

BAT54WS

Small Signal Schottky Barrier Rectifiers



Voltage: 30 Volts

Power: 200 mW

Package: SOD-323

Features

- NH'S Small Signal Schottky Barrier Chip Technology
- Low Forward Voltage Drop For High Efficiency
- Small Package
- Low Cost

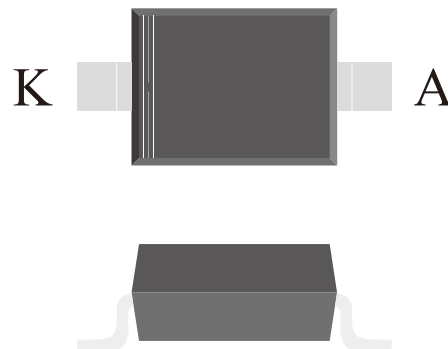
Mechanical Data

- **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

- Small Signal Control Circuit
- Auxiliary Control Circuit
- Switch Mode Power Supplies (SMPS)
- LED Driver

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}	30	V
Maximum RMS Voltag		V_{RMS}	21	V
Maximum Non-Repetitive Peak Reverse Voltage		V_{NRM}	30	V
Maximum Average Forward Rectified		$I_{F(AV)}$	200	mA
Peak Forward Surge Current	8.3ms Single Half Sine-wave Superimposed On Rate Load	I_{FSM}	0.6	A
Power Dissipation		P_D	200	mW

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

Parameter	Test Conditions	Symbol	Ratings			Unit
			Min.	Typ.	Max.	
Breakdown Voltage	$I_R=100\mu A$	BV_R	30	-	-	V
Maximum Instaneous Forward Voltage	$I_F=1\text{ mA}$	V_F	-	-	0.32	V
	$I_F=10\text{ mA}$		-	-	0.4	
	$I_F=30\text{ mA}$		-	-	0.5	
	$I_F=100\text{ mA}$		-	-	1.0	
Reverse Leakage Current	$V_R=V_{RRM}$	I_{RRM}	-	-	2	uA
Typical Junction Capacitance	0 V,1MHz	C_T	-	-	10	pF
Maximum Reverse Recovery Time	$I_F=I_R=10\text{mA}, I_{RR}=1\text{mA to }1\text{mA}, RL=100$	T_{rr}	-	-	5	nS

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

Parameter	Test Conditions	Symbol	Ratings	Unit
Operating Junction Temperature Range		T_J	-55 to 125	°C
Storage Temperature Range		T_{STD}	-55 to 150	
Thermal Resistance Junction-Case With Steady-State	Device Mounted On 1 in2 FR-4 Board With 2oz. Copper	$R_{\theta JA}$	500	°C/W

