20SQ045

Schottky Barrier Rectifiers

Pb-Free RoHS COMPLIANT

Voltage:	45 Volts	Current:	20 A	Package:	R-6

Features

- NH'S Plane Schottky Barrier Chip Technology
- 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

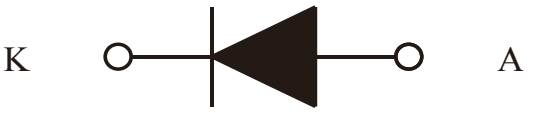
Typical Applications

- 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℃ Unless Otherwise Specified)

Parameter	Test Conditions	Symbol	Ratings	Unit
Maximum Repetitive Peak Reverse Voltage		V_{RRM}	45	V
Maximum RMS Voltag		V_{RMS}	32	V
Maximum DC Blocking Voltage		V_{DC}	45	V
Maximum Average Forward Rectified Current		$I_{F(AV)}$	20	A
Peak Forward Surge Current	8.3ms Single Half Sine-wave Superimposed On Rate Load	I_{FSM}	315	A
Current Squared Time	t< 8.3ms	I^2t	411.8	A^2sec

Electrical Characteristcs (Ta=25℃ Unless Otherwise Specified)

Parameter	Test Conditions	Symbol	Ratings			Unit
			Min.	Typ.	Max.	
Instaneous Forward Voltage Per Diode	IF=20A	V_F	--	0.45	0.48	V
Maximum DC Reverse Current at Rated DC Blocking Voltage	Ta=25℃ ,V_R=VRRM	I_{RRM}	--	50	100	uA
	Ta=125℃ ,V_R=VRRM*80%		--	5	15	mA
Typical Junction Capacitance	4 V,1MHz	C_J	--	800	--	pF

Thermal Characteristcs (Ta=25℃ Unless Otherwise Specified)

Parameter	Test Conditions	Symbol	Ratings	Unit
Operating Junction Temperature Range		T_J	-55 to 150	℃
Storage Temperature Range		T_{STD}	-55 to 150	
Thermal Resistance Junction To Ambient With Steady-State	Still Air Environment With Ta=25℃	$R_{\theta JA}$	35	℃/W
Thermal Resistance Junction-Case With Steady-State	At 0.375"(9.5mm) lead length Mounted On vertical P.C. Board	$R_{\theta JC}$	2.5	

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

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Typical Characteristics Curves

