

**Features**

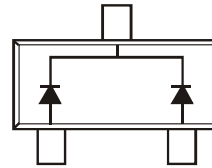
- Surface Mount Package Ideally Suited for Automated Insertion
- Very Low Leakage Current
- **Lead, Halogen and Antimony Free, RoHS Compliant "Green" Device (Notes 1 and 2)**
- **Qualified to AEC-Q101 Standards for High Reliability**

**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
- Polarity: See Diagram
- Weight: 0.008 grams (approximate)

SOT23

Top View



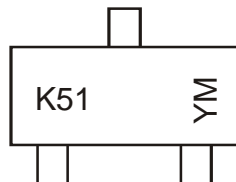
Top View  
Internal Schematic

**Ordering Information** (Note 3)

Part Number	Qualification	Case	Packaging
BAV170-7-F	Commercial	SOT23	3,000/Tape & Reel
BAV170-13-F	Commercial	SOT23	10,000/Tape & Reel
BAV170Q-7-F	Automotive	SOT23	3,000/Tape & Reel
BAV170Q-13-F	Automotive	SOT23	10,000/Tape & Reel

- Notes:
1. No purposefully added lead. Halogen and Antimony Free.
  2. Product manufactured with Date Code V9 (week 33, 2008) and newer are built with Green Molding Compound. Product manufactured prior to Date Code V9 are built with Non-Green Molding Compound and may contain Halogens or Sb<sub>2</sub>O<sub>3</sub> Fire Retardants.
  3. For packaging details, go to our website at <http://www.diodes.com>.

**Marking Information**



K51 = Product Type Marking Code  
 YM = Date Code Marking  
 Y = Year (ex: Y = 2011)  
 M = Month (ex: 9 = September)

Date Code Key

Year	2001	2002	.....	2009	2010	2011	2012	2013	2014	2015	2016	2017
Code	M	N	.....	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
Peak Repetitive Reverse Voltage	V <sub>RRM</sub>	85	V
Working Peak Reverse Voltage	V <sub>RWM</sub>		
DC Blocking Voltage	V <sub>R</sub>		
RMS Reverse Voltage	V <sub>R(RMS)</sub>	60	V
Forward Continuous Current (Note 4)	I <sub>FM</sub>	215	mA
		125	
Repetitive Peak Forward Current	I <sub>FRM</sub>	500	mA
Non-Repetitive Peak Forward Surge Current	I <sub>FSM</sub>	@ t = 1.0μs	4.0
		@ t = 1.0ms	1.0
		@ t = 1.0s	0.5

**Thermal Characteristics**

Characteristic	Symbol	Value	Unit
Power Dissipation (Note 4)	P <sub>D</sub>	250	mW
Thermal Resistance Junction to Ambient Air (Note 4)	R <sub>θJA</sub>	500	°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	Typ	Max	Unit	Test Condition
Reverse Breakdown Voltage (Note 5)	V <sub>(BR)R</sub>	85	—	—	V	I <sub>R</sub> = 100μA
Forward Voltage	V <sub>F</sub>	—	—	0.90	V	I <sub>F</sub> = 1.0mA
				1.0		I <sub>F</sub> = 10mA
				1.1		I <sub>F</sub> = 50mA
				1.25		I <sub>F</sub> = 150mA
Leakage Current (Note 5)	I <sub>R</sub>	—	—	5.0	nA	V <sub>R</sub> = 75V
				80	nA	V <sub>R</sub> = 75V, T <sub>J</sub> = 150°C
Total Capacitance	C <sub>T</sub>	—	2	—	pF	V <sub>R</sub> = 0, f = 1.0MHz
Reverse Recovery Time	t <sub>rr</sub>	—	—	3.0	μs	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: 4. Part mounted on FR-4 PC board with recommended pad layout, which can be found on our website at <http://www.diodes.com>.  
5. Short duration pulse test used to minimize self-heating effect.

