

Switching Diode, High Voltage, High Temperature

BASH19L Series

Features

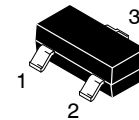
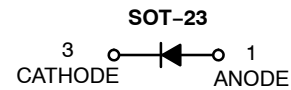
- 175°C T_{J(MAX)} – Rated for High Temperature, Mission Critical Applications
- NSV Prefixes for Automotive and Other Applications Requiring Unique Site and Control Change Requirements; AEC-Q101 Qualified and PPAP Capable
- These Devices are Pb-Free, Halogen Free/BFR Free and are RoHS Compliant

MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Continuous Reverse Voltage BASH19 BASH20 BASH21	V _R	120 200 250	V _{dc}
Repetitive Peak Reverse Voltage BASH19 BASH20 BASH21	V _{RRM}	120 200 250	V _{dc}
Continuous Forward Current	I _F	200	mA _{dc}
Peak Forward Surge Current (1/2 Cycle, Sine Wave, 60 Hz)	I _{FSM}	2	A
Repetitive Peak Forward Current (Pulse Train: T _{ON} = 1 s, T _{OFF} = 0.5 s)	I _{FRM}	0.6	A
Junction and Storage Temperature Range	T _J , T _{stg}	-55 to +175	°C
Electrostatic Discharge	ESD	HM < 500 MM < 400	V V

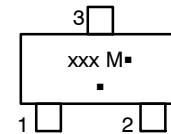
Stresses exceeding those listed in the Maximum Ratings table may damage the device. If any of these limits are exceeded, device functionality should not be assumed, damage may occur and reliability may be affected.

HIGH VOLTAGE SWITCHING DIODE



SOT-23 (TO-236)
CASE 318
STYLE 8

MARKING DIAGRAM



AD7 = BASH19L
AC7 = BASH20L
AA7 = BASH21L
M = Date Code
■ = Pb-Free Package

(Note: Microdot may be in either location)

ORDERING INFORMATION

See detailed ordering and shipping information in the package dimensions section on page 3 of this data sheet.

BASH19L Series

THERMAL CHARACTERISTICS

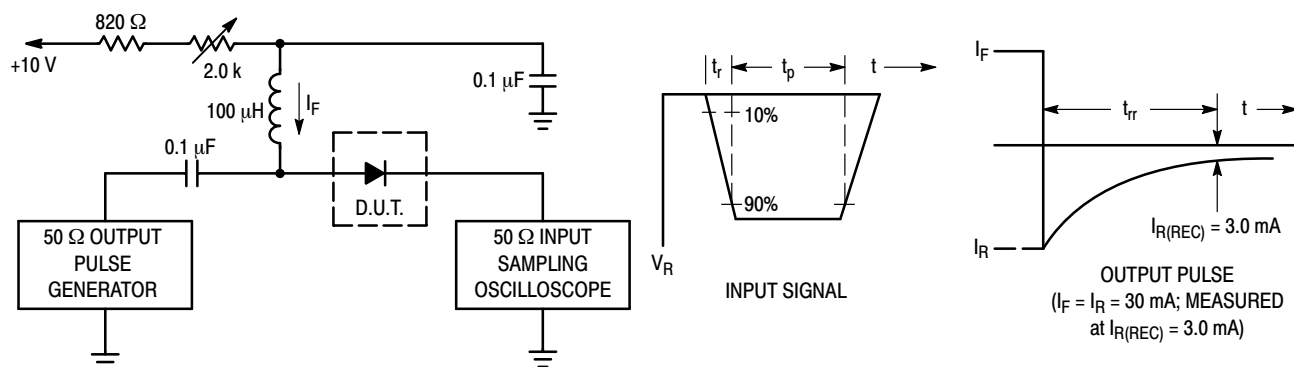
Characteristic	Symbol	Max	Unit
Total Device Dissipation FR-5 Board (Note 1) $T_A = 25^\circ\text{C}$ Derate above 25°C	P_D	300	mW
Thermal Resistance Junction-to-Ambient (SOT-23)	$R_{\theta JA}$	1.8	$\text{mW}/^\circ\text{C}$
Total Device Dissipation Alumina Substrate (Note 2) $T_A = 25^\circ\text{C}$ Derate above 25°C	P_D	400	mW
Thermal Resistance Junction-to-Ambient	$R_{\theta JA}$	2.4	$\text{mW}/^\circ\text{C}$
Junction and Storage Temperature Range	T_J, T_{stg}	250	$^\circ\text{C}/\text{W}$
		-55 to +175	$^\circ\text{C}$

- FR-5 = $1.0 \times 0.75 \times 0.062$ in.
- Alumina = $0.4 \times 0.3 \times 0.024$ in. 99.5% alumina.

ELECTRICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$ unless otherwise noted)

Characteristic	Symbol	Min	Max	Unit
Reverse Voltage Leakage Current ($V_R = 100$ Vdc) ($V_R = 150$ Vdc) ($V_R = 200$ Vdc) ($V_R = 100$ Vdc, $T_J = 175^\circ\text{C}$) ($V_R = 150$ Vdc, $T_J = 175^\circ\text{C}$) ($V_R = 200$ Vdc, $T_J = 175^\circ\text{C}$)	I_R	–	0.1 0.1 0.1 100 100 100	μA_{dc}
Reverse Breakdown Voltage ($I_{BR} = 100$ μA_{dc}) ($I_{BR} = 100$ μA_{dc}) ($I_{BR} = 100$ μA_{dc})	$V_{(BR)}$	120 200 250	– – –	Vdc
Forward Voltage ($I_F = 100$ mA) ($I_F = 200$ mA)	V_F	– –	1.0 1.25	Vdc
Diode Capacitance ($V_R = 0$, $f = 1.0$ MHz)	C_D	–	5.0	pF
Reverse Recovery Time ($I_F = I_R = 30$ mA, $I_{R(REC)} = 3.0$ mA, $R_L = 100$)	t_{rr}	–	50	ns

Product parametric performance is indicated in the Electrical Characteristics for the listed test conditions, unless otherwise noted. Product performance may not be indicated by the Electrical Characteristics if operated under different conditions.



- Notes: 1. A 2.0 k Ω variable resistor adjusted for a Forward Current (I_F) of 30 mA.
2. Input pulse is adjusted so $I_{R(peak)}$ is equal to 30 mA.
3. $t_p \gg t_{rr}$

