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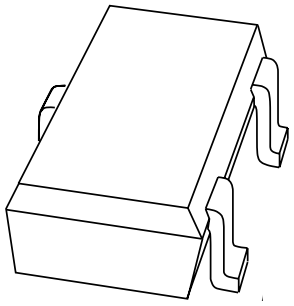
Team Nexperia

DATA SHEET



BAT854W series
Schottky barrier (double) diodes

Product data sheet

2001 Feb 27

Schottky barrier (double) diodes BAT854W series

FEATURES

- Very low forward voltage
- Very low reverse current
- Guard ring protected
- Very small SMD plastic package.

APPLICATIONS

- Ultra high-speed switching
- Voltage clamping
- Protection circuits
- Blocking diodes
- Low power consumption applications (e.g. hand-held applications).

DESCRIPTION

Planar Schottky barrier diodes encapsulated in a SOT323 very small SMD plastic package. Single diodes and double diodes with different pinning are available.

MARKING

TYPE NUMBER	MARKING CODE
BAT854W	81
BAT854AW	82
BAT854CW	83
BAT854SW	84

PINNING

PIN	SYMBOL
BAT854W	
1	a
2	n.c.
3	k
BAT854AW	
1	k_1
2	k_2
3	a_1,a_2
BAT854CW	
1	a_1
2	a_2
3	k_1, k_2
BAT854SW	
1	a_1
2	k_2
3	k_1, a_2

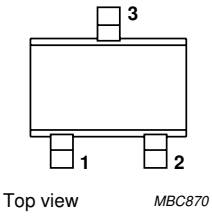


Fig.1 Simplified outline SOT323 and pin configuration.

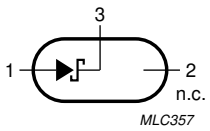


Fig.2 BAT854W single diode configuration (symbol).

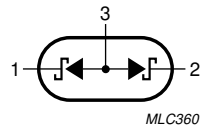


Fig.3 BAT854AW diode configuration (symbol).

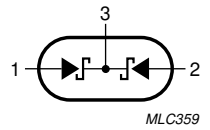


Fig.4 BAT854CW diode configuration (symbol).

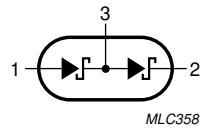


Fig.5 BAT854SW diode configuration (symbol).

LIMITING VALUES

In accordance with the Absolute Maximum Rating System (IEC 60134).

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
Per diode					
V_R	continuous reverse voltage		–	40	V
I_F	continuous forward current		–	200	mA
I_{FRM}	repetitive peak forward current	$t_p \leq 1$ s; $\delta \leq 0.5$	–	300	mA
I_{FSM}	non-repetitive peak forward current	t = 8.3 ms half sinewave; JEDEC method	–	1	A
T_{stg}	storage temperature		−65	+150	°C
T_j	junction temperature		–	150	°C
T_{amb}	operating ambient temperature		−65	+150	°C

ELECTRICAL CHARACTERISTICS

T_{amb} = 25 °C; unless otherwise specified.

SYMBOL	PARAMETER	CONDITIONS	TYP.	MAX.	UNIT
Per diode					
V_F	continuous forward voltage	see Fig.6			
		I_F = 0.1 mA	200	–	mV
		I_F = 1 mA	260	–	mV
		I_F = 10 mA	340	–	mV
		I_F = 30 mA	–	420	mV
		I_F = 100 mA	–	550	mV
I_R	continuous reverse current	V_R = 25 V; note 1; see Fig.7	–	0.5	μA
C_d	diode capacitance	V_R = 1 V; f = 1 MHz; see Fig.8	–	20	pF

Note

1. Pulse test: t_p = 300 μs; δ = 0.02.

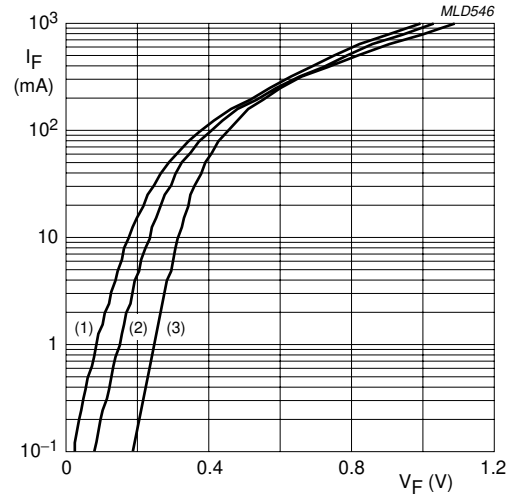
THERMAL CHARACTERISTICS

SYMBOL	PARAMETER	CONDITIONS	VALUE	UNIT
$R_{th\ j\text{-}a}$	thermal resistance from junction to ambient	note 1	625	K/W

Note

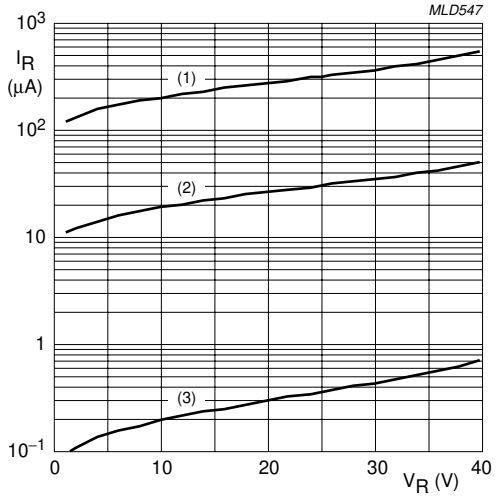
1. Refer to SOT323 standard mounting conditions.