BAT54WS

Small Signal Schottky Barrier Rectifiers



Typical Characteristics Curves

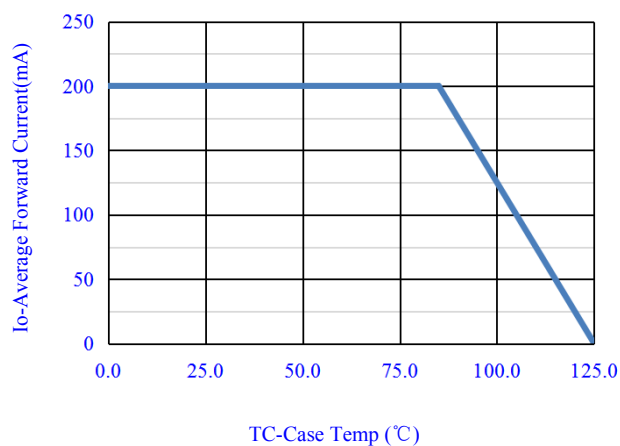


Fig.1-Forward Current Derating Curve

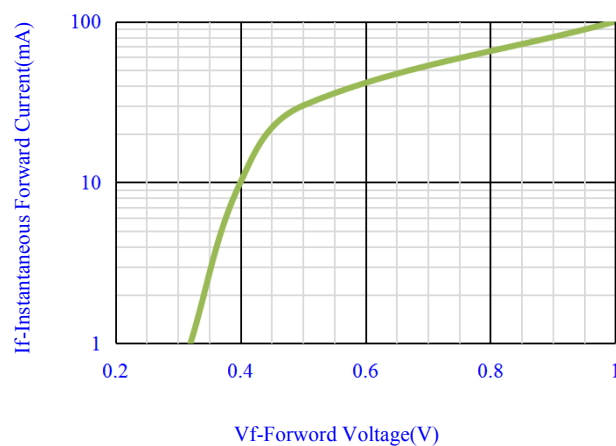


Fig.2-Typical Instantaneous Forward

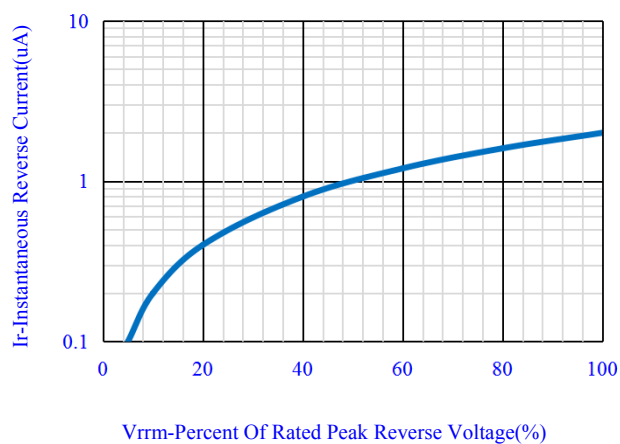


Fig.3-Typical Reverse Characteristics

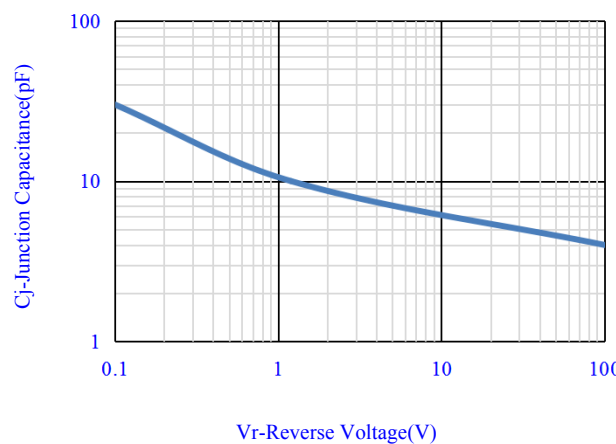


Fig.4- Typical Junction Capacitance

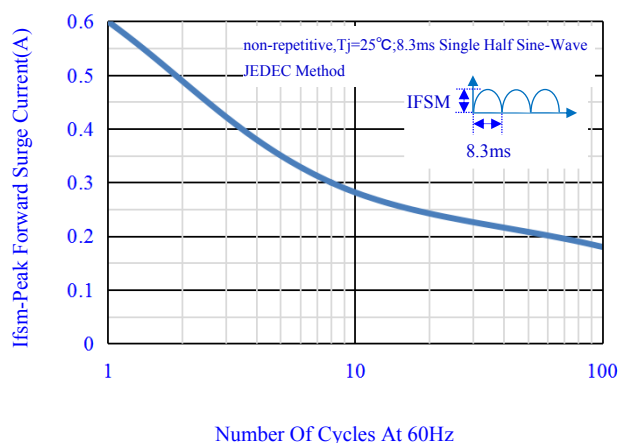


Fig.5-Max. Non-Repetitive Surge Current

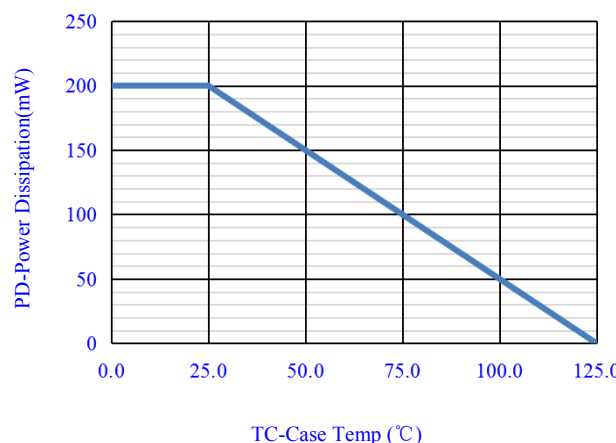
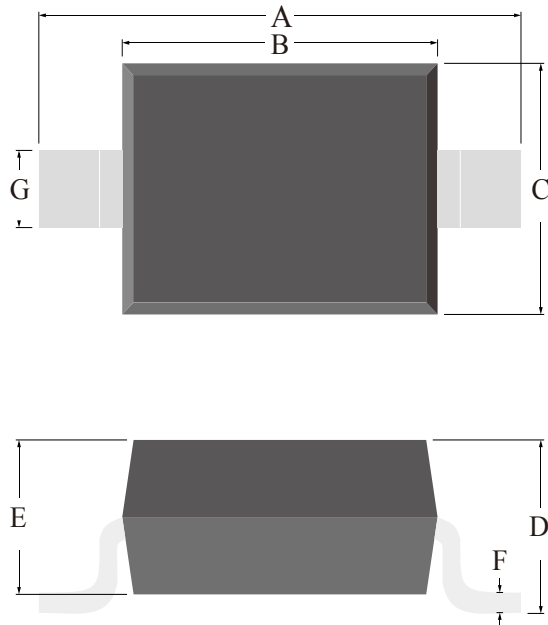


Fig.6-Power Dissipation Vs. Ambient Temp.

