

**MB24S**

**SURFACE MOUNT SHOTTKY BRIDGE**



<b>VOLTAGE:</b> 1000 Volts	<b>CURRENT:</b> 1.0 Amperes	<b>MBS</b>	<b>Marking &amp; Schematic diagram</b>										
<b>FEATURES</b> <ul style="list-style-type: none"> <li>Reverse Voltage - 40V</li> <li>Forward Current - 2 A</li> <li>Schottky chip</li> <li>High Speed Switching</li> </ul>		<table border="1" style="margin-top: 10px;"> <thead> <tr> <th>PIN</th> <th>DISCRIPTION</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>Output Cathode(-)</td> </tr> <tr> <td>2</td> <td>Output Anode(+)</td> </tr> <tr> <td>3</td> <td>Input Pin(-)</td> </tr> <tr> <td>4</td> <td>Input Pin(-)</td> </tr> </tbody> </table>		PIN	DISCRIPTION	1	Output Cathode(-)	2	Output Anode(+)	3	Input Pin(-)	4	Input Pin(-)
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<b>MECHANICAL DATA</b> <ul style="list-style-type: none"> <li><b>Case:</b> MBS</li> <li><b>Terminals:</b> Plated Leads Solderable per MIL-STD-202, Method 208</li> <li><b>Polarity:</b> As Marked on Case</li> <li><b>Mounting Position:</b> Any</li> <li><b>Lead Free:</b> For RoHS / Lead Free Version</li> <li><b>Weight:</b> App. 0.107 grams (0.0038 ounce)</li> </ul>		<b>Remark:</b> <ul style="list-style-type: none"> <li>①. NH=niuhang trademark</li> <li>②. FF=Product line code,According to actual changes YWW=Data code,According to actual changes</li> <li>③. MB24S=Modle</li> <li>④. "- +"=Polarity mark</li> </ul>											
<b>TYPICAL APPLICATIONS</b> <ul style="list-style-type: none"> <li>For use in switch DC-DC inverters</li> </ul>													

Single phase, half wave, 60Hz, resistive or inductive load. For capacitive load, derate current by 20%

**Maximum Ratings (Ratings at 25°C ambient temperature unless otherwise specified)**

Parameter	Symbol	MB24S	Unit
Maximum Repetitive Peak Reverse Voltage	$V_{RRM}$	1000	V
Maximum RMS Voltag	$V_{RMS}$	700	V
Maximum DC Blocking Voltage	$V_{DC}$	1000	V
Maximum Average Forward Rectified Current @ TC=100°C (see fig.1)	$I_{F(AV)}$	1	A
Peak Forward Surge Current 8.3ms Single Half Sine-wave Superimposed On Rate Load (JEDEC Method)	$I_{FSM}$	50	A
Current Squared Time Per Diode (t<8.3ms)	$I^2t$	10.38	A <sup>2</sup> sec

**Electrical Characteristics (Ratings at 25°C ambient temperature unless otherwise specified)**

Parameter	Test Conditions		Symbol	MB24S			Unit
				Min.	Typ.	Max.	
Maximum Forward Voltage Per Diode (Note 1)	Ta=25°C	IF= 1.0 A	$V_{FM}$	--	0.50	0.53	V
Maximum DC Reverse Current at Rated DC Blocking Voltage (Note 1)	Ta=25°C	VR= 1000 V	$I_{RRM}$	--	--	50	uA
	Ta=125°C	VR= 1000 V		--	--	10	mA
Typical Junction Capacitance Per Diode	4V, 1MHz		$C_J$	--	220	--	pF

**Thermal Characteristics (Ratings at 25°C ambient temperature unless otherwise specified)**

Parameter	Symbol	MB24S		Unit
Operating Junction Temperature Range	$T_J$	-55	to 150	°C
Storage Temperature Range	$T_{STD}$	-55	to 150	
Typical thermal resistance (Note 2)	$R_{\theta JA}$	75.0		°C/W
	$R_{\theta JL}$	20.0		

- Notes:
- Pulse test: 300 μs pulse width, 1% duty cycle
  - Mounted on glass epoxy PC board with 4x1.5"x1.5" (3.81x3.81 cm) copper pad.

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**RATING AND CHARACTERISTIC CURVES**

