

RABS306

Fast Recovery Rectifiers



Voltage:	600 Volts	Current:	3 A	Package:	ABS
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Features

- NH'S Fast Recovery Rectifiers Chip Technology
- Low Switching Loss For High Efficiency
- Low Leakage Current For High Reliability
- Fast Switching Speed

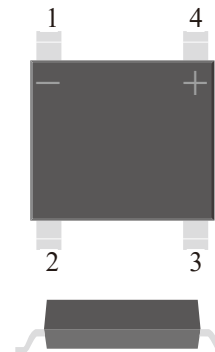
Mechanical Data

- **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

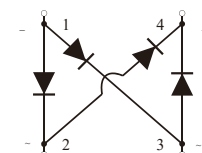
Typical Applications

- 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}	600	V
Maximum RMS Voltag		V_{RMS}	420	V
Maximum DC Blocking Voltage		V_{DC}	600	V
Maximum Average Forward Rectified Current		$I_{F(AV)}$	3	A
Peak Forward Surge Current Per Diode	8.3ms Single Half Sine-wave Superimposed On Rate Load	I_{FSM}	80	A
Current Squared Time Per Diode	$t < 8.3ms$	I^2t	26.6	A ² sec

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

Parameter	Test Conditions	Symbol	Ratings			Unit
			Min.	Typ.	Max.	
Instaneous Forward Voltage Per Diode	$I_F = 3.0 A$	V_F	--	0.91	0.98	V
Maximum DC Reverse Current at Rated DC Blocking Voltage	Ta=25°C , $V_R = V_{RRM}$ Ta=125°C , $V_R = V_{RRM} * 80%$	I_{RRM}	--	1	5	uA
Typical Junction Capacitance Per Diode	4 V,1MHz	C_J	--	40	--	pF
Maximum Reverse Recovery Time	IF=0.5A, IR=1.0A, IRR=0.25A	T_{rr}	--	200	--	nS

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	$R_{\theta JA}$	62.0	°C/W
Thermal Resistance Junction-Case With Steady-State	Device Mounted On 1 in2 FR-4 Board With 2oz. Copper	$R_{\theta JC}$	19.0	

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

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Typical Characteristics Curves

