

BAV23CLT1G

Dual High Voltage Common Cathode Switching Diode

Features

- Moisture Sensitivity Level: 1
- ESD Rating – Human Body Model: Class 2
– Machine Model: Class C
- Fast Switching Speed
- Switching Application
- This is a Halide-Free Device
- This is a Pb-Free Device

Typical Applications

- LCD TV
- Power Supply
- Industrial

MAXIMUM RATINGS

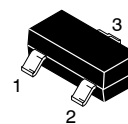
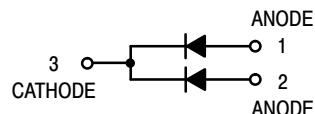
| Rating | Symbol | Value | Unit |
|---|-----------------|---|------|
| Continuous Reverse Voltage | V_R | 250 | V |
| Repetitive Peak Reverse Voltage | V_{RRM} | 250 | V |
| Peak Forward Current | I_F | 400 | mA |
| Non-Repetitive Peak Forward Surge Current | I_{FSM} | 9.0 3.0 1.7 | A |
| | | @ $t =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



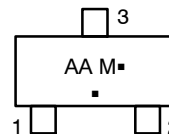
ON Semiconductor®

<http://onsemi.com>



SOT-23
CASE 318
STYLE 9

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 |

†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.

BAV23CLT1G

THERMAL CHARACTERISTICS

| Characteristic | Symbol | Max | Unit |
|----------------|--------|-----|------|
|----------------|--------|-----|------|

SINGLE HEATED

| | | | |
|---|-----------------|------------|----------------------------|
| Total Device Dissipation (Note 1) $T_A = 25^\circ\text{C}$ Derate above 25°C | P_D | 265 2.1 | mW mW/ $^\circ\text{C}$ |
| Thermal Resistance, Junction-to-Ambient (Note 1) | $R_{\theta JA}$ | 472 | $^\circ\text{C}/\text{W}$ |
| Thermal Reference, Junction-to-Anode Lead (Note 1) | $R_{\psi JL}$ | 263 | $^\circ\text{C}/\text{W}$ |
| Thermal Reference, Junction-to-Case (Note 1) | $R_{\psi JC}$ | 289 | $^\circ\text{C}/\text{W}$ |
| Total Device Dissipation (Note 2) $T_A = 25^\circ\text{C}$ Derate above 25°C | P_D | 345 2.7 | mW mW/ $^\circ\text{C}$ |
| Thermal Resistance, Junction-to-Ambient (Note 2) | $R_{\theta JA}$ | 362 | $^\circ\text{C}/\text{W}$ |
| Thermal Reference, Junction-to-Anode Lead (Note 2) | $R_{\psi JL}$ | 251 | $^\circ\text{C}/\text{W}$ |
| Thermal Reference, Junction-to-Case (Note 2) | $R_{\psi JC}$ | 250 | $^\circ\text{C}/\text{W}$ |

DUAL HEATED (Note 3)

| | | | |
|---|-----------------|-------------|----------------------------|
| Total Device Dissipation (Note 1) $T_A = 25^\circ\text{C}$ Derate above 25°C | P_D | 390 3.1 | mW mW/ $^\circ\text{C}$ |
| Thermal Resistance, Junction-to-Ambient (Note 1) | $R_{\theta JA}$ | 321 | $^\circ\text{C}/\text{W}$ |
| Thermal Reference, Junction-to-Anode Lead (Note 1) | $R_{\psi JL}$ | 159 | $^\circ\text{C}/\text{W}$ |
| Thermal Reference, Junction-to-Case (Note 1) | $R_{\psi JC}$ | 138 | $^\circ\text{C}/\text{W}$ |
| Total Device Dissipation (Note 2) $T_A = 25^\circ\text{C}$ Derate above 25°C | P_D | 540 4.3 | mW mW/ $^\circ\text{C}$ |
| Thermal Resistance, Junction-to-Ambient (Note 2) | $R_{\theta JA}$ | 231 | $^\circ\text{C}/\text{W}$ |
| Thermal Reference, Junction-to-Anode Lead (Note 2) | $R_{\psi JL}$ | 148 | $^\circ\text{C}/\text{W}$ |
| Thermal Reference, Junction-to-Case (Note 2) | $R_{\psi JC}$ | 119 | $^\circ\text{C}/\text{W}$ |
| Junction and Storage Temperature Range | T_J, T_{stg} | -55 to +150 | $^\circ\text{C}$ |

