

Features

- Fast Switching Speed
- Surface-Mount Package Ideally Suited for Automated Insertion
- For General-Purpose Switching Applications
- **Totally Lead-Free & Fully RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**
- **The BAV99Q 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/>

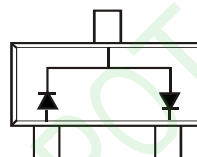
Mechanical Data

- Package: SOT23
- Package Material: Molded Plastic, "Green" Molding Compound
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 ^{Ⓔ3}
- Polarity: See Diagram
- Weight: 0.008 grams (Approximate)

SOT23



Top View

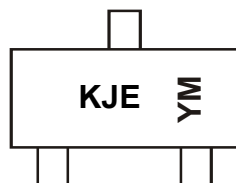
Top View
Internal Schematic

Ordering Information (Notes 4 & 5)

Orderable Part Number	Package	Packing	
		Qty.	Carrier
BAV99-7-F	SOT23	3000	Tape & Reel
BAV99-13-F	SOT23	10,000	Tape & Reel
BAV99Q-7-F	SOT23	3000	Tape & Reel
BAV99Q-13-F	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/>.
 5. Product manufactured with Date Code W9 (week 39, 2009) and newer are built with Green Molding Compound. Product manufactured prior to Date Code W9 are built with Non-Green Molding Compound and may contain Halogens or Sb₂O₃ Fire Retardants.

Marking Information



KJE = Product Type Marking Code
 YM = Date Code Marking
 Y = Year (ex: M = 2025)
 M = Month (ex: 9 = September)
 A Bar around the Date Code Marking Denotes Assembly Site

Date Code Key

Year	1998	-	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
Code	J	-	M	N	P	R	S	T	U	V	W	X

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

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	V _{RRM}	75	V
Working Peak Reverse Voltage	V _{RWM}		
DC Blocking Voltage	V _R		
RMS Reverse Voltage	V _{R(RMS)}	53	V
Forward Continuous Current (Note 6)	I _{FM}	300	mA
Non-Repetitive Peak Forward Surge Current	I _{FSM}	2.0	A
		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 _{θJA}	357	°C/W
Operating and Storage Temperature Range	T _J , T _{STG}	-55 to +150	°C

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

Characteristic	Symbol	Min	Max	Unit	Test Condition
Reverse Breakdown Voltage (Note 7)	V _{(BR)R}	75	—	V	I _R = 2.5μA
Forward Voltage	V _F	—	0.715	V	I _F = 1.0mA
			0.855		I _F = 10mA
			1.0		I _F = 50mA
			1.25		I _F = 150mA
Reverse Current (Note 7)	I _R	—	2.5	μA	V _R = 75V
			50	μA	V _R = 75V, T _J = +150°C
			30	μA	V _R = 25V, T _J = +150°C
			25	nA	V _R = 20V
Total Capacitance	C _T	—	2.0	pF	V _R = 0, f = 1.0MHz
Reverse-Recovery Time	t _{rr}	—	4.0	ns	I _F = I _R = 10mA, I _{rr} = 0.1 x I _R , R _L = 100Ω

Notes: 6. Part mounted on PC board with pad dimensions 1inch × 1inch, 2oz copper.
7. Short duration pulse test used to minimize self-heating effect.