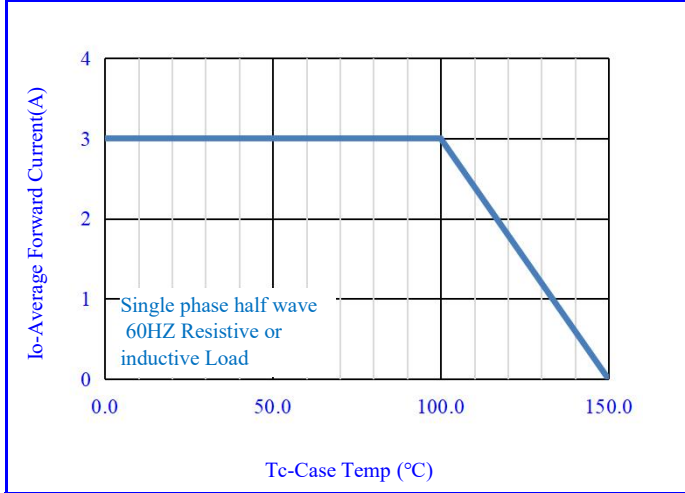


Fig.1-Forward Current Derating Curve

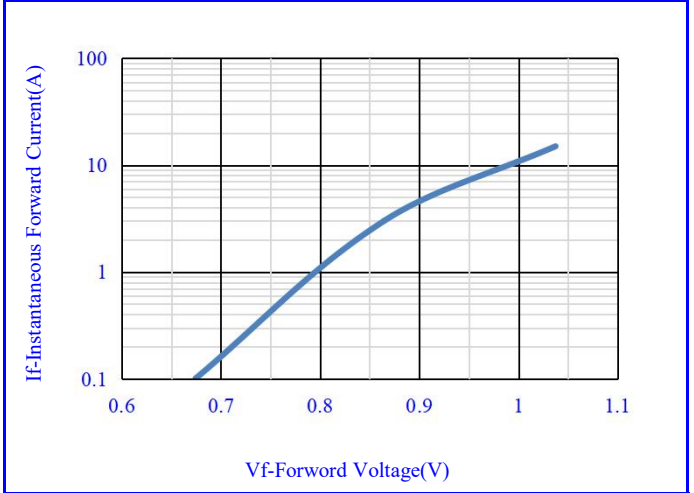


Fig.2-Typical Instantaneous Forward

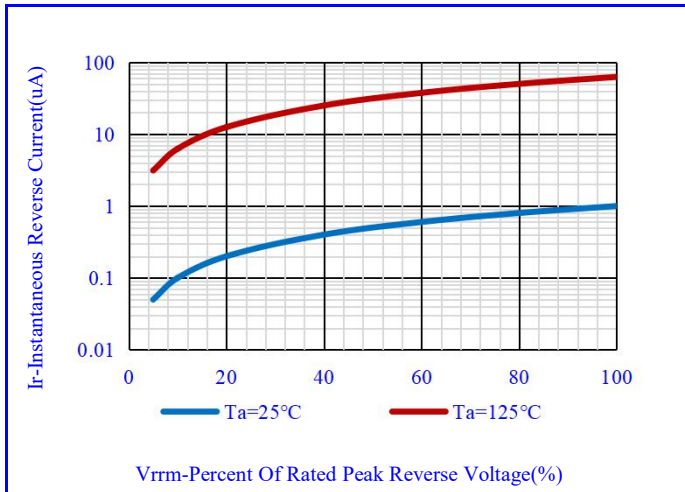


Fig.3-Typical Reverse Characteristics

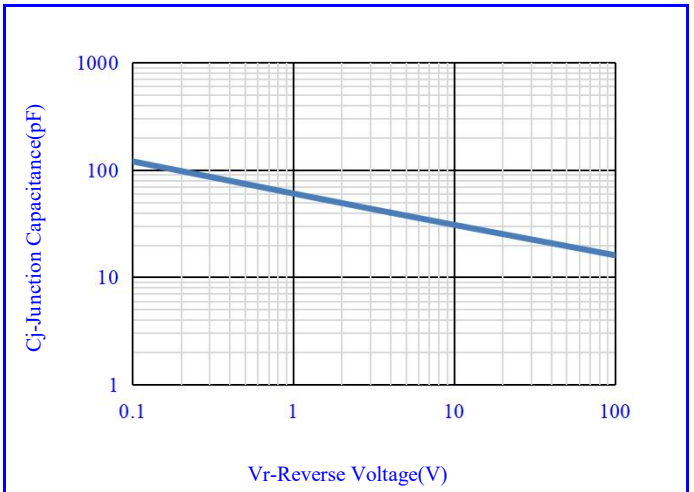


Fig.4-Typical Junction Capacitance

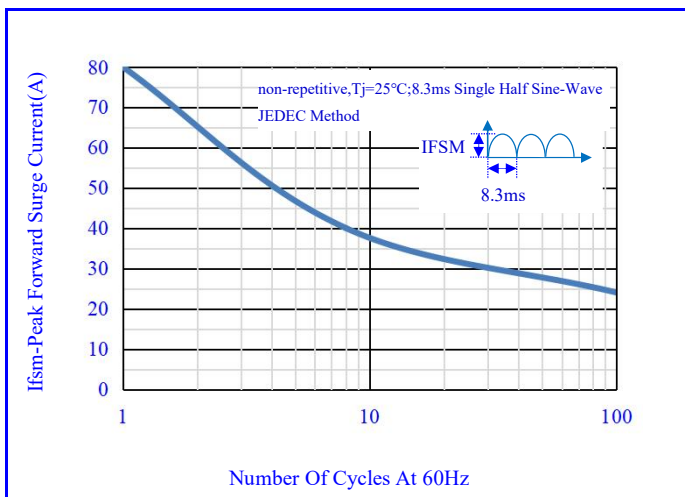


Fig.5-Max. Non-Repetitive Surge Current

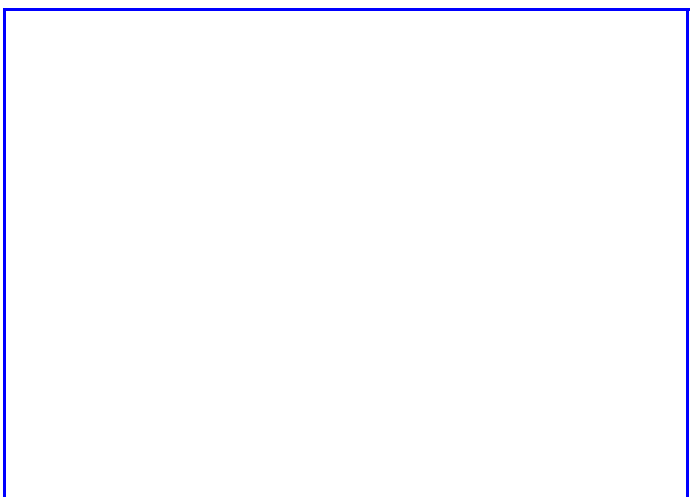


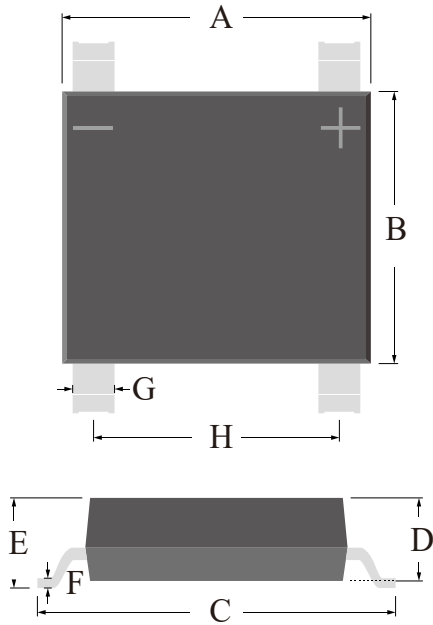
Fig.6-Reverse Recovery Time Characteristic And Test Circuit

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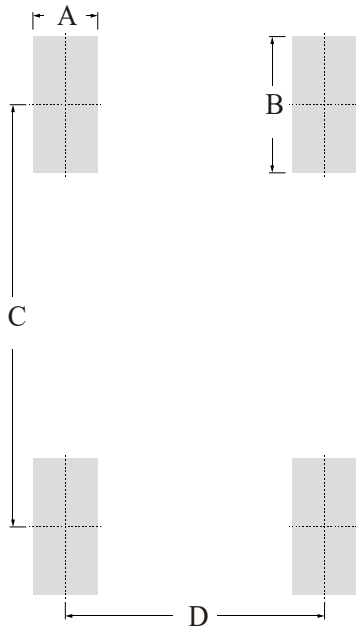
OUTLINE DRAWINGS



ABS

