

MBR30L150CT, MBR30L150FCT

LOW VF SCHOTTKY BARRIER RECTIFIERS



VOLTAGE: 150 Volts **CURRENT:** 30.0 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

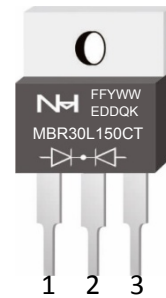
MECHANICAL DATA

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

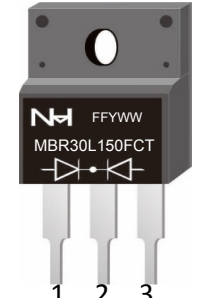
TYPICAL APPLICATIONS

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

TO-220AB
MBR30L150CT



TO-220F
MBR30L150FCT



Remark:

- NH=niuhang trademark;
- FF=Product line code, According to actual changes
YWW=Data code, According to actual changes
EDDQK=Internal code, According to actual changes
- MBR30L150CT/FCT=Model.

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

Parameter	Symbol	MBR30L150CT, MBR30L150FCT	Unit
Maximum repetitive peak reverse voltage	V_{RRM}	150	V
Maximum average forward rectified current (see fig.1)	$I_{F(AV)}$	30	A
Peak forward surge current 8.3ms single half sine-wave superimposed on rated load (JEDEC method at rated TL)	I_{FSM}	200	A
Peak repetitive reverse current per diode at $t_p=2\mu s$ 1KHz	I_{RRM}	10	μA
Isolation voltage (TO-220F only) from terminals to heatsink $t=1$ min	V_{AC}	1500	V

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

Parameter	Test Conditions		Symbol	MBR30L150CT, MBR30L150FCT			Unit
				Min.	Typ.	Max.	
Instantaneous forward voltage per diode (note1)	$T_A=25^\circ C$	$I_F=15 A$	V_F	--	0.84	0.90	V
	$T_A=125^\circ C$			--	0.73	0.85	
Reverse current per diode @ pulse voltage (note1)	$T_A=25^\circ C$	$V_R=V_{RRM}$	I_R	--	1	10	μA
Reverse current per diode @ DC voltage	$T_A=125^\circ C$	$V_R=80\% \cdot V_{RRM}$		--	0.5	5	mA
Typical junction capacitance	4V, 1MHz		C_J	--	750	--	pF

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

Parameter	Symbol	MBR30L150CT, MBR30L150FCT		Unit
Operating junction	T_J	-55	to 175	$^\circ C$
Storage temperature range	T_{STD}	-55	to 175	
Typical thermal resistance (note2)	$R_{\theta JC}$	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 75mm x 45mm x 2.5mm Aluminum Plate Heatsink.

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RATING AND CHARACTERISTIC CURVES

