

#~~MBR3040DCT~~ THRU ~~MBR30200DCT~~

#Ultrafast Soft Recovery Rectifier



Voltage: **#40-200** Volts

Current: **30-** A

Package: GBJ-H

Features

- #NH'S Epiraxial Chip Technology
- #Low Switching Loss For High Efficiency
- #Low Leakage Current For High Reliability
- #Ultra-Fast Soft Switching Feature

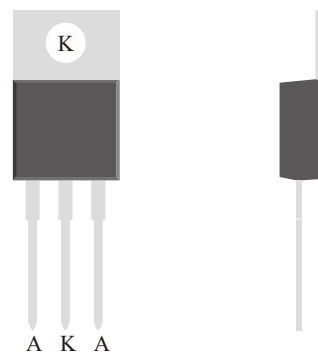
Mechanical Data

- **Case:** Molded With UL-94 Class V-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	#MBR30 #40DCT	#MBR30 #45DCT	#MBR30 #60DCT	#MBR30 #80DCT	#MBR30 #100DCT	#MBR30 #150DCT	#MBR30 #200DCT	Unit
Maximum Repetitive Peak Reverse Voltage		V_{RRM}	40-	45-	60-	80-	100-	150-	200-	V
Maximum RMS Voltag		V_{RMS}	28	32	42	56	70	105	140	V
Maximum DC Blocking Voltage		V_{DC}	40-	45-	60-	80-	100-	150-	200-	V
Maximum Average Forward Rectified Current		$I_{F(AV)}$	30-							A
Peak Forward Surge Current	8.3ms Single Half Sine-wave Superimposed On Rate Load	I_{FSM}	200-							A
Current Squared Time	$t < 8.3ms$	I^2t	166.0							A ² sec

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

Parameter	Test Conditions	Symbol	#MBR30 #40DCT	#MBR30 #45DCT	#MBR30 #60DCT	#MBR30 #80DCT	#MBR30 #100DCT	#MBR30 #150DCT	#MBR30 #200DCT	Unit
Maximum Instantaneous Forward Voltage	I _F = 30.0 A	V _F	0.55		0.70	0.85		0.90		V
Maximum DC Reverse Current at Rated DC Blocking Voltage	Ta=25°C ,V _R =VRRM Ta=125°C ,V _R =VRRM*80%	I _{RRM}	100 10		80 8	50 5		10 3		uA mA
Typical Junction Capacitance	4 V,1MHz	C _J	750		580	290		240		pF
Maximum Reverse Recovery Time	IF=0.5A, IR=1.0A, IRR=0.25A	Trr	35							nS

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

Parameter	Test Conditions	Symbol	#MBR30 #40DCT	#MBR30 #45DCT	#MBR30 #60DCT	#MBR30 #80DCT	#MBR30 #100DCT	#MBR30 #150DCT	#MBR30 #200DCT	Unit	
Operating Junction Temperature Range		T _J	-55~125			-55~150		-55~175		℃	
Storage Temperature Range		T _{STD}	-55~125			-55~150		-55~175			
Thermal Resistance Junction To Ambient With Steady-State	Still Air Environment With Ta=25℃	R _{θJA}	55.0								℃/W
Thermal Resistance Junction-Case With Steady-State	#Device Mounted On 75mm x 45mm x 2.5mm Alu-	R _{θJC}	2.0								

