

Product Summary

| V_R (V) | I_F (mA) | $V_{F(MAX)}$ (mV) | $I_{R(MAX)}$ (μ A) |
|-----------|------------|-------------------|-------------------------|
| 40 | 500 | 550 | 40 |

Applications

- DC – DC Converters
- Mobile Telecomms
- PCMIA

Features

- High Current Capability ($I_F = 500\text{mA}$)
- Low V_F
- **Totally Lead-Free & Fully RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**
- **Qualified to AEC-Q101 Standards for High Reliability**
- **PPAP Capable (Note 4)**

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
- Weight: 0.008 grams (Approximate)

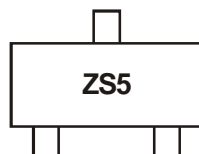


Ordering Information (Note 5)

| Part Number | Case | Packaging |
|-------------|-------|-------------------|
| ZHCS500TA | SOT23 | 3000/Tape & Reel |
| ZHCS500QTA | SOT23 | 3000/Tape & Reel |
| ZHCS500QTC | SOT23 | 10000/Tape & Reel |

- Notes:
1. No purposely added lead. Fully EU Directive 2002/95/EC (RoHS), 2011/65/EU (RoHS 2) & 2015/863/EU (RoHS 3) compliant.
 2. See <https://www.diodes.com/quality/lead-free/> 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. Automotive products are AEC-Q101 qualified and are PPAP capable. Automotive, AEC-Q101 and standard products are electrically and thermally the same, except where specified. For more information, please refer to <https://www.diodes.com/quality/>.
 5. For packaging details, go to our website at <https://www.diodes.com/design/support/packaging/diodes-packaging/>.

Marking Information



ZS5 = Product Type Marking Code

Maximum Ratings (@T_A = +25°C, unless otherwise specified.)

| Characteristic | Symbol | Value | Unit |
|--|------------------|-------|------|
| Continuous Reverse Voltage | V _R | 40 | V |
| Continuous Forward Current | I _F | 500 | mA |
| Forward Voltage @ I _F = 500mA | V _F | 550 | mV |
| Average Peak Forward Current; D.C. = 50% | I _{FAV} | 1000 | mA |
| Non Repetitive Forward Current | t ≤ 100μs | 6.75 | A |
| | t ≤ 10ms | 3 | A |

