

Features

- Low Gate Threshold Voltage
- Low Input Capacitance
- Low On-Resistance
- Epoxy Meets UL 94 V-0 Flammability Rating
- Moisture Sensitivity Level 1
- Halogen Free. "Green" Device ⁽¹⁾
- Lead Free Finish/RoHS Compliant ("P" Suffix Designates RoHS Compliant. See Ordering Information)

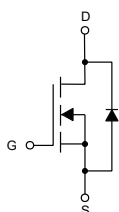
Maximum Ratings

- Operating Junction Temperature Range: -55°C to +150°C
- Storage Temperature: -55°C to +150°C
- Thermal Resistance: 625°C/W Junction to Ambient

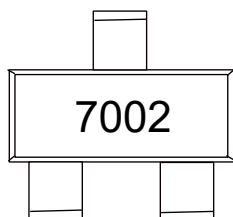
| Parameter | Symbol | Rating | Unit |
|---|--------------------------|------------------|-------|
| Drain-Source Voltage | V_{DS} | 60 | V |
| Gate-Source Voltage | V_{GS} | Continuous | ±20 |
| | | Pulsed | ±40 |
| Drain-Gate Voltage | $R_{GS} \leq 1.0M\Omega$ | 60V | V |
| Drain Current ⁽²⁾ | I_D | Continuous | 0.115 |
| | | Continuous@100°C | 0.073 |
| | | Pulsed | 0.80 |
| Power Dissipation ⁽²⁾ Derating above $T_A = 25^\circ C$ | P_D | 0.20 | W |
| | | 1.60 | mW/°C |

Note: 1. Halogen free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.

Internal Structure and Marking Code

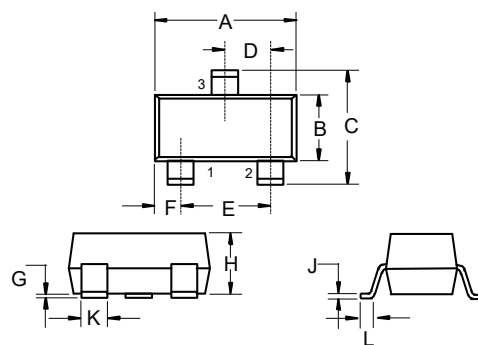


1. GATE
2. SOURCE
3. DRAIN



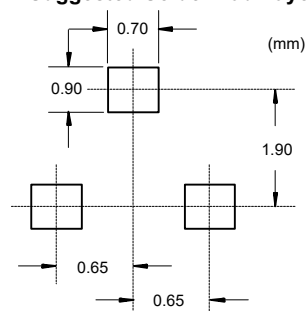
N-Channel MOSFET

SOT-323



| DIM | INCHES | | MM | | NOTE |
|-----|--------|-------|------|------|------|
| | MIN | MAX | MIN | MAX | |
| A | 0.071 | 0.087 | 1.80 | 2.20 | |
| B | 0.045 | 0.053 | 1.15 | 1.35 | |
| C | 0.083 | 0.096 | 2.10 | 2.45 | |
| D | 0.026 | | 0.65 | | TYP. |
| E | 0.047 | 0.055 | 1.20 | 1.40 | |
| F | 0.012 | 0.016 | 0.30 | 0.40 | |
| G | 0.000 | 0.004 | 0.00 | 0.10 | |
| H | 0.035 | 0.044 | 0.90 | 1.10 | |
| J | 0.002 | 0.010 | 0.05 | 0.25 | |
| K | 0.006 | 0.016 | 0.15 | 0.40 | |
| L | 0.010 | 0.018 | 0.26 | 0.46 | |