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

Typical Characteristics Curves

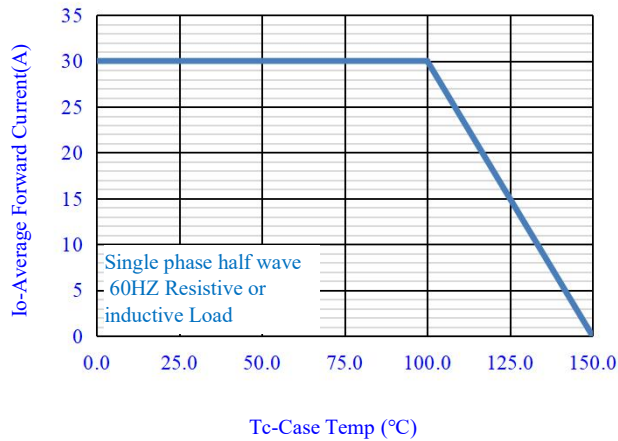


Fig.1-Forward Current Derating Curve

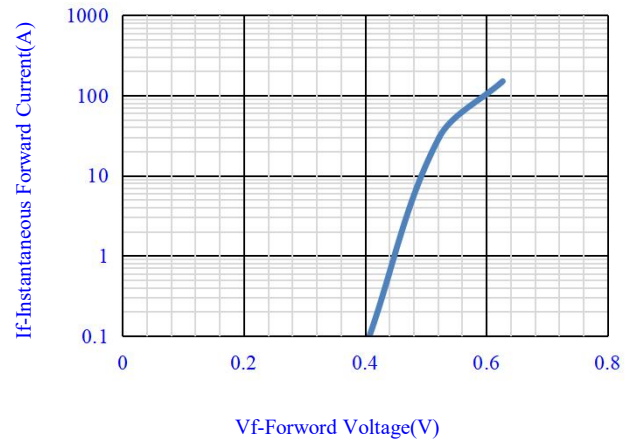


Fig.2-Typical Instantaneous Forward

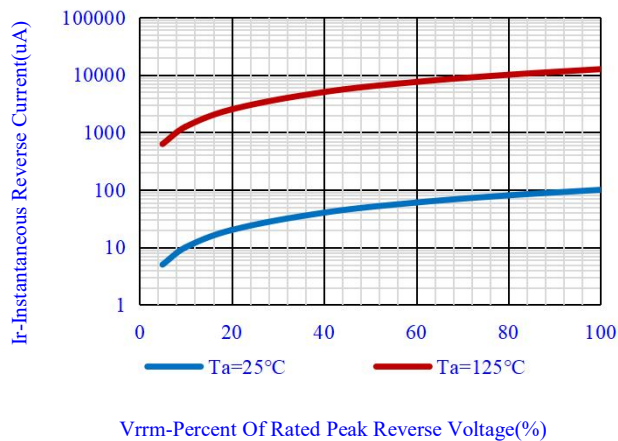


Fig.3-Typical Reverse Characteristics

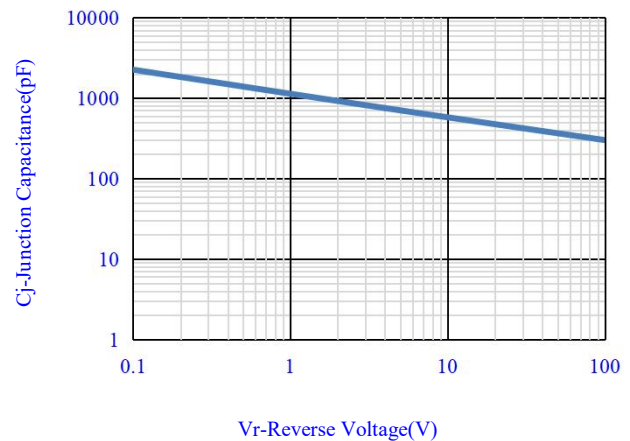


Fig.4-Typical Junction Capacitance

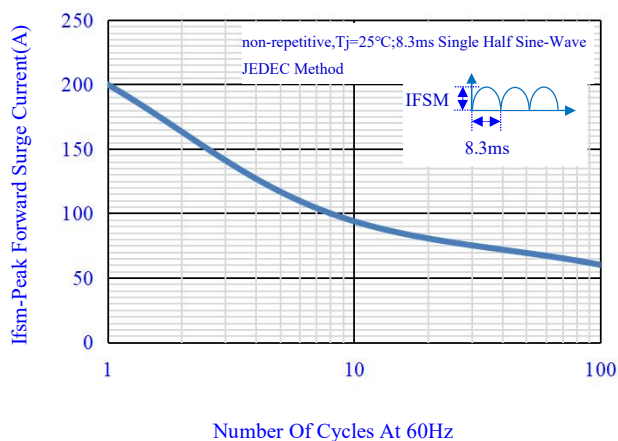


Fig.5-Max. Non-Repetitive Surge Current

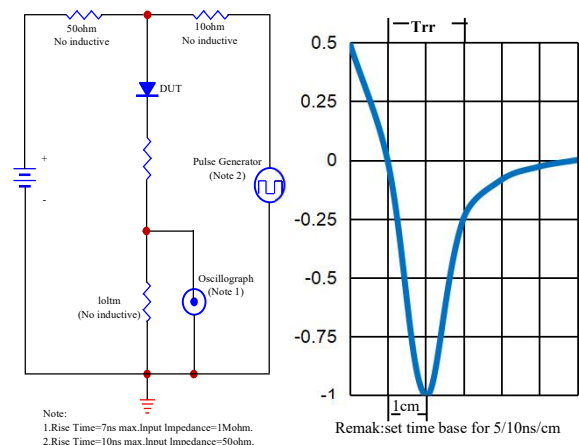


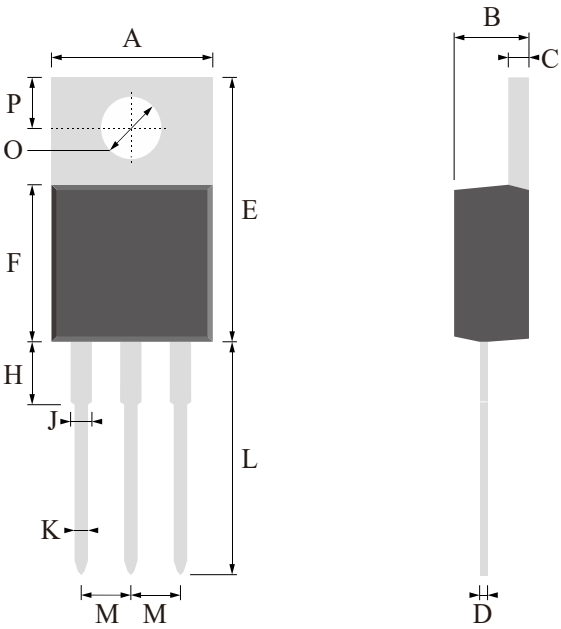
Fig.6-Reverse Recovery Time Characteristic And Test Circuit

