



BAT54J / W / AW / CW / SW

SMALL SIGNAL SCHOTTKY DIODE

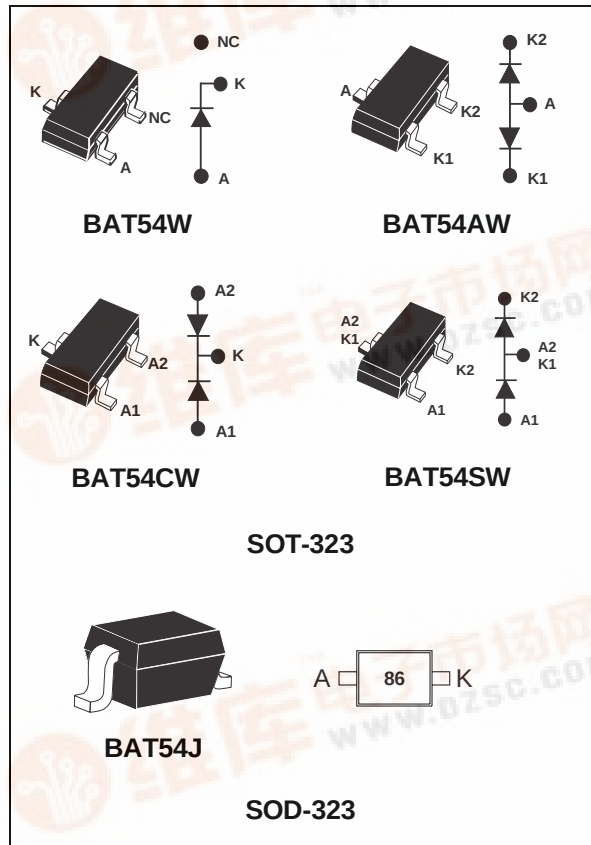
FEATURES AND BENEFITS

- VERY SMALL CONDUCTION LOSSES
- NEGLIGIBLE SWITCHING LOSSES
- LOW FORWARD VOLTAGE DROP
- SURFACE MOUNT DEVICE

DESCRIPTION

Schottky barrier diodes encapsulated either in SOT-323 or SOD-323 small SMD packages.

Single and double diodes with different pinning are available.



ABSOLUTE RATINGS (limiting values)

Symbol	Parameter		Value	Unit
V_{RRM}	Repetitive peak reverse voltage		30	V
I_F	Continuous forward current		0.3	A
I_{FSM}	Surge non repetitive forward current	$t_p=10ms$ sinusoidal	1	A
P_{tot}	Power dissipation (note 1) $T_{amb} = 25^\circ C$	SOD-323	230	mW
		SOT-323		
T_{stg}	Maximum storage temperature range		- 65 to +150	$^\circ C$
T_j	Maximum operating junction temperature *		150	$^\circ C$
T_L	Maximum temperature for soldering during 10s		260	$^\circ C$

Note 1: for double diodes, P_{tot} is the total dissipation of both diodes

* : $\frac{dP_{tot}}{dT_j} < \frac{1}{R_{th(j-a)}}$ thermal runaway condition for a diode on its own heatsink

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THERMAL RESISTANCE

Symbol	Parameters		Value	Unit
R _{th(j-a)}	Junction to ambient (*)	SOD-323	550	°C/W
		SOT-323		°C/W

(*) Mounted on epoxy board, with recommended pad layout.

STATIC ELECTRICAL CHARACTERISTICS (per diode)

Symbol	Parameters	Tests conditions		Min.	Typ.	Max.	Unit
V _F *	Forward voltage drop	T _j = 25°C	I _F = 0.1 mA			240	mV
			I _F = 1 mA			320	
			I _F = 10 mA			400	
			I _F = 30 mA			500	
			I _F = 100 mA			900	
I _R **	Reverse leakage current	T _j = 25°C	V _R = 30 V			1	μA
		T _j = 100°C				100	

Pulse test : * tp = 380 μs, δ < 2%
** tp = 5 ms, δ < 2%

DYNAMIC CHARACTERISTICS (T_j = 25 °C)

Symbol	Parameters	Tests conditions	Min.	Typ.	Max.	Unit
C	Junction capacitance	T _j = 25°C V _R = 1 V F = 1 MHz			10	pF
t _{rr}	Reverse recovery time	I _F = 10 mA I _R = 10 mA T _j = 25°C I _{rr} = 1 mA R _L = 100 Ω			5	ns

Fig. 1-1: Forward voltage drop versus forward current (typical values, low level).

