

**MBR1020DD THRU MBR10200DD**  
SCHOTTKY RECTIFIERS



**VOLTAGE** 20~200 Volts **CURRENT** 10 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°C maximum, 10s. per JESD22-B106 ( for TO-263/D<sup>2</sup>PAK package )
- Component in accordance to RoHS 2011/65/EU

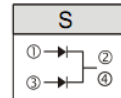
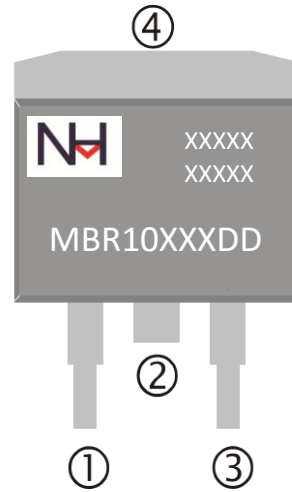
**MECHANICAL DATA**

- Case: JEDEC TO-263(D<sup>2</sup>PAK)
- 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

TO-263(D<sup>2</sup>PAK)  
MBR10XXDD



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

Parameter	Symbol	MBR 1020 DD	MBR 1030 DD	MBR 1040 DD	MBR 1045 DD	MBR 1050 DD	MBR 1060 DD	MBR 1080 DD	MBR 10100 DD	MBR 10150 DD	MBR 10200 DD	Unit	
Maximum repetitive peak reverse voltage	$V_{RRM}$	20	30	40	45	50	60	80	100	150	200	V	
Maximum RMS voltage	$V_{RMS}$	14	21	28	32	35	42	56	70	105	140	V	
Maximum DC blocking voltage	$V_{DC}$	20	30	40	45	50	60	80	100	150	200	V	
Maximum average forward rectified current (see fig.1)	$I_{F(AV)}$	Per leg Total device										5 10	A
Peak forward surge current 8.3ms single half sine-wave superimposed on rated load (JEDEC method at rated TL)	$I_{FSM}$	120										A	
Maximum instantaneous forward voltage at 5.0 A (Note 1)	$V_F$	0.64			0.68			0.85		0.9		V	
Maximum instantaneous reversecurrent at rated DC blocking voltage(Note 2)	$I_{RRM}$	60						10		5		uA	
		20						15		10		mA	
Typical junction capacitance (Note 3)	$C_J$	700										pF	
Operating junction and Storage temperature range	$T_J$	150										175	°C
Storage temperature range	$T_{STG}$	-65 to +150										-65 to +175	

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

Parameter	Symbol	TO-263(D <sup>2</sup> PAK)	Unit
Typical thermal resistance(Note 2)	$R_{\theta JC}$	2.5	°C/W
	$R_{\theta JA}$	52.5	