- FR-4 @ 100 mm², 1 oz. copper traces, still air.
- FR-4 @ 500 mm², 2 oz. copper traces, still air.
- Dual heated values assume total power is sum of two equally powered channels

ELECTRICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$ unless otherwise noted)

| Characteristic | Symbol | Min | Max | Unit |
|----------------|--------|-----|-----|------|
|----------------|--------|-----|-----|------|

OFF CHARACTERISTICS

| | | | | |
|--|------------|--------|--------------|------------------|
| Reverse Voltage Leakage Current ($V_R = 200\text{ Vdc}$) ($V_R = 200\text{ Vdc}, T_J = 150^\circ\text{C}$) | I_R | - - | 0.1 100 | $\mu\text{A dc}$ |
| Reverse Breakdown Voltage ($I_{BR} = 100\ \mu\text{A dc}$) | $V_{(BR)}$ | 250 | - | Vdc |
| Forward Voltage ($I_F = 100\ \text{mA dc}$) ($I_F = 200\ \text{mA dc}$) | V_F | - - | 1000 1250 | mV |
| Diode Capacitance ($V_R = 0, f = 1.0\ \text{MHz}$) | C_T | - | 5.0 | pF |
| Reverse Recovery Time ($I_F = I_R = 30\ \text{mA dc}, R_L = 100\ \Omega$) | t_{rr} | - | 150 | ns |

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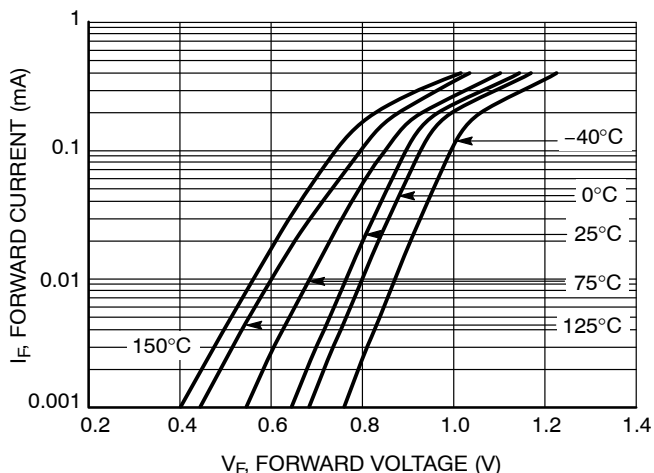


