SURFACE MOUNT HIGH VOLTAGE DUAL SWITCHING DIODE

Features

- Fast Switching Speed
- Ideal for Battery-Powered, Portable Applications
- High Reverse Breakdown Voltage
- Low Leakage Current
- **Totally Lead-Free & Fully RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**
- **The BAV23AQ/CQ/SQ is suitable for automotive applications requiring specific change control and is AEC-Q101 qualified, is PPAP capable, and is manufactured in IATF16949:2016 certified facilities.**

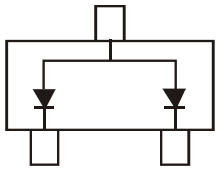
Mechanical Data

- Case: SOT23
- Case Material: Molded Plastic. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Finish—Lead Free Plating (Matte Tin Finish Annealed over Alloy 42 Leadframe). Solderable per MIL-STD-202, Method 208 e3
- Polarity: See Diagrams Below
- Weight: 0.008 grams (Approximate)

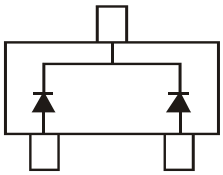
SOT23



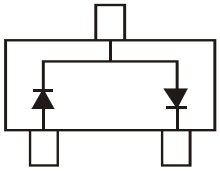
Top View



BAV23AQ



BAV23CQ



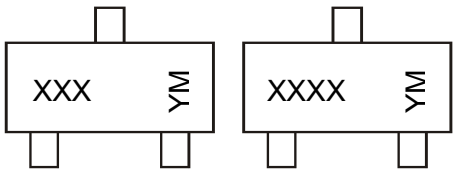
BAV23SQ

Ordering Information (Note 4)

Part Number	Compliance	Case	Packaging
BAV23AQ-7-F	Automotive	SOT23	3000/Tape & Reel
BAV23AQ-13-F	Automotive	SOT23	10,000/Tape & Reel
BAV23CQ-7-F	Automotive	SOT23	3000/Tape & Reel
BAV23CQ-13-F	Automotive	SOT23	10,000/Tape & Reel
BAV23SQ-7-F	Automotive	SOT23	3000/Tape & Reel
BAV23SQ-13-F	Automotive	SOT23	10,000/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 https://www.diodes.com/design/support/packaging/diodes-packaging/.

Marking Information



XXX or XXXX = Product Type Marking Code
ex: KT7 = BAV23AQ
KT6 = BAV23CQ
KL31 = BAV23SQ
YM = Date Code Marking
Y = Year (ex: G = 2019)
M = Month (ex: 9 = September)

Date Code Key

Year	2011	2012	2013	2014	…	2018	2019	2020	2021	2022	2023	2024	2025
Code	Y	Z	A	B	…	F	G	H	I	J	K	L	M

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
Repetitive Peak Reverse Voltage		V_{RRM}	250	V
Working Peak Reverse Voltage DC Blocking Voltage		V_{RWM} V_R	200	V
RMS Reverse Voltage		$V_{R(RMS)}$	141	V
Forward Continuous Current (Notes 5, 7)		I_{FM}	400	mA
Non-Repetitive Peak Forward Surge Current	@ t = 1.0μs @ t = 100μs @ t = 10ms	I_{FSM}	9.0 3.0 1.7	A
Repetitive Peak Forward Surge Current (Note 5)		I_{FRM}	625	mA

Thermal Characteristics

Characteristic	Symbol	Value	Unit
Power Dissipation (Note 5)	P_D	350	mW
Thermal Resistance Junction to Ambient Air (Note 5)	$R_{\theta JA}$	357	°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)	$V_{(BR)R}$	250	—	V	I_R = 100μA
Forward Voltage	V_F	—	1.0	V	I_F = 100mA
		—	1.25		I_F = 200mA
Reverse Current (Note 6)	I_R	—	100	nA	V_R = 200V, T_J = +25°C
		—	100	μA	V_R = 200V, T_J = +150°C
Total Capacitance	C_T	—	5.0	pF	V_R = 0, f = 1.0MHz
Reverse Recovery Time	t_{RR}	—	50	ns	I_F = I_R = 30mA, I_{RR} = 0.1 × I_R, R_L = 100Ω

Notes: 5. Part mounted on FR-4 substrate with pad dimensions 1 inch × 1 inch, 2oz, copper, single-sided, PC board.
6. Short duration pulse test used to minimize self-heating effect.
7. Double Diode Loaded in Parallel. For Single Diode or Double Diode Loaded in Series, the continuous forward current should be reduced by half.

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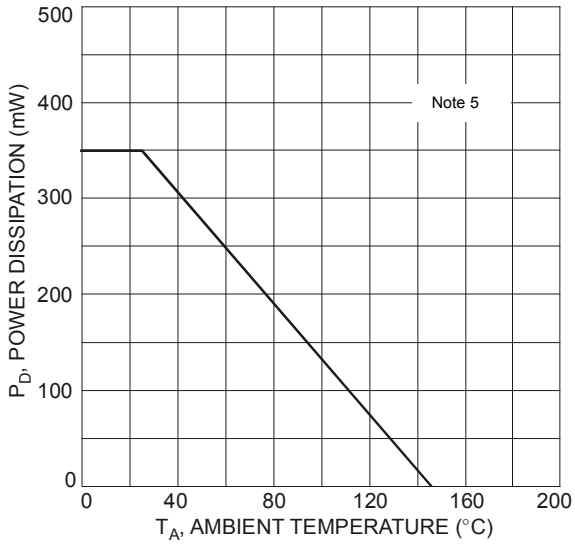


