB	TO-220F	$^\circ C/W$
		2.5	4.5	

- Notes:
1. Pulse test: 300 μs pulse width, 1% duty cycle
 2. Device mounted on Device mounted on 75mm x 45mm x 2.5mm Aluminum Plate Heatsink.

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RATING AND CHARACTERISTIC CURVES

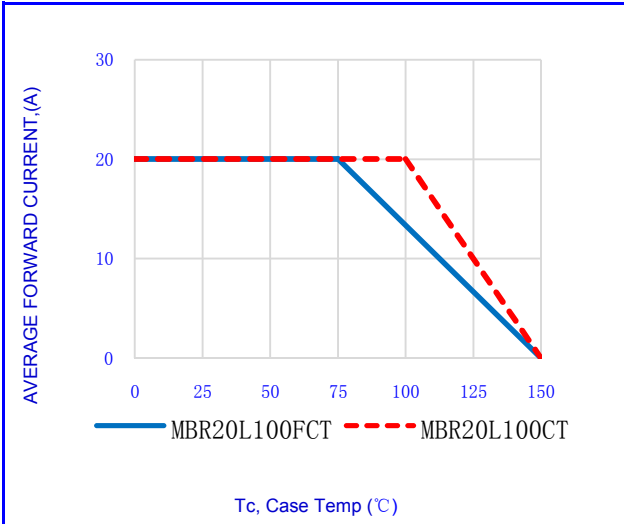


Fig.1-FORWARD CURRENT DERATING CURVE

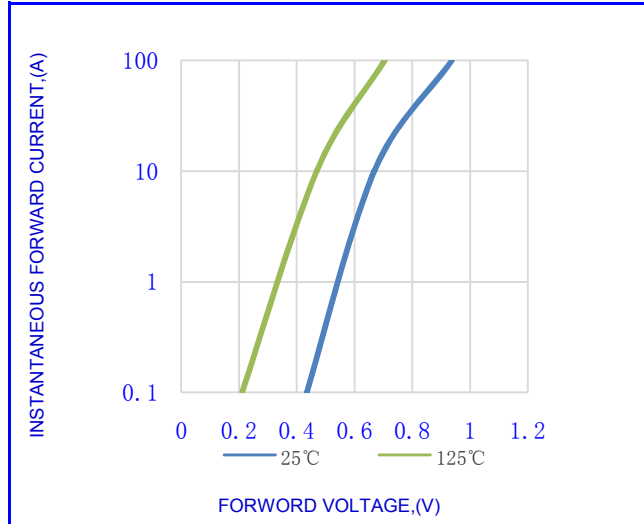


Fig.2- TYPICAL INSTANTANEOUS FORWARD

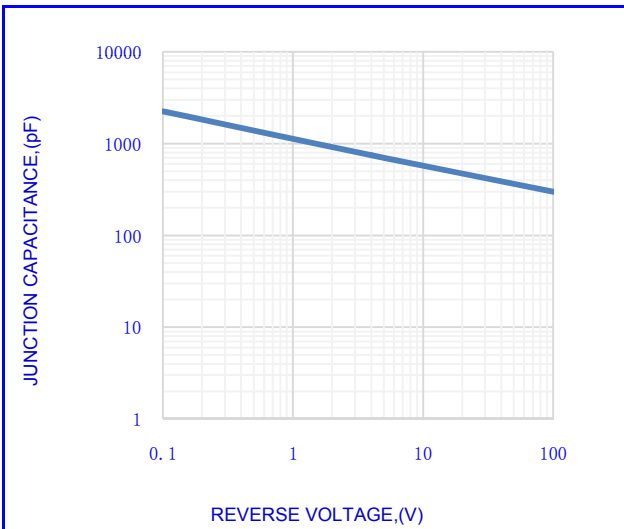


Fig.3- TYPICAL JUNCTION CAPACITANCE

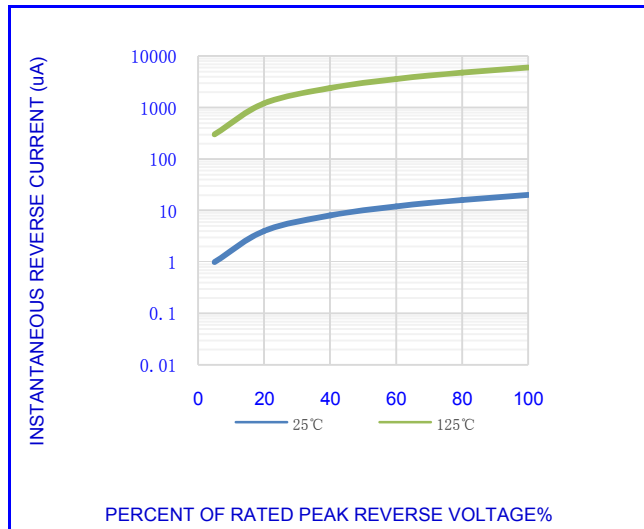


Fig.4- TYPICAL REVERSE CHARACTERISTICS

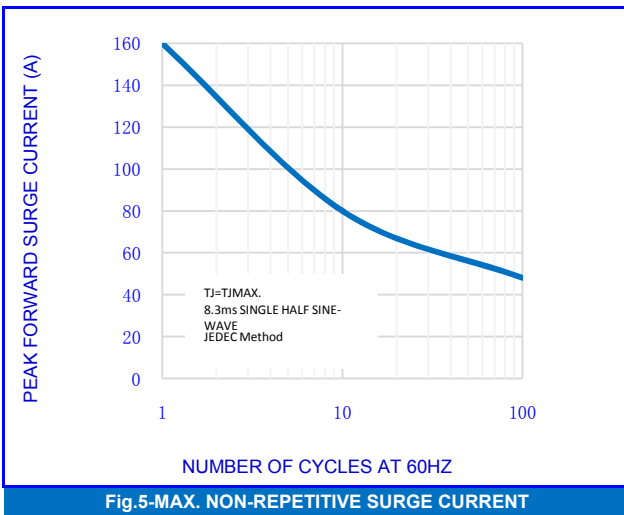


Fig.5-MAX. NON-REPETITIVE SURGE CURRENT

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PACKING INFORMATION																																																																																																																													
Package Code	Package Method	Tube Size L×W×H(mm)	Quantity (pcs/Tube)	Inner Box Size L×W×H(mm)	Quantity (pcs/Inner Box)	Outer Carton Size L×W×H(mm)	Quantity (pcs/carton)																																																																																																																						
