

MBR40L100CD

Low Vf Schottky Barrier Rectifiers



<b>Voltage:</b> 100 Volts	<b>Current:</b> 40 Amperes	<b>Package:</b> TO-263
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**Features**

- NH'S Low Vf Schottky Barrier Chip Technology
- Super Low Forward Voltage Drop For High Efficiency
- Low Power Loss For High Reliability
- High Frequency Switching Speed

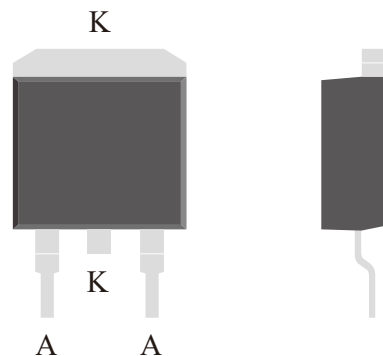
**Mechanical Data**

- Case:** Molded With UL-94 ClassV-0 Recognized, RoHS-Compliant
- Polarity:** Look At The Diagram And Polarity On The Right
- Terminals:** Tin Plated Leads,Solderable Per J-STD-002 And JESD22-B102

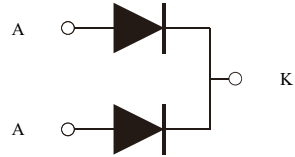
**Typical Applications**

- Switch Mode Power Supplies (SMPS)
- Fast Chargers
- LED Driver And Monitor Lighting
- Automotive Electronics And Charging Posts

**Diagram:**



**Polarity:**



Single Phase,Half Wave,60Hz,Resistive Or Inductive Load.For Capacitive Load,Derate Current By 20%

**Maximum Ratings (Ta=25°C Unless Otherwise Specified)**

Parameter	Test Conditions	Symbol	Ratings	Unit
Maximum Repetitive Peak Reverse Voltage		$V_{RRM}$	100	V
Maximum RMS Voltag		$V_{RMS}$	70	V
Maximum DC Blocking Voltage		$V_{DC}$	100	V
Maximum Average Forward Rectified Current	Per Diode Total device	$I_{F(AV)}$	20 40	A
Peak Forward Surge Current Per Diode	8.3ms Single Half Sine-wave Superimposed On Rate Load	$I_{FSM}$	250	A
Current Squared Time Per Diode	$t < 8.3ms$	$I^2t$	259.4	A <sup>2</sup> sec

**Electrical Characteristics (Ta=25°C Unless Otherwise Specified)**

Parameter	Test Conditions	Symbol	Ratings			Unit
			Min.	Typ.	Max.	
Instaneous Forward Voltage Per Diode	Ta=25°C Ta=100°C If= 20.0 A	$V_F$	-- --	0.76 0.7	0.85 0.75	V
Maximum DC Reverse Current at Rated DC Blocking Voltage	Ta=25°C ,VR=VRRM Ta=100°C ,VR=VRRM*80%	$I_{RRM}$	-- --	30 2	120 18	uA mA
Typical Junction Capacitance Per Diode	4 V,1MHz	$C_J$	--	950	--	pF

**Thermal Characteristics (Ta=25°C Unless Otherwise Specified)**

Parameter	Test Conditions	Symbol	Ratings	Unit
Operating Junction Temperature Range		$T_J$	-55 to 150	°C
Storage Temperature Range		$T_{STD}$	-55 to 150	
Thermal Resistance Junction To Ambient With Steady-State	Still Air Environment With Ta=25°C	$R_{\theta JA}$	62.5	°C/W
Thermal Resistance Junction-Case With Steady-State	Device Mounted On 1 in2 FR-4 Board With 2oz. Copper	$R_{\theta JC}$	2.0	

Notes: 1.Pulse Test: 300 Us Pulse Width,1% Duty Cycle

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Typical Characteristics Curves