OUTLINE DIMENSIONS						
Dim.	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	4.90	-	5.40	0.1929	-	0.2126
B	4.25	-	4.50	0.1673	-	0.1772
C	5.40	-	6.55	0.2126	-	0.2579
D	1.22	-	1.45	0.0480	-	0.0571
E	1.35	-	1.55	0.0531	-	0.0610
F	0.15	-	0.30	0.0059	-	0.0118
G	0.55	-	0.85	0.0217	-	0.0335
H	3.80	-	4.40	0.1496	-	0.1732

RECOMMENDED LAYOUT DRAWINGS



ABS

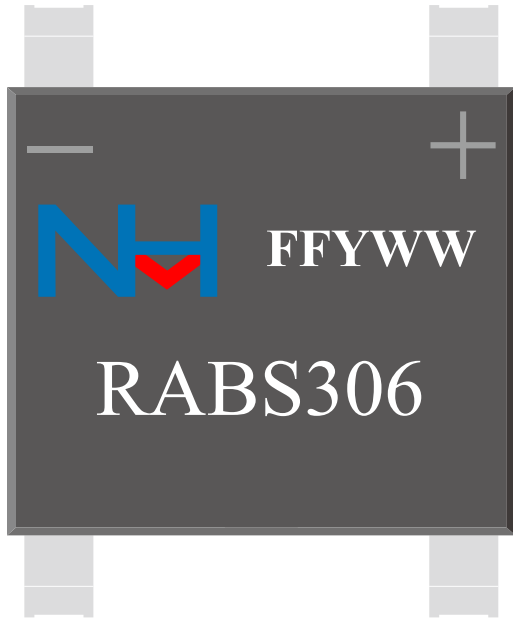
OUTLINE DIMENSIONS						
Dim.	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	-	1.00	-	-	0.0394	-
B	-	2.00	-	-	0.0787	-
C	-	6.20	-	-	0.2441	-
D	-	4.00	-	-	0.1575	-

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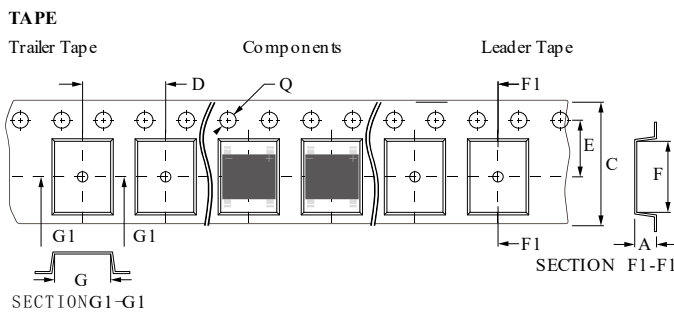
MARKING