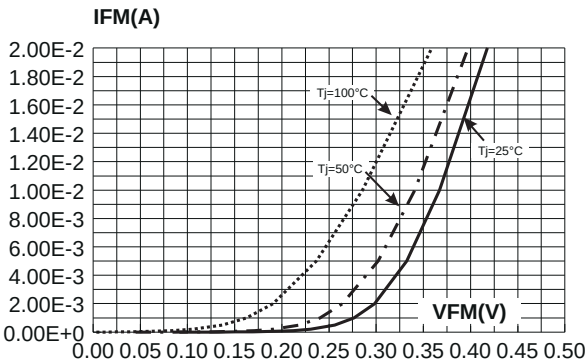


Fig. 1-2: Forward voltage drop versus forward current (typical values, high level).

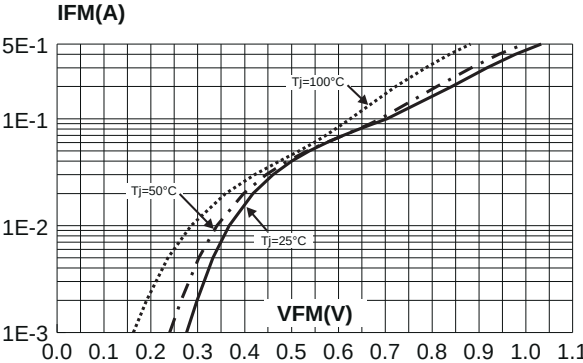


Fig. 2: Reverse leakage current versus reverse voltage applied (typical values).

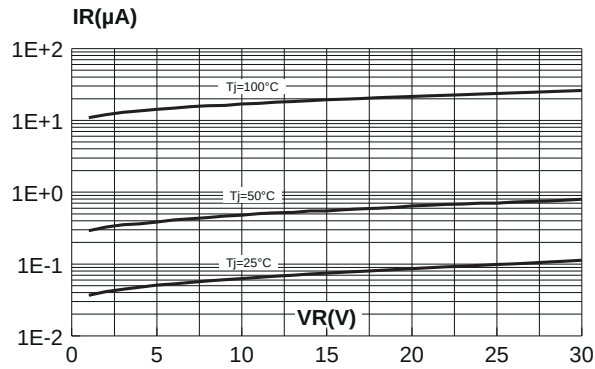


Fig. 3: Reverse leakage current versus junction temperature.

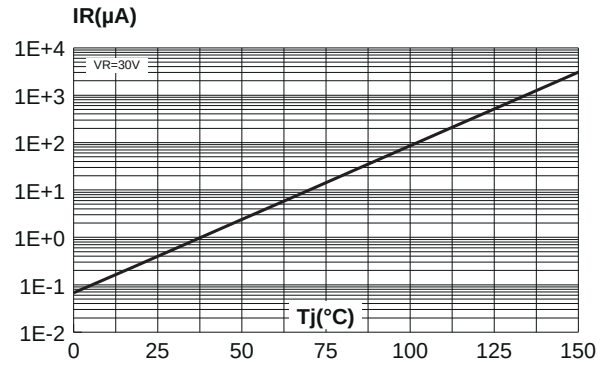


Fig. 4: Junction capacitance versus reverse voltage applied (typical values).

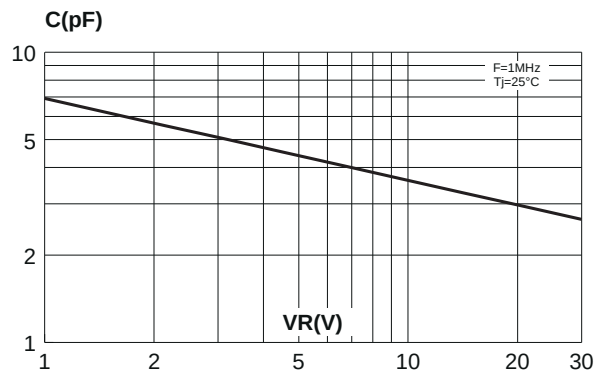


Fig. 5: Relative variation of thermal impedance junction to ambient versus pulse duration (epoxy FR4 with recommended pad layout, $e(Cu) = 35\mu m$)