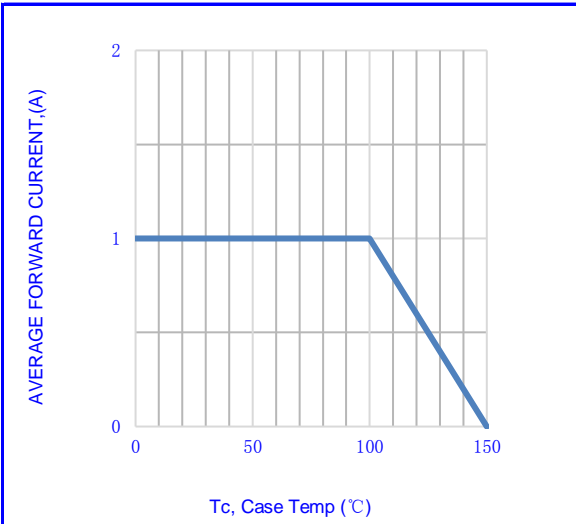


Fig.1-FORWARD CURRENT DERATING CURVE

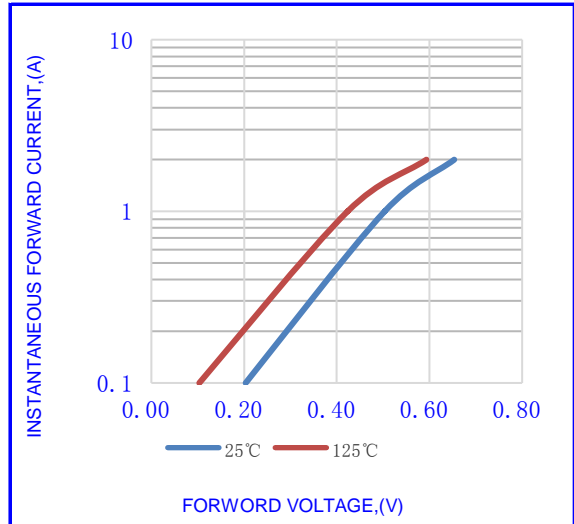


Fig.2- TYPICAL INSTANTANEOUS FORWARD

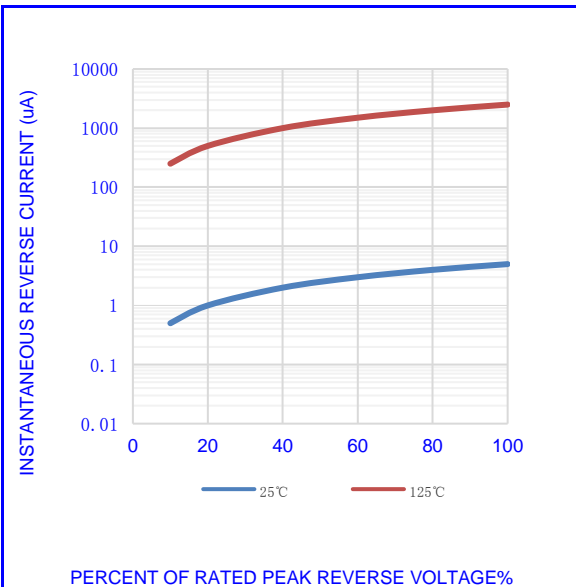


Fig.3- TYPICAL REVERSE CHARACTERISTICS

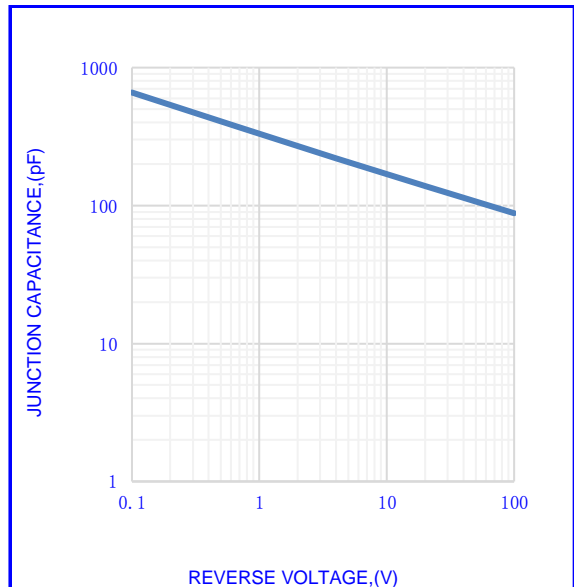


Fig.4- TYPICAL JUNCTION CAPACITANCE

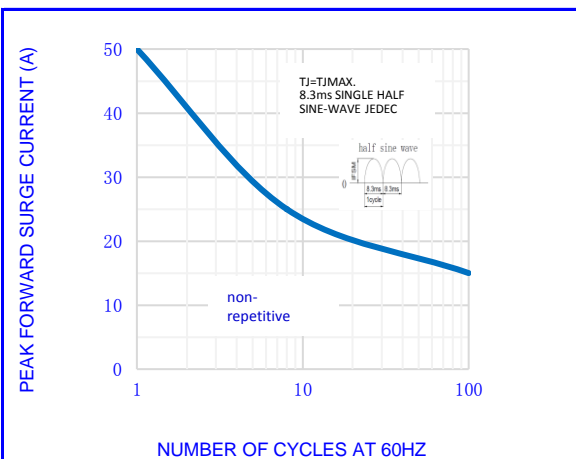


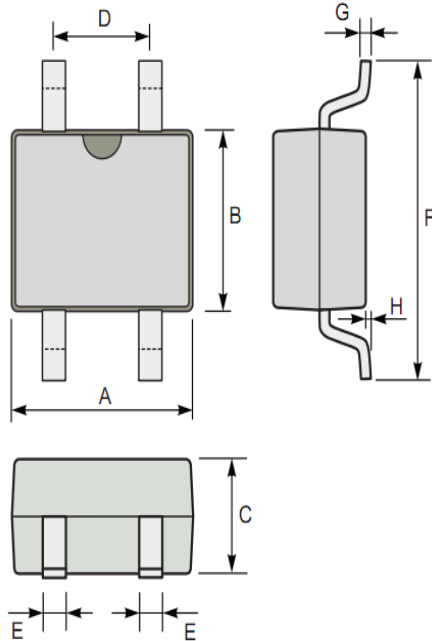
Fig.5-MAX. NON-REPETITIVE SURGE CURRENT

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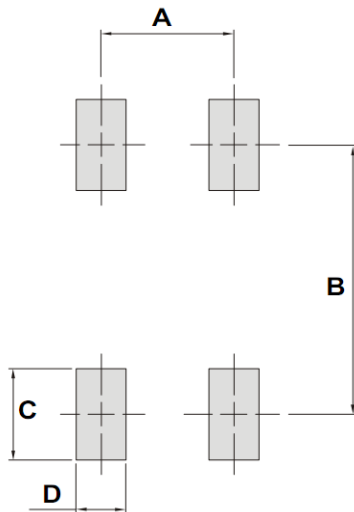
**OUTLINE DRAWINGS**



**MBS**

OUTLINE DIMENSIONS						
Dim.	Milimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	4.500	-	4.900	0.177	-	0.193
B	3.600	-	4.000	0.142	-	0.157
C	2.300	-	2.700	0.091	-	0.106
D	2.200	-	2.800	0.087	-	0.110
E	0.450	-	1.050	0.018	-	0.041
F	6.600	-	7.000	0.260	-	0.276
G	0.150	-	0.350	0.006	-	0.014
