

Product Summary

| V _{RRM} (V) | I _O (A) | V _{F(TYP)} @ 1A (V) | I _{R(TYP)} @ V _R =30V (μA) |
|----------------------|--------------------|------------------------------|--|
| 40 | 1 | 0.425 | 50 |

Features and Benefits

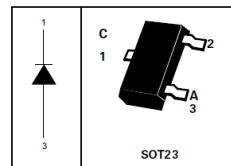
- High Current Capability (I_F = 1A)
- Low V_F
- **Totally Lead-Free & Fully RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**
- **Qualified to AEC-Q101 Standards for High Reliability**
- **PPAP Capable (Note 4)**

Applications

- DC-DC Converters
- Mobile Telecomms
- Blocking Diodes
- Reverse Polarity Protection

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. Solderable per MIL-STD-202, Method 208
- Weight: 0.0089 grams (Approximate)

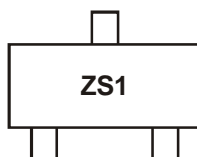
NEW PRODUCT


Top View

Ordering Information (Note 5)

| Device | Compliance | Case | Packaging |
|-------------|------------|-------|------------------|
| ZHCS1000QTA | Automotive | 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 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. For more information, please refer to http://www.diodes.com/product_compliance_definitions.html
 5. For packaging details, go to our website at <http://www.diodes.com/products/packages.html>.

Marking Information


ZS1 = Product Type Marking Code

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

| Characteristic | Symbol | Value | Units |
|---|--------------------|-----------|-------|
| Continuous Reverse Voltage | V _R | 40 | V |
| Average Rectified Output Current | I _O | 1 | A |
| Forward Voltage @ I _F = 1A (Typ) | V _F | 425 | mV |
| Average Peak Forward Current; D.C. = 50% | I _{F(AV)} | 1750 | mA |
| Non Repetitive Forward Current | I _{FSM} | t ≤ 100μs | 12 |
| | | t ≤ 10ms | 5.2 |

