



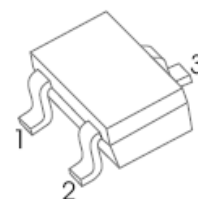
SOT-323 Plastic-Encapsulate MOSFETS

CJ2101 P-Channel MOSFET

| $V_{(BR)DSS}$ | $R_{DS(on)MAX}$ | I_D |
|---------------|-----------------|-------|
| -20V | 100 mΩ @ -4.5V | -1.4A |
| | 140mΩ @ -2.5V | |
| | 210 mΩ @ -1.8V | |

SOT-323

1. GATE
2. SOURCE
3. DRAIN



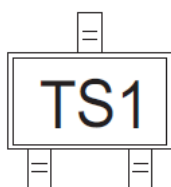
FEATURE

- Leading Trench Technology for Low $R_{DS(on)}$
Extending Battery Life

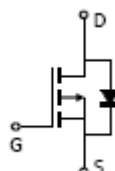
APPLICATION

- High Side Load Switch
- Charging Circuit
- Single Cell Battery Applications such as
Cell Phones, Digital Cameras ,PDAs, etc

MARKING



Equivalent Circuit



Maximum ratings ($T_a=25^{\circ}\text{C}$ unless otherwise noted)

| Parameter | Symbol | Value | Unit |
|--|-----------------|-----------|----------------------|
| Drain-Source Voltage | V_{DS} | - 20 | V |
| Gate-Source Voltage | V_{GS} | ±8.0 | |
| Continuous Drain Current | I_D | -1.4 | A |
| Pulsed Drain Current ($t_p=10\mu\text{s}$) | I_{DM} | -3.0 | |
| Power Dissipation | P_D | 0.29 | W |
| Thermal Resistance from Junction to Ambient | $R_{\theta JA}$ | 431 | $^{\circ}\text{C/W}$ |
| Junction Temperature | T_J | 150 | $^{\circ}\text{C}$ |
| Storage Temperature | T_{stg} | -50 ~+150 | |