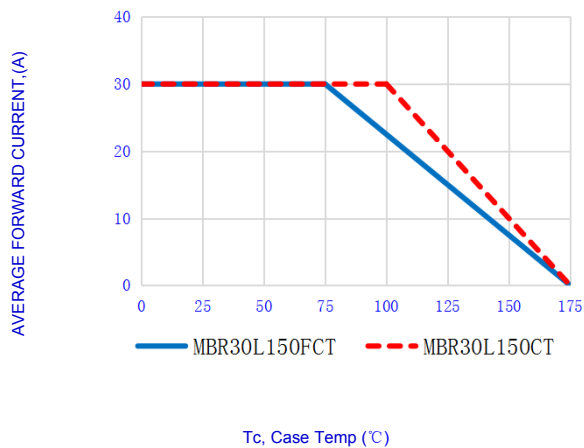


Fig.1-FORWARD CURRENT DERATING CURVE

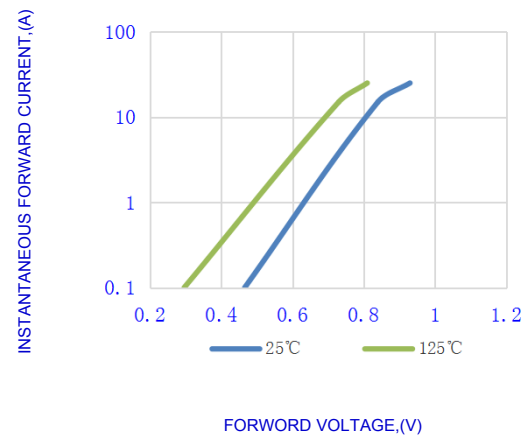


Fig.2- TYPICAL INSTANTANEOUS FORWARD

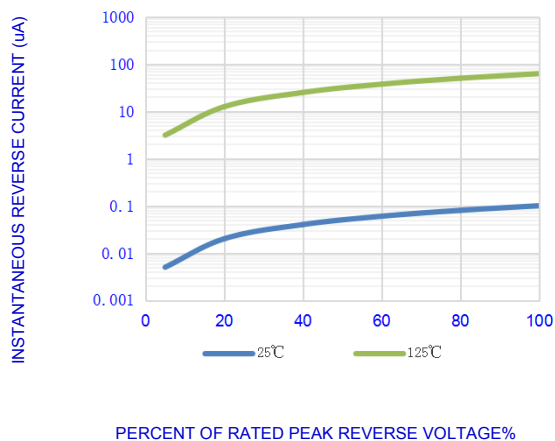


Fig.3- TYPICAL REVERSE CHARACTERISTICS

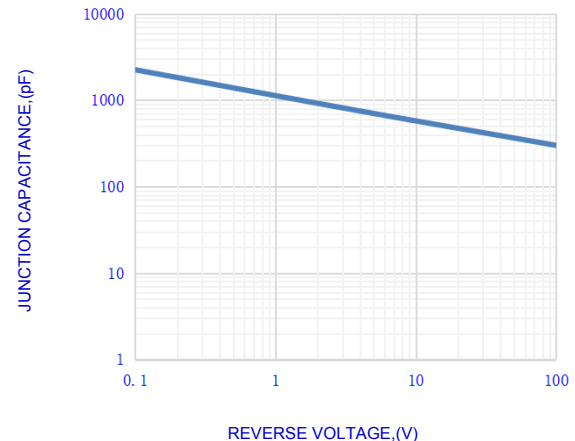


Fig.4- TYPICAL JUNCTION CAPACITANCE

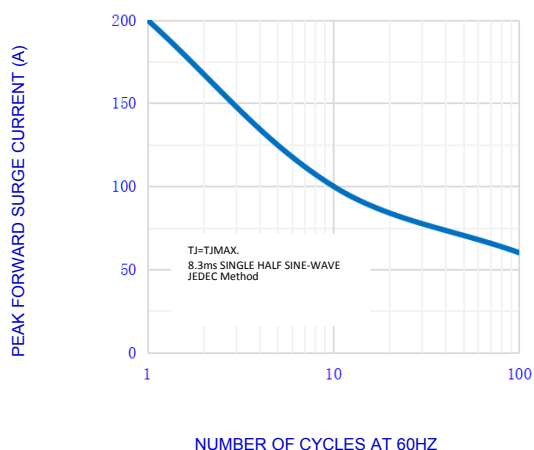
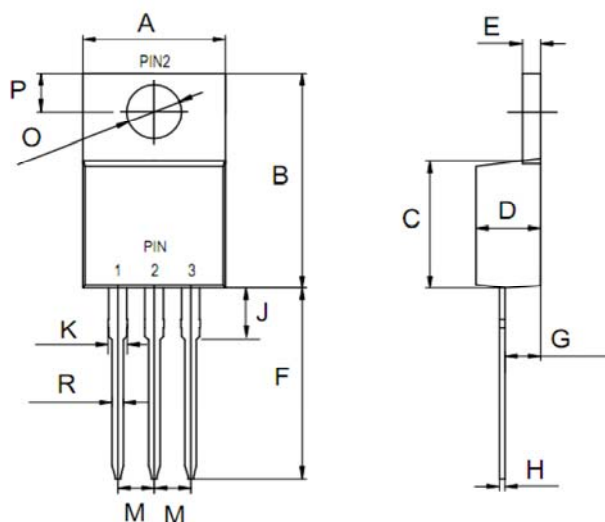


Fig.5-MAX. NON-REPETITIVE SURGE CURRENT

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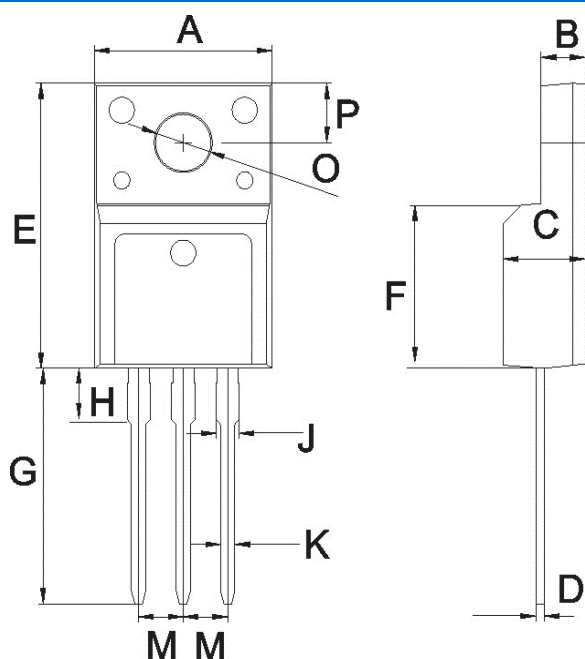
OUTLINE DRAWINGS



