BAT54-V-G, BAT54A-V-G, BAT54C-V-G, BAT54S-V-G



**Vishay Semiconductors** 

# Small Signal Schottky Diodes, Single and Dual

ρ

RoHS

COMPLIANT

GREEN

(5-2008)

## Features

- These diodes feature very low turn-on voltage and fast switching
- These devices are protected by a PN junction guard ring against excessive voltage, such as electrostatic discharges
- AEC-Q101 qualified
- Compliant to RoHS directive 2002/95/EC and in accordance to WEEE 2002/96/EC

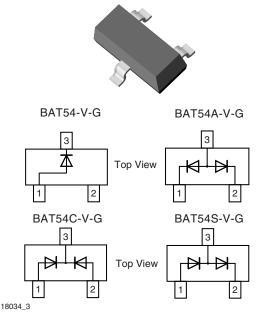
### **Mechanical Data**

Case: SOT-23

Weight: approx. 8.1 mg

Packaging codes/options:

18/10K per 13" reel (8 mm tape), 10K/box 08/3K per 7" reel (8 mm tape), 15K/box



## **Parts Table**

Part	Ordering code	Type marking	Remarks	
BAT54-V-G	BAT54-V-G-18 or BAT54-V-G-08	L8	Tape and reel	
BAT54A-V-G	BAT54A-V-G-18 or BAT54A-V-G-08	L46	Tape and reel	
BAT54C-V-G	BAT54C-V-G-18 or BAT54C-V-G-08	L47	Tape and reel	
BAT54S-V-G	BAT54S-V-G-18 or BAT54S-V-G-08	L48	Tape and reel	

#### **Absolute Maximum Ratings**

T<sub>amb</sub> = 25 °C, unless otherwise specified

Parameter	Test condition	Symbol	Symbol Value	
Repetitive peak reverse voltage		V <sub>RRM</sub>	30	V
Forward continuous current		١ <sub>F</sub>	200 <sup>1)</sup>	mA
Repetitive peak forward current		I <sub>FRM</sub>	300 <sup>1)</sup>	mA
Surge forward current current	t <sub>p</sub> < 1 s	I <sub>FSM</sub>	600 <sup>1)</sup>	mA
Power dissipation		P <sub>tot</sub>	230	mW

Note

<sup>1)</sup> Device on fiberglass substrate, see layout on next page.

#### **Thermal Characteristics**

 $T_{amb} = 25 \ ^{\circ}C$ , unless otherwise specified

Parameter	Test condition	Symbol	Value	Unit	
Thermal resistance junction to ambient air		R <sub>thJA</sub>	430 <sup>1)</sup>	K/W	
Junction temperature		Tj	125	°C	
Storage temperature range		T <sub>stg</sub>	- 65 to + 150	°C	

Note

<sup>1)</sup> Device on fiberglass substrate, see layout on next page.

\*\* Please see document "Vishay Material Category Policy": www.vishay.com/doc?99902

 Document Number 83344
 For technical questions within your region, please contact one of the following:

 Rev. 1.0, 28-Jun-10
 DiodesAmericas@vishay.com, DiodesAsia@vishay.com, DiodesEurope@vishay.com

# BAT54-V-G, BAT54A-V-G, BAT54C-V-G, BAT54S-V-G

# **Vishay Semiconductors**



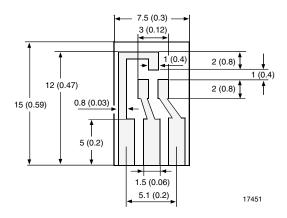
## **Electrical Characteristics**

T<sub>amb</sub> = 25 °C, unless otherwise specified

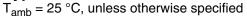
Parameter	Test condition	Symbol	Min.	Тур.	Max.	Unit
Reverse Breakdown voltage	I <sub>R</sub> = 100 μA (pulsed)	V <sub>(BR)</sub>	30			V
Leakage current	Pulse test t <sub>p</sub> < 300 $\mu$ s, $\delta$ < 2 % at V <sub>R</sub> = 25 V	I <sub>R</sub>			2	μA
	$I_{\text{F}}$ = 0.1 mA, $t_{\text{p}}$ < 300 $\mu\text{s},$ $\delta$ < 2 %	V <sub>F</sub>			240	mV
	$I_F$ = 1 mA, $t_p$ < 300 µs, $\delta$ < 2 %	V <sub>F</sub>			320	mV
Forward voltage	$I_F$ = 10 mA, $t_p$ < 300 $\mu s,  \delta$ < 2 %	V <sub>F</sub>			400	mV
	$I_{\text{F}}$ = 30 mA, $t_{\text{p}}$ < 300 $\mu\text{s},\delta$ < 2 %	V <sub>F</sub>			500	mV
	$I_{F}$ = 100 mA, $t_{p}$ < 300 $\mu s,$ $\delta$ < 2 %	V <sub>F</sub>			800	mV
Diode capacitance	V <sub>R</sub> = 1 V, f = 1 MHz	CD			10	pF
Reverse recovery time	$I_F = 10 \text{ mA to } I_R = 10 \text{ mA},$ $i_R = 1 \text{ mA}, R_L = 100 \Omega$	t <sub>rr</sub>			5	ns

# Layout for R<sub>thJA</sub> test

Thickness: Fiberglass 1.5 mm (0.059 in.) Copper leads 0.3 mm (0.012 in.)



