

MBR2020DCT/DFCT THRU MBR20200DCT/DFCT
SCHOTTKY RECTIFIERS



VOLTAGE 20~200 Volts **CURRENT** 20 Amperes **Marking**

FEATURES

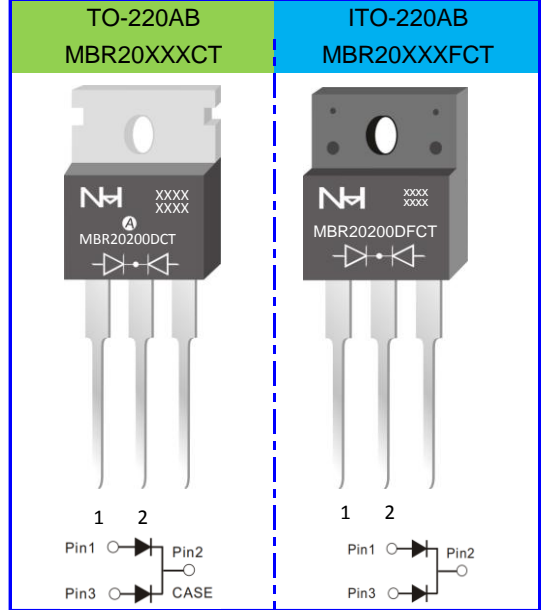
- Power pack
- Metal silicon junction ,majority carrier conduction
- Guard ring for overvoltage protection
- Low power loss ,high efficiency
- High current capability ,low forward voltage drop
- High forward surge capability
- High frequency operation
- Solder bath temperature 275℃ maximum, 10s, per JESD22-B106 (for TO-220AB and ITO-220AB package)
- Component in accordance to RoHS 2011/65/EU

MECHANICAL DATA

- Case: JEDEC TO-220AB、TO-220F
- 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℃ ambient temperature unless otherwise specified)

Parameter	Symbol	MBR 2040	MBR 2045	MBR 2060	MBR 2080	MBR 20100	MBR 20120	MBR 20150	MBR 20200	Unit		
		DCT/DFCT	DCT/DFCT	DCT/DFCT	DCT/DFCT	DCT/DFCT	DCT/DFCT	DCT/DFCT	DCT/DFCT			
Maximum repetitive peak reverse voltage	V_{RRM}	40	45	60	80	100	120	150	200	V		
Maximum RMS voltage	V_{RMS}	28	32	42	56	70	85	105	140	V		
Maximum DC blocking voltage	V_{DC}	40	45	60	80	100	120	150	200	V		
Maximum average forward rectified current (see fig.1)	$I_{F(AV)}$	Per leg								A		
		Total device										
Peak forward surge current 8.3ms single half sine-wave superimposed on rated load (JEDEC method at rated TL) Per leg	I_{FSM}	150								A		
Maximum instantaneous forward voltage at 10.0 A per leg	V_F	0.6	0.75	0.85	0.9	0.92				V		
Maximum instantaneous reversecurrent at rated DC blocking voltage(Note 1)	I_{RRM}	0.2								mA		
		15	10	5								
Operating junction and Storage temperature range	T_J	125								150	175	℃
Storage temperature range	T_{STG}	-65 to +125		-65 to +150			-65 to +175					

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

Parameter	Symbol	TO-220AB	ITO-220AB	Unit
Typical thermal resistance(Note 2)	$R_{\theta JC}$	2.5	4.5	℃/W

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

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RATING AND CHARACTERISTIC CURVES