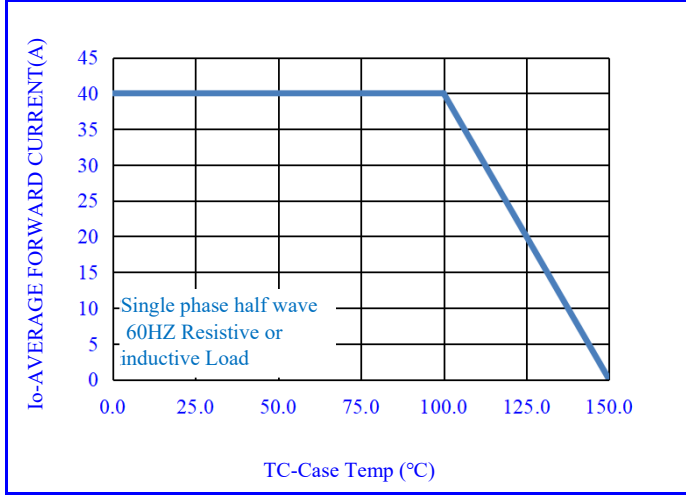


Fig.1-FORWARD CURRENT DERATING CURVE

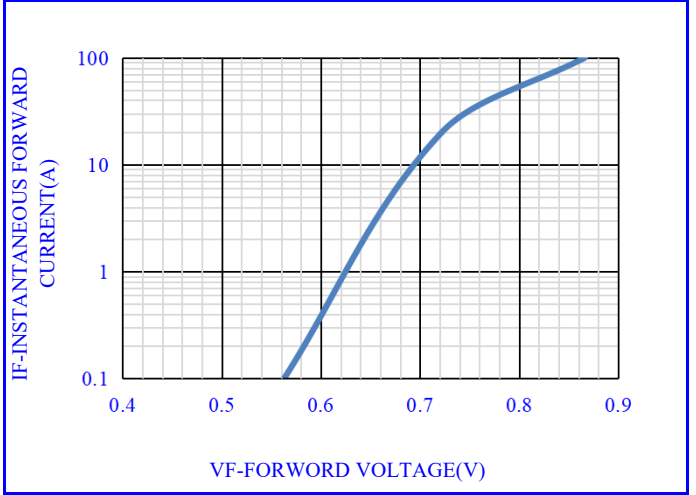


Fig.2- TYPICAL INSTANTANEOUS FORWARD

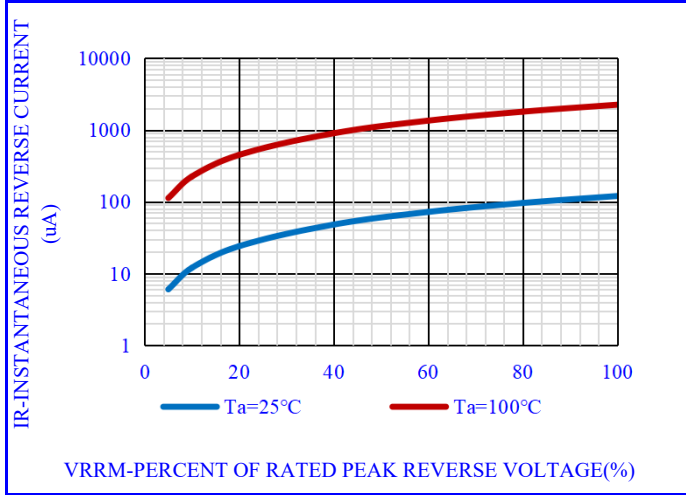


Fig.3- TYPICAL REVERSE CHARACTERISTICS

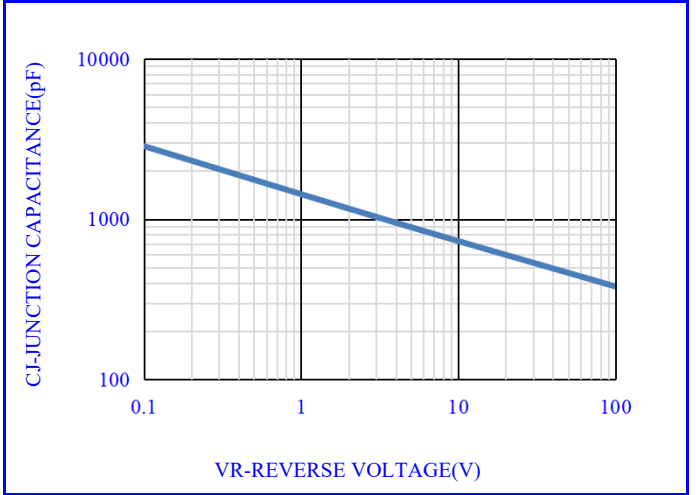


Fig.4- TYPICAL JUNCTION CAPACITANCE

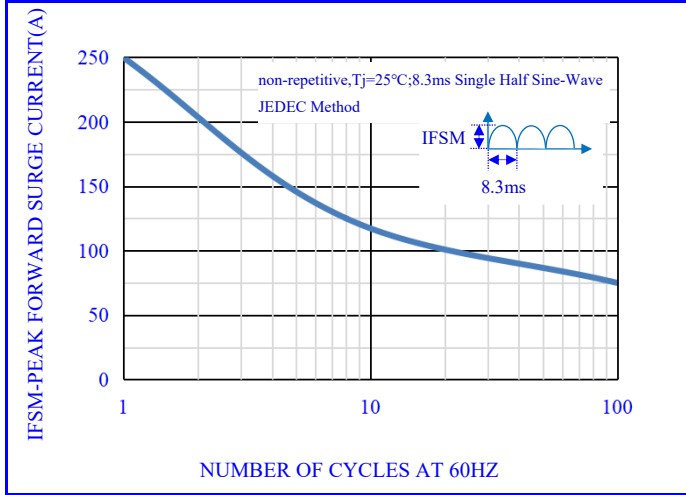


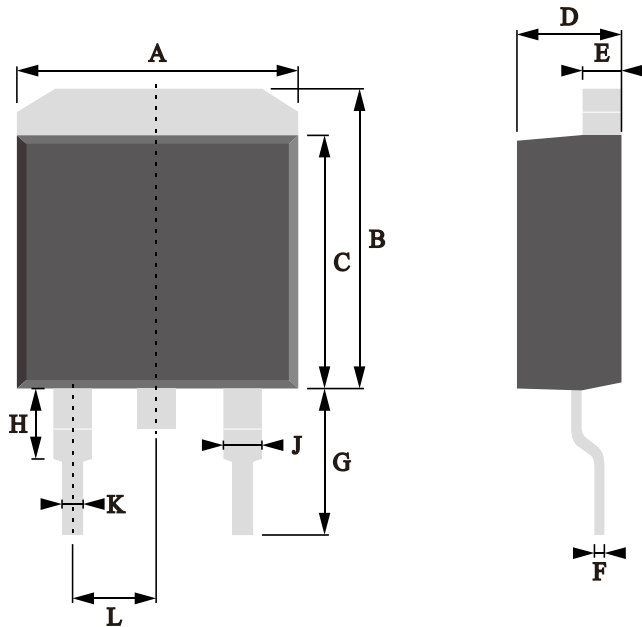
Fig.5-MAX. NON-REPETITIVE SURGE CURRENT

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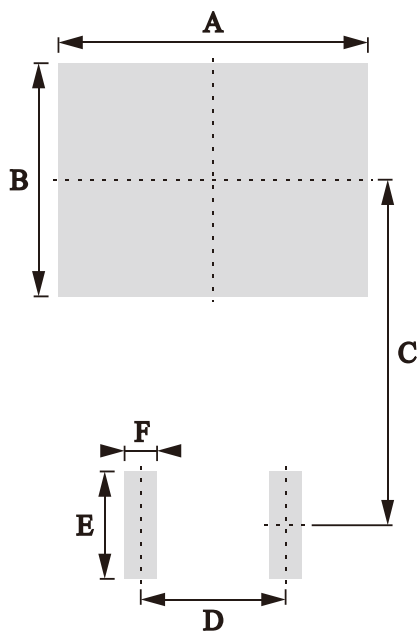
OUTLINE DRAWINGS



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OUTLINE DIMENSIONS						
Dim.	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	9.30	-	10.50	0.3661	-	0.4134
B	9.60	-	11.60	0.3780	-	0.4567
C	8.20	-	9.50	0.3228	-	0.3740
D	4.00	-	5.00	0.1575	-	0.1969
E	1.00	-	1.70	0.0394	-	0.0669
F	0.20	-	0.70	0.0079	-	0.0276
G	4.45	-	5.25	0.1752	-	0.2067
H	1.25	-	1.85	0.0492	-	0.0728
J	1.00	-	1.60	0.0394	-	0.0630
K	0.60	-	1.00	0.0236	-	0.0394
L	2.25	-	2.80	0.0886	-	0.1102