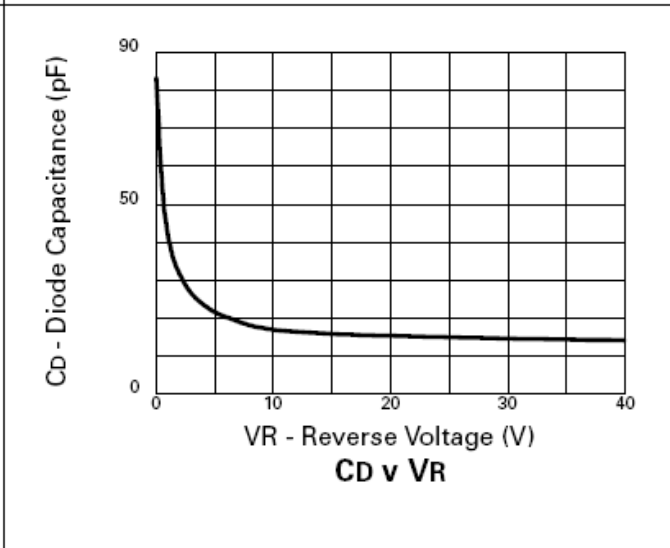
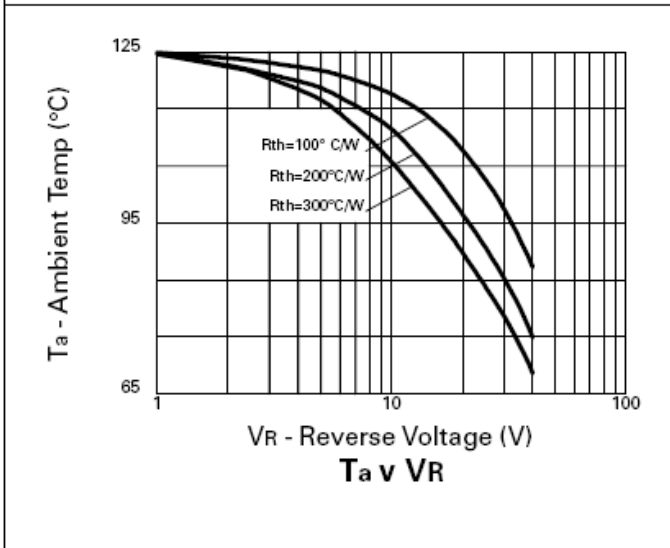
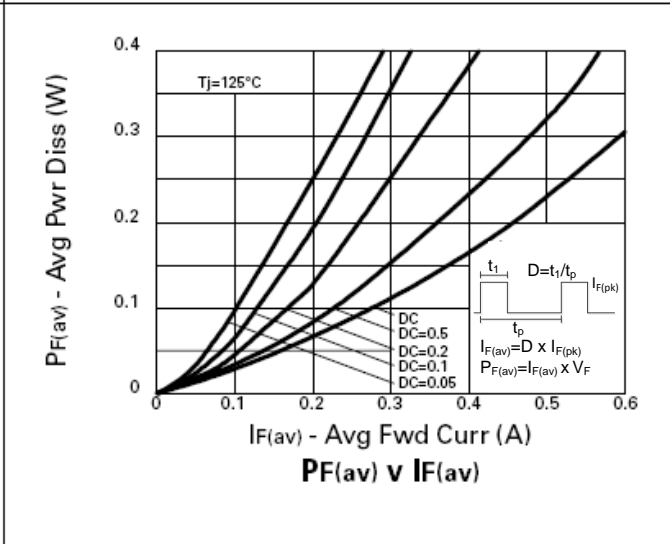
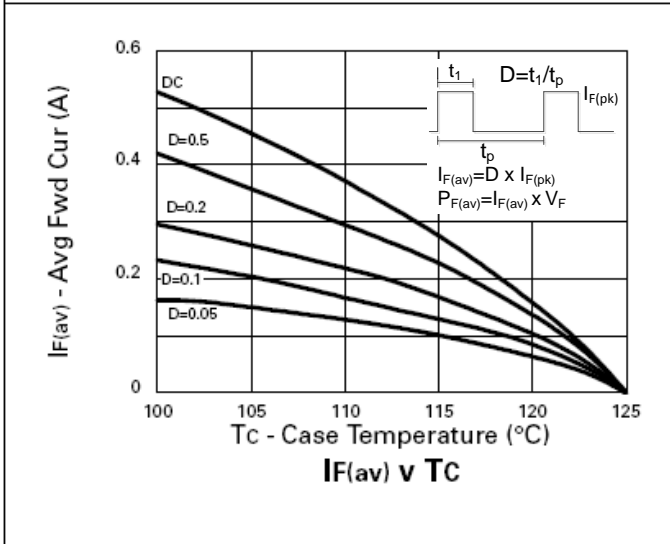
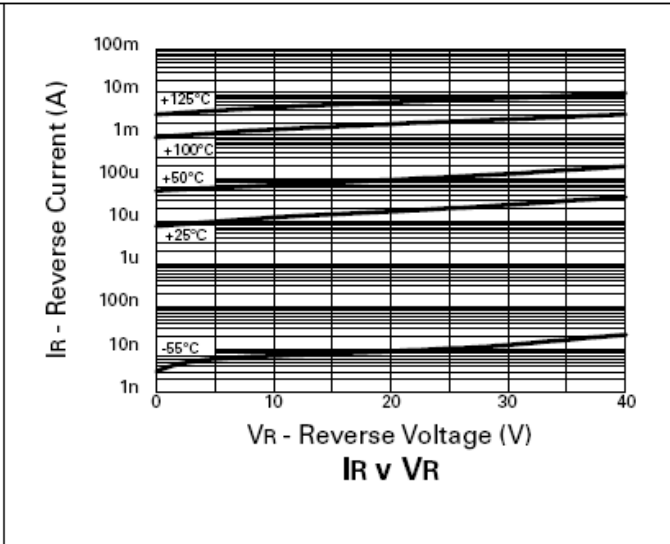
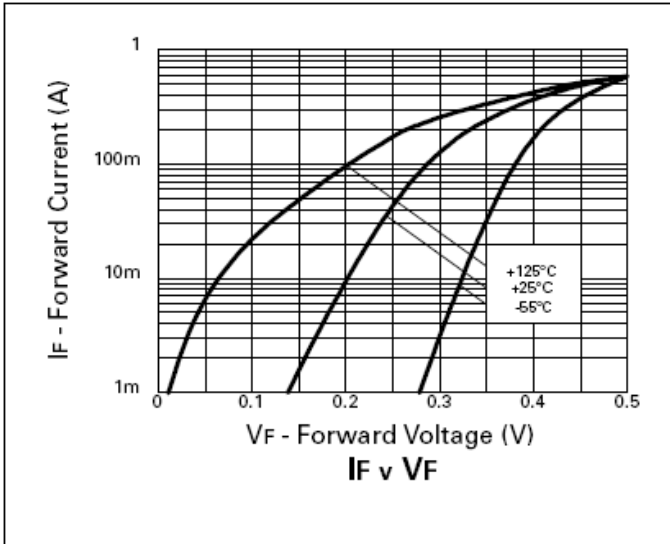
Thermal Characteristics

