BAV23CL, NSVBAV23CL

Dual High Voltage Common Cathode Switching Diode

ON Semiconductor®

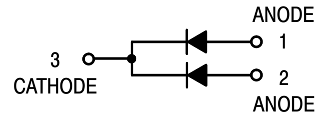
http://onsemi.com

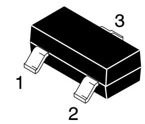
Features

- Moisture Sensitivity Level: 1
- ESD Rating − Human Body Model: Class 2
  − Machine Model: Class C
- Fast Switching Speed
- Switching Application
- NSV Prefix for Automotive and Other Applications Requiring Unique Site and Control Change Requirements; AEC−Q101 Qualified and PPAP Capable
- These Devices are Pb−Free, Halogen Free/BFR Free and are RoHS Compliant

Typical Applications

- LCD TV
- Power Supply
- Industrial





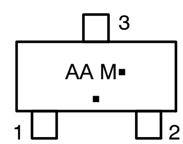
SOT−23
CASE 318
STYLE 9

MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Continuous Reverse Voltage	V_R	250	V
Repetitive Peak Reverse Voltage	V_{RRM}	250	V
Peak Forward Current	I_F	400	mA
Non−Repetitive Peak Forward Surge Current @ t = 1.0 μs @ t = 100 μs @ t = 10 ms	I_{FSM}	9.0 3.0 1.7	A
Peak Forward Surge Current	$I_{FM(surge)}$	625	mAdc
Non−Repetitive Peak Per Human Body Model Per Machine Model	 HBM MM	 4.0 400	 kV V

Stresses exceeding Maximum Ratings may damage the device. Maximum Ratings are stress ratings only. Functional operation above the Recommended Operating Conditions is not implied. Extended exposure to stresses above the Recommended Operating Conditions may affect device reliability.

MARKING DIAGRAM



AA = Specific Device Code
M = Date Code
▪ = Pb−Free Package
(Note: Microdot may be in either location)

ORDERING INFORMATION

Device	Package	Shipping†
BAV23CLT1G	SOT−23 (Pb−Free)	3000 / Tape & Reel
BAV23CLT3G	SOT−23 (Pb−Free)	10000 / Tape & Reel
NSVBAV23CLT1G	SOT−23 (Pb−Free)	3000 / Tape & Reel

†For information on tape and reel specifications, including part orientation and tape sizes, please refer to our Tape and Reel Packaging Specifications Brochure, BRD8011/D.

THERMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
SINGLE HEATED			
Total Device Dissipation (Note 1) T_A = 25°C Derate above 25°C	P_D	265 2.1	mW mW/°C
Thermal Resistance, Junction−to−Ambient (Note 1)	$R_{\theta JA}$	472	°C/W
Thermal Reference, Junction−to−Anode Lead (Note 1)	R_ψ_{JL}	263	°C/W
Thermal Reference, Junction−to−Case (Note 1)	R_ψ_{JC}	289	°C/W
Total Device Dissipation (Note 2) T_A = 25°C Derate above 25°C	P_D	345 2.7	mW mW/°C
Thermal Resistance, Junction−to−Ambient (Note 2)	$R_{\theta JA}$	362	°C/W
Thermal Reference, Junction−to−Anode Lead (Note 2)	R_ψ_{JL}	251	°C/W
Thermal Reference, Junction−to−Case (Note 2)	R_ψ_{JC}	250	°C/W
DUAL HEATED (Note 3)			
Total Device Dissipation (Note 1) T_A = 25°C Derate above 25°C	P_D	390 3.1	mW mW/°C
Thermal Resistance, Junction−to−Ambient (Note 1)	$R_{\theta JA}$	321	°C/W
Thermal Reference, Junction−to−Anode Lead (Note 1)	R_ψ_{JL}	159	°C/W
Thermal Reference, Junction−to−Case (Note 1)	R_ψ_{JC}	138	°C/W
Total Device Dissipation (Note 2) T_A = 25°C Derate above 25°C	P_D	540 4.3	mW mW/°C
Thermal Resistance, Junction−to−Ambient (Note 2)	$R_{\theta JA}$	231	°C/W
Thermal Reference, Junction−to−Anode Lead (Note 2)	R_ψ_{JL}	148	°C/W
Thermal Reference, Junction−to−Case (Note 2)	R_ψ_{JC}	119	°C/W
Junction and Storage Temperature Range	T_J, T_{stg}	−55 to +150	°C

1. FR-4 @ 100 mm^2, 1 oz. copper traces, still air.
2. FR-4 @ 500 mm^2, 2 oz. copper traces, still air.
3. Dual heated values assume total power is sum of two equally powered channels

ELECTRICAL CHARACTERISTICS (T_A = 25°C unless otherwise noted)

