

**Product Summary**(@  $T_A = +25^\circ\text{C}$ )

| $V_{RRM}$ (V) | $I_o$ (mA) | $V_{F(MAX)}$ (mV) | $I_{R(MAX)}$ (mA) |
|---------------|------------|-------------------|-------------------|
| 60            | 500        | 630               | 40                |

**Features and Benefits**

- High Current Capability ( $I_o = 500\text{mA}$ )
- Low  $V_F$
- **Totally Lead-Free Finish & Fully RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**
- **Qualified to AEC-Q101 Standards for High Reliability**

**Applications**

- DC - DC Converters
- Mobile Telecomms
- PC/MIA

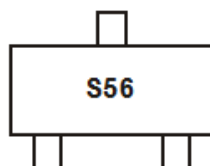
**Mechanical Data**

- Case: SOT23
- Case Material: Molded Plastic, "Green" Molding Compound.
- 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 <sup>Ⓢ</sup>
- Weight: 0.0089 grams (approximate)


**Ordering Information** (Note 4)

| Device    | Packaging | Shipping         |
|-----------|-----------|------------------|
| ZHCS506TA | SOT23     | 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**


S56 = Product Type Marking Code

**Maximum Ratings** (@T<sub>A</sub> = +25°C, unless otherwise specified.)

| Characteristic                           | Symbol           | Value     | Units |   |
|--|------------------|-----------|-------|---|
| Continuous Reverse Voltage               | V <sub>R</sub>   | 60        | V     |   |
| Continuous Forward Current               | I <sub>F</sub>   | 500       | mA    |   |
| Forward Voltage @I <sub>F</sub> = 500mA  | V <sub>F</sub>   | 630       | mV    |   |
| Average Peak Forward Current; D.C. = 50% | I <sub>FAV</sub> | 1000      | mA    |   |
| Non Repetitive Forward Current           | I <sub>FSM</sub> | t ≤ 100μs | 5.5   | A |
|  |                  | t ≤ 10ms  | 2.5   | A |