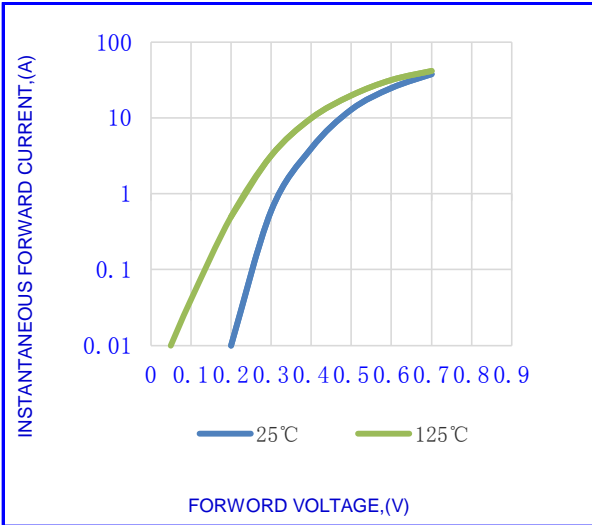


Fig.1-TYPICAL INSTANTANEOUS FORWARD

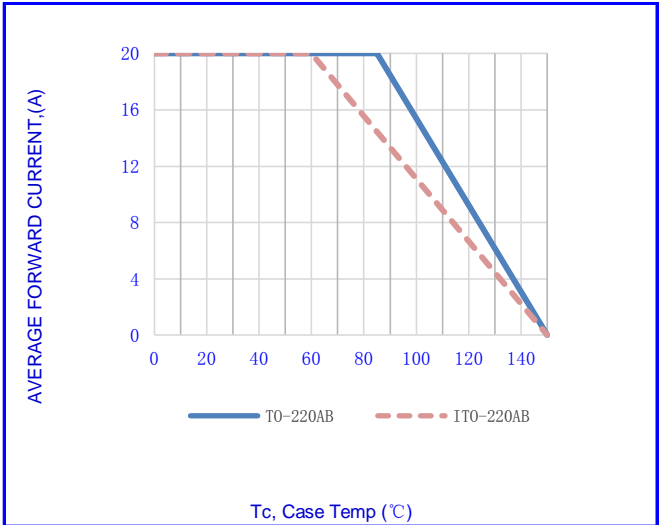


Fig.2- FORWARD CURRENT DERATING CURVE

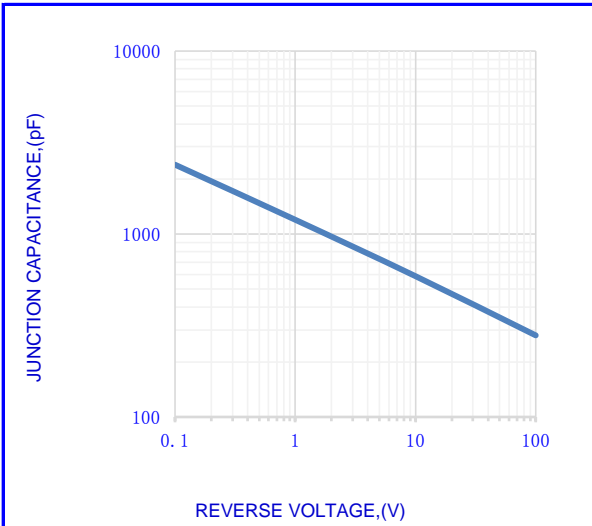


Fig.3- TYPICAL JUNCTION CAPACITANCE

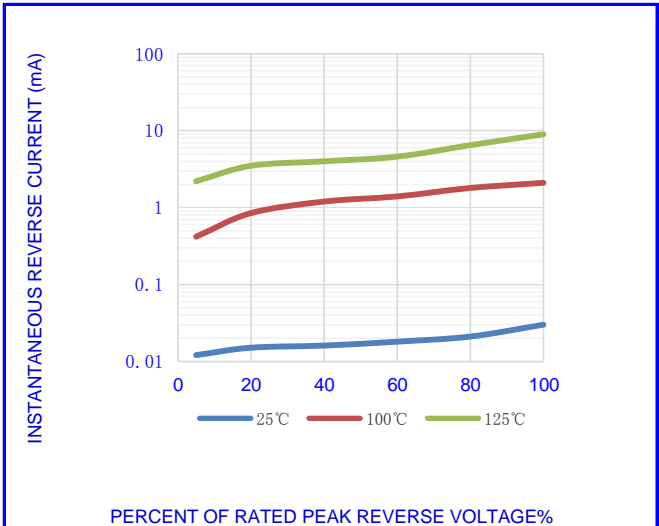


Fig.4- TYPICAL REVERSE CHARACTERISTICS

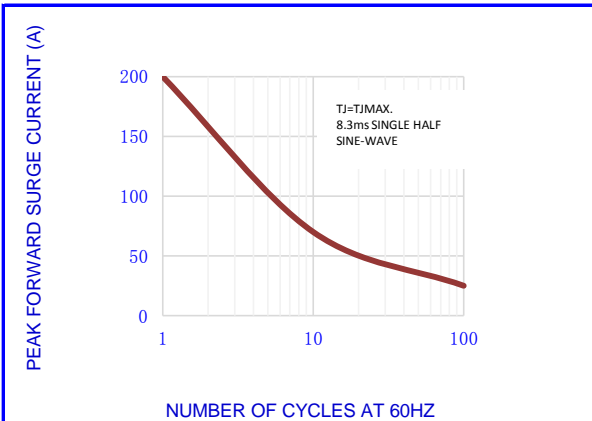
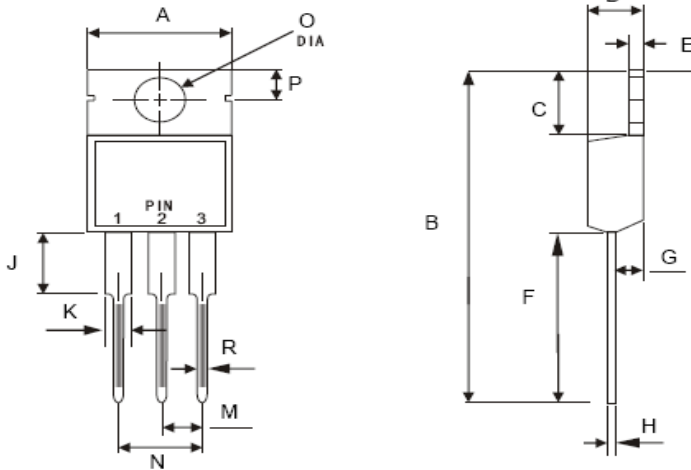


Fig.5-MAX. NON-REPETITIVE SURGE CURRENT

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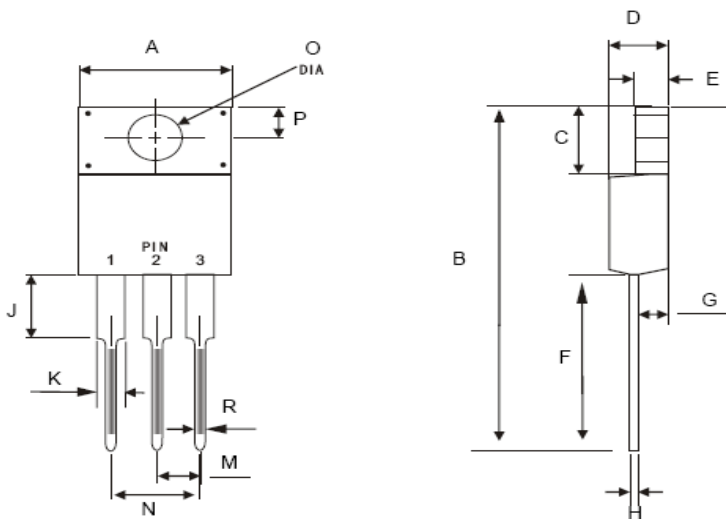


OUTLINE DRAWINGS



OUTLINE DIMENSIONS						
DIM	A OUTLINE			B OUTLINE		
	MIN.	TYP.	MAX.	MIN.	TYP.	MAX.
A	9.91	-	10.41	9.91	-	10.41
B	28.10	-	29.50	28.10	-	29.50
C	6.20	-	7.20	6.20	-	7.20
D	4.44	-	4.70	4.44	-	4.70
E	1.35	-	1.55	1.35	-	1.55
F	13.10	-	14.22	13.10	-	14.22
G	2.25	-	2.60	2.25	-	2.60
H	0.35	0.50	0.58	0.35	0.30	0.58
J	2.60	-	3.00	2.60	-	3.00
M	2.41	-	2.67	2.41	-	2.67
N	4.88	-	5.28	4.88	-	5.28
R	0.68	-	0.94	0.68	-	0.94
O	3.25	-	3.75	3.25	-	3.75
P	2.15	-	2.50	N/A	N/A	N/A

