

S2A THRU S2M
General Purpose Rectifiers



Voltage:	50~1000 Volts	Current:	2 A	Package:	SMAF
Features					
> NH'S Standard Rectifier Chip Technology > Low Forward Voltage Drop For High Efficiency > Low Leakage Current For High Reliability > High Surge Capability For High Reliability					
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	S2 A	S2 B	S2 D	S2 G	S2 J	S2 K	S2 M	Unit
Maximum Repetitive Peak Reverse Voltage		V_{RRM}	50	100	200	400	600	800	1000	V
Maximum RMS Voltag		V_{RMS}	35	70	140	280	420	560	700	V
Maximum DC Blocking Voltage		V_{DC}	50	100	200	400	600	800	1000	V
Maximum Average Forward Rectified Current		$I_{F(AV)}$	2							A
Peak Forward Surge Current	8.3ms Single Half Sine-wave Superimposed On Rate Load	I_{FSM}	50							A
Current Squared Time	$t < 8.3ms$	I^2t	10.4							A ² sec

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

Parameter	Test Conditions	Symbol	S2 A	S2 B	S2 D	S2 G	S2 J	S2 K	S2 M	Unit
Maximum Instantaneous Forward Voltage	$I_F = 2.0 A$	V_F	1.10							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}	5 200							uA uA
Typical Junction Capacitance	4 V, 1MHz	C_J	12							pF

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

Parameter	Test Conditions	Symbol	S2 A	S2 B	S2 D	S2 G	S2 J	S2 K	S2 M	Unit
Operating Junction Temperature Range		T _J	-55~150							℃
Storage Temperature Range		T _{STD}	-55~150							
Thermal Resistance Junction To Ambient With Steady-State	Still Air Environment With Ta=25℃	R _{θJA}	58.0							℃/W
Thermal Resistance Junction-Case With Steady-State	Device Mounted On 1 in2 FR-4 Board With 2oz. Copper	R _{θJC}	13.0							

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

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Typical Characteristics Curves