Characteristic	Symbol	Min	Max	Unit
OFF CHARACTERISTICS				
Reverse Voltage Leakage Current (V_R = 200 Vdc) (V_R = 200 Vdc, T_J = 150°C)	I_R	 – –	 0.1 100	μAdc
Reverse Breakdown Voltage (I_{BR} = 100 μAdc)	$V_{(BR)}$	250	–	Vdc
Forward Voltage (I_F = 100 mAdc) (I_F = 200 mAdc)	V_F	 – –	 1000 1250	mV
Diode Capacitance (V_R = 0, f = 1.0 MHz)	C_T	–	5.0	pF
Reverse Recovery Time (I_F = I_R = 30 mAdc, R_L = 100 Ω)	t_{rr}	–	150	ns

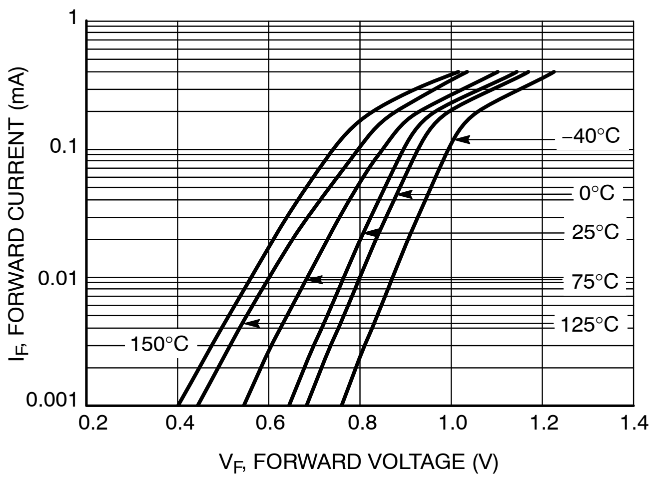


Figure 1. Forward Voltage

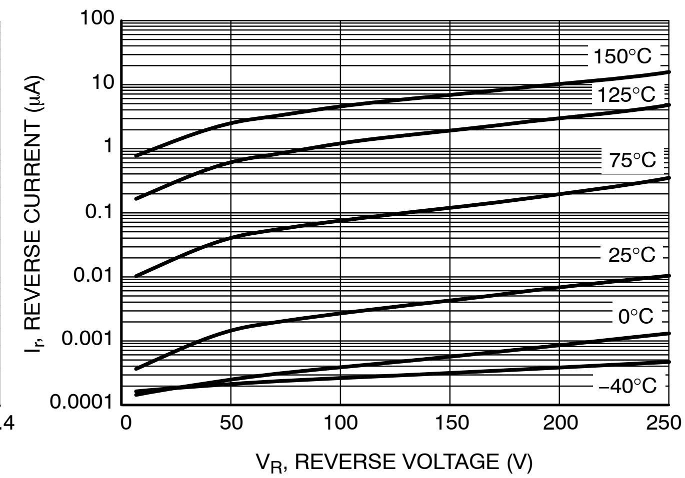


Figure 2. Reverse Current

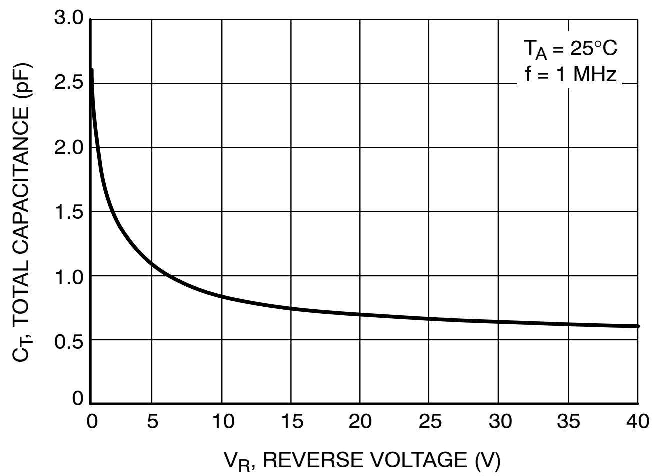
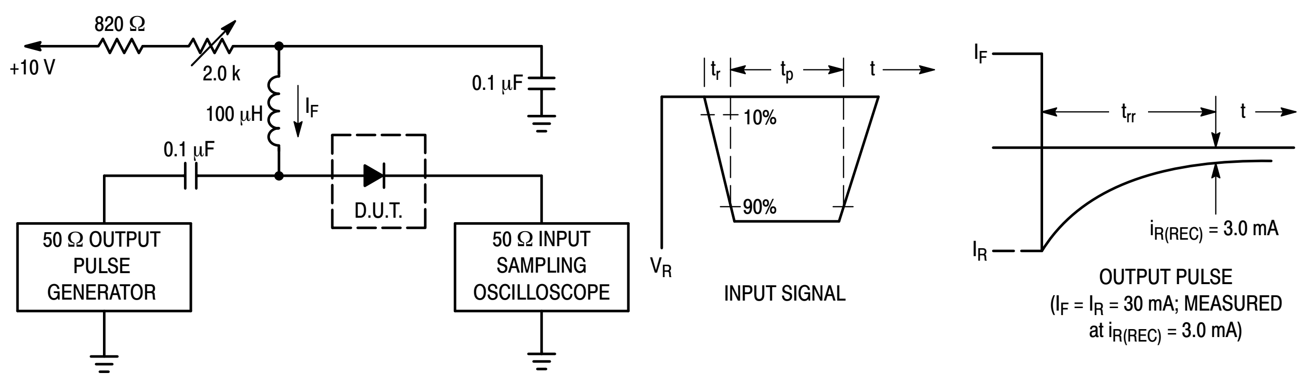


