

Features

- Fast Switching Speed
- 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)
- The BAV70Q is suitable for automotive applications requiring specific change control; this part is AEC-Q101 qualified, PPAP capable, and manufactured in IATF 16949 certified facilities.

<https://www.diodes.com/quality/product-definitions/>

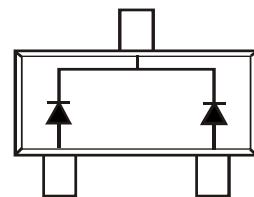
Mechanical Data

- Package: SOT23
- Package 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: 0.008 grams (Approximate)

SOT23



Top View


 Top View
 Internal Schematic

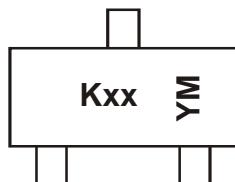
Ordering Information (Notes 4 & 5)

Part Number	Package	Packing	
		Qty.	Carrier
BAV70-7-F	SOT23	3000	Tape & Reel
BAV70-13-F	SOT23	10,000	Tape & Reel
BAV70Q-7-F	SOT23	3000	Tape & Reel
BAV70Q-13-F	SOT23	10,000	Tape & Reel

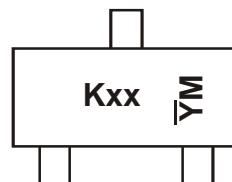
Notes:

- No purposely added lead. Fully EU Directive 2002/95/EC (RoHS), 2011/65/EU (RoHS 2) & 2015/863/EU (RoHS 3) compliant.
- 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.
- Halogen- and Antimony-free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.
- For packaging details, go to our website at <https://www.diodes.com/design/support/packaging/diodes-packaging/>.
- Products manufactured with Date Code 9W (week 39, 2009) and newer are built with Green Molding Compound. Products manufactured prior to Date Code 9W are built with Non-Green Molding Compound and may contain Halogens or Sb₂O₃ Fire Retardants.

Marking Information



xx = Product Type Marking Code (xx = JJ)
 YM = Date Code Marking for Shanghai Assembly/Test site
 Y = Year (ex: K = 2023)
 M = Month (ex: 5 = May)



xx = Product Type Marking Code (xx = JJ)
 YM = Date Code Marking for Chengdu Assembly/Test site
 Y = Year (ex: K = 2023)
 M = Month (ex: 5 = May)

Date Code Key

Year	2000	-	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
Code	L	-	K	L	M	N	P	R	S	T	U	V

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Code	1	2	3	4	5	6	7	8	9	0	N	D

Maximum Ratings (@ $T_A = +25^\circ\text{C}$, unless otherwise specified.)

Characteristic	Symbol	Value	Unit
Non-Repetitive Peak Reverse Voltage	V_{RM}	100	V
Peak Repetitive Reverse Voltage	V_{RRM}		
Working Peak Reverse Voltage	V_{RWM}	75	V
DC Blocking Voltage	V_R		
Forward Continuous Current (Note 6)	I_{FM}	300	mA
Repetitive Peak Forward Current	I_{FRM}	450	mA
Non-Repetitive Peak Forward Surge Current @ $t = 1.0\mu\text{s}$	I_{FSM}	2.0	A
Non-Repetitive Peak Forward Surge Current @ $t = 1.0\text{s}$		1.0	

Thermal Characteristics

Characteristic	Symbol	Value	Unit
Power Dissipation (Note 6)	P_D	350	mW
Thermal Resistance Junction to Ambient Air (Note 6)	$R_{\theta JA}$	357	°C/W
Operating and Storage Temperature Range	T_J, T_{STG}	-55 to +150	°C

Electrical Characteristics (@ $T_A = +25^\circ\text{C}$, unless otherwise specified.)

