

**Features**

- Surface Mount Package Ideally Suited for Automated Insertion
- Very Low Leakage Current
- **Totally Lead-Free & Fully RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**

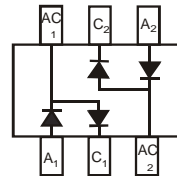
**Mechanical Data**

- Case: SOT363
- Case Material: Molded Plastic. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Finish - Matte Tin Annealed over Alloy 42 Leadframe (Lead Free Plating). Solderable per MIL-STD-202, Method 208 ③
- Polarity: See Diagram
- Weight: 0.008 grams (Approximate)



Top View

SOT363



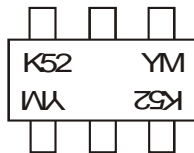
Top View  
Internal Schematic

**Ordering Information** (Note 4)

| Part Number  | Compliance | Case   | Packaging        |
|--------------|------------|--------|------------------|
| BAV199DW-7-F | Standard   | SOT363 | 3000/Tape & Reel |

- Notes:
1. No purposely added lead. Fully EU Directive 2002/95/EC (RoHS) & 2011/65/EU (RoHS 2) compliant.
  2. See [http://www.diodes.com/quality/lead\\_free.html](http://www.diodes.com/quality/lead_free.html) 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 <http://www.diodes.com/products/packages.html>.

**Marking Information**



K52 = Product Type Marking Code  
 YM = Date Code Marking  
 Y = Year (ex: C = 2015)  
 M = Month (ex: 9 = September)

Date Code Key

| Year | 2006 | 2007 | 2008 | ... | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 |
|------|------|------|------|-----|------|------|------|------|------|------|
| Code | T    | U    | V    | ... | C    | D    | E    | F    | G    | H    |

| 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** (@ $T_A = +25^\circ\text{C}$ , unless otherwise specified.)

| Characteristic                            | Symbol       | Value                  | Unit |
|---|--------------|------------------------|------|
| Peak Repetitive Reverse Voltage           | $V_{RRM}$    | 85                     | V    |
| Working Peak Reverse Voltage              | $V_{RWM}$    |                        |      |
| DC Blocking Voltage                       | $V_R$        |                        |      |
| RMS Reverse Voltage                       | $V_{R(RMS)}$ | 60                     | V    |
| Forward Continuous Current (Note 5)       | Single Diode | 160                    | mA   |
|   | Double Diode | 140                    |      |
| Repetitive Peak Forward Current (Note 5)  | $I_{FRM}$    | 500                    | mA   |
| Non-Repetitive Peak Forward Surge Current | $I_{FSM}$    | @ $t = 1.0\mu\text{s}$ | 4.0  |
|   |              | @ $t = 1.0\text{ms}$   | 1.0  |
|   |              | @ $t = 1.0\text{s}$    | 0.5  |

**Thermal Characteristics**

| Characteristic                                      | Symbol          | Value       | Unit               |
|---|-----------------|-------------|--------------------|
| Power Dissipation (Note 5)                          | $P_D$           | 200         | mW                 |
| Thermal Resistance Junction to Ambient Air (Note 5) | $R_{\theta JA}$ | 625         | $^\circ\text{C/W}$ |
| Operating and Storage Temperature Range             | $T_J, T_{STG}$  | -65 to +150 | $^\circ\text{C}$   |

**Electrical Characteristics** (@ $T_A = +25^\circ\text{C}$ , unless otherwise specified.)

| Characteristic                     | Symbol      | Min | Typ | Max       | Unit          | Test Condition  |
|------------------------------------|-------------|-----|-----|-----------|---------------|---|
| Reverse Breakdown Voltage (Note 6) | $V_{(BR)R}$ | 85  | —   | —         | V             | $I_R = 100\mu\text{A}$  |
| Forward Voltage                    | $V_F$       | —   | —   | 0.90      | V             | $I_F = 1.0\text{mA}$  |
|                                    |             |     |     | 1.0       |               | $I_F = 10\text{mA}$   |
|                                    |             |     |     | 1.1       |               | $I_F = 50\text{mA}$   |
|                                    |             |     |     | 1.25      |               | $I_F = 150\text{mA}$  |
| Leakage Current (Note 6)           | $I_R$       | —   | —   | 5.0<br>80 | nA            | $V_R = 75\text{V}$<br>$V_R = 75\text{V}, T_J = +150^\circ\text{C}$        |
| Total Capacitance                  | $C_T$       | —   | 1.5 | —         | pF            | $V_R = 0, f = 1.0\text{MHz}$  |
| Reverse Recovery Time              | $t_{RR}$    | —   | —   | 3.0       | $\mu\text{s}$ | $I_F = I_R = 10\text{mA}$ ,<br>$I_{RR} = 0.1 \times I_R, R_L = 100\Omega$ |

Notes: 5. Part 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.