Figure 1. Recovery Time Equivalent Test Circuit

BASH19L Series

TYPICAL CHARACTERISTICS

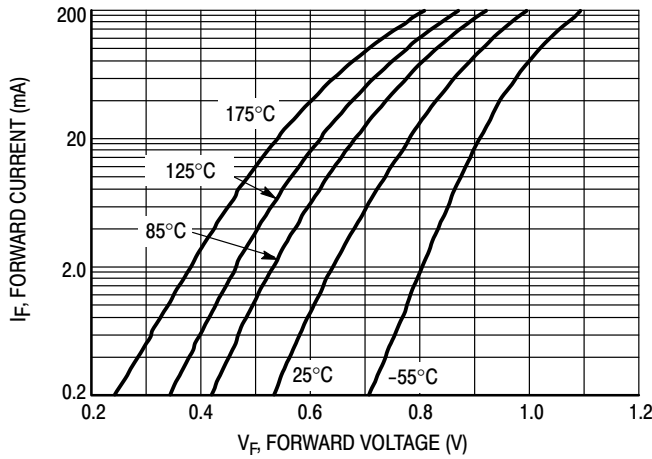


Figure 2. Forward Voltage

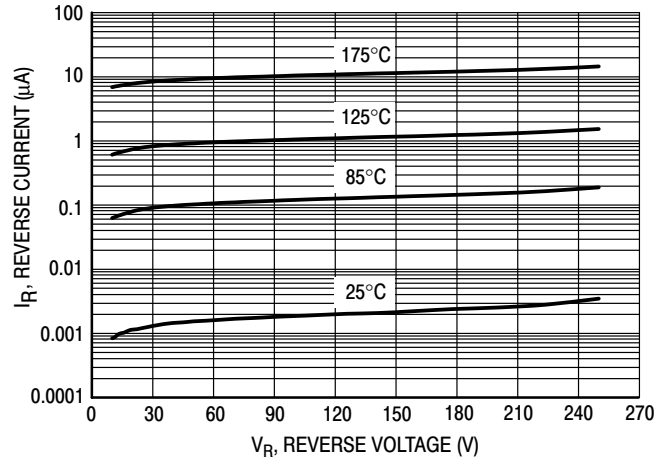


Figure 3. Leakage Current

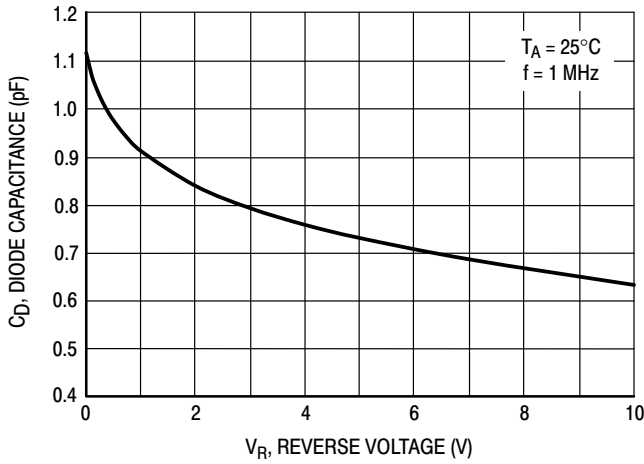


Figure 4. Capacitance

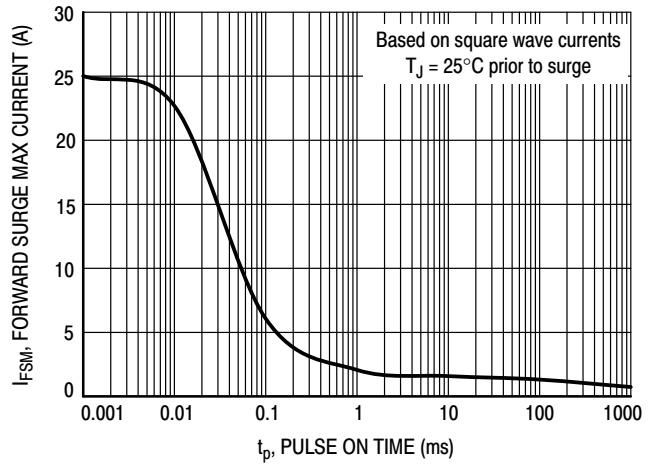


Figure 5. Forward Surge Current

ORDERING INFORMATION

Device	Package	Shipping†
BASH19LT1G	SOT-23 (Pb-Free)	3000 / Tape & Reel
NSVBASH19LT1G*	SOT-23 (Pb-Free)	3000 / Tape & Reel
BASH20LT1G	SOT-23 (Pb-Free)	3000 / Tape & Reel
NSVBASH20LT1G*	SOT-23 (Pb-Free)	3000 / Tape & Reel
BASH21LT1G	SOT-23 (Pb-Free)	3000 / Tape & Reel
NSVBASH21LT1G*	SOT-23 (Pb-Free)	3000 / Tape & Reel

†For information on tape and reel specifications, including part orientation and tape sizes, please refer to our Tape and Reel Packaging Specifications Brochure, [BRD8011/D](#).

*NSV Prefixes for Automotive and Other Applications Requiring Unique Site and Control Change Requirements; AEC-Q101 Qualified and PPAP Capable – release available upon request.

onsemi, **Onsemi**, and other names, marks, and brands are registered and/or common law trademarks of Semiconductor Components Industries, LLC dba "**onsemi**" or its affiliates and/or subsidiaries in the United States and/or other countries. **onsemi** owns the rights to a number of patents, trademarks, copyrights, trade secrets, and other intellectual property. A listing of **onsemi**'s product/patent coverage may be accessed at www.onsemi.com/site/pdf/Patent-Marking.pdf. **onsemi** reserves the right to make changes at any time to any products or information herein, without notice. The information herein is provided "as-is" and **onsemi** makes no warranty, representation or guarantee regarding the accuracy of the information, product features, availability, functionality, or suitability of its products for any particular purpose, nor does **onsemi** assume any liability arising out of the application or use of any product or circuit, and specifically disclaims any and all liability, including without limitation special, consequential or incidental damages. Buyer is responsible for its products and applications using **onsemi** products, including compliance with all laws, regulations and safety requirements or standards, regardless of any support or applications information provided by **onsemi**. "Typical" parameters which may be provided in **onsemi** data sheets and/or specifications can and do vary in different applications and actual performance may vary over time. All operating parameters, including "Typicals" must be validated for each customer application by customer's technical experts. **onsemi** does not convey any license under any of its intellectual property rights nor the rights of others. **onsemi** products are not designed, intended, or authorized for use as a critical component in life support systems or any FDA Class 3 medical devices or medical devices with a same or similar classification in a foreign jurisdiction or any devices intended for implantation in the human body. Should Buyer purchase or use **onsemi** products for any such unintended or unauthorized application, Buyer shall indemnify and hold **onsemi** and its officers, employees, subsidiaries, affiliates, and distributors harmless against all claims, costs, damages, and expenses, and reasonable attorney fees arising out of, directly or indirectly, any claim of personal injury or death associated with such unintended or unauthorized use, even if such claim alleges that **onsemi** was negligent regarding the design or manufacture of the part. **onsemi** is an Equal Opportunity/Affirmative Action Employer. This literature is subject to all applicable copyright laws and is not for resale in any manner.

ADDITIONAL INFORMATION

TECHNICAL PUBLICATIONS:

Technical Library: www.onsemi.com/design/resources/technical-documentation
onsemi Website: www.onsemi.com

ONLINE SUPPORT: www.onsemi.com/support

For additional information, please contact your local Sales Representative at
www.onsemi.com/support/sales