BAT54WS

Small Signal Schottky Barrier Rectifiers

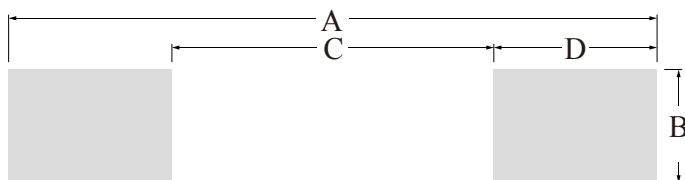


OUTLINE DIMENSIONS

Dim.	Milimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	2.15	-	2.45	0.0846	-	0.0965
B	1.55	-	1.85	0.0610	-	0.0728
C	1.15	-	1.45	0.0453	-	0.0571
D	0.70	-	1.50	-	-	0.0591
E	0.75	-	1.10	0.0295	-	0.0433
F	-	0.10	-	-	0.0038	-
G	0.15	-	0.45	0.0059	-	0.0177

RECOMMENDED LAYOUT DRAWINGS

000000



OUTLINE DIMENSIONS

Dim.	Milimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	-	2.90	-	-	0.1142	-
B	-	0.50	-	-	0.0197	-
C	-	1.44	-	-	0.0567	-
D	-	0.73	-	-	0.0287	-

BAT54WS

Small Signal Schottky Barrier Rectifiers



MARKING

MARKING INSTRUCTION



L9=mark
White band denotes cathode

PACKING INFORMATION

Package Type	Package Code	Product Weight Approx(g/Pcs)	Package Method	Quantity (Pcs/Min. Pack.)	Quantity (Pcs/Inner Box)	Quantity (Pcs/Carton)
SOD-323	P1	0.0041	7" Reel	3000	45000	180000

BAT54WS

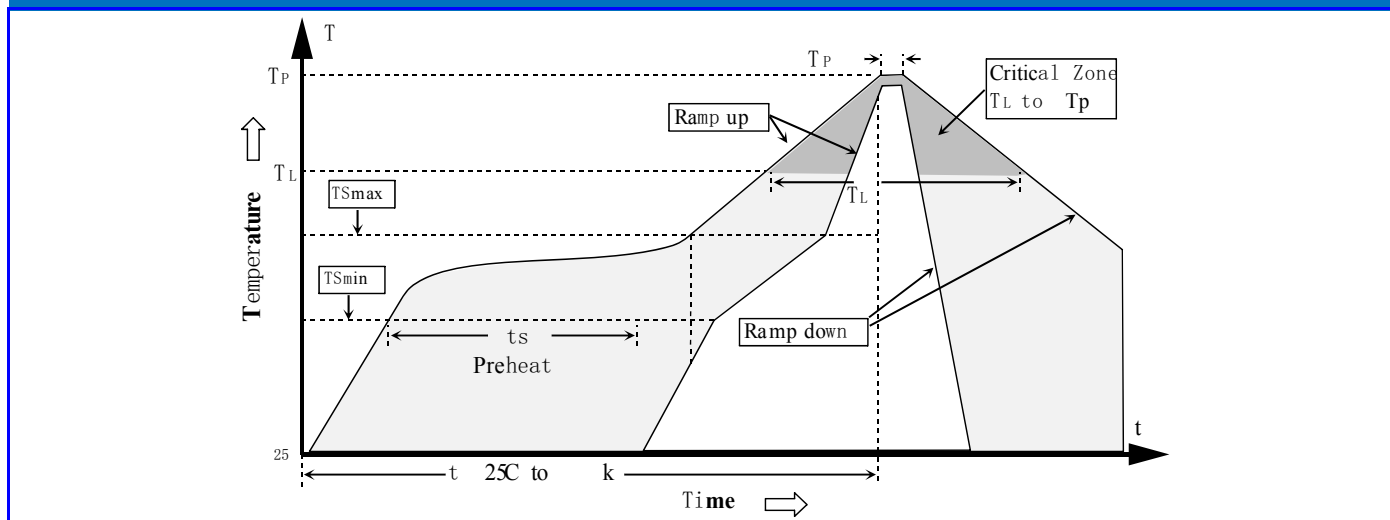
Small Signal Schottky Barrier Rectifiers



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.

BAT54WS

Small Signal Schottky Barrier Rectifiers



Disclaimer

- Reproducing and modifying information of the document is prohibited without permission from Niuhan Electronics Technology Co., LTD
- Niuhan Electronics Technology Co., LTD. reserves the rights to make changes of the content herein the document anytime without notification.
- Niuhan Electronics Technology Co., LTD. disclaims any and all liability arising out of the application or use of any product including damages incidentally and consequentially occurred.
- Niuhan Electronics Technology Co., LTD. does not assume any and all implied warranties, including warranties of fitness for particular purpose, non-infringement and merchantability.
- Applications shown on the herein document are examples of standard use and operation. Customers are responsible in comprehending the suitable use in particular applications. Niuhan Electronics Technology Co., LTD. makes no representation or warranty that such applications will be suitable for the specified use without further testing or modification.
- The products shown herein are not designed and authorized for equipments requiring high level of reliability or relating to human life and for any applications concerning life-saving or life-sustaining, such as medical instruments, transportation equipment, aerospace machinery et cetera. Customers using or selling these products for use in such applications do so at their own risk and agree to fully indemnify Niuhan Electronics Technology Co., LTD. for any damages resulting from such improper use or sale.
- When the appearance of the product and chip size does not change, in order to product the customer. quality, change the internal structure and the production process Niuhan can not notify