MOSFET ELECTRICAL CHARACTERISTICS

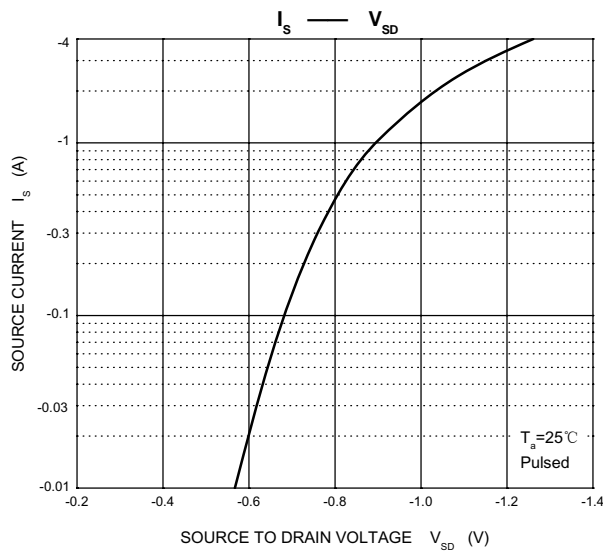
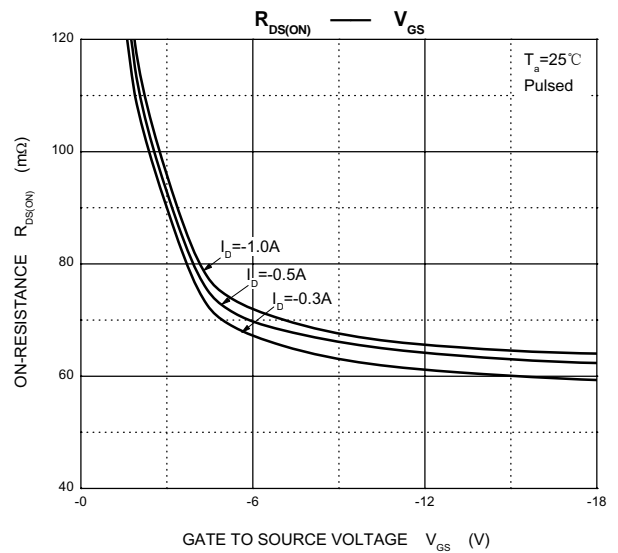
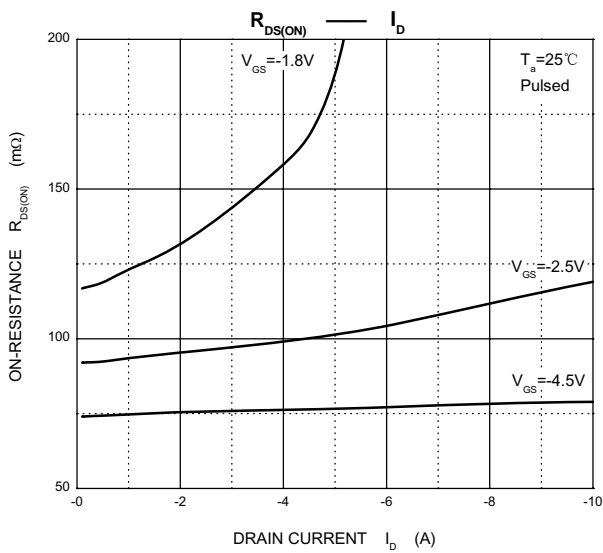
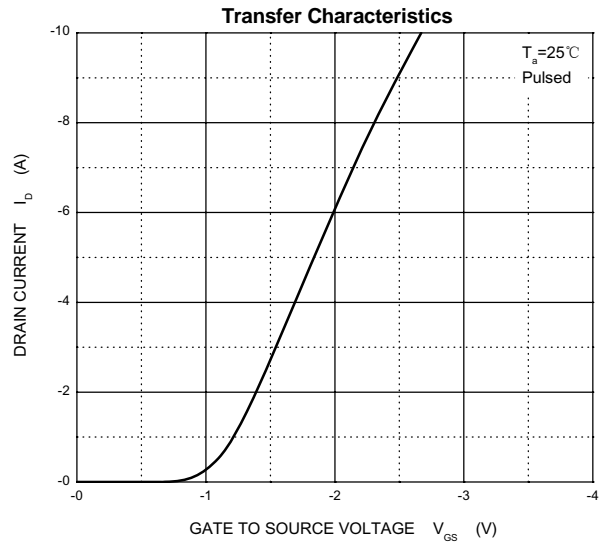
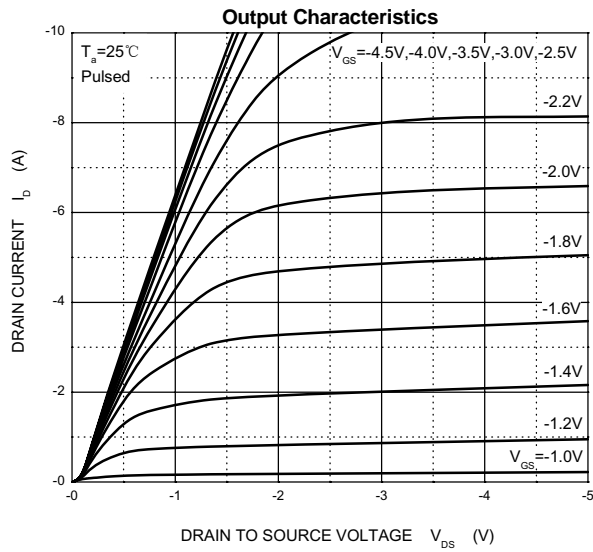
$T_a = 25\text{ }^\circ\text{C}$ unless otherwise specified

| Parameter | Symbol | Test Condition | Min | Typ | Max | Unit |
|--|--------------|---|-------|-------|-----------|------------|
| OFF CHARACTERISSTICS | | | | | | |
| Drain-Source Breakdown Voltage | V_{DSS} | $V_{GS} = 0V, I_D = -250\mu A$ | -20 | | | V |
| Gate-Source Leakage | I_{GSS} | $V_{DS} = 0V, V_{GS} = \pm 8V$ | | | ± 100 | nA |
| Zero Gate Voltage Drain Current | I_{DSS} | $V_{DS} = -20V, V_{GS} = 0V$ | | | -1.0 | μA |
| OFF CHARACTERISSTICS (note 1) | | | | | | |
| Gate-Source Threshold Voltage | $V_{GS(th)}$ | $V_{DS} = V_{GS}, I_D = -250\mu A$ | -0.45 | -0.7 | | V |
| Drain-Source On-State Resistance | $R_{DS(on)}$ | $V_{GS} = -4.5V, I_D = -1.0A$ | | | 100 | m Ω |
| | | $V_{GS} = -2.5V, I_D = -0.5A$ | | | 140 | |
| | | $V_{GS} = -1.8V, I_D = -0.3A$ | | | 210 | |
| CHARGES AND CAPACITANCES (note 3) | | | | | | |
| Input Capacitance | C_{iss} | $V_{DS} = -8.0V, V_{GS} = 0V, f = 1MHz$ | | 640 | | pF |
| Output Capacitance | C_{oss} | | | 120 | | |
| Reverse Transfer Capacitance | C_{rss} | | | 82 | | |
| SWITCHING CHARACTERISSTICS (note 2,3) | | | | | | |
| Turn-On Delay Time | $t_{d(on)}$ | $V_{GS} = -4.5V, V_{DD} = -4.0V,$ $I_D = -1.0A, R_G = 6.2\Omega$ | | 6.2 | | ns |
| Rise Time | t_r | | | 15 | | |
| Turn-Off Delay Time | $t_{d(off)}$ | | | 26 | | |
| Fall Time | t_f | | | 18 | | |
| Drain-source Body diode characteristics | | | | | | |
| Forward Diode Voltage | V_{SD} | $V_{GS} = 0V, I_S = -0.3A$ | | -0.62 | -1.2 | V |