Suggested Solder Pad Layout



ELECTRICAL CHARACTERISTICS (Ta=25°C unless otherwise specified)

| Parameter | Symbol | Test conditions | Min | Typ | Max | Unit |
|---|---------------|--|-----|------|-----|------|
| Drain-Source Breakdown Voltage | $V_{(BR)DSS}$ | $V_{GS}=0V, I_D=10\mu A$ | 60 | 70 | | V |
| Gate-Threshold Voltage ⁽³⁾ | $V_{GS(th)}$ | $V_{DS}=V_{GS}, I_D=250\mu A$ | 1.0 | | 2.0 | V |
| Gate-Body Leakage | I_{GSS} | $V_{DS}=0V, V_{GS}=\pm 20V$ | | | ±10 | μA |
| Zero Gate Voltage Drain Current | I_{DSS} | $V_{DS}=60V, V_{GS}=0V, T_C=25^\circ C$ | | | 1.0 | μA |
| | | $V_{DS}=60V, V_{GS}=0V, T_C=125^\circ C$ | | | 500 | |
| On-State Drain Current | $I_{D(on)}$ | $V_{DS}=7.5V, V_{GS}=10V$ | 500 | 1000 | | mA |
| Drain-Source On-Resistance ⁽³⁾ | $R_{DS(on)}$ | $V_{GS}=10V, I_D=300mA$ | | 1.2 | 2.5 | Ω |
| | | $V_{GS}=4.5V, I_D=200mA$ | | 1.3 | 3.0 | |
| Forward Transconductance | g_{fs} | $V_{DS}=10V, I_D=200mA$ | 80 | | | ms |
| Input Capacitance | C_{iss} | $V_{DS}=25V, V_{GS}=0V, f=1MHz$ | | 22 | 50 | pF |
| Output Capacitance | C_{oss} | | | 11 | 25 | |
| Reverse Transfer Capacitance | C_{rss} | | | 2 | 5 | |
| Turn-On Time | $t_{d(on)}$ | $V_{DD}=30V, V_{GEN}=10V, R_L=150\Omega$ $, I_D=300mA, R_{GEN}=6\Omega$ | | 3.3 | 20 | ns |
| Turn-Off Time | $t_{d(off)}$ | | | 9.6 | 20 | |

Note: 2. Valid Provided That Terminals are Kept at Specified Ambient Temperature.