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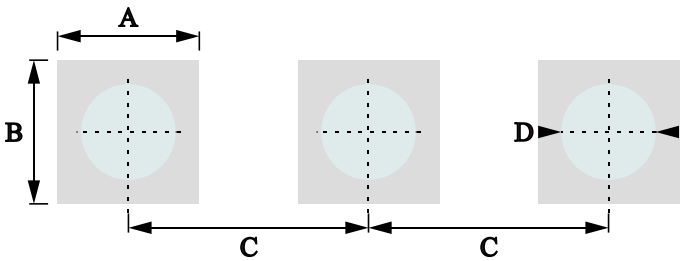
OUTLINE DRAWINGS



GBJ-H

OUTLINE DIMENSIONS						
Dim.	Milimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	9.25	-	10.75	0.3642	-	0.4232
B	1.10	-	1.65	0.0433	-	0.0650
C	4.15	-	4.95	0.1634	-	0.1949
D	0.25	-	0.65	0.0098	-	0.0256
E	14.50	-	16.70	0.5709	-	0.6575
F	8.40	-	9.95	0.3307	-	0.3917
L	12.15	-	14.30	0.4783	-	0.5630
H	3.00	-	3.80	0.1181	-	0.1496
J	1.05	-	1.60	0.0413	-	0.0630
K	0.65	-	0.95	0.0256	-	0.0374
M	2.10	-	2.90	0.0827	-	0.1142
O	3.20	-	4.10	0.1260	-	0.1614
P	2.45	-	3.10	0.0965	-	0.1220

RECOMMEDND LAYOUT DRAWINGS



GBJ-H

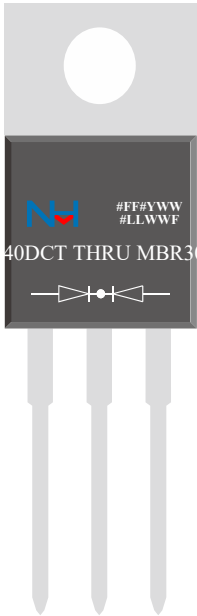
OUTLINE DIMENSIONS						
Dim.	Milimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	-	1.60	-	-	0.0630	-
B	-	1.60	-	-	0.0630	-
C	-	2.54	-	-	0.1000	-
D	-	1.00	-	-	0.0394	-

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MARKING



MARKING INSTRUCTION

#NH=Niuhang Trademark

#FF=Product Line Code,According To Actual Changes

#YWW=Date Code,According To Actual Changes

#LLWWF=Inernal Code,According To Actual Changes

#MBR3040DCT THRU MBR30200DCT=Model

注意选择不正确或误删除

PACKING INFORMATION

Package Type	Package Code	Product Weight Approx(g/Pcs)	Package Method	Quantity (Pcs/Min. Pack.)	Quantity (Pcs/Inner Box)	Quantity (Pcs/Carton)
GBJ-H	#P1	6.873	#Tube	#50	#1000	#5000

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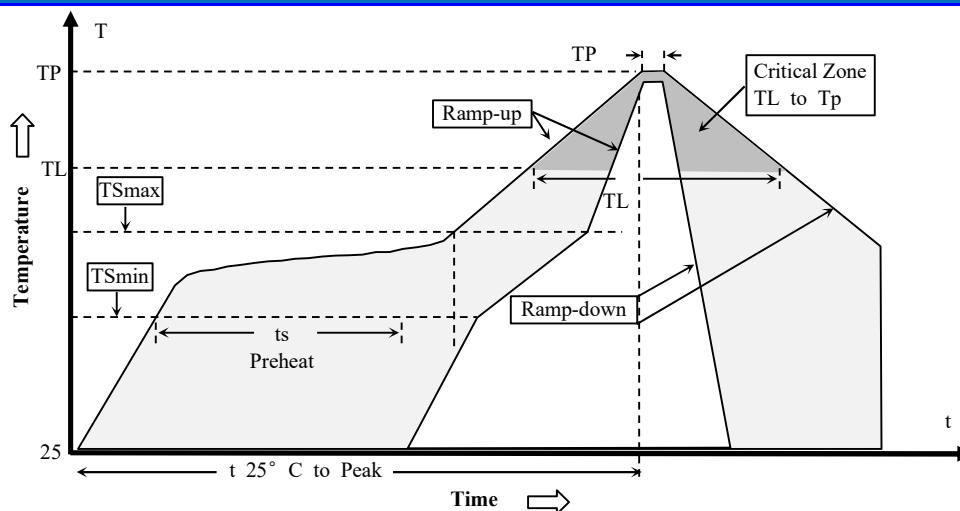
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Recommended wave soldering condition

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 _{smax} to T _p)	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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