

**MBR20100DCT/MBR20100DFCT**  
SCHOTTKY BARRIER RECTIFIERS



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

**Marking and Polarity**

**FEATURES**

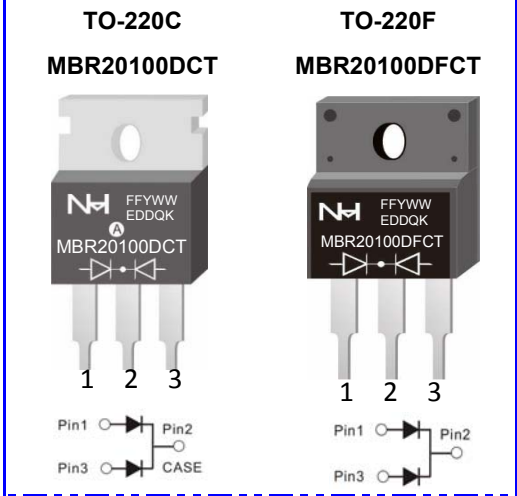
- Low forward voltage drop for high efficiency
- Low power loss for high reliability
- High forward surge capability for high reliability
- High frequency operation
- Solder bath temperature 260°C maximum,10s,per JESD22-B106
- Component in accordance to RoHS 2011/65/EU

**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 c



**Remark:**

- ①. NH=niuhang trademark;
- ②. FF=Product line code,According to actual changes  
YWW=Date code,According to actual changes  
EDDQK=Inernal code,According to actual changes
- ③. MBR20100DCT/FCT=Modle.

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

Parameter	Symbol	MBR20100DCT/MBR20100DFCT	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	$I_{RRM}$	5	uA
Isolation voltage(TO-220F only)from terminals to heatsink $t=1$ min	$V_{AC}$	1500	V

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

Parameter	Test Conditions	Symbol	MBR20100DCT/MBR20100DFCT			Unit
			Min.	Typ.	Max.	
Instaneous forward voltage per diode (note1)	$T_A=25^\circ C$ $I_F= 10$ A	$V_F$	--	0.83	0.90	V
	$T_A=125^\circ C$		--	0.78	0.85	
Reverse current per diode (note1)	$T_A=25^\circ C$ $V_R= V_{RRM}$	$I_R$	--	1	5	uA
	$T_A=125^\circ C$ $V_R= 80\%*V_{RRM}$		--	2	5	mA
Typical junction capacitance	4V,1MHz	$C_J$	--	400	--	pF

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

Parameter	Symbol	MBR20100DCT/MBR20100DFCT		Unit
Operating junction	$T_J$	-55 to 150		°C
Storage temperature range	$T_{STD}$	-55 to 150		
Typical thermal resistance (note3)	$R_{\theta JC}$	TO-220AB	TO-220F	°C/W
		2.5	4.5	

Notes: 1. Pulse test: 300  $\mu s$  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**