RECOMMENDED LAYOUT DRAWINGS



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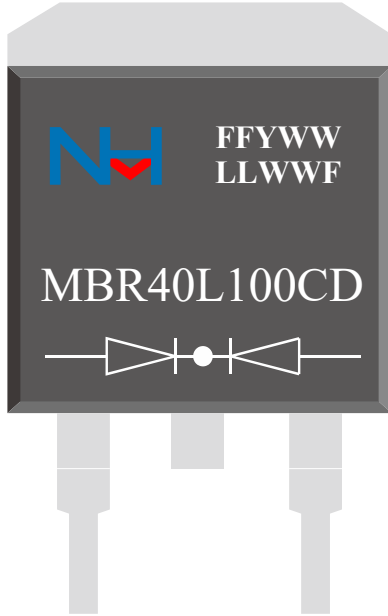
OUTLINE DIMENSIONS						
Dim.	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	-	10.86	-	-	0.4276	-
B	-	7.86	-	-	0.3094	-
C	-	11.64	-	-	0.4583	-
D	-	5.08	-	-	0.2000	-
E	-	3.62	-	-	0.1090	-
F	-	1.14	-	-	0.0560	-

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**MARKING**



**MARKING INSTRUCTION**

NH=Niuhan Trademark  
 FF=Product Line Code,According To Actual Changes  
 YWW=Date Code,According To Actual Changes  
 LLWWF=Inernal Code,According To Actual Changes  
 MBR40L100CD=Model

**PACKING INFORMATION**

Package Type	Package Code	Product Weight Approx(g/Pcs)	Package Method	Quantity (Pcs/Min. Pack.)	Quantity (Pcs/Inner Box)	Quantity (Pcs/Carton)
TO-263	P1	1.431	13"Reel	800	800	6400

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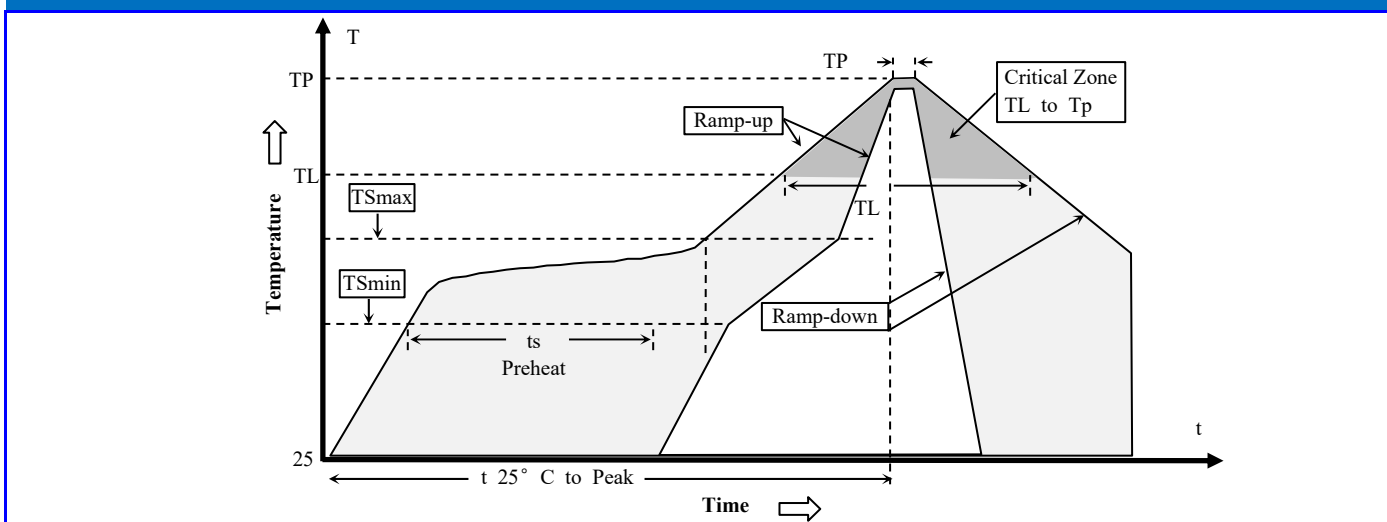
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Recommended wave soldering condition

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 (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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