

Features and Benefits

- $V_{(BR)DSS} > 60V$
- $R_{DS(ON)} \leq 2\Omega @ V_{GS} = 10V$
- Maximum Continuous Drain Current $I_D = 0.71A$
- **Lead-Free Finish; RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**
- **Qualified to AEC-Q101 Standards for High Reliability**

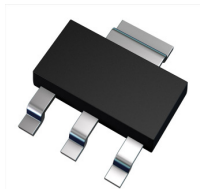
Mechanical Data

- Case: SOT223
- 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 (Ⓔ3)
- Weight: 0.112 grams (Approximate)

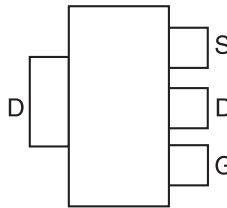
Applications

- DC-DC Converters
- Solenoids / Relay Driver for Automotive

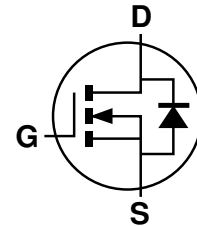
SOT223



Top View



Pin Out - Top



Equivalent Circuit

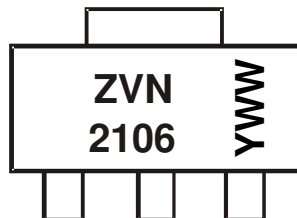
Ordering Information (Note 4)

| Part Number | Marking | Reel size (inches) | Tape width (mm) | Quantity per reel |
|-------------|---------|--------------------|-----------------|-------------------|
| ZVN2106GTA | ZVN2106 | 7 | 8 | 1,000 |

- Notes:
1. EU Directive 2002/95/EC (RoHS) & 2011/65/EU (RoHS 2) compliant. All applicable RoHS exemptions applied.
 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. For packaging details, go to our website at <http://www.diodes.com/products/packages.html>.

Marking Information

SOT223



ZVN2106 = Product Type Marking Code
 YWW = Date Code Marking
 Y or \bar{Y} = Last Digit of Year (ex: 5= 2015)
 WW or $\bar{W}W$ = Week Code (01~53)

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

| Characteristic | Symbol | Value | Unit |
|-------------------------------|------------------|-------|------|
| Drain-Source Voltage | V _{DSS} | 60 | V |
| Gate-Source Voltage | V _{GSS} | ±20 | V |
| Continuous Drain Current | I _D | 0.71 | A |
| Pulsed Drain Current (Note 6) | I _{DM} | 8 | A |