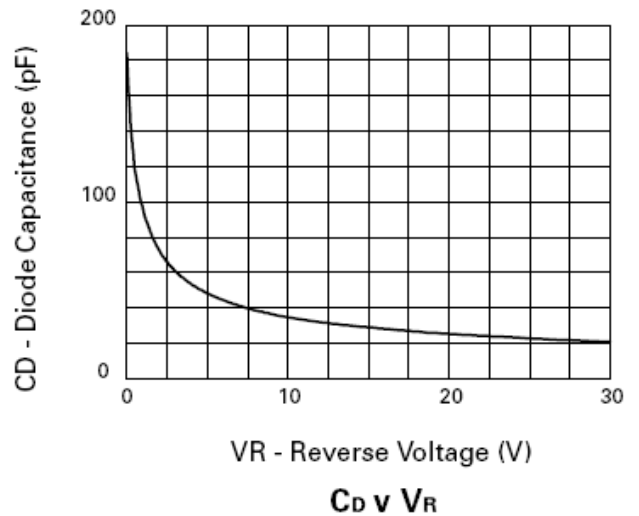
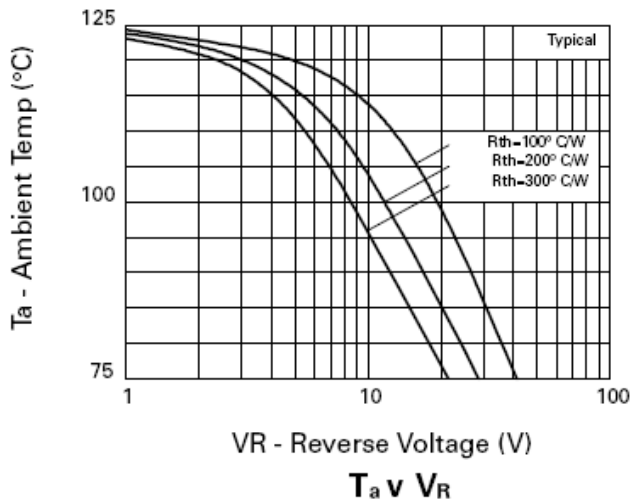
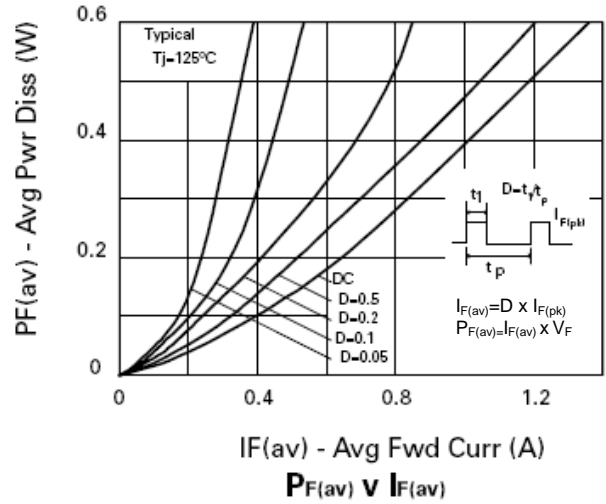
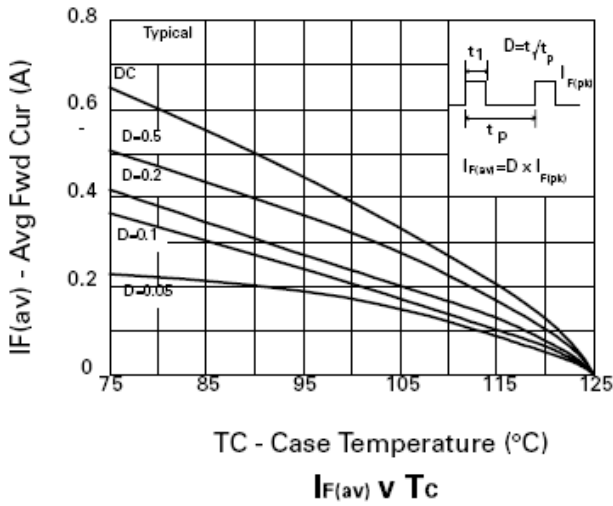
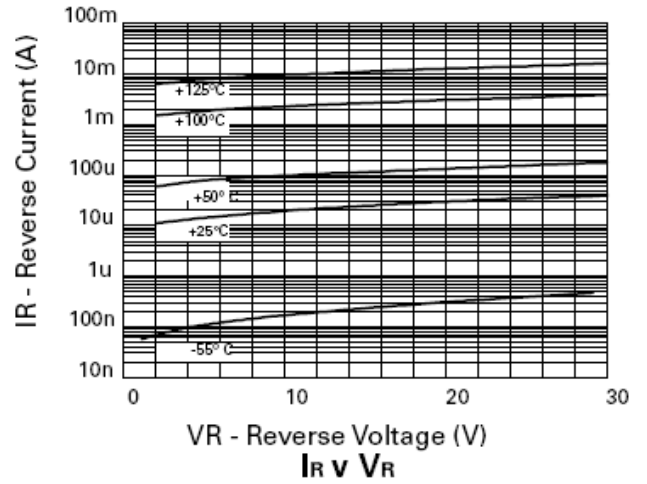
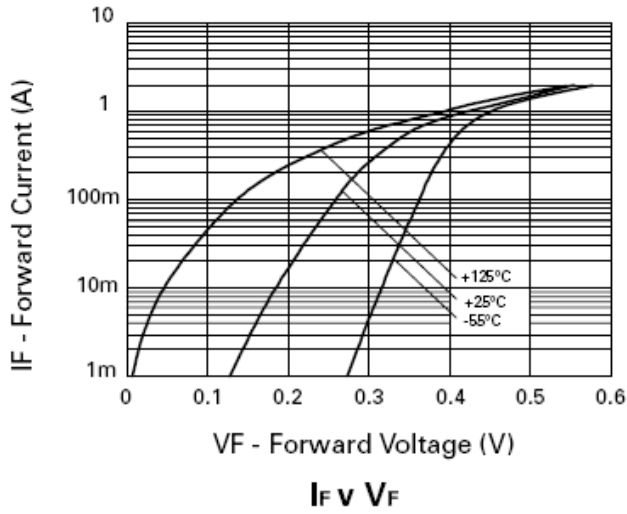
Thermal Characteristics