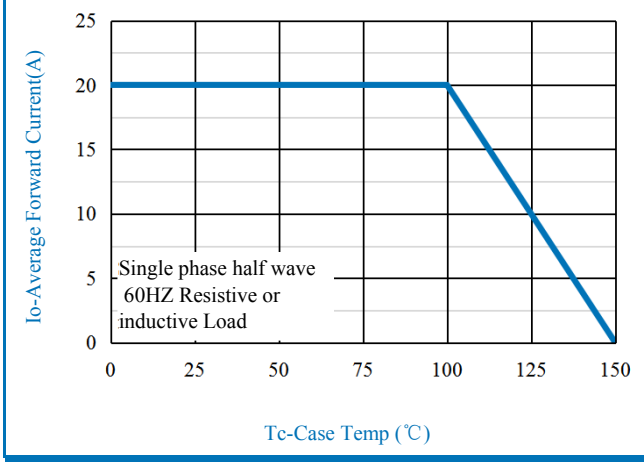

Fig.1-Forward Current Derating Curve

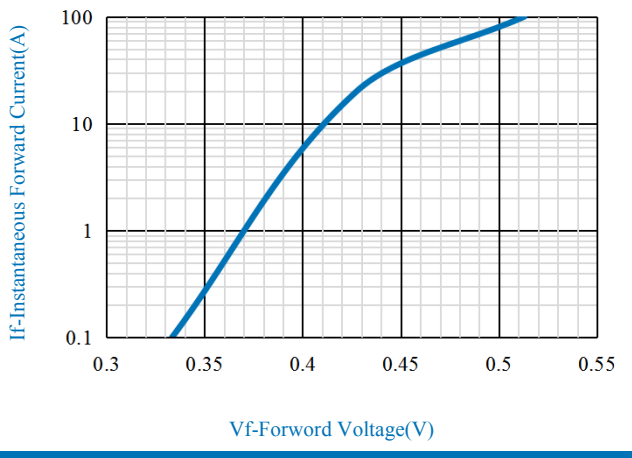

Fig.2-Typical Instantaneous Forward

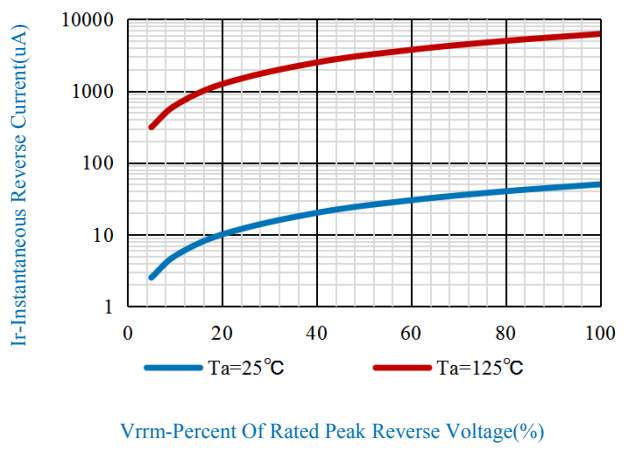

Fig.3-Typical Reverse Characteristics

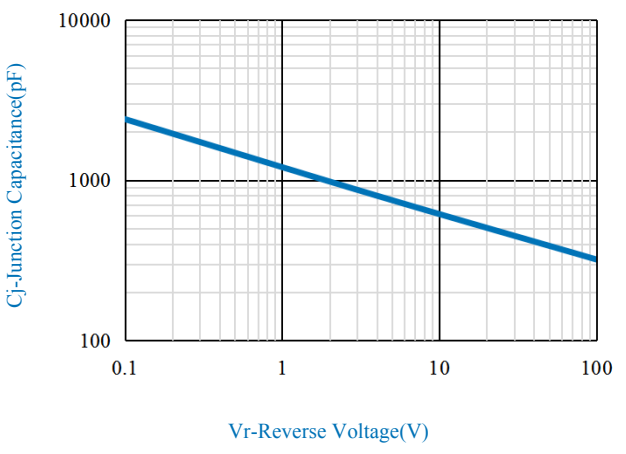

Fig.4-Typical Junction Capacitance

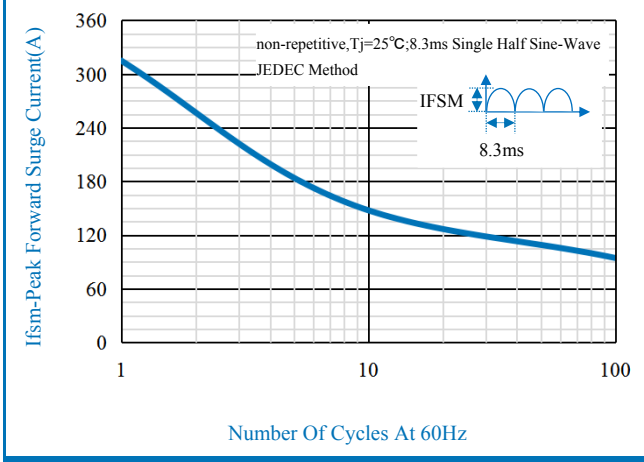

Fig.5-Max. Non-Repetitive Surge Current

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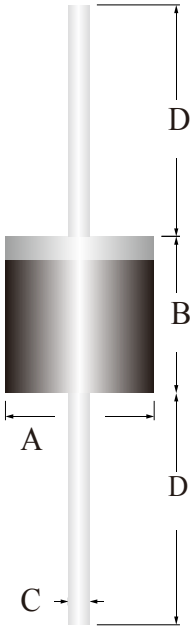
OUTLINE DRAWINGS