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

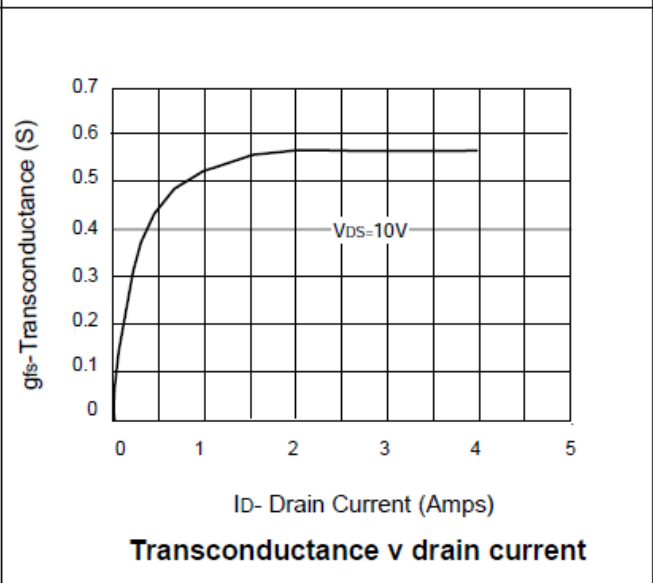
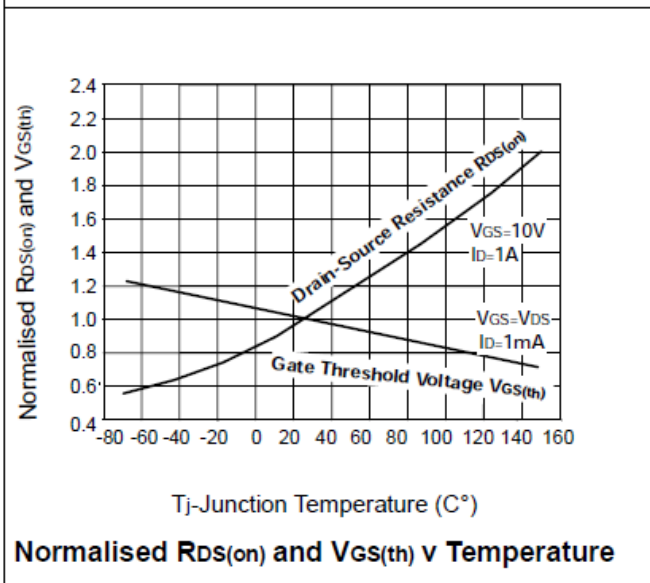
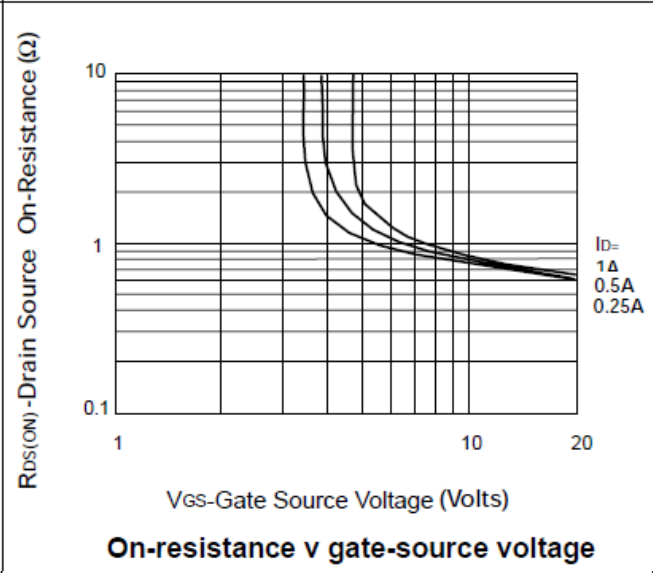
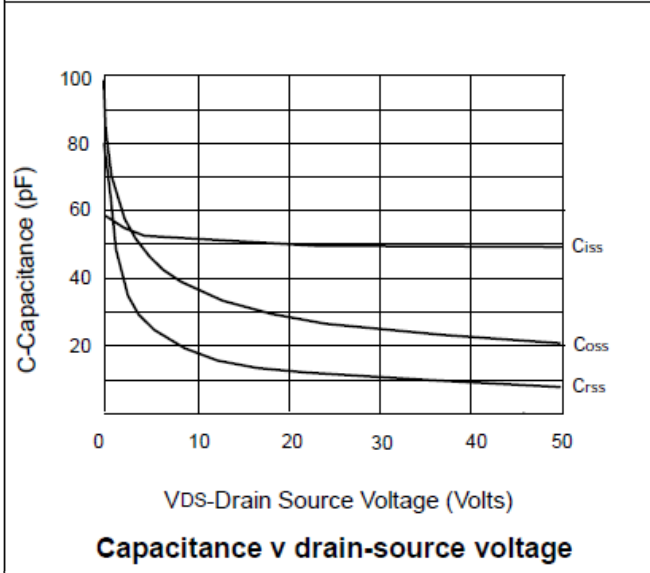
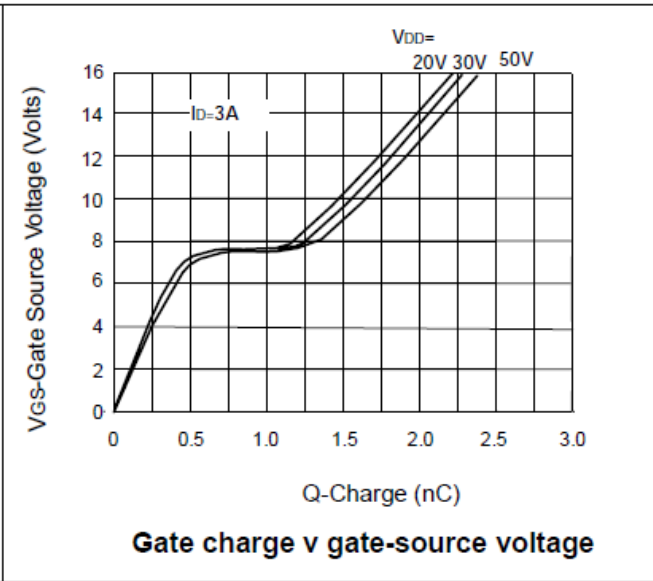
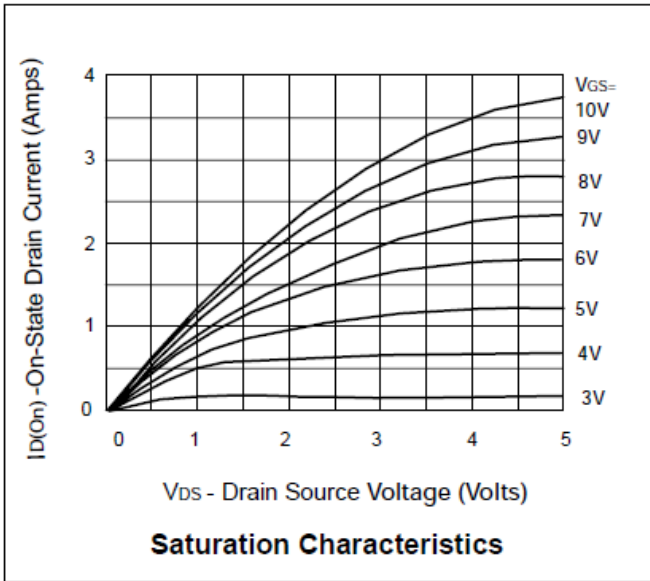
| Characteristic | Symbol | Value | Unit |
|---|-----------------------------------|-------------|------|
| Power Dissipation (Note 5) | P _D | 2 | W |
| Operating and Storage Temperature Range | T _J , T _{STG} | -55 to +150 | °C |