Characteristic	Symbol	Min	Max	Unit	Test Condition
Reverse Breakdown Voltage (Note 7)	$V_{(BR)R}$	75	—	V	$I_R = 2.5\mu\text{A}$
Forward Voltage	V_F	—	0.715 0.855 1.0 1.25	V	$I_F = 1.0\text{mA}$ $I_F = 10\text{mA}$ $I_F = 50\text{mA}$ $I_F = 150\text{mA}$
Reverse Current (Note 7)	I_R	—	2.5 50 30 25	μA μA μA nA	$V_R = 75\text{V}$ $V_R = 75\text{V}, T_J = +150^\circ\text{C}$ $V_R = 25\text{V}, T_J = +150^\circ\text{C}$ $V_R = 20\text{V}$
Total Capacitance	C_T	—	2.0	pF	$V_R = 0, f = 1.0\text{MHz}$
Reverse-Recovery Time	t_{rr}	—	4.0	ns	$I_F = I_R = 10\text{mA}$, $I_{rr} = 0.1 \times I_R, R_L = 100\Omega$

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

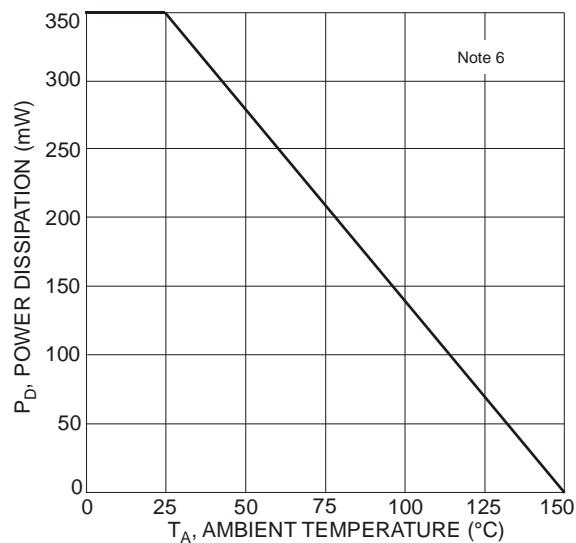


Figure 1. Power Derating Curve, Total Package

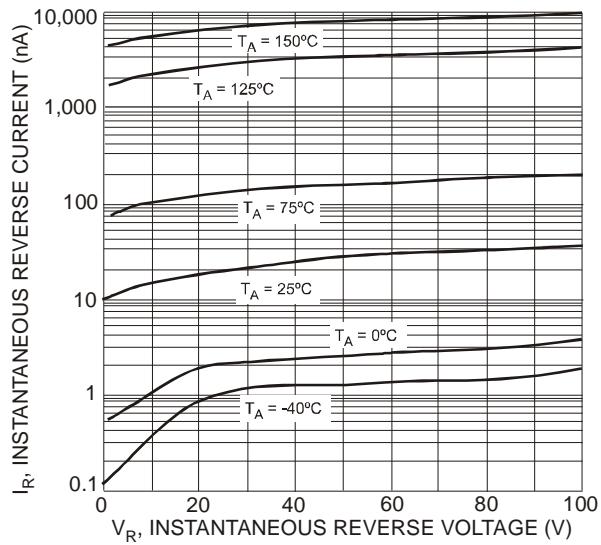


Figure 3. Typical Reverse Characteristics, Per Element

