

# Switching Diode, High Voltage, High Temperature

## BASH19L Series

### Features

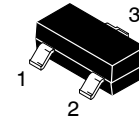
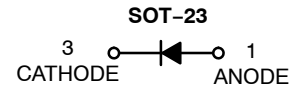
- 175°C T<sub>J(MAX)</sub> – Rated for High Temperature, Mission Critical Applications
- NSV Prefixes for Automotive and Other Applications Requiring Unique Site and Control Change Requirements; AEC-Q101 Qualified and PPAP Capable
- These Devices are Pb-Free, Halogen Free/BFR Free and are RoHS Compliant

### MAXIMUM RATINGS

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

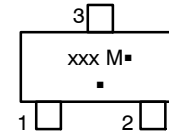
Stresses exceeding those listed in the Maximum Ratings table may damage the device. If any of these limits are exceeded, device functionality should not be assumed, damage may occur and reliability may be affected.

## 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

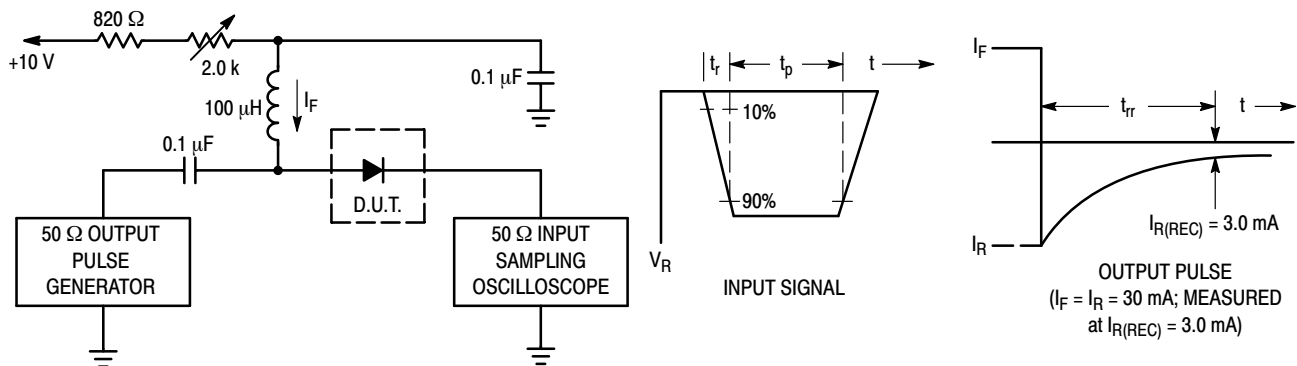
Characteristic	Symbol	Max	Unit
Total Device Dissipation FR-5 Board (Note 1) $T_A = 25^\circ\text{C}$ Derate above $25^\circ\text{C}$	$P_D$	300	mW
		1.8	mW/ $^\circ\text{C}$
Thermal Resistance Junction-to-Ambient (SOT-23)	$R_{\theta JA}$	340	$^\circ\text{C}/\text{W}$
Total Device Dissipation Alumina Substrate (Note 2) $T_A = 25^\circ\text{C}$ Derate above $25^\circ\text{C}$	$P_D$	400	mW
		2.4	mW/ $^\circ\text{C}$
Thermal Resistance Junction-to-Ambient	$R_{\theta JA}$	250	$^\circ\text{C}/\text{W}$
Junction and Storage Temperature Range	$T_J, T_{stg}$	-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	$\mu\text{A}dc$
	BASH19	-	0.1	
	BASH20	-	0.1	
	BASH21	-	0.1	
	BASH19	-	100	
	BASH20	-	100	
	BASH21	-	100	
Reverse Breakdown Voltage ( $I_{BR} = 100$ $\mu\text{A}dc$ ) ( $I_{BR} = 100$ $\mu\text{A}dc$ ) ( $I_{BR} = 100$ $\mu\text{A}dc$ )	$V_{(BR)}$	120	-	Vdc
	BASH19	200	-	
	BASH20	250	-	
	BASH21	-	-	
Forward Voltage ( $I_F = 100$ mAdc) ( $I_F = 200$ mAdc)	$V_F$	-	1.0	Vdc
		-	1.25	
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.