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

| Characteristic | Symbol | Min | Typ | Max | Unit | Test Condition |
|--|---------------------|-----|-----|------------|----------|---|
| OFF CHARACTERISTICS (Note 7) | | | | | | |
| Drain-Source Breakdown Voltage | BV _{DSS} | 60 | - | - | V | V _{GS} = 0V, I _D = 1mA |
| Zero Gate Voltage Drain Current T _J = +25°C | I _{DSS} | - | - | 500 100 | nA µA | V _{DS} = 60V, V _{GS} = 0V V _{DS} = 48V, V _{GS} = 0V, T _A = +125°C |
| Gate-Source Leakage | I _{GSS} | - | - | ±20 | nA | V _{GS} = ±20V, V _{DS} = 0V |
| On-State Drain Current | I _{D(ON)} | 2 | - | - | A | V _{GS} = 10V, V _{DS} = 18V |
| ON CHARACTERISTICS (Note 7) | | | | | | |
| Gate Threshold Voltage | V _{GS(TH)} | 0.8 | - | 2.4 | V | V _{DS} = V _{GS} , I _D = 1mA |
| Static Drain-Source On-Resistance | R _{DS(ON)} | - | - | 2 | Ω | V _{GS} = 10V, I _D = 1.0A |
| Forward Transconductance | g _{fs} | 0.3 | - | - | S | V _{DS} = 18V, I _D = 1.0A |
| DYNAMIC CHARACTERISTICS (Note 8) | | | | | | |
| Input Capacitance | C _{iss} | - | - | 75 | pF | V _{DS} = 18V, V _{GS} = 0V, f = 1.0MHz |
| Output Capacitance | C _{oss} | - | - | 45 | pF | |
| Reverse Transfer Capacitance | C _{rss} | - | - | 20 | pF | |
| Turn-On Delay Time | t _{D(ON)} | - | - | 7 | ns | V _{DD} = 18V, I _D = 1A, V _{GEN} = 10V, R _{GS} = 50Ω |
| Turn-On Rise Time | t _R | - | - | 8 | ns | |
| Turn-Off Delay Time | t _{D(OFF)} | - | - | 12 | ns | |
| Turn-Off Fall Time | t _F | - | - | 15 | ns | |