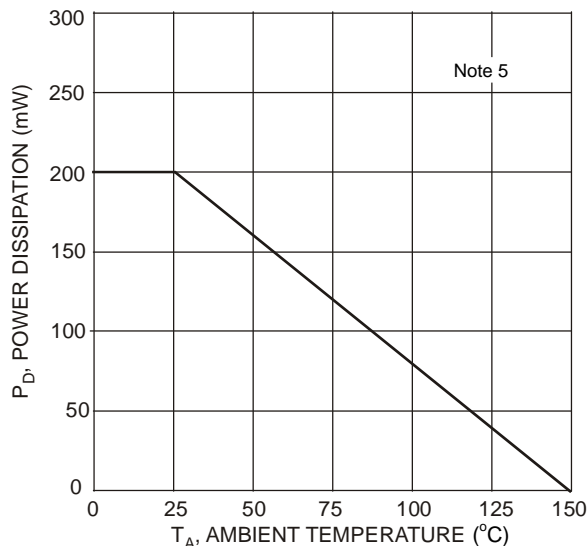


Fig. 1 Power Derating Curve, Total Package

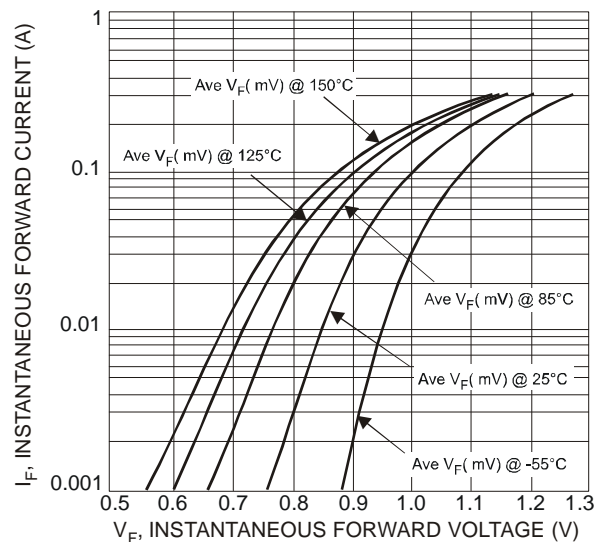


Fig. 2 Typical Forward Characteristics, Per Element

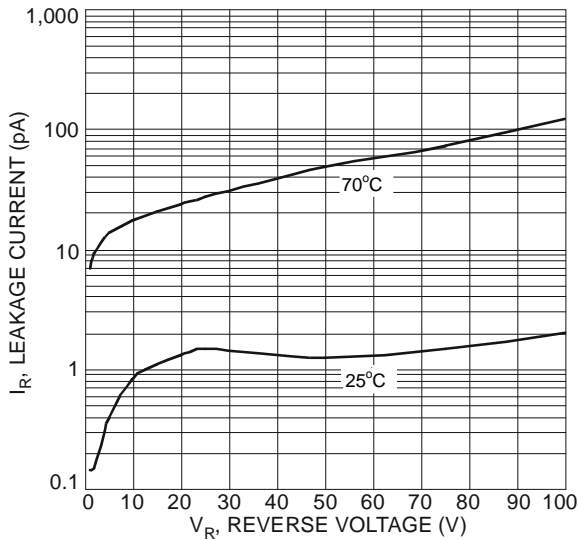


Fig. 3 Typical Reverse Characteristics, Per Element

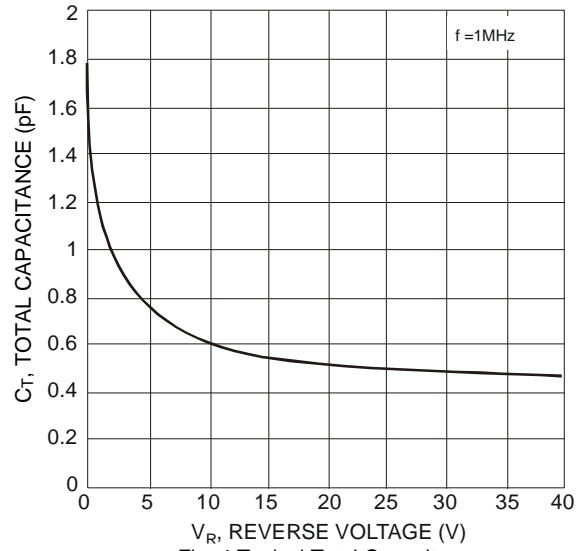


Fig. 4 Typical Total Capacitance

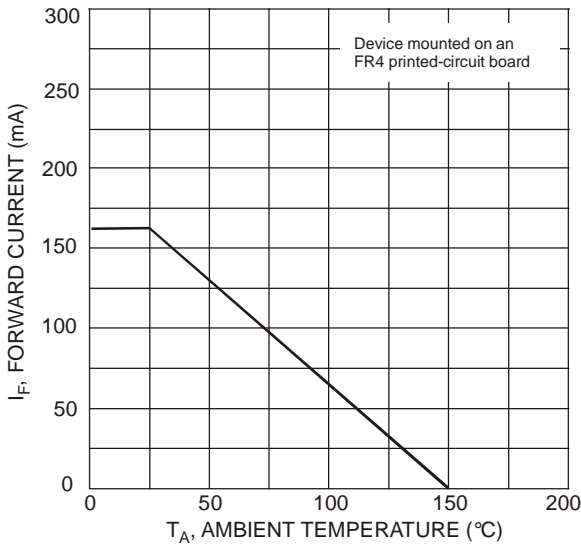
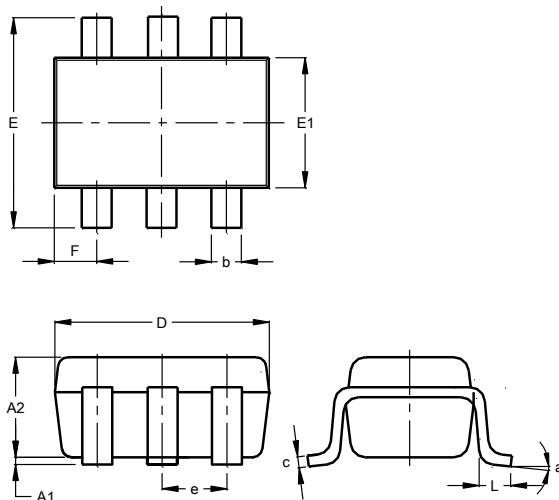


Fig. 5 Current Derating Curve, Per Element

## Package Outline Dimensions

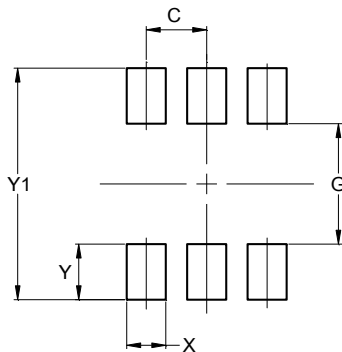
Please see AP02001 at [http://www.diodes.com/\\_files/datasheets/ap02001.pdf](http://www.diodes.com/_files/datasheets/ap02001.pdf) for the latest version.



| SOT363               |           |      |       |
|----------------------|-----------|------|-------|
| Dim                  | Min       | Max  | Typ   |
| A1                   | 0.00      | 0.10 | 0.05  |
| A2                   | 0.90      | 1.00 | 1.00  |
| b                    | 0.10      | 0.30 | 0.25  |
| c                    | 0.10      | 0.22 | 0.11  |
| D                    | 1.80      | 2.20 | 2.15  |
| E                    | 2.00      | 2.20 | 2.10  |
| E1                   | 1.15      | 1.35 | 1.30  |
| e                    | 0.650 BSC |      |       |
| F                    | 0.40      | 0.45 | 0.425 |
| L                    | 0.25      | 0.40 | 0.30  |
| a                    | 8°        |      |       |
| All Dimensions in mm |           |      |       |

## Suggested Pad Layout

Please see AP02001 at [http://www.diodes.com/\\_files/datasheets/ap02001.pdf](http://www.diodes.com/_files/datasheets/ap02001.pdf) for the latest version.



| Dimensions | Value (in mm) |
|------------|---------------|
| <b>C</b>   | 0.650         |
| <b>G</b>   | 1.300         |
| <b>X</b>   | 0.420         |
| <b>Y</b>   | 0.600         |
| <b>Y1</b>  | 2.500         |

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