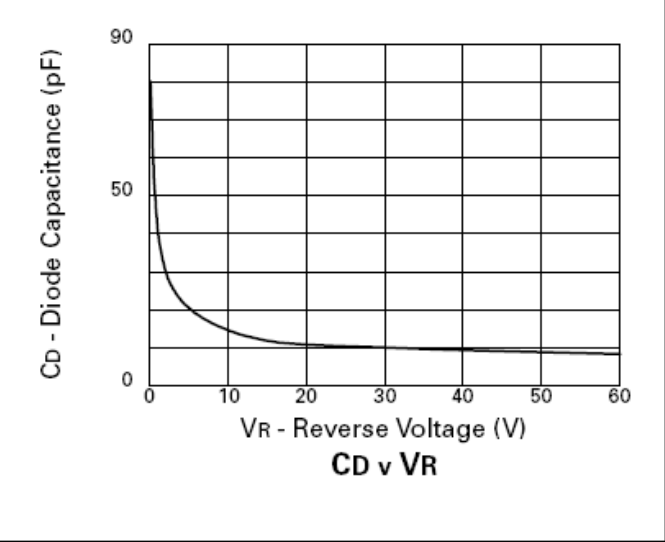
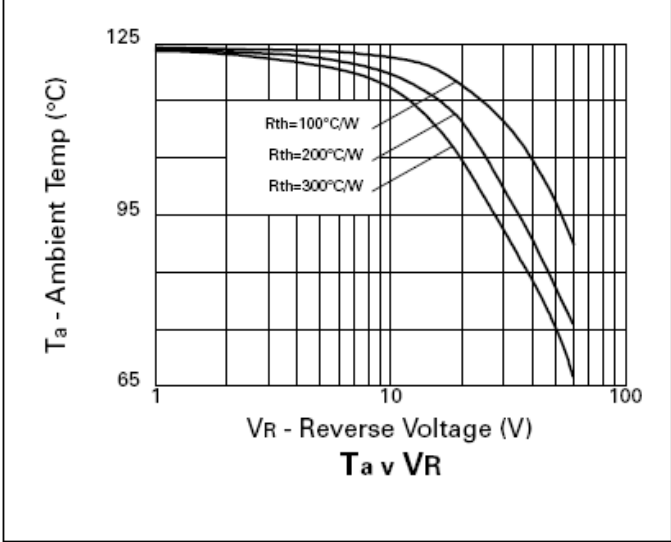
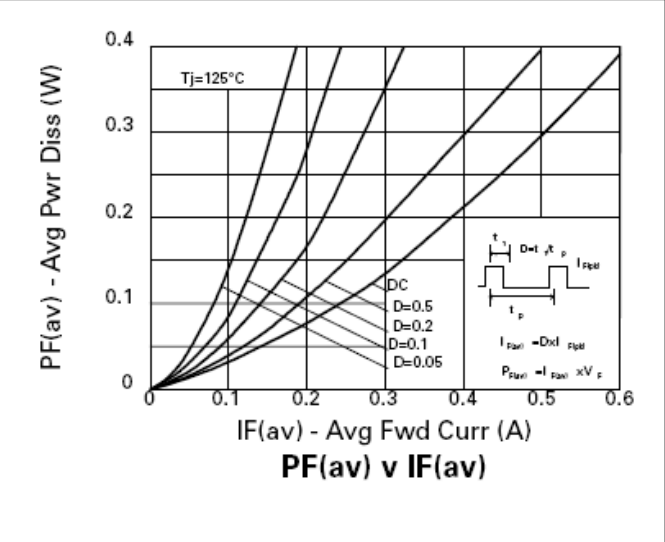
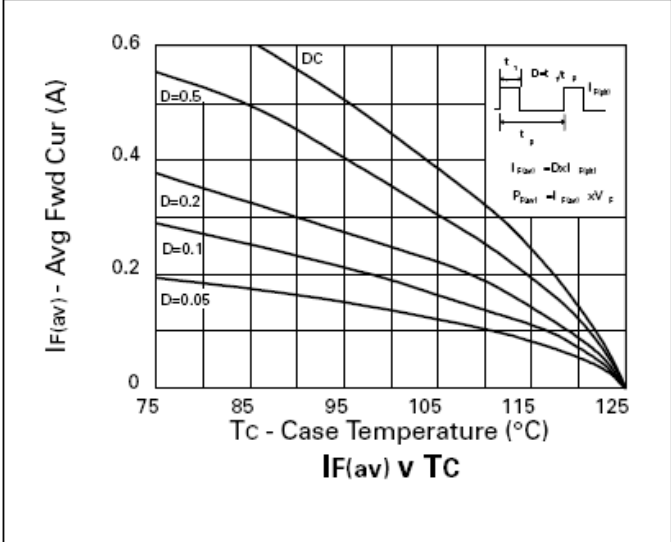
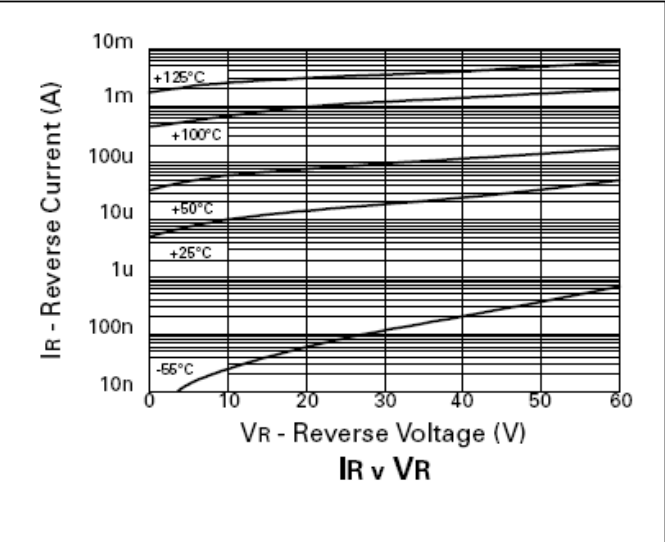
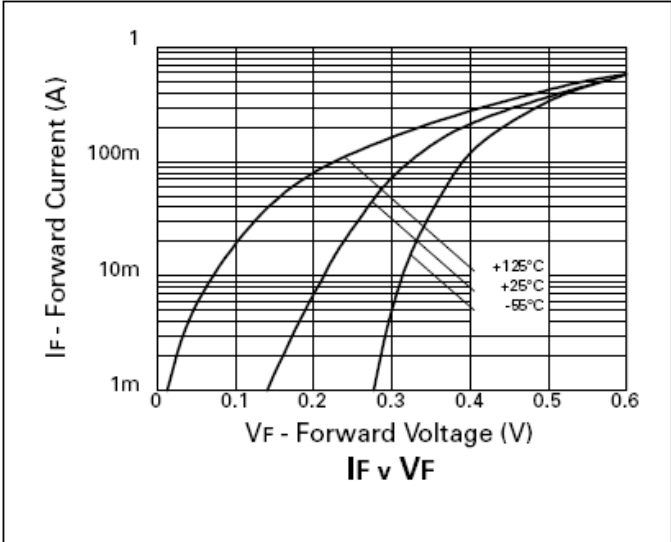
**Thermal Characteristics**