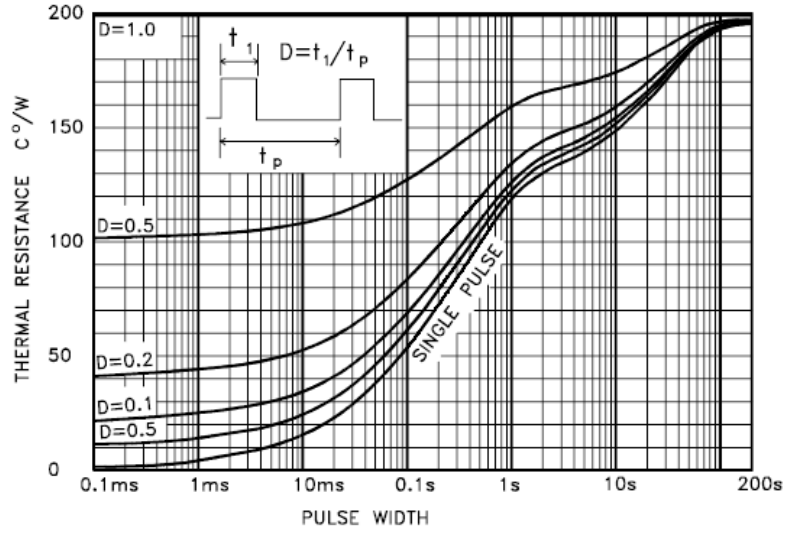
| Characteristic | Symbol | Value | Unit |
|---|------------------|-------------|------|
| Power Dissipation, T _A = +25°C | P _D | 500 | mW |
| Junction Temperature | T _J | +125 | °C |
| Storage Temperature Range | T _{STG} | -55 to +150 | °C |

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 = 300μA |
| Forward Voltage (Note 6) | V _F | — | 240 | 270 | mV | I _F = 50mA |
| | | — | 265 | 290 | | I _F = 100mA |
| | | — | 305 | 340 | | I _F = 250mA |
| | | — | 355 | 400 | | I _F = 500mA |
| | | — | 390 | 450 | | I _F = 750mA |
| | | — | 425 | 500 | | I _F = 1A |
| | | — | 495 | 600 | | I _F = 1.5A |
| | | — | 420 | — | | I _F = 1A, T _A = +100°C |
| Reverse Current (Note 7) | I _R | — | 50 | 100 | μA | V _R = 30V |
| Total Capacitance | C _T | — | 25 | — | pF | f = 1MHz, V _R = 30V |
| Reverse Recovery Time | t _{RR} | — | 12 | — | ns | Switched from I _F = 500mA to I _R = 500mA Measured @ I _R = 50mA |

- Notes:
6. Measured under pulsed conditions. Pulse width = 300μs.
 7. Short duration pulse test used to minimize self-heating effect.





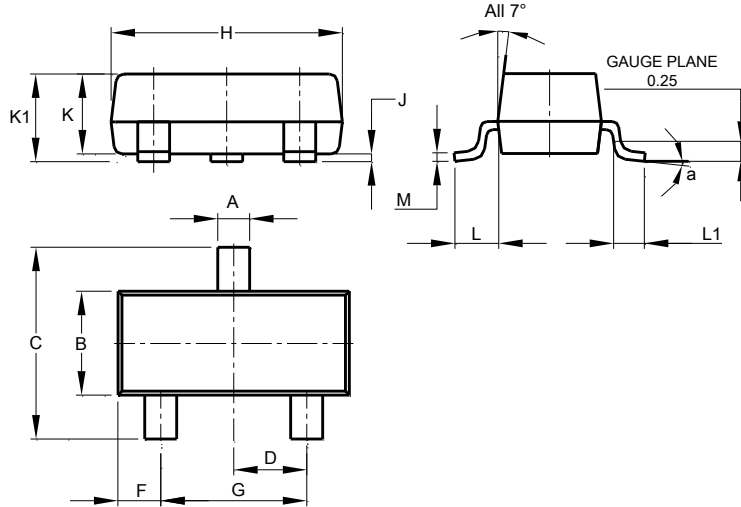
Maximum Transient Thermal Resistance*

* Devices were mounted on a 15mmx15mm ceramic substrate.

Package Outline Dimensions

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

SOT23

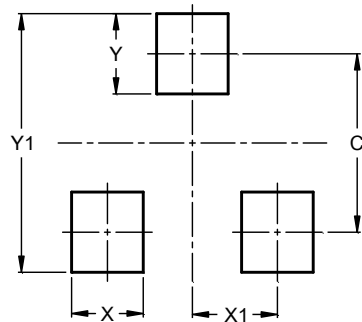


| SOT23 | | | |
|----------------------|-------|-------|-------|
| Dim | Min | Max | Typ |
| A | 0.37 | 0.51 | 0.40 |
| B | 1.20 | 1.40 | 1.30 |
| C | 2.30 | 2.50 | 2.40 |
| D | 0.89 | 1.03 | 0.915 |
| F | 0.45 | 0.60 | 0.535 |
| G | 1.78 | 2.05 | 1.83 |
| H | 2.80 | 3.00 | 2.90 |
| J | 0.013 | 0.10 | 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 AP02001 at <http://www.diodes.com/datasheets/ap02001.pdf> for the latest version.

SOT23



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

NEW PRODUCT

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