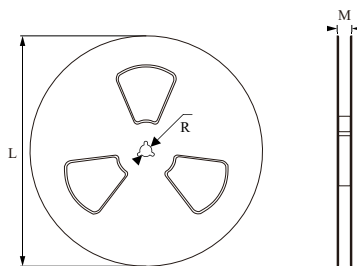
MARKING INSTRUCTION

NH=Niuhan Trademark
 FF=Product Line Code,According To Actual Changes
 YWW=Date Code,According To Actual Changes
 RABS306=Model
 - +=Polarity Mark

PACKAGING



REEL



ABS

OUTLINE DIMENSIONS

Dim.	Milimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
TAPE						
A	2.00	2.10	2.20	0.0787	-	0.0866
C	11.70	12.00	12.30	0.4606	-	0.4843
D	7.70	8.00	8.30	0.3031	-	0.3268
E	5.30	5.50	5.70	0.2087	-	0.2244
F	6.70	6.90	7.10	0.2638	-	0.2795
G	5.20	5.40	5.60	0.2047	-	0.2205
Q Φ	1.40	1.55	1.60	0.0551	-	0.0630
REEL						
L	277.00	-	281.00	10.906	-	11.063
R	12.00	-	14.00	0.4724	-	0.5512
M	14.50	-	18.50	0.5709	-	0.7283

PACKING INFORMATION

Package Type	Package Code	Product Weight Approx(g/Pcs)	Package Method	Quantity (Pcs/Min. Pack.)	Quantity (Pcs/Inner Box)	Quantity (Pcs/Carton)
ABS	P1	0.09	13" Reel	5000	10000	50000
ABS	P2	0.09	13" Reel	5000	10000	100000

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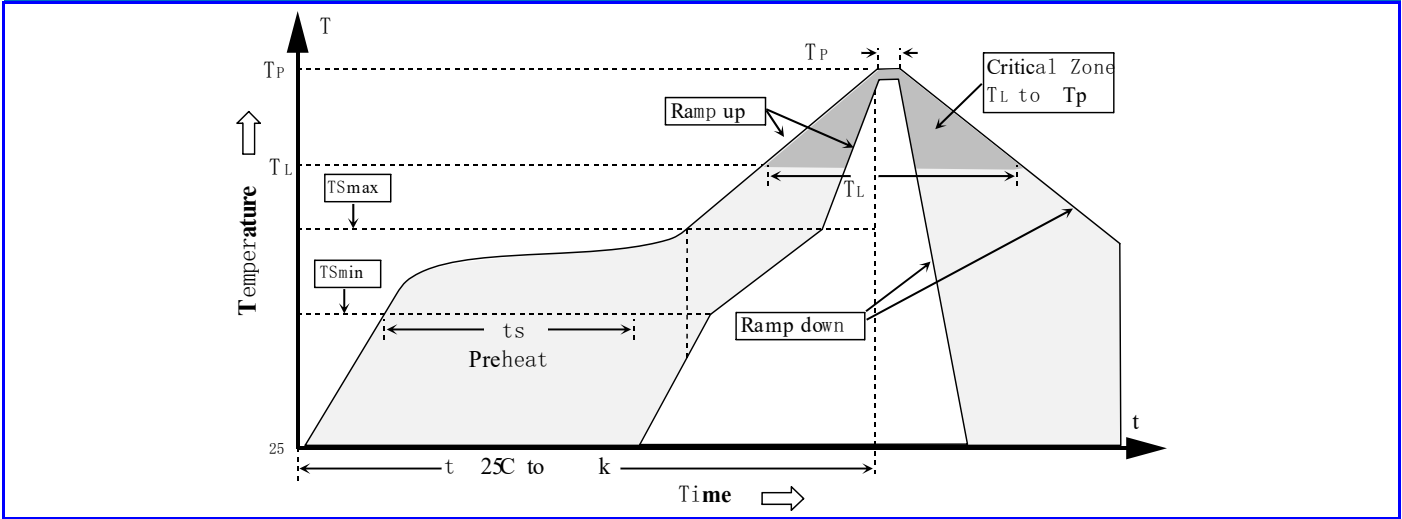
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Recommended wave soldering condition

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.

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