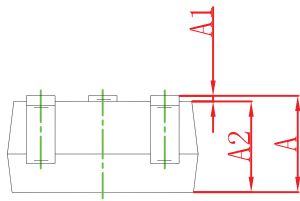
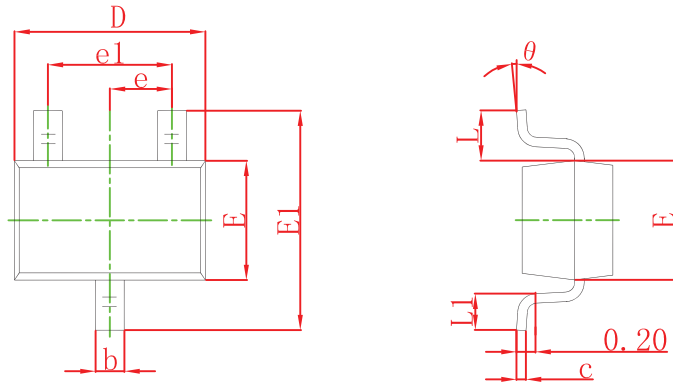
Notes :

1. Pulse Test : pulse width $\leq 300\mu s$, duty cycle $\leq 2\%$.
2. Switching characteristics are independent of operating junction temperatures.
3. These parameters have no way to verify.

Typical Characteristics

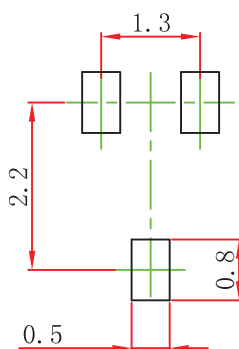


SOT-323 Package Outline Dimensions



| Symbol | Dimensions In Millimeters | | Dimensions In Inches | |
|----------|---------------------------|-------|----------------------|-------|
| | Min | Max | Min | Max |
| A | 0.900 | 1.100 | 0.035 | 0.043 |
| A1 | 0.000 | 0.100 | 0.000 | 0.004 |
| A2 | 0.900 | 1.000 | 0.035 | 0.039 |
| b | 0.200 | 0.400 | 0.008 | 0.016 |
| c | 0.080 | 0.150 | 0.003 | 0.006 |
| D | 2.000 | 2.200 | 0.079 | 0.087 |
| E | 1.150 | 1.350 | 0.045 | 0.053 |
| E1 | 2.150 | 2.450 | 0.085 | 0.096 |
| e | 0.650 TYP | | 0.026 TYP | |
| e1 | 1.200 | 1.400 | 0.047 | 0.055 |
| L | 0.525 REF | | 0.021 REF | |
| L1 | 0.260 | 0.460 | 0.010 | 0.018 |
| θ | 0° | 8° | 0° | 8° |

SOT-323 Suggested Pad Layout



Note:

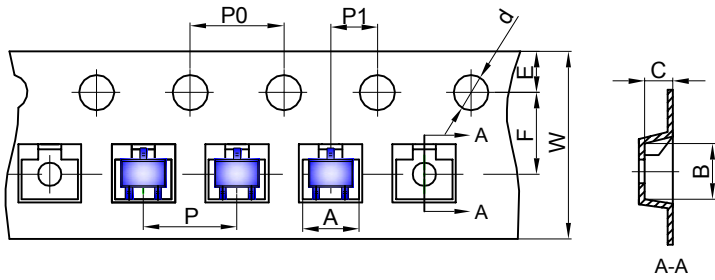
1. Controlling dimension: in millimeters.
2. General tolerance: ± 0.05 mm.
3. The pad layout is for reference purposes only.