Figure 3. Total Capacitance

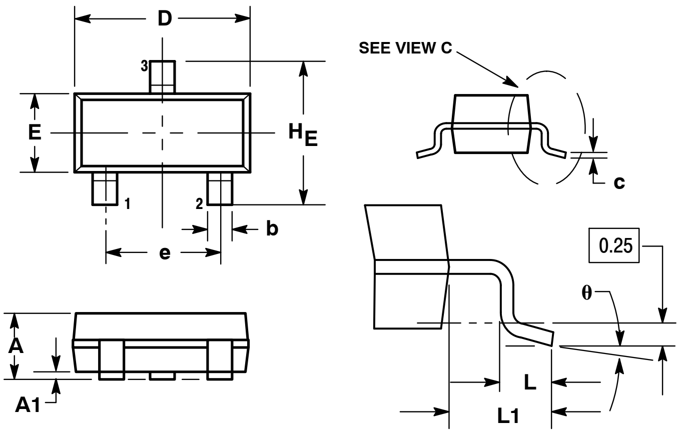


Notes: 1. A 2.0 kΩ variable resistor adjusted for a Forward Current (I_F) of 30 mA.
2. Input pulse is adjusted so $I_{R(peak)}$ is equal to 30 mA.
3. t_p » t_{rr}

Figure 4. Recovery Time Equivalent Test Circuit

PACKAGE DIMENSIONS

SOT−23 (TO−236)
CASE 318−08
ISSUE AP



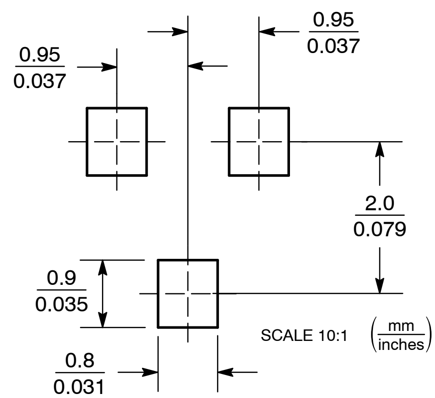
VIEW C

NOTES:
1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: INCH.
3. MAXIMUM LEAD THICKNESS INCLUDES LEAD FINISH THICKNESS. MINIMUM LEAD THICKNESS IS THE MINIMUM THICKNESS OF BASE MATERIAL.
4. DIMENSIONS D AND E DO NOT INCLUDE MOLD FLASH, PROTRUSIONS, OR GATE BURRS.

	MILLIMETERS			INCHES		
DIM	**MIN**	**NOM**	**MAX**	**MIN**	**NOM**	**MAX**
A	0.89	1.00	1.11	0.035	0.040	0.044
A1	0.01	0.06	0.10	0.001	0.002	0.004
b	0.37	0.44	0.50	0.015	0.018	0.020
c	0.09	0.13	0.18	0.003	0.005	0.007
D	2.80	2.90	3.04	0.110	0.114	0.120
E	1.20	1.30	1.40	0.047	0.051	0.055
e	1.78	1.90	2.04	0.070	0.075	0.081
L	0.10	0.20	0.30	0.004	0.008	0.012
L1	0.35	0.54	0.69	0.014	0.021	0.029
H_E	2.10	2.40	2.64	0.083	0.094	0.104
θ	0°	−−−	10°	0°	−−−	10°

STYLE 9:
PIN 1. ANODE
2. ANODE
3. CATHODE

SOLDERING FOOTPRINT



PUBLICATION ORDERING INFORMATION

LITERATURE FULFILLMENT:
Literature Distribution Center for ON Semiconductor
P.O. Box 5163, Denver, Colorado 80217 USA
Phone: 303−675−2175 or 800−344−3860 Toll Free USA/Canada
Fax: 303−675−2176 or 800−344−3867 Toll Free USA/Canada
Email: orderlit@onsemi.com

N. American Technical Support: 800−282−9855 Toll Free USA/Canada
Europe, Middle East and Africa Technical Support:
Phone: 421 33 790 2910
Japan Customer Focus Center
Phone: 81−3−5817−1050

ON Semiconductor Website: **www.onsemi.com**

Order Literature: http://www.onsemi.com/orderlit

For additional information, please contact your local Sales Representative