TO-220AB



OUTLINE DIMENSIONS(MILI METERS)						
DIM	A OUTLINE			B OUTLINE		
	MIN.	TYP.	MAX.	MIN.	TYP.	MAX.
A	9.91	10.06	10.41	9.91	10.21	10.41
B	28.10	28.84	29.50	28.10	29.22	29.50
C	6.20	6.75	7.20	6.20	6.75	7.20
D	4.44	4.50	4.80	4.44	4.70	4.80
E	2.45	3.08	3.55	2.45	2.57	3.55
F	13.10	13.58	14.22	13.10	13.22	14.22
G	2.25	2.57	2.60	2.25	2.40	2.60
H	0.35	0.61	0.58	0.35	0.50	0.58
J	2.60	3.80	4.00	2.60	2.88	4.00
M	2.41	2.50	2.67	2.41	2.50	2.67
N	4.88	5.00	5.28	4.88	5.00	5.28
R	0.58	0.61	0.94	0.58	0.82	0.94
O	3.25	3.55	3.75	3.25	3.55	3.75
P	2.15	2.80	3.50	2.15	3.30	3.50

ITO-220AB

Packing Information

Product code	Pack	Box Size LxWxH(mm)	Quantity(pcs/box)	Carton SizeLxWxH(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

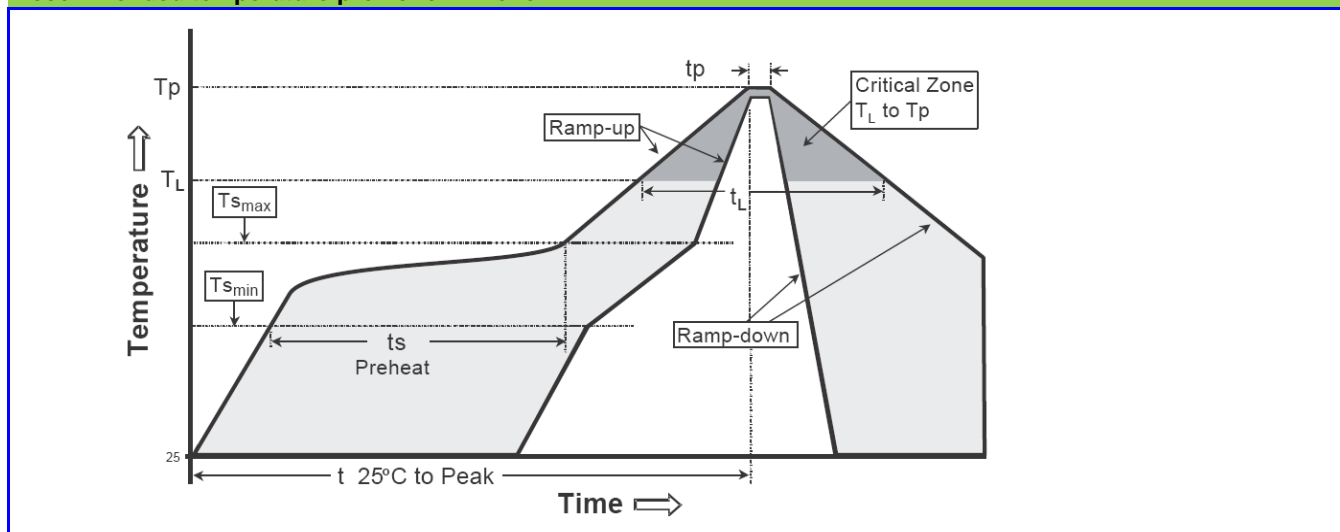
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Recommended wave soldering condition

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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