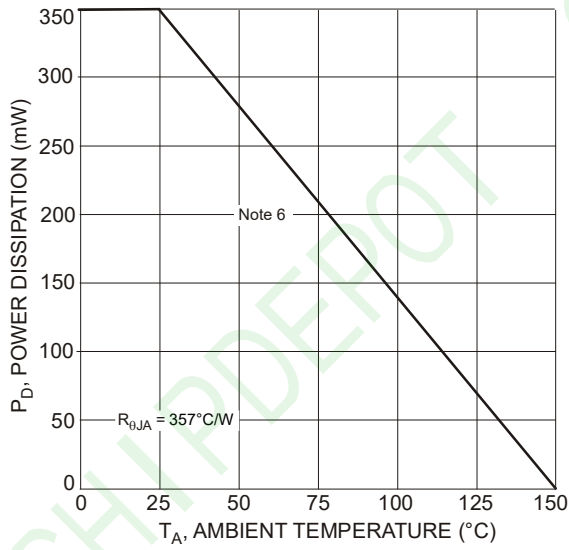


Figure 1. Power Derating Curve

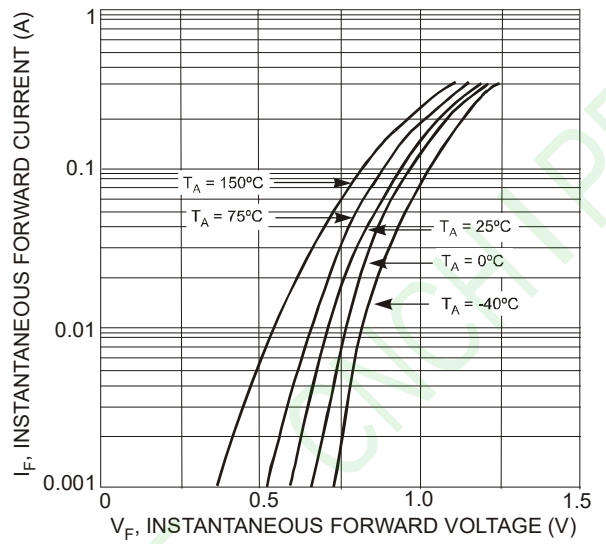


Figure 2. Forward Characteristics, Per Element

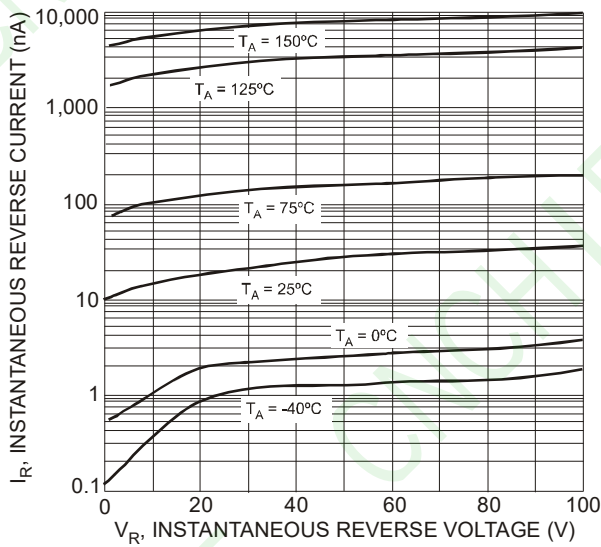


Figure 3. Typical Reverse Characteristics, Per Element

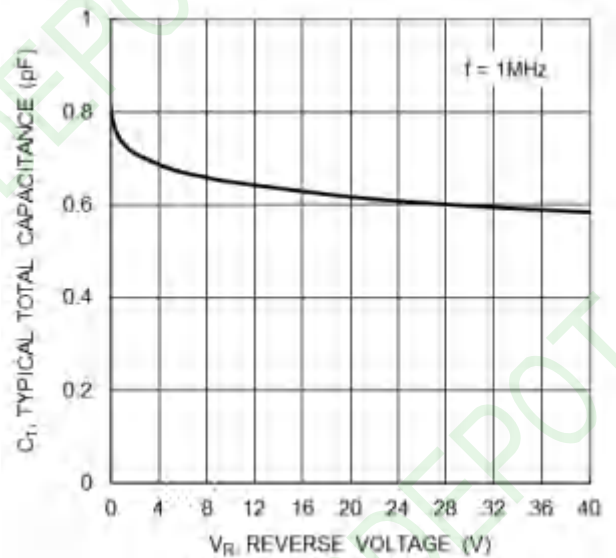


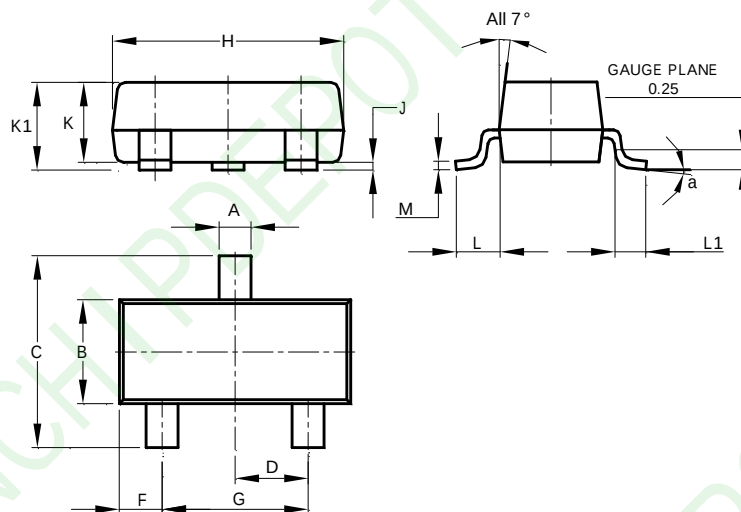
Figure 4. Typical Total Capacitance, Per Element

Note: 6. Part mounted on PC board with pad dimensions 1inch × 1inch, 2oz copper.

Package Outline Dimensions

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

SOT23

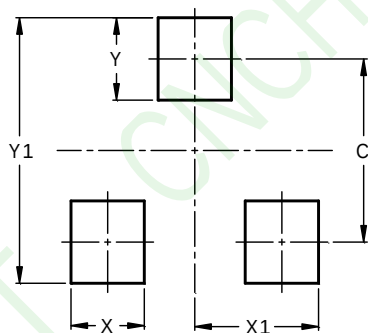


SOT23			
Dim	Min	Max	Typ
A	0.37	0.51	0.40
B	1.20	1.40	1.30
C	2.30	2.50	2.40
D	0.89	1.03	0.915
F	0.45	0.60	0.535
G	1.78	2.05	1.83
H	2.80	3.00	2.90
J	0.013	0.10	0.05
K	0.890	1.00	0.975
K1	0.903	1.10	1.025
L	0.45	0.61	0.55
L1	0.25	0.55	0.40
M	0.085	0.150	0.110
a	0°	8°	--
All Dimensions in mm			

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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Product Portfolio

Primary Category	Secondary Category	Series	Model	Package	Link
Diode	Rectifier Diode	1N4007	1N4007	SMA(DO-214AC)	https://www.cnchipdepot.com/p/fosan-1n4007-107172.html
Diode	Rectifier Diode	1N4007	1N4007	SOD-123FL	https://www.cnchipdepot.com/p/fosan-1n4007-107173.html
Diode	Switching Diode	BAW56	BAW56	SOT-23	https://www.cnchipdepot.com/p/fosan-baw56-107174.html
Diode	Switching Diode	BAW56	BAW56W-6AF	SOT-323	https://www.cnchipdepot.com/p/fosan-baw56w-6af-107175.html