3. Pulse Test: Pulse Width $\leq 300\mu s$, Duty Cycle $\leq 2\%$.

Curve Characteristics

Fig. 1 - Output Characteristics

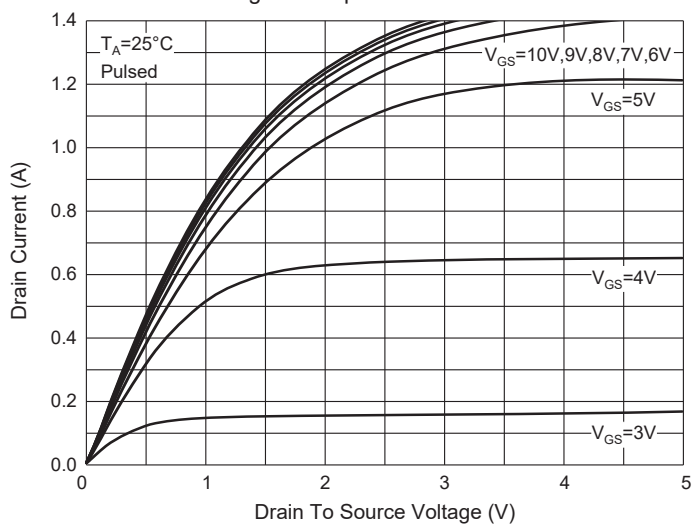


Fig. 2 - Transfer Characteristics

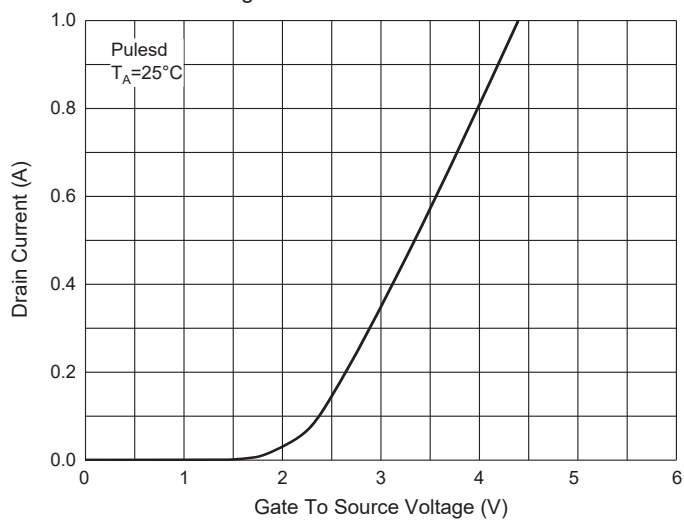


Fig. 3 - $R_{DS(ON)} - I_D$

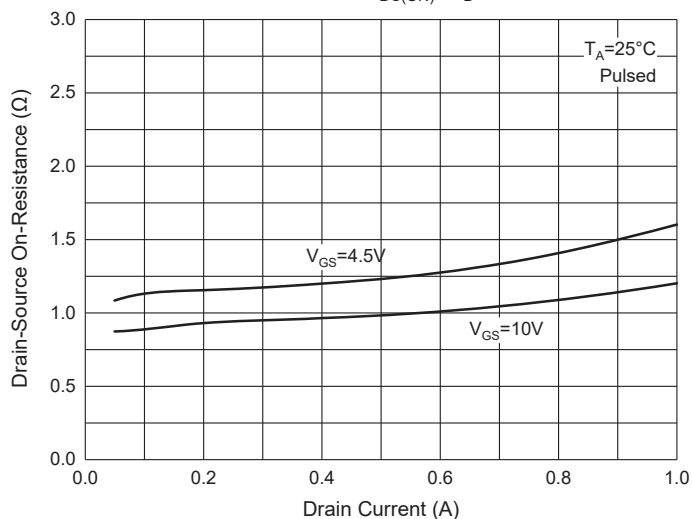


Fig. 3 - $R_{DS(ON)} - V_{GS}$

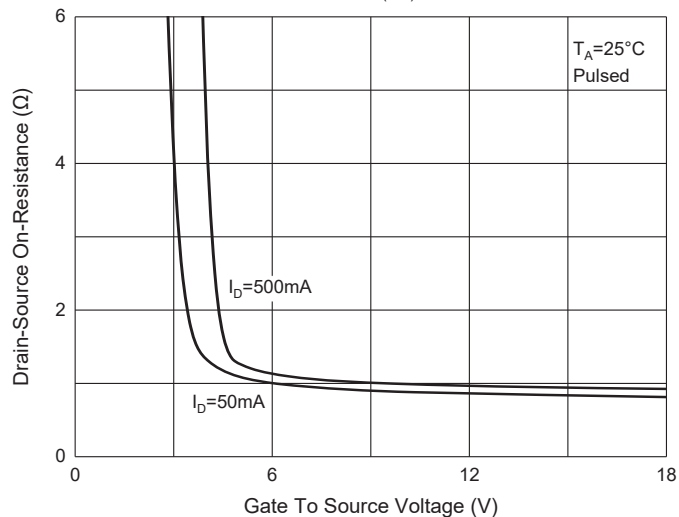
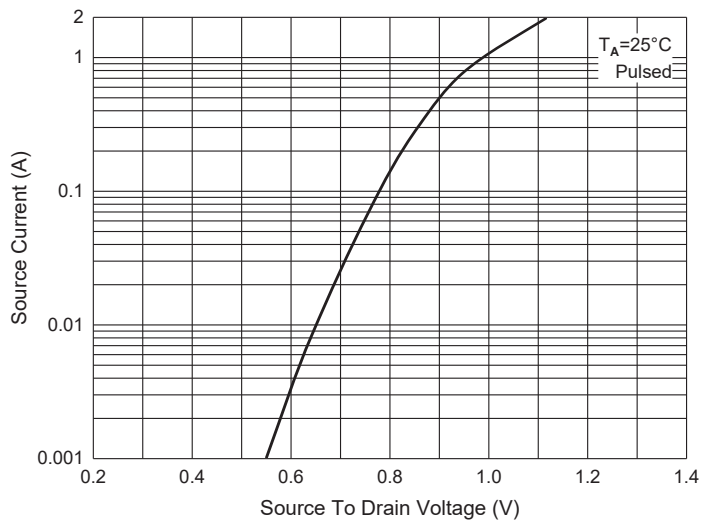


Fig. 5 - $I_S - V_{SD}$



Ordering Information

| Device | Packing |
|----------------|----------------------|
| Part Number-TP | Tape&Reel:3Kpcs/Reel |

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