# **Typical Characteristics**



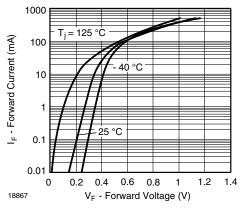


Figure 1. Typical Forward Voltage Forward Current vs. Various Temperatures

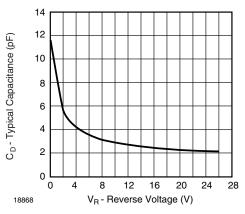


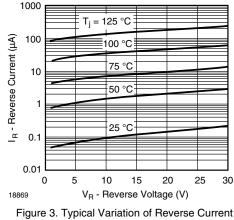
Figure 2. Diode Capacitance vs. Reverse Voltage V<sub>R</sub>

www.vishay.com 2 For technical questions within your region, please contact one of the following: Document Number 83344 DiodesAmericas@vishay.com, DiodesAsia@vishay.com, DiodesEurope@vishay.com Rev. 1.0, 28-Jun-10



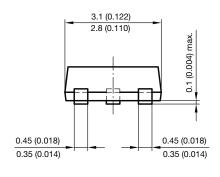
# BAT54-V-G, BAT54A-V-G, BAT54C-V-G, BAT54S-V-G

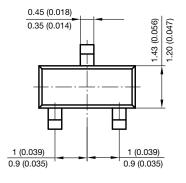
**Vishay Semiconductors** 



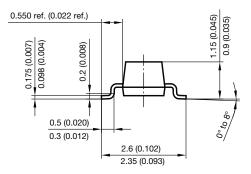
vs. Various Temperatures

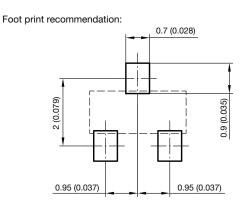
### Package Dimensions in millimeters (inches): SOT-23





Document no.: 6.541-5014.01-4 Rev. 8 - Date: 23.Sept.2009 17418





 Document Number 83344
 For technical questions within your region, please contact one of the following:

 Rev. 1.0, 28-Jun-10
 DiodesAmericas@vishay.com, DiodesAsia@vishay.com, DiodesAsia@vishay.com



Vishay

# Disclaimer

ALL PRODUCT, PRODUCT SPECIFICATIONS AND DATA ARE SUBJECT TO CHANGE WITHOUT NOTICE TO IMPROVE RELIABILITY, FUNCTION OR DESIGN OR OTHERWISE.

Vishay Intertechnology, Inc., its affiliates, agents, and employees, and all persons acting on its or their behalf (collectively, "Vishay"), disclaim any and all liability for any errors, inaccuracies or incompleteness contained in any datasheet or in any other disclosure relating to any product.

Vishay makes no warranty, representation or guarantee regarding the suitability of the products for any particular purpose or the continuing production of any product. To the maximum extent permitted by applicable law, Vishay disclaims (i) any and all liability arising out of the application or use of any product, (ii) any and all liability, including without limitation special, consequential or incidental damages, and (iii) any and all implied warranties, including warranties of fitness for particular purpose, non-infringement and merchantability.

Statements regarding the suitability of products for certain types of applications are based on Vishay's knowledge of typical requirements that are often placed on Vishay products in generic applications. Such statements are not binding statements about the suitability of products for a particular application. It is the customer's responsibility to validate that a particular product with the properties described in the product specification is suitable for use in a particular application. Parameters provided in datasheets and/or specifications may vary in different applications and performance may vary over time. All operating parameters, including typical parameters, must be validated for each customer application by the customer's technical experts. Product specifications do not expand or otherwise modify Vishay's terms and conditions of purchase, including but not limited to the warranty expressed therein.

Except as expressly indicated in writing, Vishay products are not designed for use in medical, life-saving, or life-sustaining applications or for any other application in which the failure of the Vishay product could result in personal injury or death. Customers using or selling Vishay products not expressly indicated for use in such applications do so at their own risk and agree to fully indemnify and hold Vishay and its distributors harmless from and against any and all claims, liabilities, expenses and damages arising or resulting in connection with such use or sale, including attorneys fees, even if such claim alleges that Vishay or its distributor was negligent regarding the design or manufacture of the part. Please contact authorized Vishay personnel to obtain written terms and conditions regarding products designed for such applications.

No license, express or implied, by estoppel or otherwise, to any intellectual property rights is granted by this document or by any conduct of Vishay. Product names and markings noted herein may be trademarks of their respective owners.