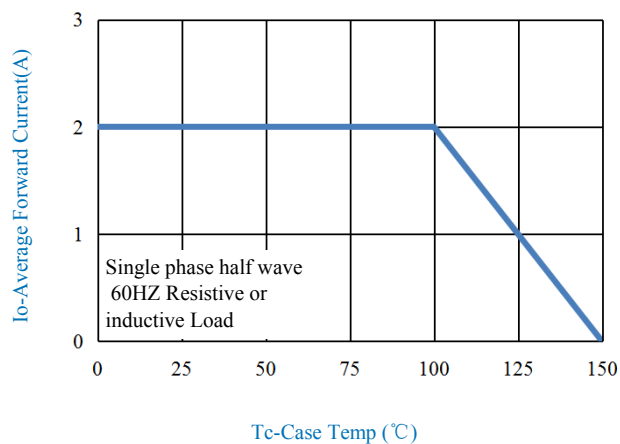


Fig.1-Forward Current Derating Curve

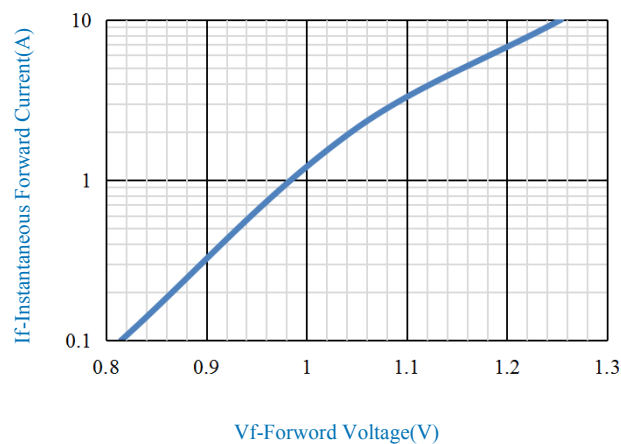


Fig.2-Typical Instantaneous Forward

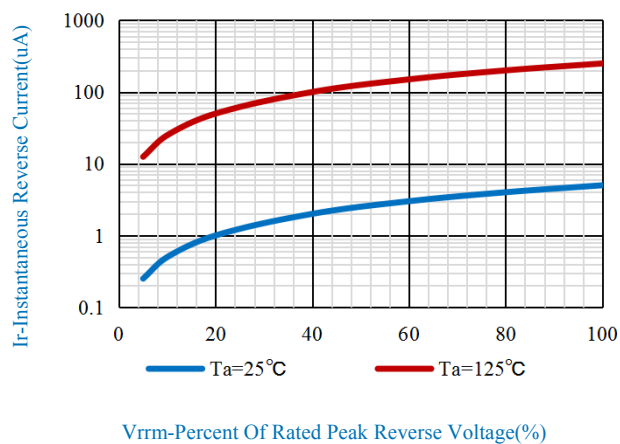


Fig.3-Typical Reverse Characteristics

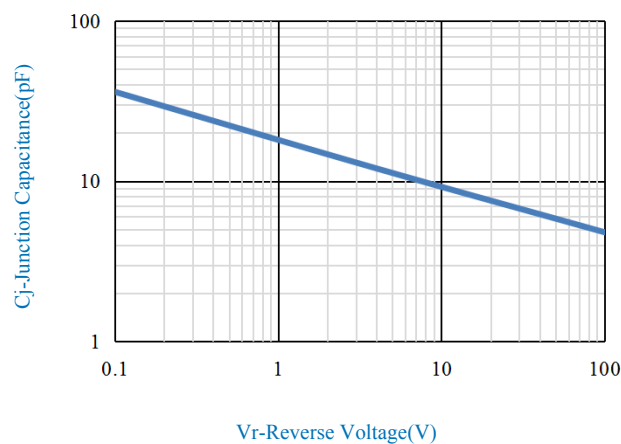


Fig.4-Typical Junction Capacitance

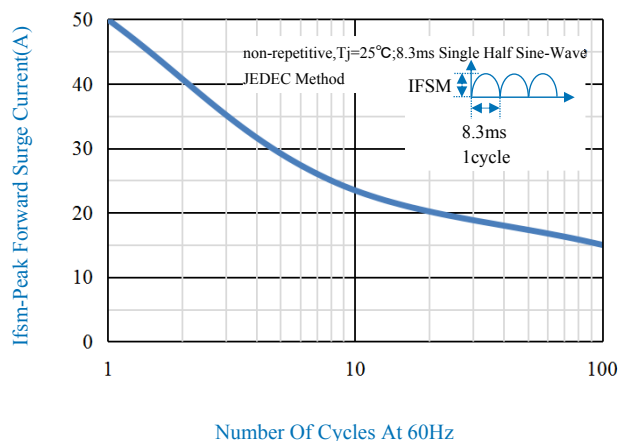


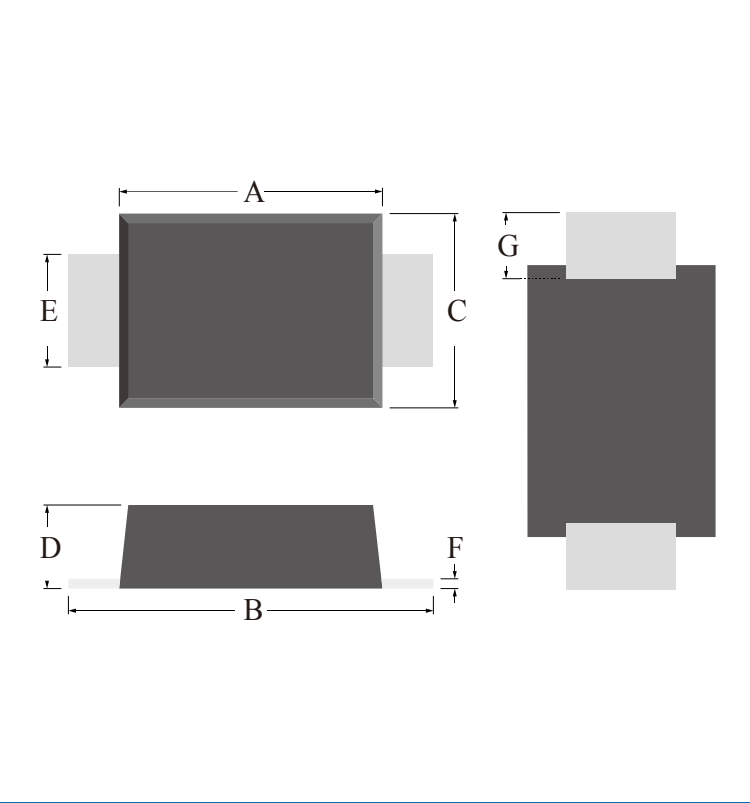
Fig.5-Max. Non-Repetitive Surge Current

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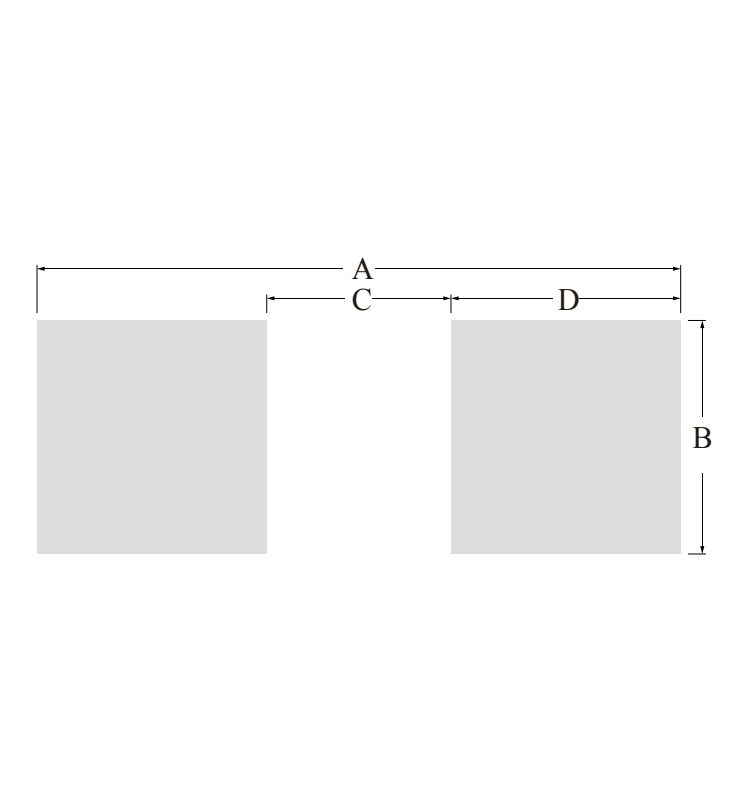
OUTLINE DRAWINGS



SMAF

OUTLINE DIMENSIONS						
Dim.	Milimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	3.20	-	3.80	0.1260	-	0.1496
B	4.40	-	5.30	0.1732	-	0.2087
C	2.30	-	2.70	0.0906	-	0.1063
D	0.95	-	1.20	0.0374	-	0.0472
E	1.30	-	1.60	0.0512	-	0.0630
F	0.08	-	0.17	0.0031	-	0.0067
G	0.50	-	1.20	0.0197	-	0.0472

RECOMMEDND LAYOUT DRAWINGS



SMAF

OUTLINE DIMENSIONS						
Dim.	Milimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	-	5.30	-	-	0.2087	-
B	-	2.06	-	-	0.0811	-
C	-	1.66	-	-	0.0654	-
D	-	2.07	-	-	0.0815	-

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MARKING