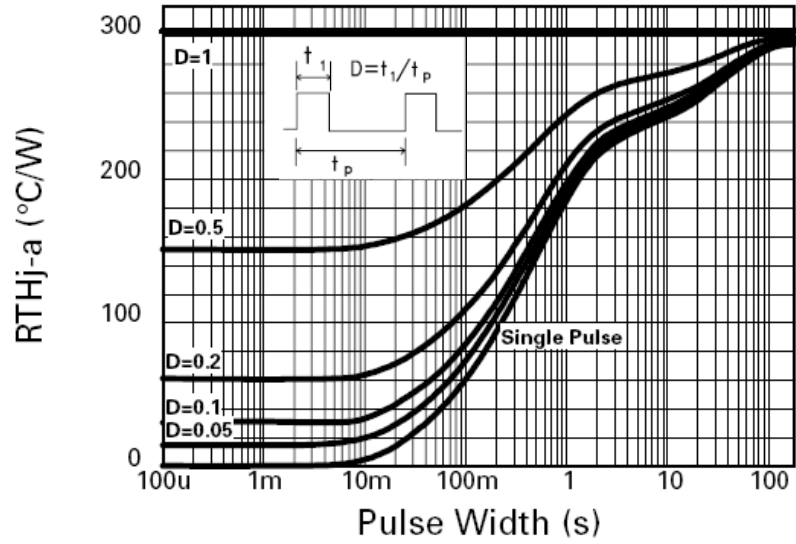
| Characteristic | Symbol | Value | Unit |
|---|------------------|-------------|------|
| Power Dissipation, T _A = +25°C | P _D | 330 | mW |
| Junction Temperature | T _J | 125 | °C |
| Storage Temperature Range | T _{STG} | -55 to +150 | °C |

Electrical Characteristics (@T_A = +25°C, unless otherwise specified.)

