

## Features

- Fast Switching Speed
- Small Surface Mount Package
- For General Purpose Switching Applications
- **Lead Free/RoHS Compliant (Note 1)**
- **Qualified to AEC-Q101 Standards for High Reliability**
- **"Green" Device (Notes 2 and 3)**

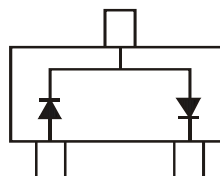
## Mechanical Data

- Case: SOT323
- Case Material: Molded Plastic, "Green" Molding Compound, Note 5. 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
- Polarity: See Diagram
- Weight: 0.006 grams (approximate)

SOT323



Top View

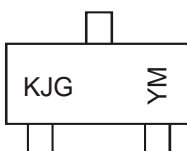

 Top View  
 Internal Schematic

## Ordering Information (Notes 3 & 4)

Part Number	Qualification	Case	Packaging
BAV99W-7-F	Commercial	SOT323	3000/Tape & Reel
BAV99WQ-7-F	Automotive	SOT323	3000/Tape & Reel

- Notes:
1. No purposefully added lead.
  2. Diodes Inc.'s "Green" policy can be found on our website at <http://www.diodes.com>.
  3. Product manufactured with Date Code 0627 (week 27, 2006) and newer are built with Green Molding Compound. Product manufactured prior to Date Code 0627 are built with Non-Green Molding Compound and may contain Halogens or Sb2O3 Fire Retardants.
  4. For packaging details, go to our website at <http://www.diodes.com>.

## Marking Information



KJG = Product Type Marking Code  
 YM = Date Code Marking  
 Y = Year (ex: Y = 2011)  
 M = Month (ex: 9 = September)

### Date Code Key

Year	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Code	S	T	U	V	W	X	Y	Z	A	B	C	D	E

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<sub>A</sub> = 25°C unless otherwise specified

Characteristic	Symbol	Value	Unit
Non-Repetitive Peak Reverse Voltage	V <sub>RM</sub>	100	V
Peak Repetitive Reverse Voltage	V <sub>RRM</sub>	75	V
Working Peak Reverse Voltage	V <sub>RWM</sub>		
DC Blocking Voltage	V <sub>R</sub>		
RMS Reverse Voltage	V <sub>R(RMS)</sub>	53	V
Forward Continuous Current (Note 5)	I <sub>FM</sub>	300	mA
Average Rectified Output Current (Note 5)	I <sub>O</sub>	150	mA
Non-Repetitive Peak Forward Surge Current (Note 5)	I <sub>FSM</sub>	2.0	A
		1.0	

**Thermal Characteristics**

Characteristic	Symbol	Value	Unit
Power Dissipation (Note 5)	P <sub>D</sub>	200	mW
Thermal Resistance Junction to Ambient Air (Note 5)	R <sub>θJA</sub>	625	°C/W
Operating and Storage Temperature Range	T <sub>J</sub> , T <sub>STG</sub>	-65 to +150	°C

**Electrical Characteristics** @T<sub>A</sub> = 25°C unless otherwise specified

Characteristic	Symbol	Min	Max	Unit	Test Condition
Reverse Breakdown Voltage (Note 6)	V <sub>(BR)R</sub>	75	—	V	I <sub>R</sub> = 2.5μA
Forward Voltage	V <sub>F</sub>	0.55	0.70	V	I <sub>F</sub> = 1.0mA
		—	0.855		I <sub>F</sub> = 10mA
		—	1.0		I <sub>F</sub> = 50mA
		—	1.25		I <sub>F</sub> = 150mA
Reverse Current (Note 6)	I <sub>R</sub>	—	2.5	μA	V <sub>R</sub> = 75V
			50	μA	V <sub>R</sub> = 75V, T <sub>J</sub> = 150°C
			30	μA	V <sub>R</sub> = 25V, T <sub>J</sub> = 150°C
			25	nA	V <sub>R</sub> = 20V
Total Capacitance	C <sub>T</sub>	—	2.0	pF	V <sub>R</sub> = 0, f = 1.0MHz
Reverse Recovery Time	t <sub>rr</sub>	—	4.0	ns	I <sub>F</sub> = I <sub>R</sub> = 10mA, I <sub>rr</sub> = 0.1 x I <sub>R</sub> , R <sub>L</sub> = 100Ω

Notes: 5. Device mounted on FR-4 PC 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.