Diode	Switching Diode	1N4148	1N4148WT	SOD-323	https://www.cnchipdepot.com/p/fosan-1n4148wt-107176.html
Diode	Schottky Diode	1N5819	1N4148WS	SOD-323	https://www.cnchipdepot.com/p/fosan-1n4148ws-107177.html
Diode	Schottky Diode	SS34	SS34	SMA(DO-214AC)	https://www.cnchipdepot.com/p/fosan-ss34-107178.html
Diode	Schottky Diode	SS54	SS34B	SMA(DO-214AC)	https://www.cnchipdepot.com/p/baocheng-ss34b-12183.html
Diode	Schottky Diode	SS14	SS34C	SMA(DO-214AC)	https://www.cnchipdepot.com/p/baocheng-ss34c-12188.html
Diode Fast Recovery / High Efficiency Diode		US1M	US1M	SMA	https://www.cnchipdepot.com/p/fosan-us1m-107198.html
Diode Fast Recovery / High Efficiency Diode		US1M	US1MA-AAF	SMA	https://www.cnchipdepot.com/p/fosan-us1ma-aaf-107179.html
Diode Fast Recovery / High Efficiency Diode		US1M	US1MF	SMAF	https://www.cnchipdepot.com/p/baocheng-us1mf-17709.html
Diode	Switching Diode	BAV99	BAV99	SOT-23	https://www.cnchipdepot.com/p/agertech-bav99-18862.html
Diode	Switching Diode	BAV99	BAV99-6AF	SOT-23	https://www.cnchipdepot.com/p/fosan-ss34-107178.html
Diode	Switching Diode	BAV99	BAV99W-6AF	SOT-23	https://www.cnchipdepot.com/p/fosan-bav99w-6af-107181.html
Diode	Schottky Diode	B5819W	B5819WS	SOD-123	https://www.cnchipdepot.com/p/am-b5819ws-12167.html
Diode	Schottky Diode	B5819W	B5819W		https://www.cnchipdepot.com/p/am-b5819w-12166.html
Transistor (BJT)	NPN BJT	S8050	S8050	SOT-23	https://www.cnchipdepot.com/p/am-s8050-1108.html