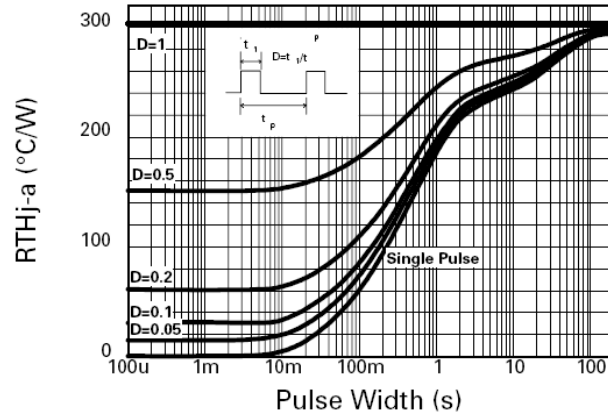
| Characteristic                            | Symbol           | Value       | Unit |
|---|------------------|-------------|------|
| Power Dissipation, T <sub>A</sub> = +25°C | P <sub>D</sub>   | 330         | mW   |
| Junction Temperature                      | T <sub>J</sub>   | +125        | °C   |
| Storage Temperature Range                 | T <sub>STG</sub> | -55 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 | V <sub>(BR)R</sub> | 60  | 80   | —    | V    | I <sub>R</sub> = 200μA   |
| Forward Voltage (Note 5)  | V <sub>F</sub>     | —   | 275  | 310  | mV   | I <sub>F</sub> = 50mA  |
|                           |                    | —   | 320  | 360  |      | I <sub>F</sub> = 100mA   |
|                           |                    | —   | 415  | 470  |      | I <sub>F</sub> = 250mA   |
|                           |                    | —   | 550  | 630  |      | I <sub>F</sub> = 500mA   |
|                           |                    | —   | 680  | 800  |      | I <sub>F</sub> = 750mA   |
|                           |                    | —   | 820  | 960  |      | I <sub>F</sub> = 1A  |
|                           |                    | —   | 1120 | 1350 |      | I <sub>F</sub> = 1.5A  |
|                           |                    | —   | 565  | —    |      | I <sub>F</sub> = 500mA, T <sub>A</sub> = +100°C  |
| Reverse Current           | I <sub>R</sub>     | —   | 20   | 40   | μA   | V <sub>R</sub> = 45V   |
| Diode Capacitance         | C <sub>D</sub>     | —   | 20   | —    | pF   | f = 1MHz, V <sub>R</sub> = 25V   |
| Reverse Recovery Time     | trr                | —   | 10   | —    | ns   | Switched from I <sub>F</sub> = 500mA to I <sub>R</sub> = 500mA<br>Measured @ I <sub>R</sub> = 50mA |

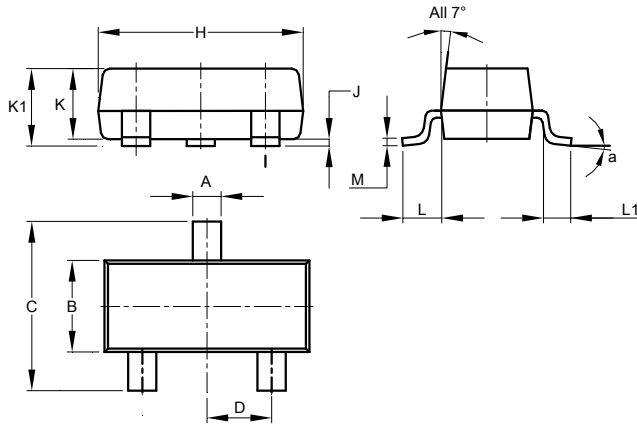
Note: 5. Measured under pulsed conditions. Pulse width = 300μs. Duty cycle 2%.





## Package Outline Dimensions

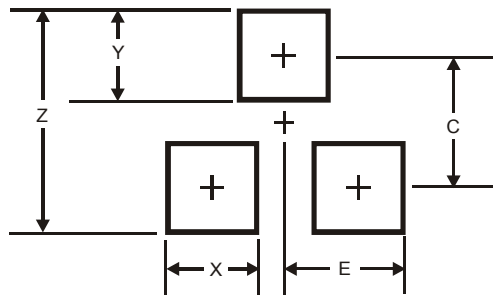
Please see AP02002 at <http://www.diodes.com/datasheets/ap02002.pdf> for latest version



| 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                    | 0.890 | 1.00  | 0.975 |
| K1                   | 0.903 | 1.10  | 1.025 |
| L                    | 0.45  | 0.61  | 0.55  |
| L1                   | 0.25  | 0.55  | 0.40  |
| M                    | 0.085 | 0.150 | 0.110 |
| a                    | 8°    |       |       |
| All Dimensions in mm |       |       |       |

## Suggested Pad Layout

Please see AP02001 at <http://www.diodes.com/datasheets/ap02001.pdf> for latest version.



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

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