NOTICE

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SOT-323 Tape and reel

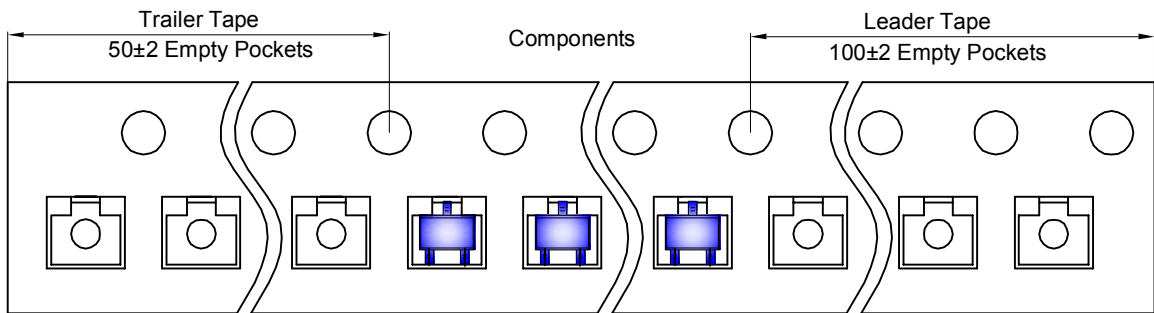
SOT-323 Embossed Carrier Tape



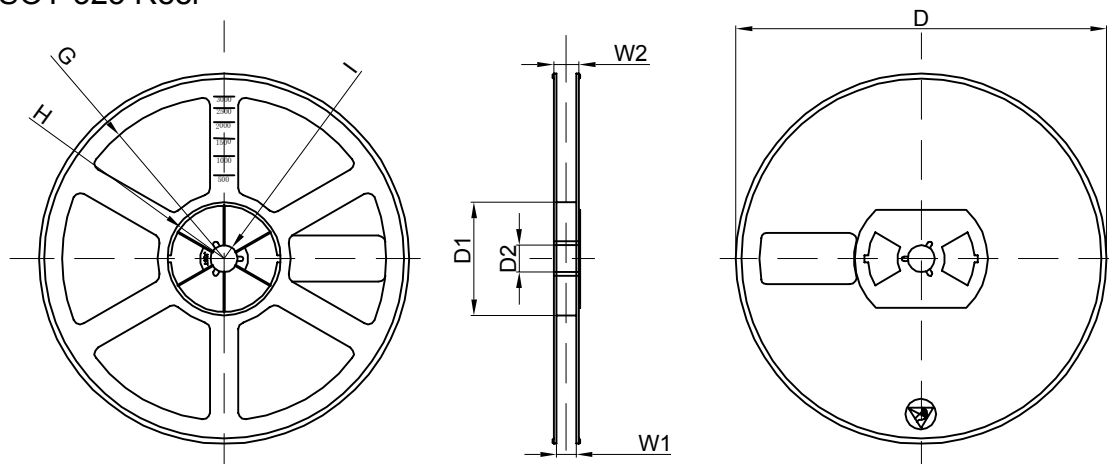
Packaging Description:
 SOT-323 parts are shipped in tape. The carrier tape is made from a dissipative (carbon filled) polycarbonate resin. The cover tape is a multilayer film (Heat Activated Adhesive in nature) primarily composed of polyester film, adhesive layer, sealant, and anti-static sprayed agent. These reeled parts in standard option are shipped with 3,000 units per 7" or 17.8cm diameter reel. The reels are clear in color and is made of polystyrene plastic (anti-static coated).

| Dimensions are in millimeter | | | | | | | | | | |
|------------------------------|------|------|------|-------|------|------|------|------|------|------|
| Pkg type | A | B | C | d | E | F | P0 | P | P1 | W |
| SOT-323 | 2.25 | 2.55 | 1.19 | Ø1.55 | 1.75 | 3.50 | 4.00 | 4.00 | 2.00 | 8.00 |

SOT-323 Tape Leader and Trailer



SOT-323 Reel



| Dimensions are in millimeter | | | | | | | | |
|------------------------------|---------|-------|-------|--------|--------|-------|------|-------|
| Reel Option | D | D1 | D2 | G | H | I | W1 | W2 |
| 7" Dia | Ø178.00 | 54.40 | 13.00 | R78.00 | R25.60 | R6.50 | 9.50 | 12.30 |

| REEL | Reel Size | Box | Box Size(mm) | Carton | Carton Size(mm) | G.W.(kg) |
|----------|-----------|------------|--------------|-------------|-----------------|----------|
| 3000 pcs | 7 inch | 30,000 pcs | 203×203×195 | 120,000 pcs | 438×438×220 | |

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