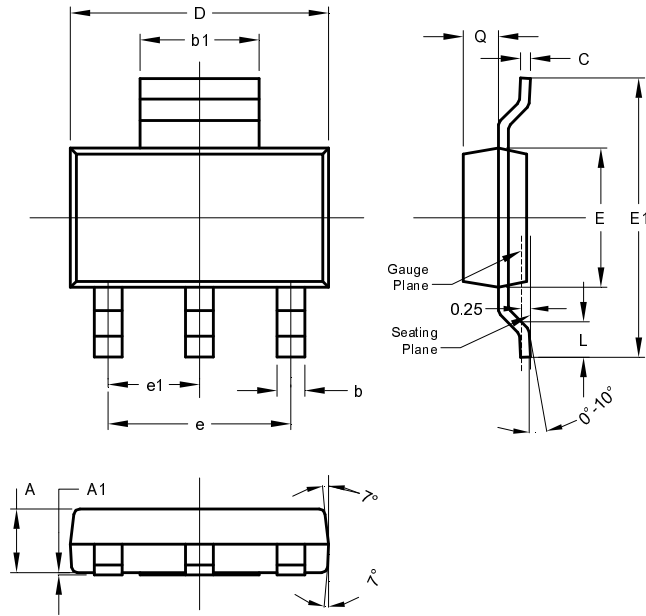
- Notes:
5. For a device mounted on 50mm x 50mm x 1.6mm FR-4 PCB with high coverage of single sided 2oz copper, in still air condition.
 6. Device mounted on minimum recommended pad layout test board, 10µs pulse duty cycle = 1%.
 7. Short duration pulse test used to minimize self-heating effect.
 8. Guaranteed by design. Not subject to production testing.

Typical Characteristics



Package Outline Dimensions

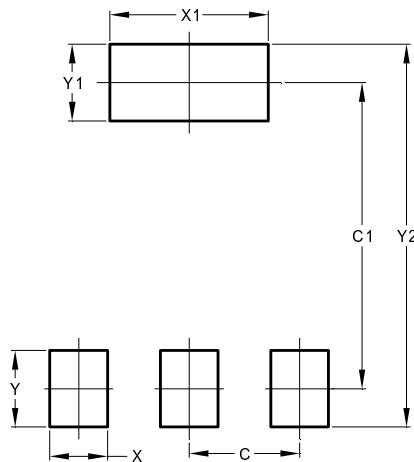
Please see AP02002 at <http://www.diodes.com/datasheets/ap02002.pdf> for the latest version.



| SOT223 | | | |
|----------------------|-------|------|------|
| Dim | Min | Max | Typ |
| A | 1.55 | 1.65 | 1.60 |
| A1 | 0.010 | 0.15 | 0.05 |
| b | 0.60 | 0.80 | 0.70 |
| b1 | 2.90 | 3.10 | 3.00 |
| C | 0.20 | 0.30 | 0.25 |
| D | 6.45 | 6.55 | 6.50 |
| E | 3.45 | 3.55 | 3.50 |
| E1 | 6.90 | 7.10 | 7.00 |
| e | - | - | 4.60 |
| e1 | - | - | 2.30 |
| L | 0.85 | 1.05 | 0.95 |
| Q | 0.84 | 0.94 | 0.89 |
| All Dimensions in mm | | | |

Suggested Pad Layout

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



| Dimensions | Value (in mm) |
|------------|---------------|
| C | 2.30 |
| C1 | 6.40 |
| X | 1.20 |
| X1 | 3.30 |
| Y | 1.60 |
| Y1 | 1.60 |
| Y2 | 8.00 |

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