H	-	-	0.200	-	-	0.008

**RECOMMENDED LAYOUT DRAWINGS**



**MBS**

RECOMMENDED LAYOUT DIMENSIONS						
Dim.	Milimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	-	2.400	-	-	0.0945	-
B	-	6.000	-	-	0.2362	-
C	-	1.840	-	-	0.0724	-
D	-	0.900	-	-	0.0354	-

**PACKING INFORMATION**

**MBS**

Package Method	Reel Size (mm)	Quantity (pcs/reel)	Inner Box Size LxWxH(mm)	Quantity (pcs/Inner Box)	Outer Carton Size LxWxH(mm)	Quantity (pcs/carton)
Tape Reel	Φ330	5000	340x340x40	10000	360x360x260	60000

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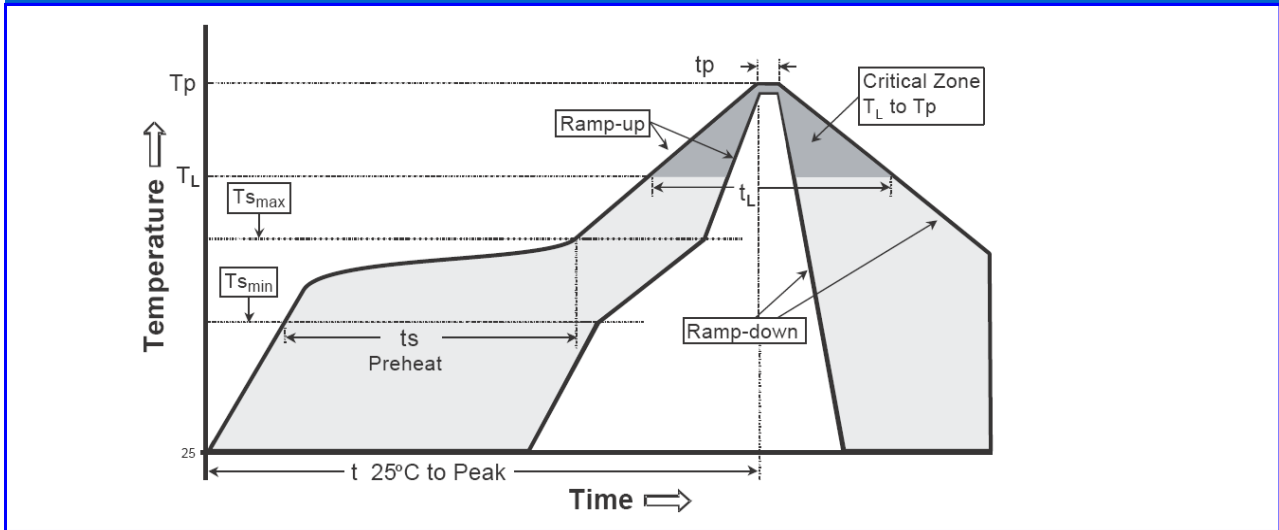
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**Recommended wave soldering condition**

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 (Tsmmax 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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