Figure 1. Forward Voltage

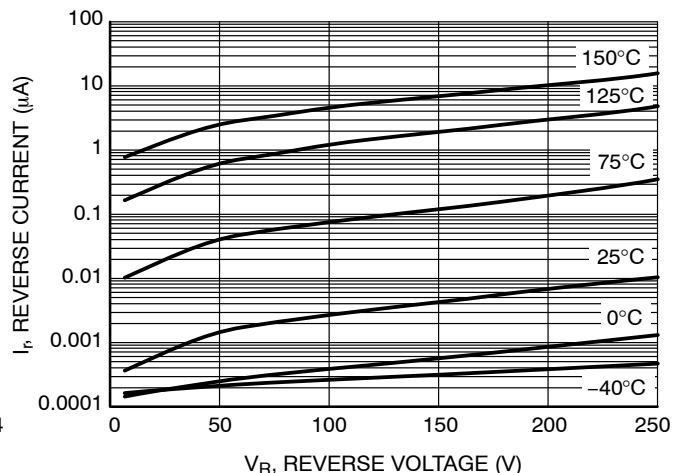


Figure 2. Reverse Current

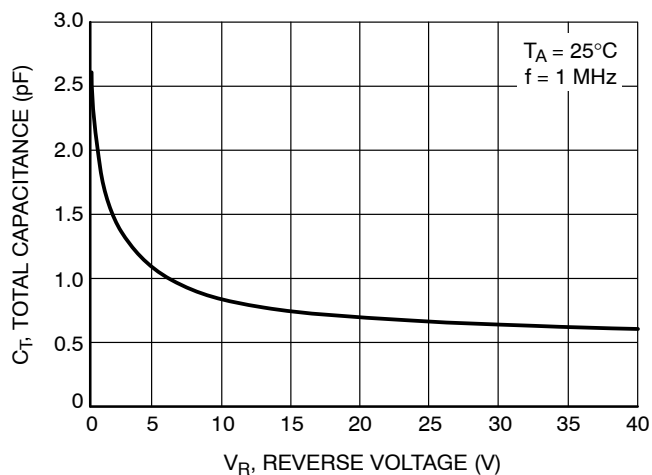
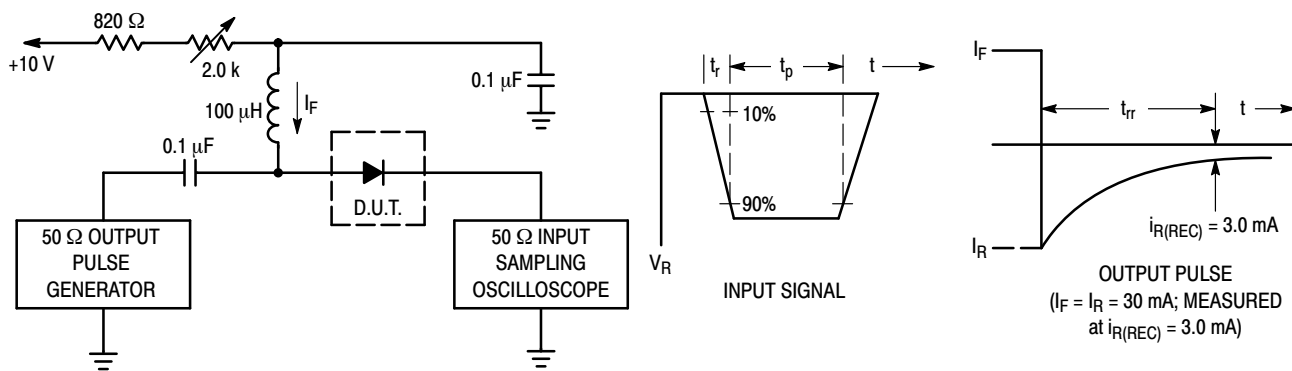


Figure 3. Total Capacitance



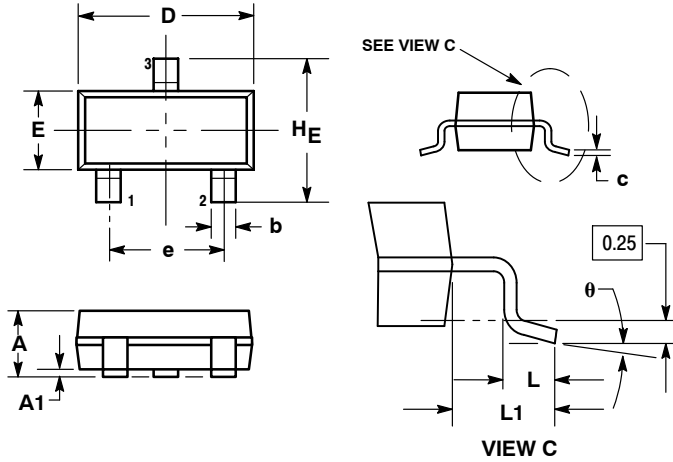
- Notes: 1. A 2.0 kΩ variable resistor adjusted for a Forward Current (I_F) of 30 mA.
- 2. Input pulse is adjusted so $I_{R(peak)}$ is equal to 30 mA.
- 3. $t_p \gg t_{rr}$

Figure 4. Recovery Time Equivalent Test Circuit

BAV23CLT1G

PACKAGE DIMENSIONS

SOT-23 (TO-236)
CASE 318-08
ISSUE AN



NOTES:

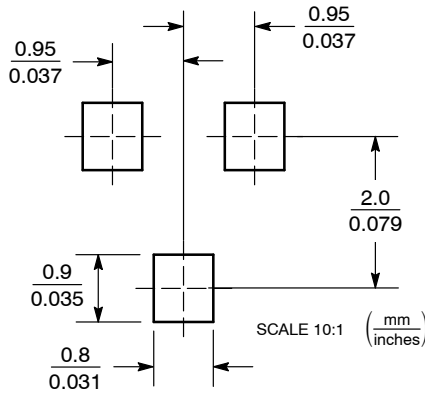
1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: INCH.
3. MAXIMUM LEAD THICKNESS INCLUDES LEAD FINISH THICKNESS. MINIMUM LEAD THICKNESS IS THE MINIMUM THICKNESS OF BASE MATERIAL.
4. 318-01 THRU -07 AND -09 OBSOLETE, NEW STANDARD 318-08.


| DIM | MILLIMETERS | | | INCHES | | |
|-----|-------------|------|------|--------|-------|-------|
| | 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 |
| HE | 2.10 | 2.40 | 2.64 | 0.083 | 0.094 | 0.104 |

STYLE 9:

1. ANODE
2. ANODE
3. CATHODE

SOLDERING FOOTPRINT



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