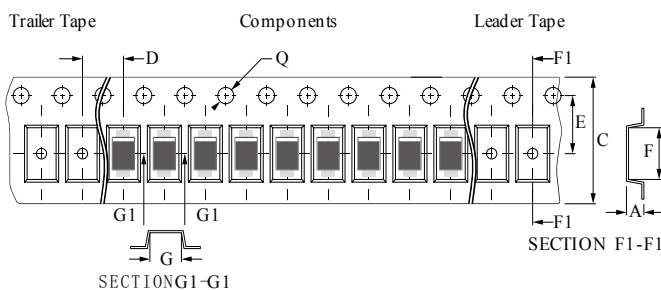


MARKING INSTRUCTION

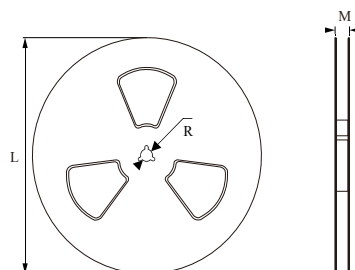
NH=Niuhan Trademark
FF=Product Line Code,According To Actual Changes
YWW=Date Code,According To Actual Changes
S2x=mark,xx=02,04,06
White band denotes cathode

PACKAGING

TAPE



REEL



SMAF

OUTLINE DIMENSIONS

Dim.	Milimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
TAPE						
A	1.60	1.70	1.80	0.0630	-	0.0709
C	11.70	12.00	12.30	0.4606	-	0.4843
D	3.80	4.00	4.20	0.1496	-	0.1654
E	5.30	5.50	5.70	0.2087	-	0.2244
F	4.70	4.90	5.10	0.1850	-	0.2008
G	2.73	2.83	2.93	0.1075	-	0.1154
Q Φ	1.40	-	1.60	0.0551	-	0.0630
REEL						
L Φ	176.00	-	180.00	6.929	-	7.087
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)
SMAF	P1	0.026	13" Reel	5000	10000	80000
SMAF	P1	0.026	13" Reel	5000	10000	100000

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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(ts min to ts 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.

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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