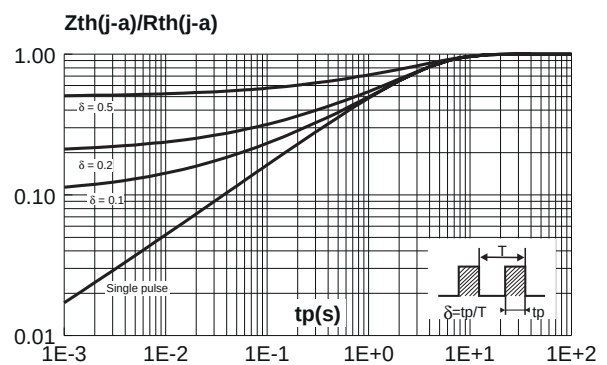
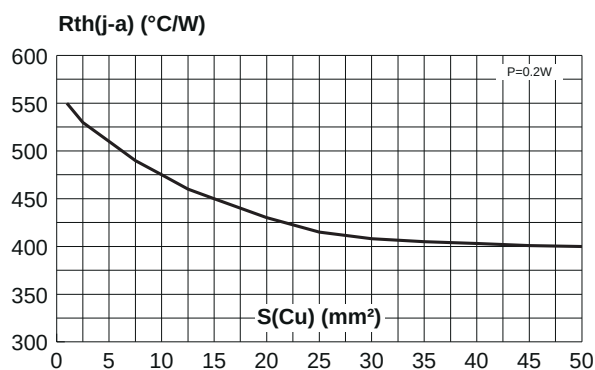
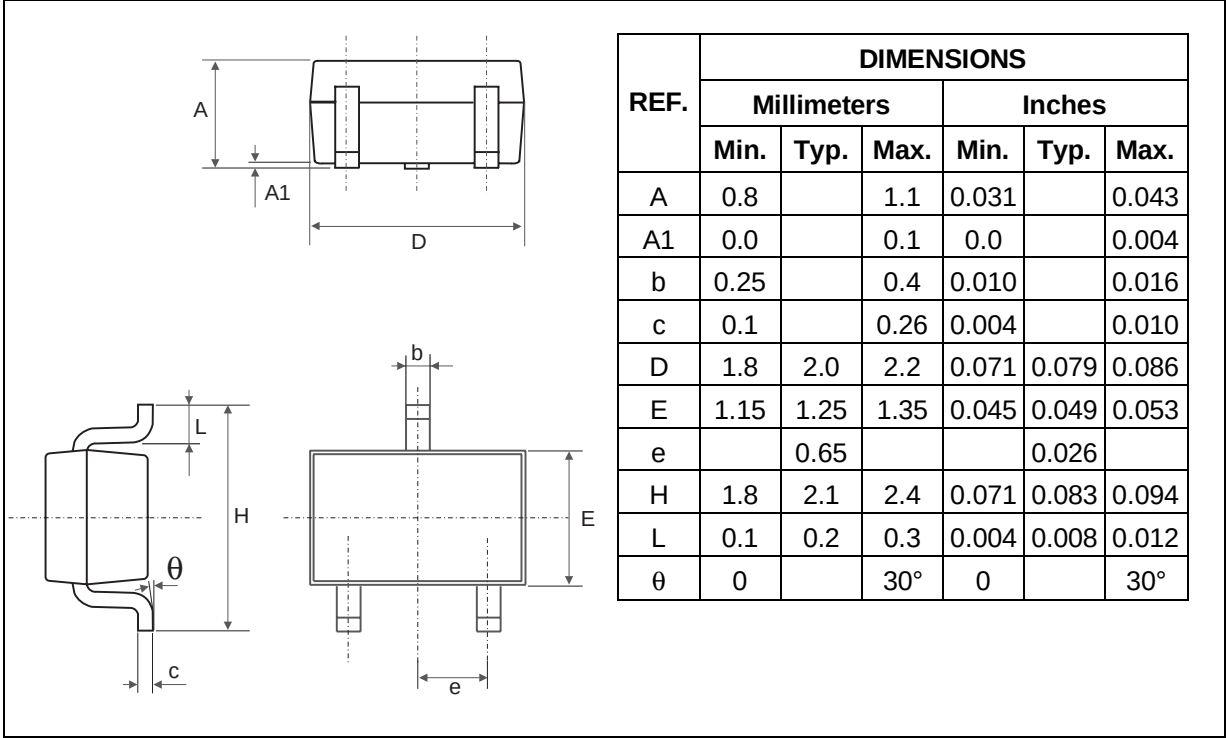


Fig. 6: Thermal resistance junction to ambient versus copper surface under each lead (Epoxy printed circuit board FR4, copper thickness: $35\mu m$.)



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PACKAGE MECHANICAL DATA
SOT-323



PACKAGE MECHANICAL DATA
SOD-323

REF.	DIMENSIONS			
	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A		1.17		0.046
A1	0	0.1	0	0.004
b	0.25	0.44	0.01	0.017
c	0.1	0.25	0.004	0.01
D	1.52	1.8	0.06	0.071
E	1.11	1.45	0.044	0.057
H	2.3	2.7	0.09	0.106
L	0.1	0.46	0.004	0.02
Q1	0.1	0.41	0.004	0.016

Ordering type	Marking	Package	Weight	Base qty	Delivery mode
BAT54W	D73	SOT-323	0.006g	3000	Tape & reel
BAT54AW	D74	SOT-323	0.006g	3000	Tape & reel
BAT54CW	D77	SOT-323	0.006g	3000	Tape & reel
BAT54SW	D78	SOT-323	0.006g	3000	Tape & reel
BAT54J	86	SOD-323	0.005g	3000	Tape & reel

■ Epoxy meets UL94,V0

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