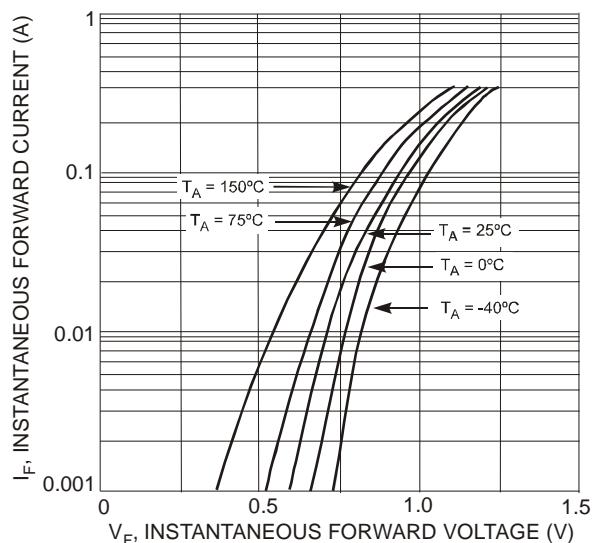


Figure 2. Typical Forward Characteristics, Per Element

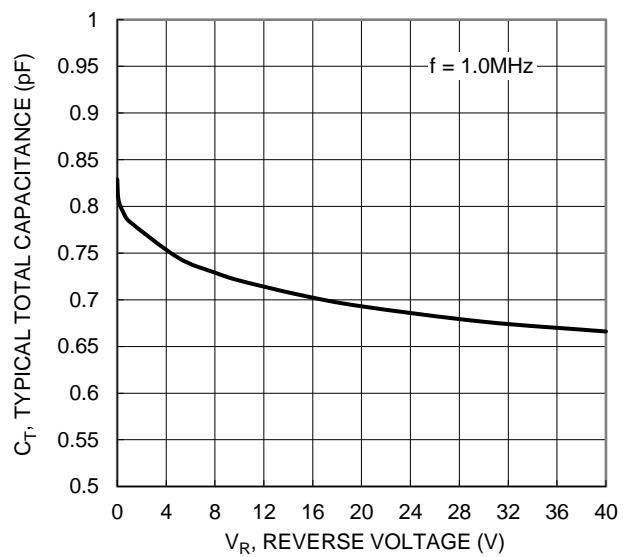


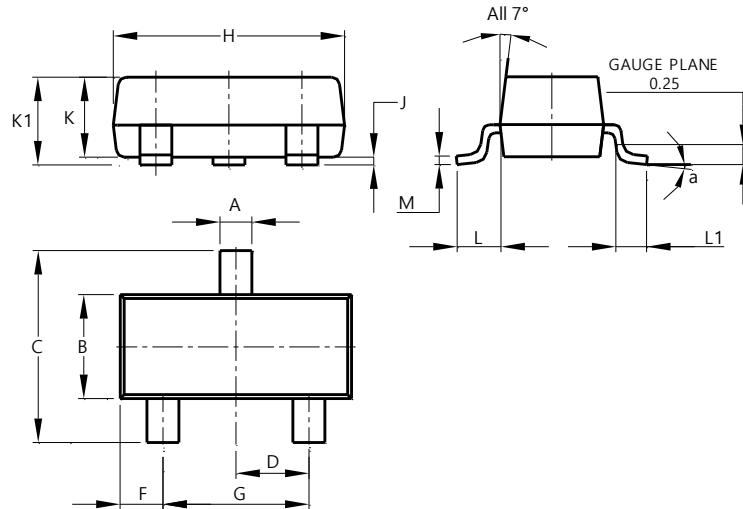
Figure 4. Typical Total Capacitance, Per Element

Note: 6. Part mounted on FR-4 board with recommended pad layout, which can be found on our website at <http://www.diodes.com/package-outlines.html>.

Package Outline Dimensions

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

SOT23



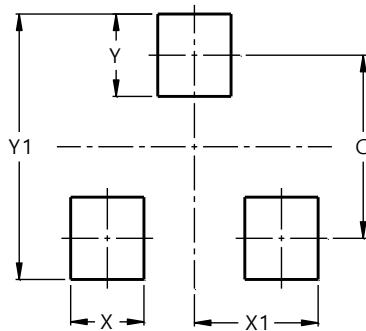
SOT23			
Dim	Min	Max	Typ
A	0.37	0.51	0.40
B	1.20	1.40	1.30
C	2.30	2.50	2.40
D	0.89	1.03	0.915
F	0.45	0.60	0.535
G	1.78	2.05	1.83
H	2.80	3.00	2.90
J	0.013	0.10	0.05
K	0.890	1.00	0.975
K1	0.903	1.10	1.025
L	0.45	0.61	0.55
L1	0.25	0.55	0.40
M	0.085	0.150	0.110
a	0°	8°	--

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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