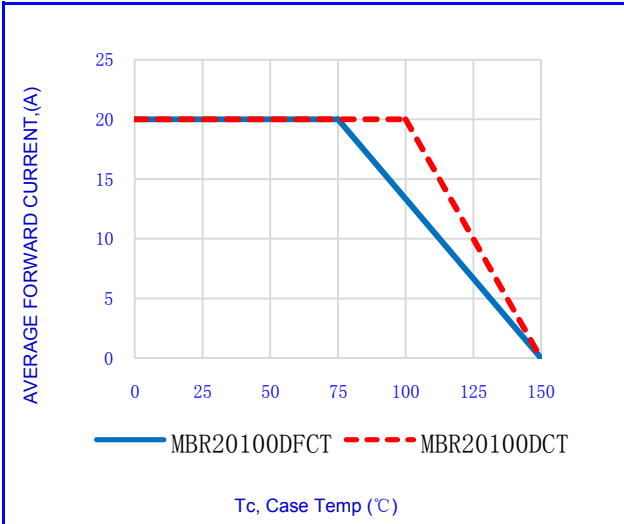


Fig.1-FORWARD CURRENT DERATING CURVE

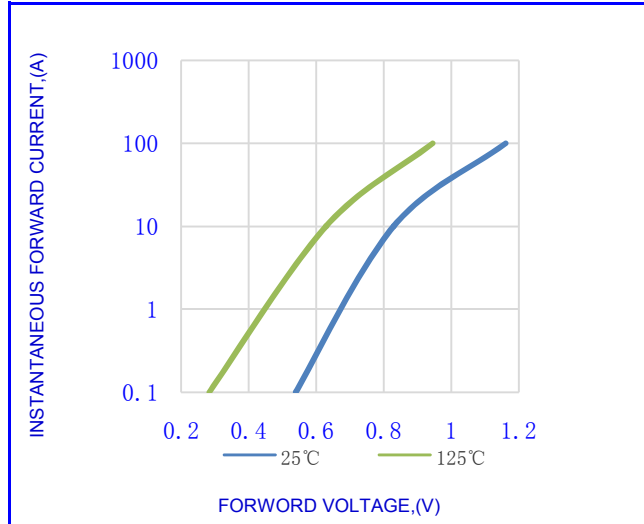


Fig.2- TYPICAL INSTANTANEOUS FORWARD

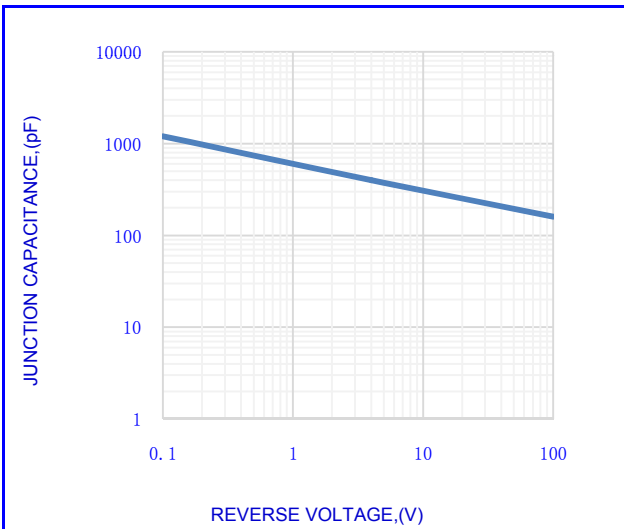


Fig.3- TYPICAL JUNCTION CAPACITANCE

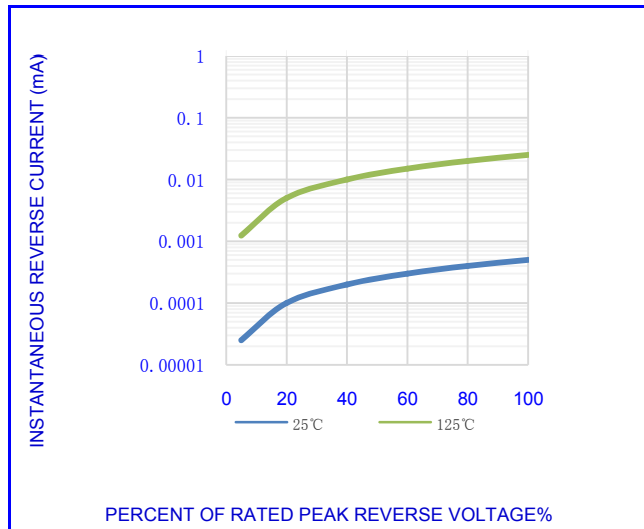


Fig.4- TYPICAL REVERSE CHARACTERISTICS

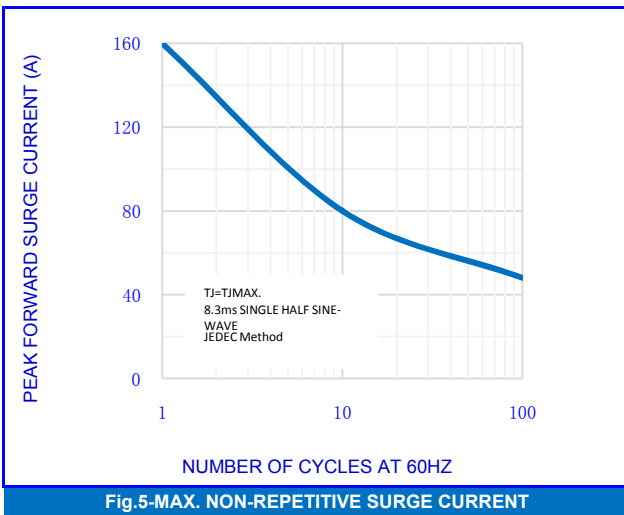


Fig.5-MAX. NON-REPETITIVE SURGE CURRENT

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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-220C	Tube	530x35x8	50	560x155x55	1000	570×284×185	5000
TO-220F	Tube	530x35x8	50	560x155x55	1000	570×284×185	5000

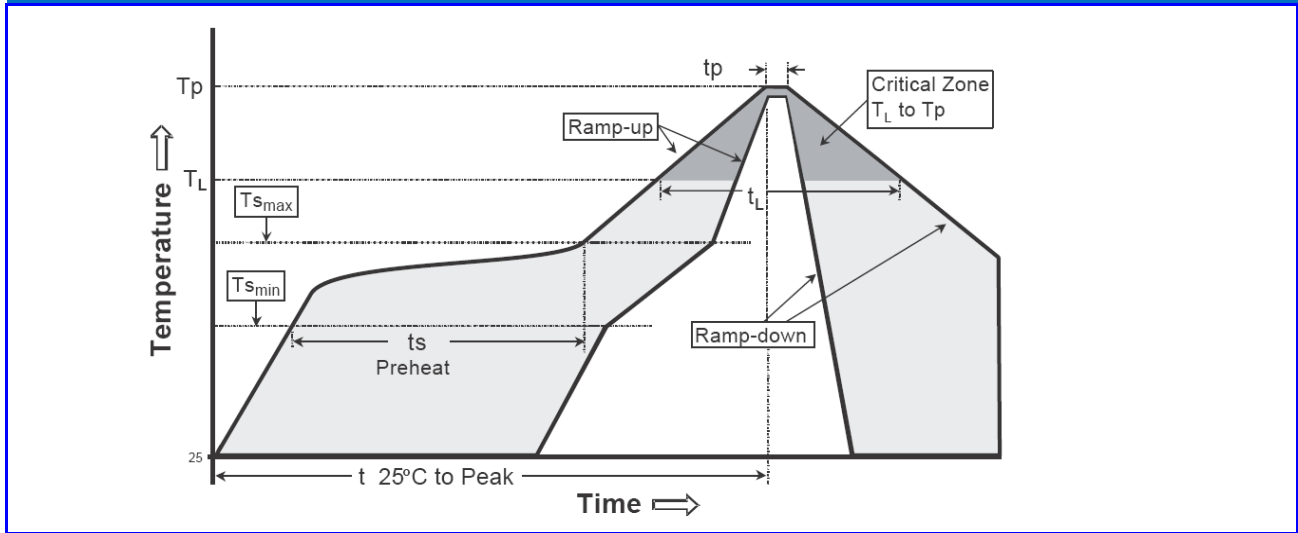
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**Recommended wave soldering condition**

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 (T <sub>smax</sub> to T <sub>p</sub> )	3°C/second max.	3°C/second max.
Preheat -Temperature Min(T <sub>s min</sub> ) -Temperature Max(T <sub>s max</sub> ) -Time(t <sub>s min</sub> to t <sub>s max</sub> )	100°C 150°C 60-120 seconds	150°C 200°C 60-180 seconds
Time maintained above: -Temperature (T <sub>L</sub> ) - Time (t <sub>L</sub> )	183°C 60-150 seconds	217°C 60-150 seconds
Peak Temperature(T <sub>P</sub> )	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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