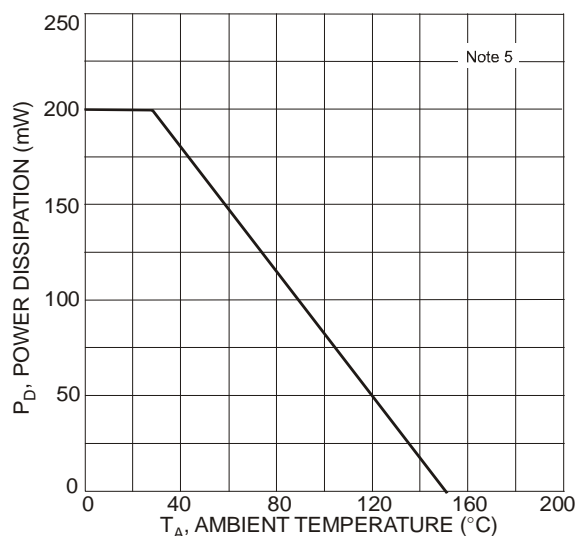


Fig. 1 Power Derating Curve, Total Package

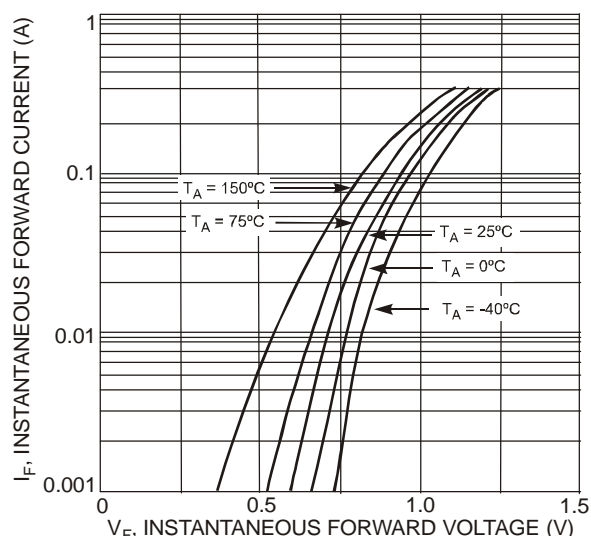


Fig. 2 Typical Forward Characteristics, Per Element

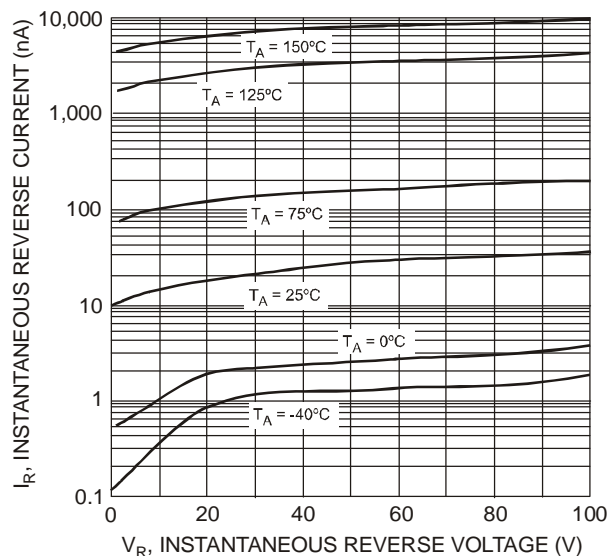


Fig. 3 Typical Reverse Characteristics, Per Element

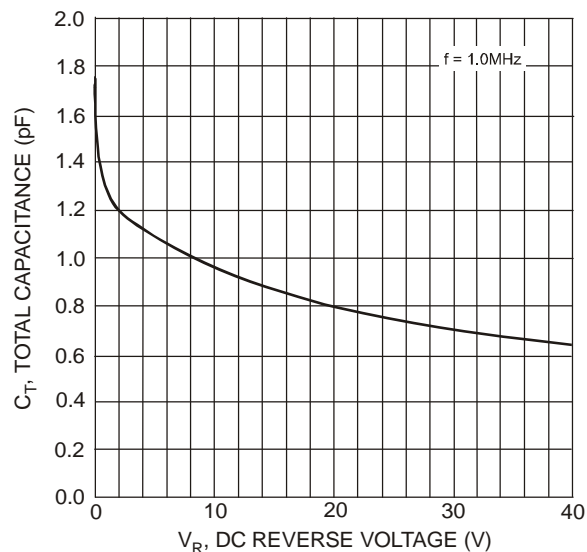
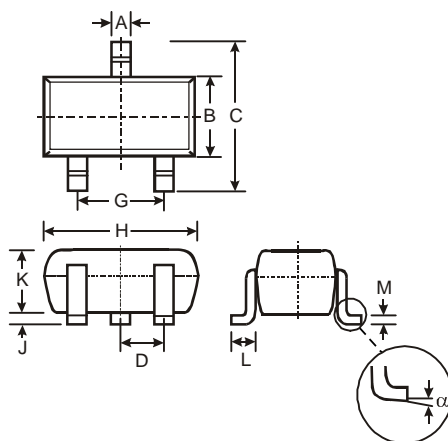


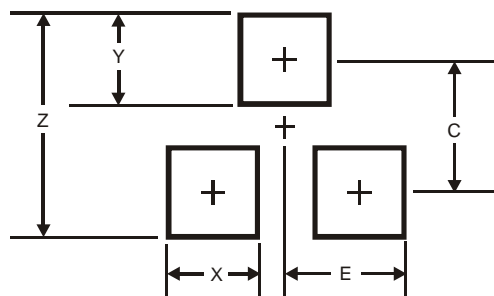
Fig. 4 Total Capacitance vs. Reverse Voltage, Per Element

## Package Outline Dimensions



SOT323			
Dim	Min	Max	Typ
A	0.25	0.40	0.30
B	1.15	1.35	1.30
C	2.00	2.20	2.10
D	-	-	0.65
G	1.20	1.40	1.30
H	1.80	2.20	2.15
J	0.0	0.10	0.05
K	0.90	1.00	1.00
L	0.25	0.40	0.30
M	0.10	0.18	0.11
$\alpha$	0°	8°	-
All Dimensions in mm			

## Suggested Pad Layout



Dimensions	Value (in mm)
Z	2.8
X	0.7
Y	0.9
C	1.9
E	1.0

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