HIGH SPEED HIGH CURRENT QUAD SWITCHING DIODE

NEW PRODUCT

Features

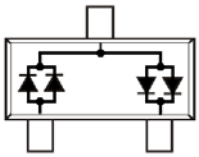
- High-Switching Speed, High Current
- Surface Mount Package Ideally Suited for Automated Insertion
- For General Purpose Switching Applications
- High Conductance
- **Totally Lead-Free & Fully RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**
- **Qualified to AEC-Q101 Standards for High Reliability**

Mechanical Data

- Case: SOT23
- Case Material: Molded Plastic.
  UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Matte Tin Finish Annealed over Alloy 42 Leadframe (Lead Free Plating). Solderable per MIL-STD-202, Method 208 e3
- Polarity: See Diagram
- Weight: 0.01 grams (Approximate)

SOT23

Top View



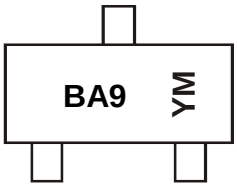
Top View
Internal Schematic

Ordering Information (Note 4)

Part Number	Compliance	Case	Packaging
BAS299-7	Standard	SOT23	3000/Tape & Reel

Notes:
1. No purposely added lead. Fully EU Directive 2002/95/EC (RoHS), 2011/65/EU (RoHS 2) & 2015/863/EU (RoHS 3) compliant.
2. See https://www.diodes.com/quality/lead-free/ for more information about Diodes Incorporated's definitions of Halogen- and Antimony-free, "Green" and Lead-free.
3. Halogen- and Antimony-free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.
4. For packaging details, go to our website at http://www.diodes.com/products/packages.html.

Marking Information



BA9 = Product Type Marking Code
YM = Date Code Marking
Y = Year (ex: G = 2019)
M = Month (ex: 9 = September)

Date Code Key

Year	2019	2020	2021	2022	2023	2024	2025	2026
Code	G	H	I	J	K	L	M	N

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Code	1	2	3	4	5	6	7	8	9	O	N	D

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Maximum Ratings (@T_A = +25°C, unless otherwise specified.)

Characteristic		Symbol	Value	Unit
Non-Repetitive Peak Reverse Voltage		V_{RM}	100	V
Peak Repetitive Reverse Voltage Working Peak Reverse Voltage DC Blocking Voltage		V_{RRM} V_{RWM} V_R	100	V
Forward Continuous Current (Note 5) Single diode loaded by design Double diode loaded		I_{FM}	 430 300	 mA mA
Repetitive Peak Forward Current		I_{FRM}	900	mA
Non-Repetitive Peak Forward Surge Current	@ t = 1.0µs @ t = 1.0ms @ t = 1.0s	I_{FSM}	9.0 3.0 1.0	A

Thermal Characteristics

Characteristic	Symbol	Value	Unit
Power Dissipation (Note 5)	P_D	300	mW
Thermal Resistance Junction to Ambient Air (Note 5)	$R_{\theta JA}$	417	°C/W
Operating and Storage Temperature Range	T_J , T_{STG}	-65 to +150	°C

Electrical Characteristics (@T_A = +25°C, unless otherwise specified.)

Characteristic	Symbol	Min	Max	Unit	Test Condition
Reverse Breakdown Voltage (Note 6)	$V_{(BR)R}$	100	—	V	I_R = 2.5µA
Forward Voltage	V_F	—	0.715 0.855 1.0 1.2 1.25	V	I_F = 1.0mA I_F = 10mA I_F = 50mA I_F = 150mA I_F = 300mA
Reverse Current (Note 6)	I_R	—	30 1 30 60	nA µA µA µA	V_R = 25V V_R = 100V V_R = 25V, T_J = +150°C V_R = 100V, T_J = +150°C
Total Capacitance	C_T	—	3.0	pF	V_R = 0, f = 1.0MHz
Reverse Recovery Time	t_{rr}	—	6.0	ns	I_F = I_R = 10mA, I_{rr} = 0.1 × I_R, R_L = 100Ω
Forward Recovery Voltage	V_{fr}		1.75	V	When Switched From IF = 10mA, tr = 20ns

Notes: 5. Part mounted on FR-4 board with recommended pad layout, which can be found on our website at http://www.diodes.com.
6. Short duration pulse test used to minimize self-heating effect.

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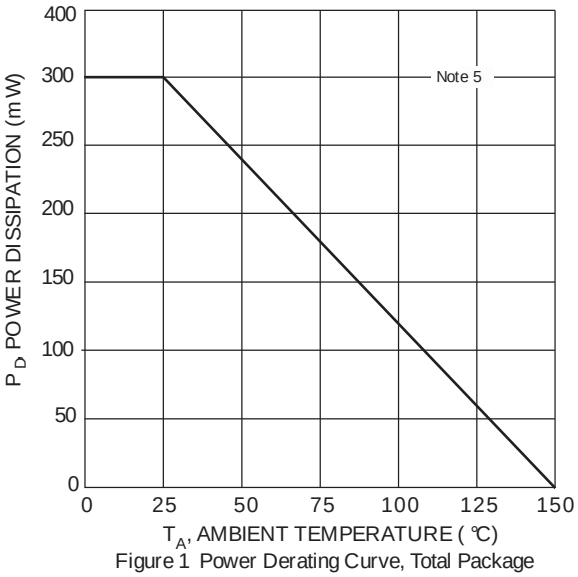