TO-220AB	Tube	530x35x8	50	560x155x55	1000	570×284×185	5000																																																																																																																						
TO-220F	Tube	530x35x8	50	560x155x55	1000	570×284×185	5000																																																																																																																						

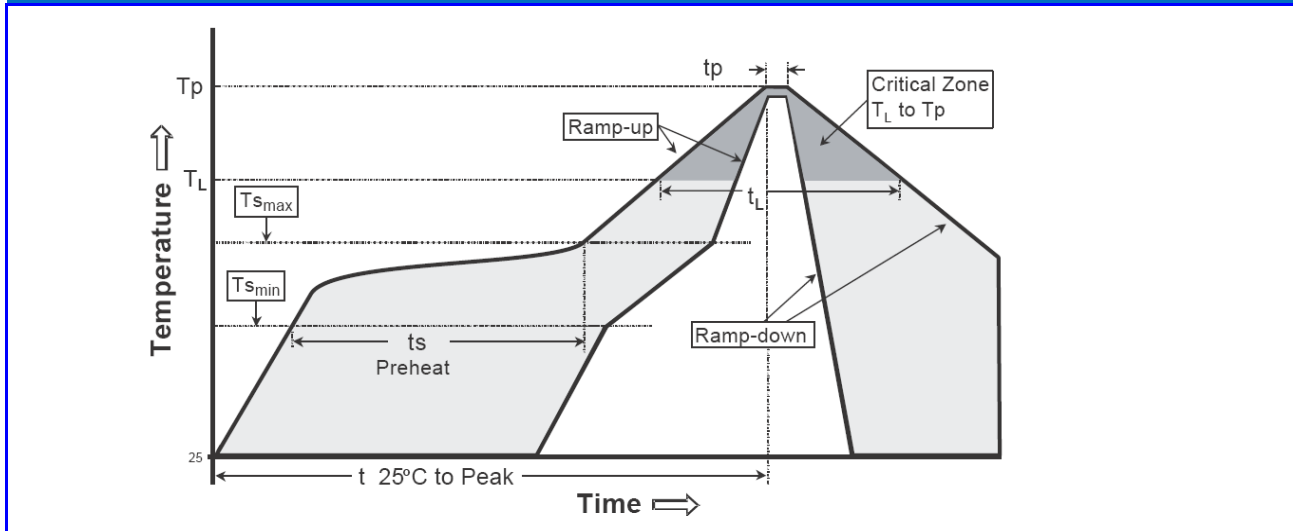
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Recommended wave soldering condition

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 (Tsmmax to Tp)	3°C/second max.	3°C/second max.
Preheat -Temperature Min(TS min) -Temperature Max(TS max) -Time(ts min to ts max)	100°C 150°C 60-120 seconds	150°C 200°C 60-180 seconds
Time maintained above: -Temperature (TL) - Time (tL)	183°C 60-150 seconds	217°C 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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