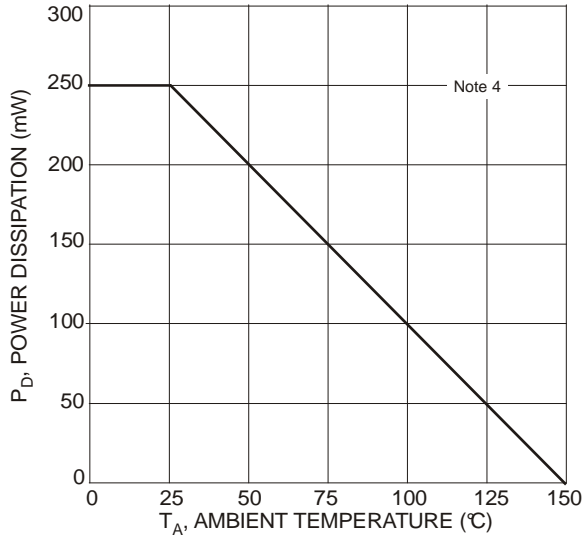


Fig. 1 Power Derating Curve

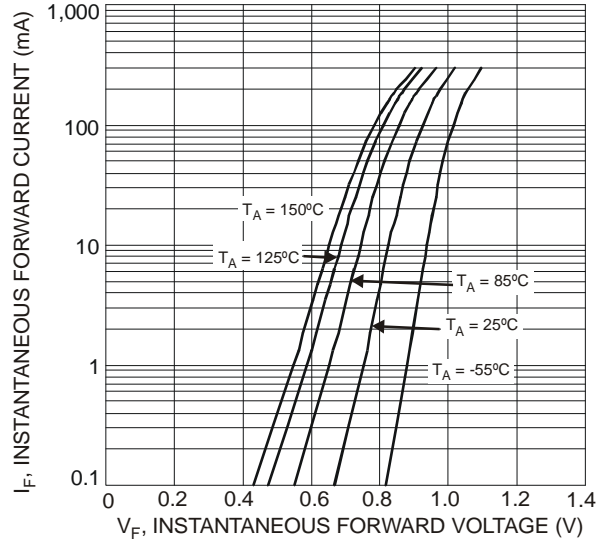


Fig. 2 Typical Forward Characteristics

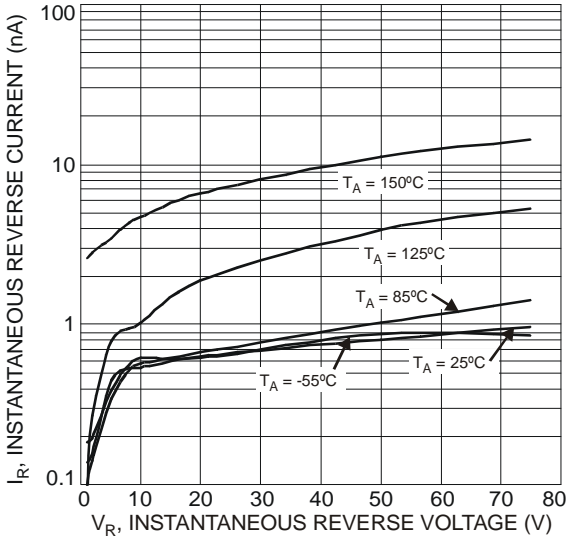


Fig. 3 Typical Reverse Characteristics

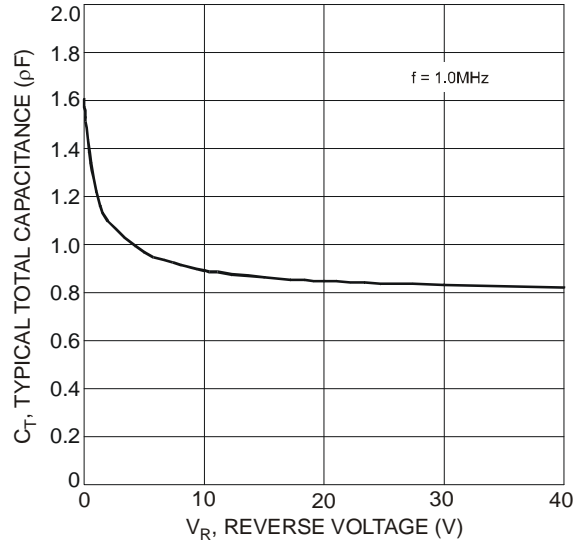
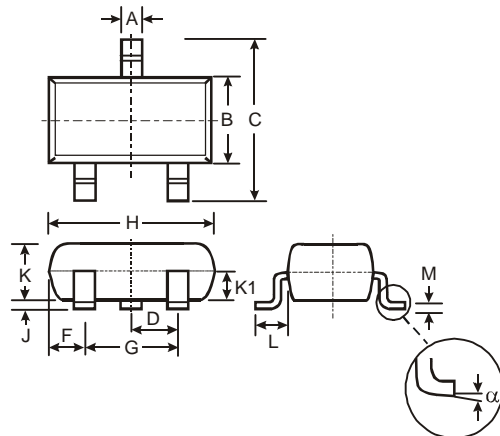


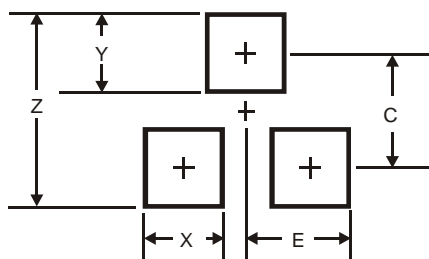
Fig. 4 Typical Capacitance vs. Reverse Voltage

**Package Outline Dimensions**



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	0.903	1.10	1.00
K1	-	-	0.400
L	0.45	0.61	0.55
M	0.085	0.18	0.11
α	0°	8°	-
<b>All Dimensions in mm</b>			

## Suggested Pad Layout



Dimensions	Value (in mm)
Z	2.9
X	0.8
Y	0.9
C	2.0
E	1.35

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