Fig. 1 Power Derating Curve, Total Package

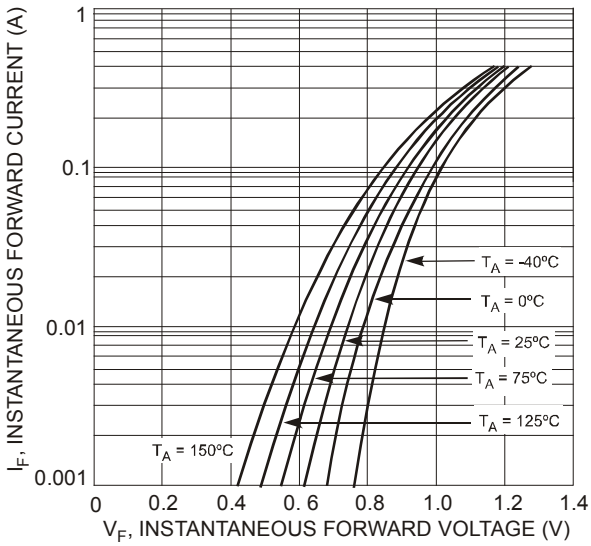


Fig. 2 Typical Forward Characteristics, Per Element

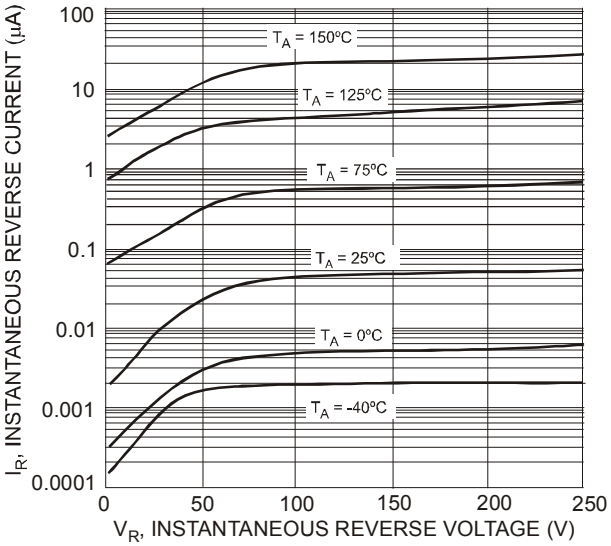


Fig. 3 Typical Reverse Characteristics, Per Element

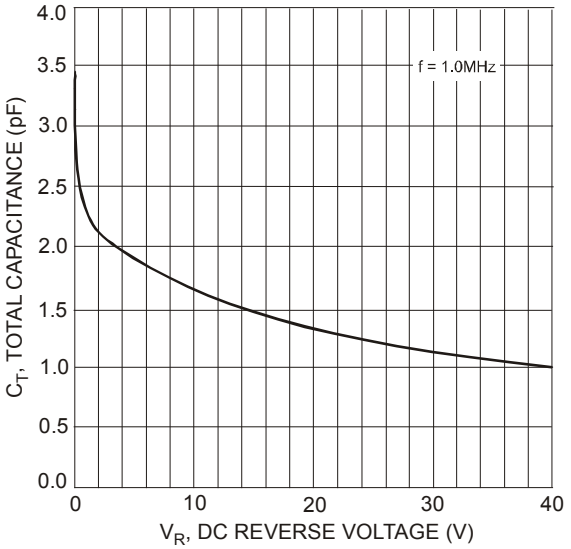


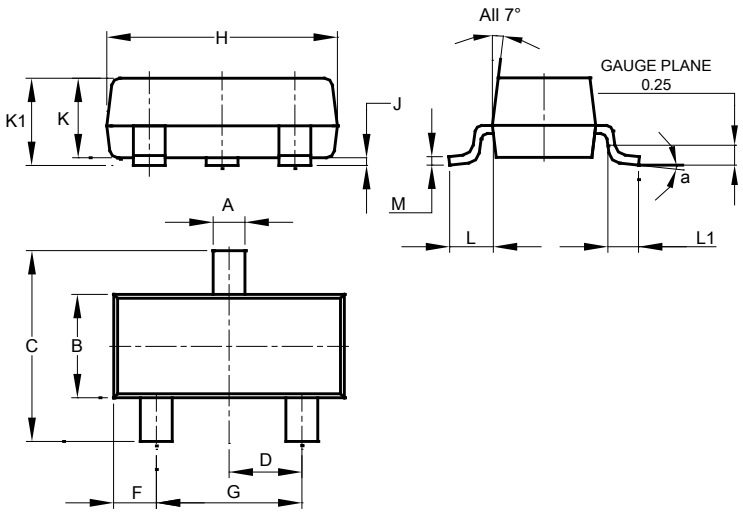
Fig. 4 Total Capacitance vs. Reverse Voltage, Per Element

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Package Outline Dimensions

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

SOT23

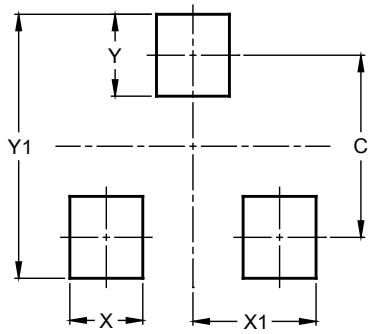


SOT23			
Dim	**Min**	**Max**	**Typ**
A	0.37	0.51	0.40
B	1.20	1.40	1.30
C	2.30	2.50	2.40
D	0.89	1.03	0.915
F	0.45	0.60	0.535
G	1.78	2.05	1.83
H	2.80	3.00	2.90
J	0.013	0.10	0.05
K	0.890	1.00	0.975
K1	0.903	1.10	1.025
L	0.45	0.61	0.55
L1	0.25	0.55	0.40
M	0.085	0.150	0.110
a	0°	8°	--
All Dimensions in mm			

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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