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

Figure 1. Recovery Time Equivalent Test Circuit

# BASH19L Series

## TYPICAL CHARACTERISTICS

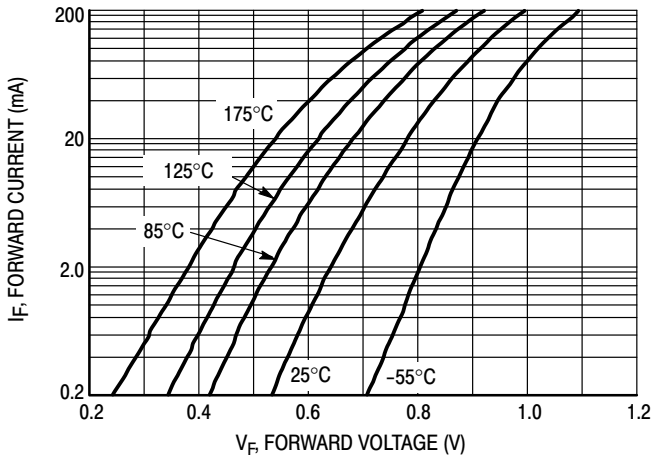


Figure 2. Forward Voltage

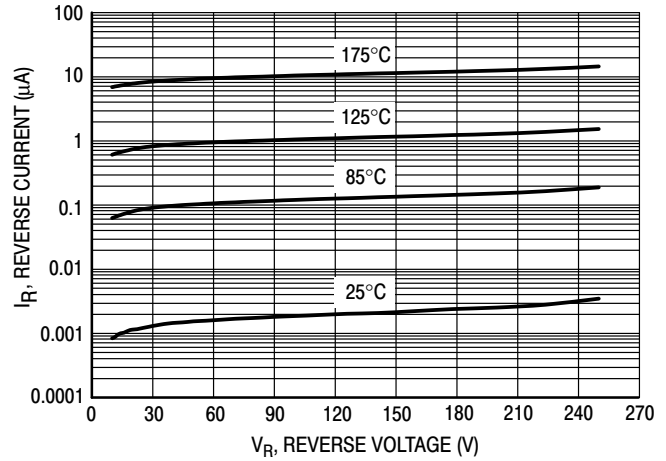


Figure 3. Leakage Current

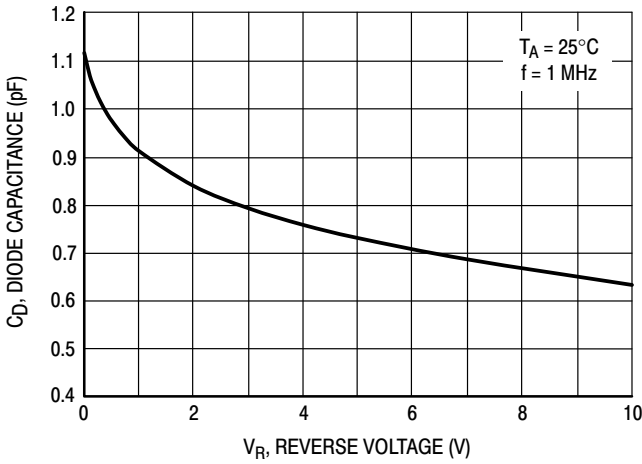


Figure 4. Capacitance

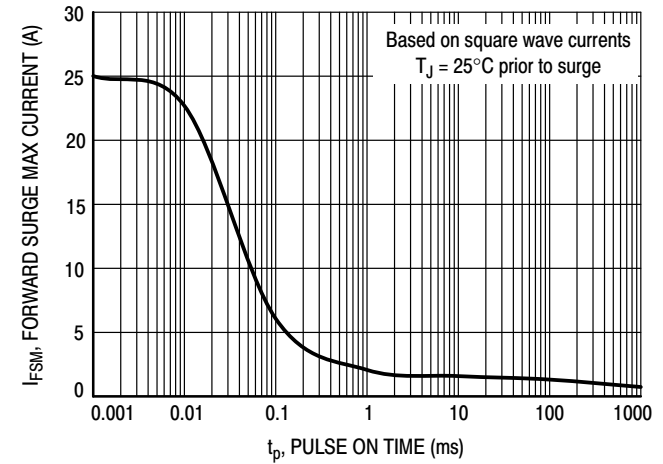


Figure 5. Forward Surge Current

### 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.

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