Figure 1 Power Derating Curve, Total Package

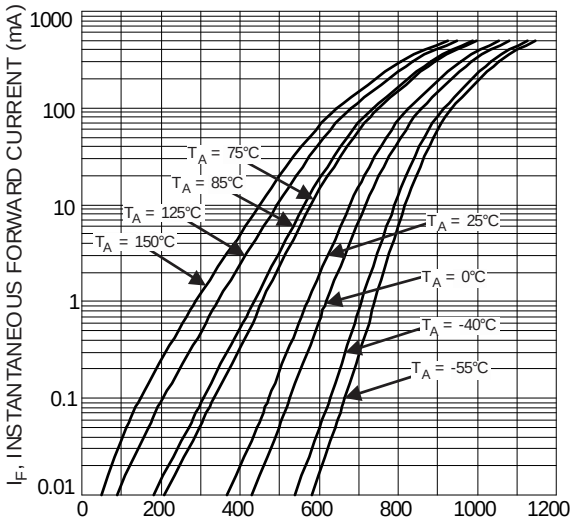

Figure 2 Typical Forward Characteristics, Per Element

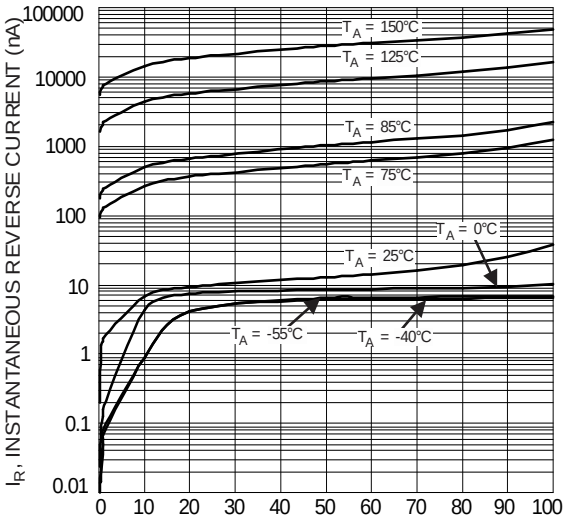

Figure 3 Typical Reverse Characteristics, Per Element

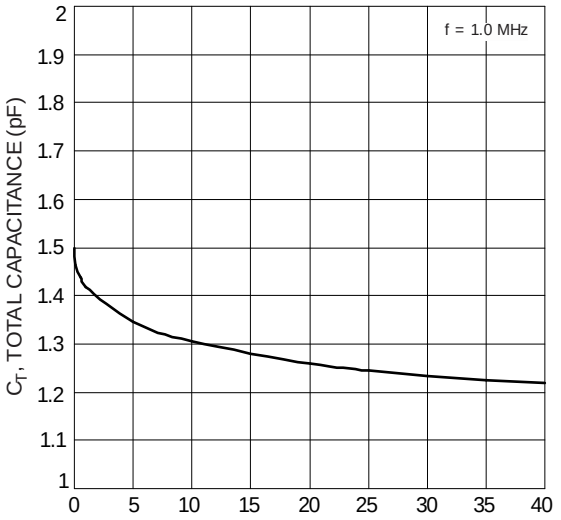

Figure 4 Total Capacitance vs Reverse Voltage, Per Element

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Package Outline Dimensions

Please see http://www.diodes.com/package-outlines.html for the latest version.

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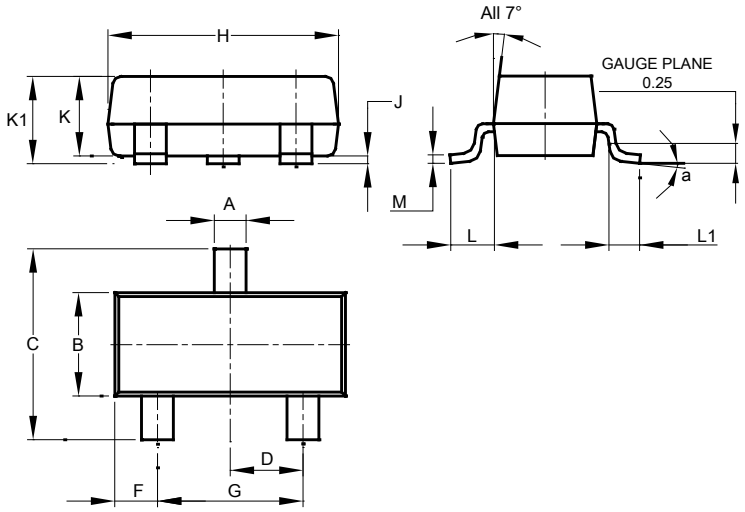
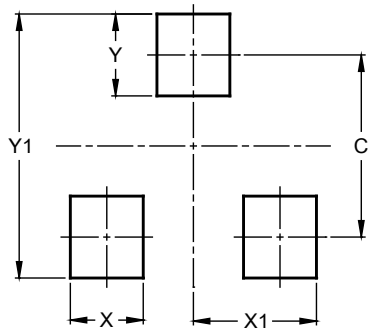


SOT23			
Dim	**Min**	**Max**	**Typ**
A	0.37	0.51	0.40
B	1.20	1.40	1.30
C	2.30	2.50	2.40
D	0.89	1.03	0.915
F	0.45	0.60	0.535
G	1.78	2.05	1.83
H	2.80	3.00	2.90
J	0.013	0.10	0.05
K	0.890	1.00	0.975
K1	0.903	1.10	1.025
L	0.45	0.61	0.55
L1	0.25	0.55	0.40
M	0.085	0.150	0.110
a	0°	8°	--
All Dimensions in mm			

Suggested Pad Layout

Please see http://www.diodes.com/package-outlines.html for the latest version.

SOT23



Dimensions	Value (in mm)
C	2.0
X	0.8
X1	1.35
Y	0.9
Y1	2.9

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