| Characteristic | Symbol | Min | Typ | Max | Unit | Test Condition |
|---------------------------|--------------------|-----|-----|------|------|--|
| Reverse Breakdown Voltage | V _{(BR)R} | 40 | 60 | — | V | I _R = 200μA |
| Forward Voltage (Note 6) | V _F | — | 270 | 300 | mV | I _F = 50mA |
| | | — | 300 | 350 | | I _F = 100mA |
| | | — | 370 | 460 | | I _F = 250mA |
| | | — | 465 | 550 | | I _F = 500mA |
| | | — | 550 | 670 | | I _F = 750mA |
| | | — | 640 | 780 | | I _F = 1A |
| | | — | 810 | 1050 | | I _F = 1.5A |
| | | — | 440 | — | | I _F = 500mA, T _A = +100°C |
| Reverse Current | I _R | — | 15 | 40 | μA | V _R = 30V |
| Diode Capacitance | C _D | — | 20 | — | pF | f = 1MHz, V _R = 25V |
| Reverse Recovery Time | t _{RR} | — | 10 | — | ns | Switched from I _F = 500mA to I _R = 500mA Measured @ I _R = 50mA |

Notes: 6. Measured under pulsed conditions. Pulse width = 300μs. Duty cycle = 2%.

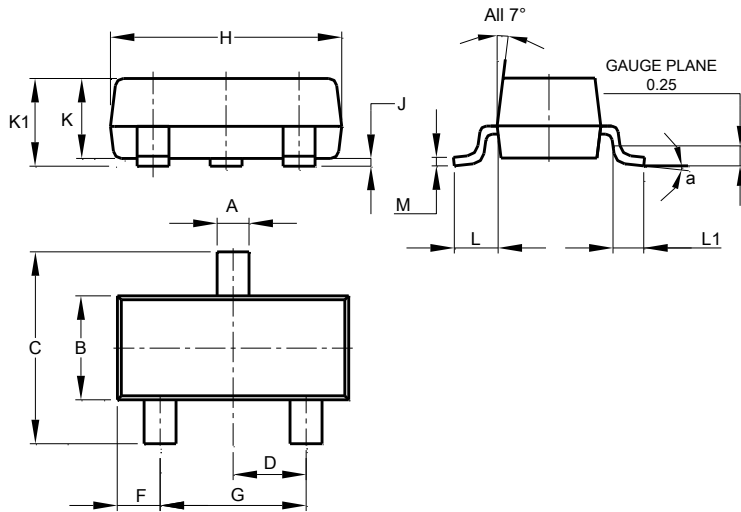




Package Outline Dimensions

Please see <http://www.diodes.com/package-outlines.html> for the latest version.

SOT23

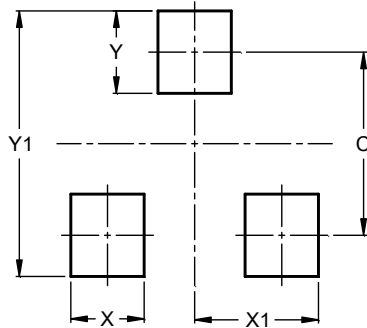


| SOT23 | | | |
|----------------------|-------|-------|-------|
| Dim | Min | Max | Typ |
| A | 0.37 | 0.51 | 0.40 |
| B | 1.20 | 1.40 | 1.30 |
| C | 2.30 | 2.50 | 2.40 |
| D | 0.89 | 1.03 | 0.915 |
| F | 0.45 | 0.60 | 0.535 |
| G | 1.78 | 2.05 | 1.83 |
| H | 2.80 | 3.00 | 2.90 |
| J | 0.013 | 0.10 | 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 | 0° | 8° | -- |
| All Dimensions in mm | | | |

Suggested Pad Layout

Please see <http://www.diodes.com/package-outlines.html> for the latest version.

SOT23



| Dimensions | Value (in mm) |
|------------|---------------|
| C | 2.0 |
| X | 0.8 |
| X1 | 1.35 |
| Y | 0.9 |
| Y1 | 2.9 |

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