- 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**

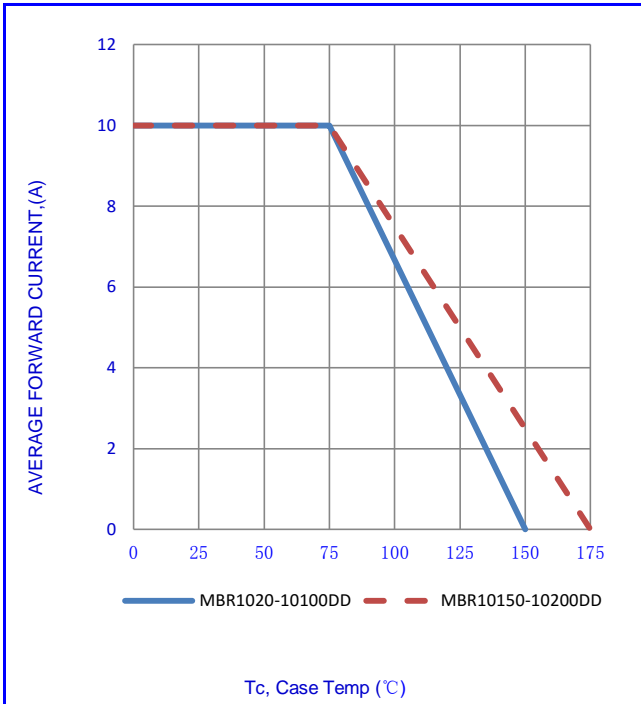


Fig.1- FORWARD CURRENT DERATING CURVE

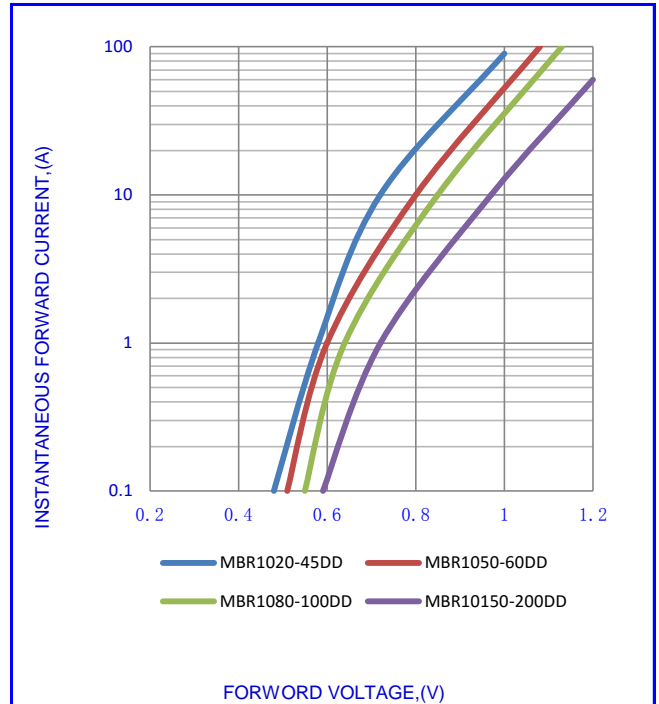


Fig.2- TYPICAL INSTANTANEOUS FORWARD

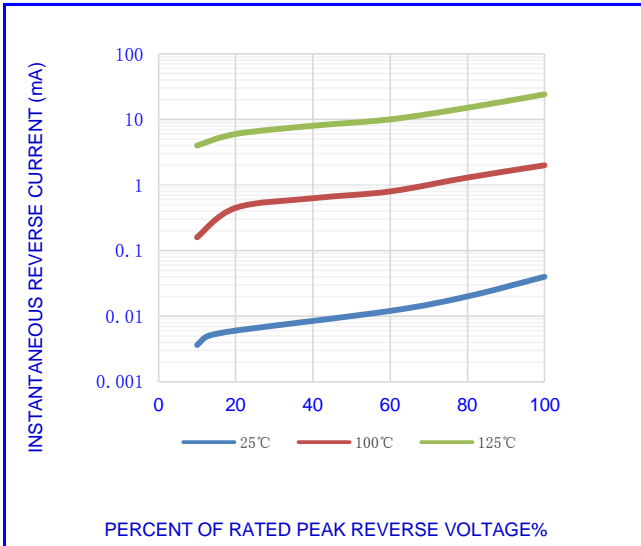


Fig.3- TYPICAL REVERSE CHARACTERISTICS

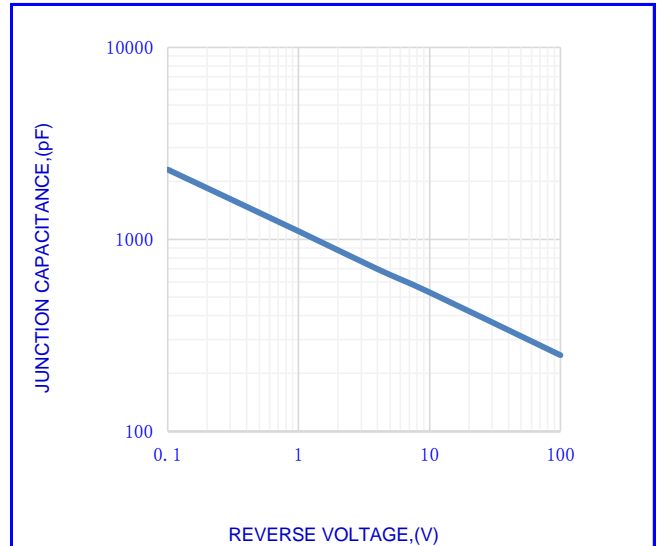


Fig.4- TYPICAL JUNCTION CAPACITANCE

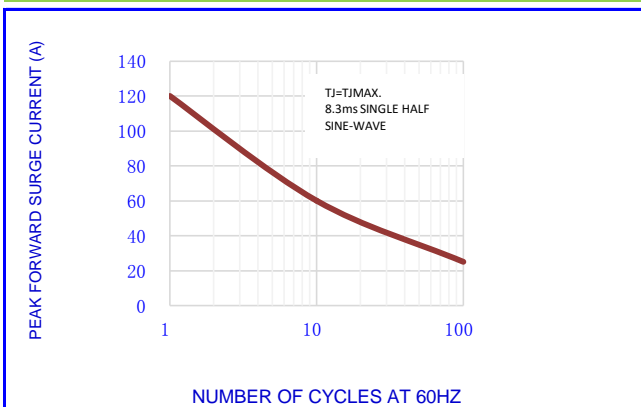


Fig.5- MAX. NON-REPETITIVE SURGE CURRENT

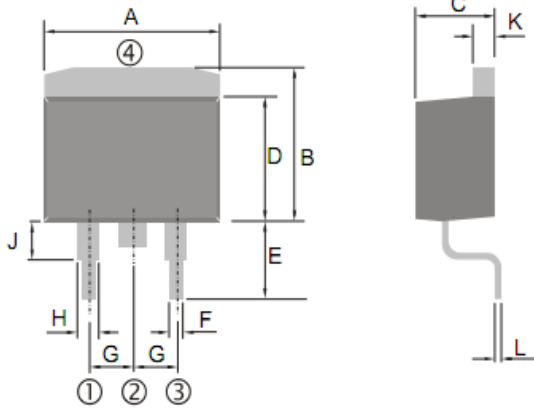
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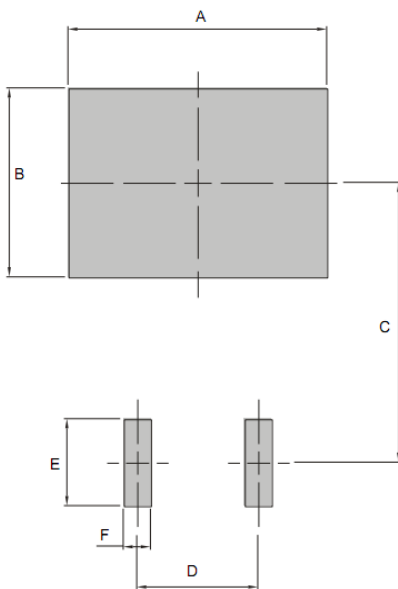
OUTLINE DRAWINGS

TO-263(D<sup>2</sup>PAK)



DIM	MILLIMETERS			INCHES		
	MIN	TYP	MAX	MIN	TYP	MAX
A	9.8	-	10.4	0.387	-	0.409
B	9.6	-	10.6	0.378	-	0.418
C	4.4	-	4.8	0.137	-	0.189
D	8.5	-	9.1	0.335	-	0.357
E	5.0	-	6.0	0.197	-	0.236
F	-	-	0.9	-	-	0.035
G	2.35	-	2.75	0.092	-	0.108
H	1.0	-	1.4	0.039	-	0.055
J	-	2.8	-	-	0.11	-