GRAPHICAL DATA



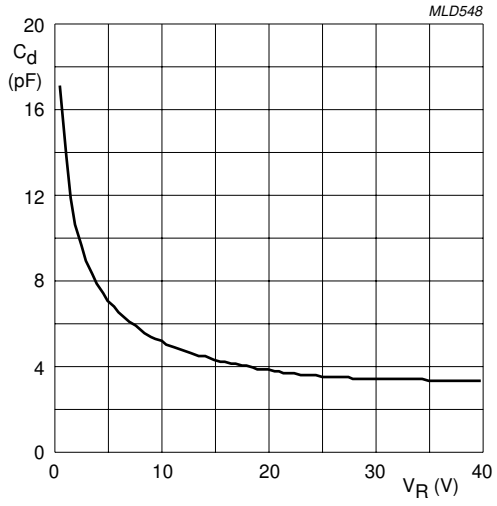
(1) T_{amb} = 125 °C.
(2) T_{amb} = 85 °C.
(3) T_{amb} = 25 °C.

Fig.6 Forward current as a function of forward voltage; typical values.



(1) T_{amb} = 125 °C.
(2) T_{amb} = 85 °C.
(3) T_{amb} = 25 °C.

Fig.7 Reverse current as a function of reverse voltage; typical values.

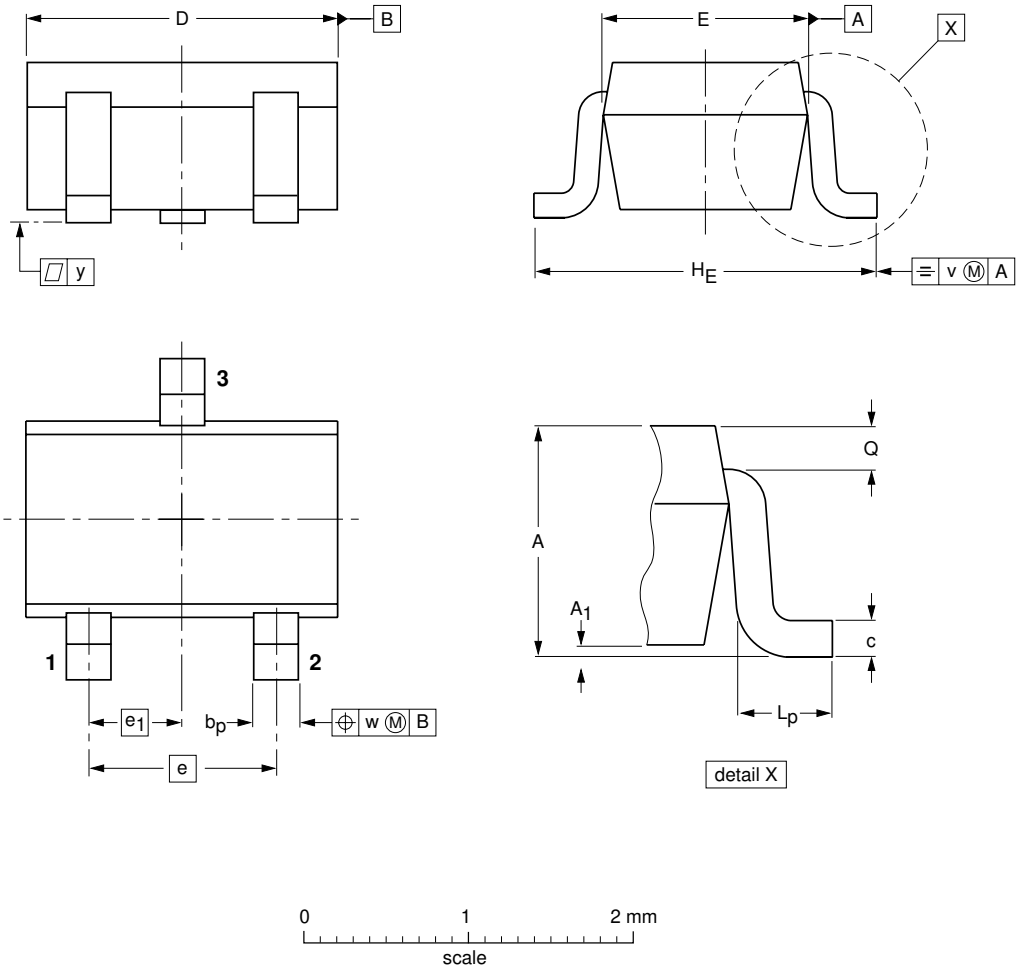


f = 1 MHz; T_{amb} = 25 °C.

Fig.8 Diode capacitance as a function of reverse voltage; typical values.

PACKAGE OUTLINE

Plastic surface mounted package; 3 leads **SOT323**



DIMENSIONS (mm are the original dimensions)

UNIT	A	A_1 max	b_p	c	D	E	e	e_1	H_E	L_p	Q	v	w
mm	1.1 0.8	0.1	0.4 0.3	0.25 0.10	2.2 1.8	1.35 1.15	1.3	0.65	2.2 2.0	0.45 0.15	0.23 0.13	0.2	0.2

OUTLINE VERSION	REFERENCES				EUROPEAN PROJECTION	ISSUE DATE
	IEC	JEDEC	EIAJ			
SOT323			SC-70			97-02-28

DATA SHEET STATUS

DOCUMENT STATUS[1]	PRODUCT STATUS[2]	DEFINITION
Objective data sheet	Development	This document contains data from the objective specification for product development.
Preliminary data sheet	Qualification	This document contains data from the preliminary specification.
Product data sheet	Production	This document contains the product specification.

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NXP Semiconductors

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