Transistor (BJT)	NPN BJT	S8050	S8050-6AF	SOT-23	https://www.cnchipdepot.com/p/fosan-s8050-6af-107182.html
Transistor (BJT)	NPN BJT	SS8050	SS8050	SOT-23	https://www.cnchipdepot.com/p/alj-longjing-micro-s8050-1087.html
Transistor (BJT)	NPN BJT	SS8050	SS8050S	SOT-23	https://www.cnchipdepot.com/p/fosan-ss8050s-2326.html
Transistor (BJT)	NPN BJT	MMBT5551	MMBT5551	SOT-23	https://www.cnchipdepot.com/p/agertech-mmbt5551-1003.html
Transistor (BJT)	NPN BJT	MMBT5551	MMBT5551S	SOT-23	https://www.cnchipdepot.com/p/fosan-mmbt5551s-2327.html
Transistor (BJT)	NPN BJT	MMBT5551	MMBT5551-6AF	SOT-23	https://www.cnchipdepot.com/p/fosan-mmbt5551-6af-107183.html
Transistor	MOSFET	7002	2N7002	SOT-23	https://www.cnchipdepot.com/p/fosan-2n7002-107184.html
Transistor	MOSFET	7002	2N7002K	SOT-23	https://www.cnchipdepot.com/p/alj-longjing-micro--2n7002k-5083.html
Transistor	MOSFET	7002	2N7002K-6AF	SOT-23	https://www.cnchipdepot.com/p/fosan-2n7002k-6af-107185.html
Transistor	MOSFET	7002	2N7002-6AF	SOT-23	https://www.cnchipdepot.com/p/fosan-2n7002-6af-107186.html
Transistor	MOSFET	BSS84	BSS84	SOT-23	https://www.cnchipdepot.com/p/fosan-bss84-107187.html
Transistor	MOSFET	BSS84	BSS84-6AF	SOT-363	https://www.cnchipdepot.com/p/fosan-bss84-6af-107188.html
Transistor (BJT)	NPN BJT	BC847	BC847A	SOT-23	https://www.cnchipdepot.com/p/alj-longjing-micro--bc847a-1052.html
Transistor (BJT)	NPN BJT	BC847	BC847B	SOT-23	https://www.cnchipdepot.com/p/alj-longjing-micro--bc847b-1056.html

Transistor (BJT)	NPN BJT	BC847	BC847C	SOT-23	https://www.cnchipdepot.com/p/alj-longjing-micro--bc847c-1055.html
Power IC	LDO	1117	LD1117-3.3	SOT223	https://www.cnchipdepot.com/p/hxy-mosfet-huaxuan-yang-electronics--ld1117-3-3-25490.html
Power IC	LDO	1117	LD1117-1.8	SOT223	https://www.cnchipdepot.com/p/hxy-mosfet-huaxuan-yang-electronics--ld1117-1-8-25429.html
Power IC	LDO	1117	LD1117-5.0	SOT223	https://www.cnchipdepot.com/p/hxy-mosfet-huaxuan-yang-electronics--ld1117-5-0-25444.html
Power IC	LDO	1117	LD1117-ADJ	SOT223	https://www.cnchipdepot.com/p/hxy-mosfet-huaxuan-yang-electronics--ld1117-adj-25427.html