TO-220AB

OUTLINE DIMENSIONS						
Dim.	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	9.25	-	10.75	0.36	-	0.42
B	1.10	-	1.65	0.04	-	0.06
C	4.15	-	4.95	0.16	-	0.19
D	0.25	-	0.65	0.01	-	0.03
E	14.50	-	16.70	0.57	-	0.66
F	8.40	-	9.95	0.33	-	0.39
G	12.15	-	14.30	0.48	-	0.56
H	3.00	-	3.80	0.12	-	0.15
J	1.05	-	1.60	0.04	-	0.06
K	0.65	-	0.95	0.03	-	0.04
M	2.10	-	2.90	0.08	-	0.11
O	3.20	-	4.10	0.13	-	0.16
P	2.45	-	3.10	0.10	-	0.12

OUTLINE DRAWINGS



TO-220F

OUTLINE DIMENSIONS						
Dim.	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	9.25	-	10.75	0.36	-	0.42
B	2.30	-	2.90	0.09	-	0.11
C	4.20	-	5.20	0.17	-	0.20
D	0.35	-	0.75	0.01	-	0.03
E	14.80	-	16.80	0.58	-	0.66
F	8.25	-	9.75	0.32	-	0.38
G	12.15	-	14.15	0.48	-	0.56
H	2.40	-	3.00	0.09	-	0.12
J	1.10	-	1.50	0.04	-	0.06
K	0.60	-	1.00	0.02	-	0.04
M	2.20	-	3.00	0.09	-	0.12
O	2.70	-	3.50	0.11	-	0.14
P	2.25	-	2.85	0.09	-	0.11

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

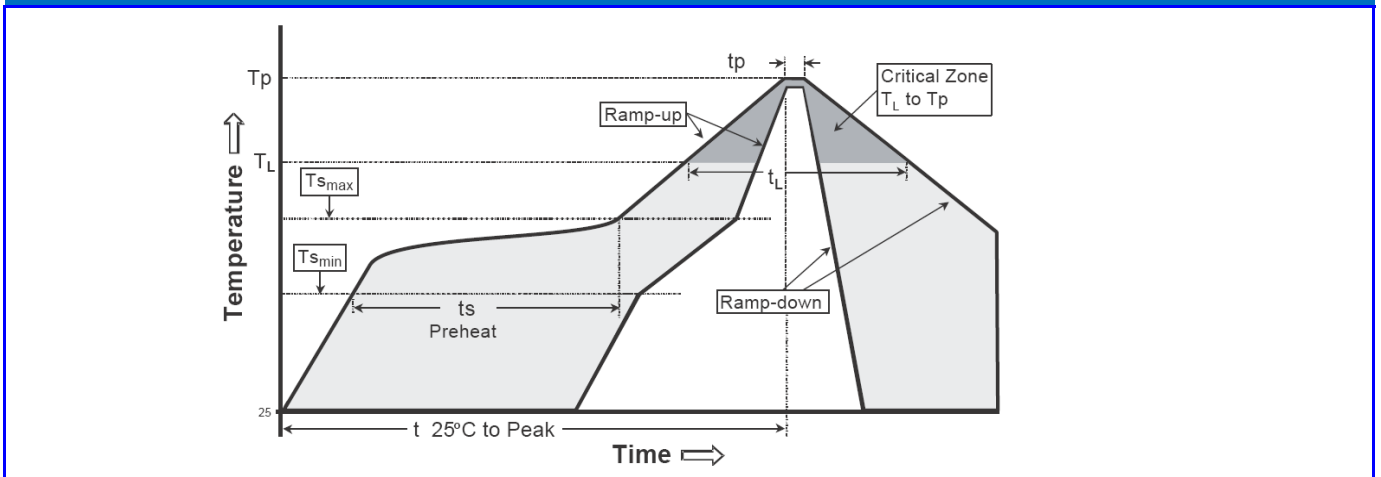
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Recommended wave soldering condition

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 (T _{smax} to T _p)	3°C/second max.	3°C/second max.
Preheat -Temperature Min(T _{s min}) -Temperature Max(T _{s max}) -Time(t _{s min} to t _{s max})	100°C 150°C 60-120 seconds	150°C 200°C 60-180 seconds
Time maintained above: -Temperature (T _L) - Time (t _L)	183°C 60-150 seconds	217°C 60-150 seconds
Peak Temperature(T _P)	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.



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