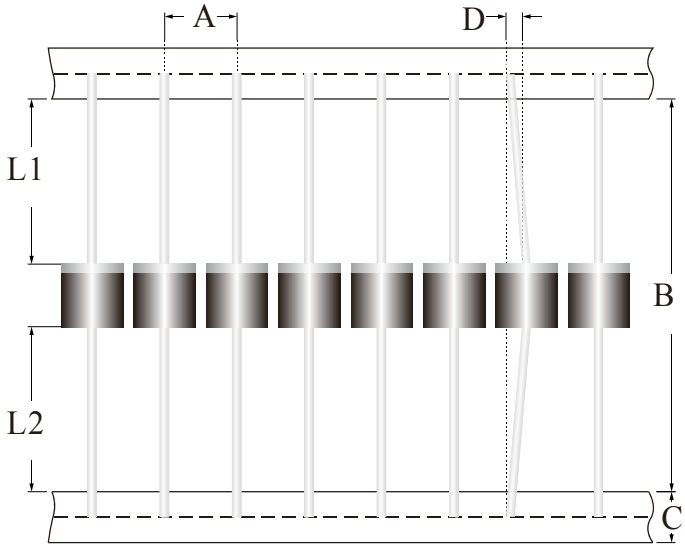
R-6



OUTLINE DIMENSIONS						
Dim.	Milimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	8.00	-	9.60	0.3150	-	0.3780
B	8.00	-	9.60	0.3150	-	0.3780
C	1.05	-	1.45	0.0413	-	0.0571
D	24.50	-	27.50	0.9646	-	1.0827

COMPONENT PITCH DIMENSION DIAGRAM

R-6



OUTLINE DIMENSIONS						
Dim.	Milimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	9.50	-	10.50	0.3740	-	0.4134
B	51.00	-	53.00	2.0079	-	2.0866
C	5.50	-	6.50	0.2165	-	0.2559
D	-	-	1.20	-	-	0.0472
|L2-L1|	-	-	1.00	-	-	0.0394

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MARKING



MARKING INSTRUCTION

NH=Niuhang Trademark

FF=Product Line Code,According To Actual Changes

DDK=Date Code,According To Actual Changes

20SQ045=Model

White band denotes cathode

PACKING INFORMATION

Package Type	Package Code	Productor Weight Approx(g/Pcs)	Package Method	Quantity (Pcs/Min. Pack.)	Quantity (Pcs/Inner Box)	Quantity (Pcs/Carton)
R-6	P1	1.735	Tape	400	400	4000
R-6	P2	1.735	Tape	500	500	5000

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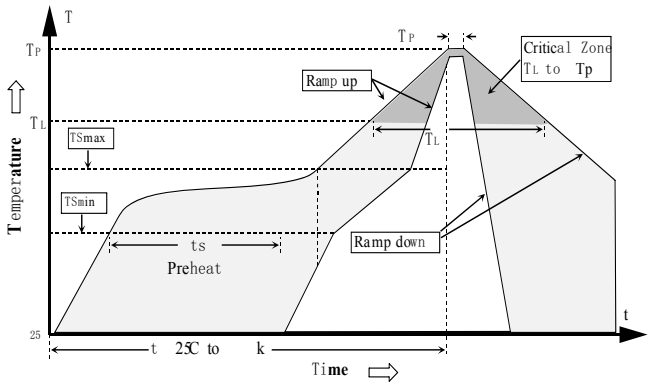
Recommended wave soldering condition

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 (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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Specification Revision History

Rev.	Date	Changed Items	Pre-Changed Content	Changed Content
A/1	2014-10-20	First Issue		

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修订历史记录/Revision History Record

版本 Rev.	日期 Date	变更项目 Changed Items	变更前的内容 Pre-Changed Content	变更后的内容 Changed Content
A/1	2014-10-20	首次发行		

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