K	1.2	-	1.4	0.047	-	0.055
L	0.3	-	0.7	0.011	-	0.026

Plastic surface mounted package



DIM	MILLIMETERS			INCHES		
	MIN	TYP	MAX	MIN	TYP	MAX
A	-	10.86	-	-	0.428	-
B	-	7.86	-	-	0.309	-
C	-	11.64	-	-	0.458	-
D	-	5.08	-	-	0.2	-
E	-	3.62	-	-	0.143	-
F	-	1.14	-	-	0.045	-

PCB Design(Recommended land dimensions for TO-263/D<sup>2</sup>PAK diode. Electrode patterns for PCBs)

Packing Information

Product code	Pack	Box Size LxWxH(mm)	Quantity (pcs/box)	Carton Size LxWxH(mm)	Quantity (box/carton)
TO-263(D <sup>2</sup> PAK)	T/R	350x350x40	800	360x360x210	5

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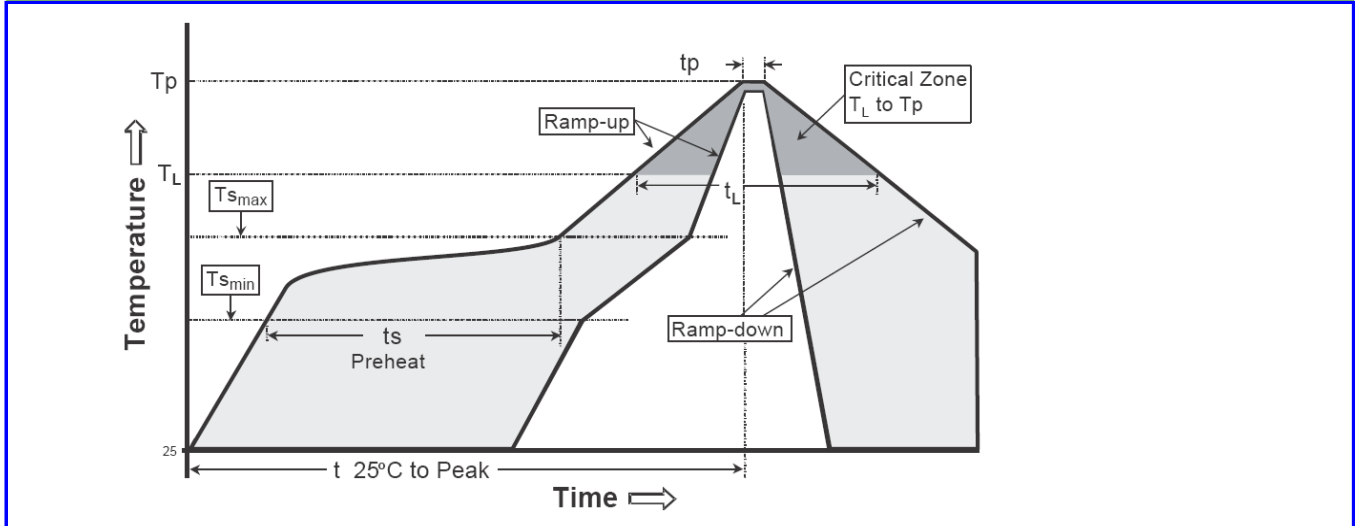
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**Recommended wave soldering condition**

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) -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.043589

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