

Features

- High Density Cell Design for Low $R_{DS(ON)}$
- Voltage Controlled Small Signal Switch
- ESD Protected up to 2KV (HBM)
- Epoxy Meets UL 94 V-0 Flammability Rating
- Moisture Sensitivity Level 1
- Halogen Free. "Green" Device (Note 1)
- Lead Free Finish/RoHS Compliant ("P" Suffix Designates RoHS Compliant. See Ordering Information)

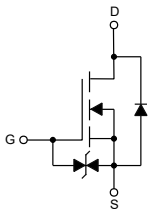
Maximum Ratings

- Operating Junction Temperature Range: -55°C to $+150^{\circ}\text{C}$
- Storage Temperature: -55°C to $+150^{\circ}\text{C}$
- Thermal Resistance: 357°C/W Junction to Ambient

| Parameter | Symbol | Rating | Unit |
|--------------------------|----------|----------|------|
| Drain-Source Voltage | V_{DS} | 60 | V |
| Gate-Source Voltage | V_{GS} | ± 20 | V |
| Drain Current-Continuous | I_D | 0.34 | A |
| Power Dissipation | P_D | 0.35 | W |

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

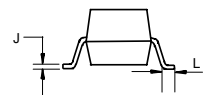
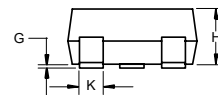
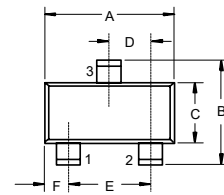


1. GATE
2. SOURCE
3. DRAIN

Marking: 72K

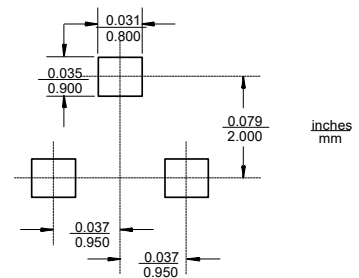
**N-Channel
MOSFET**

SOT-23



| DIM | INCHES | | MM | | NOTE |
|-----|--------|-------|------|------|------|
| | MIN | MAX | MIN | MAX | |
| A | 0.110 | 0.120 | 2.80 | 3.04 | |
| B | 0.083 | 0.104 | 2.10 | 2.64 | |
| C | 0.047 | 0.055 | 1.20 | 1.40 | |
| D | 0.034 | 0.041 | 0.85 | 1.05 | |
| E | 0.067 | 0.083 | 1.70 | 2.10 | |
| F | 0.018 | 0.024 | 0.45 | 0.60 | |
| G | 0.0004 | 0.006 | 0.01 | 0.15 | |
| H | 0.035 | 0.043 | 0.90 | 1.10 | |
| J | 0.003 | 0.007 | 0.08 | 0.18 | |
| K | 0.012 | 0.020 | 0.30 | 0.51 | |
| L | 0.007 | 0.020 | 0.20 | 0.50 | |

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 | | | V |
| Gate-Threshold Voltage | $V_{GS(th)}$ | $V_{DS}=V_{GS}, I_D=1.0mA$ | 1.0 | 1.3 | 2.5 | V |
| Zero Gate Voltage Drain Current | I_{DSS} | $V_{DS}=48V, V_{GS}=0V$ | | | 1.0 | μA |
| Gate-Body Leakage | I_{GSS} | $V_{DS}=0V, V_{GS}=\pm 10V$ | | | ± 200 | nA |
| | | $V_{DS}=0V, V_{GS}=\pm 5V$ | | | ± 100 | nA |
| Diode Forward Voltage | V_{SD} | $V_{GS}=0V, I_S=300mA$ | | | 1.5 | V |
| Drain-Source On-Resistance | $R_{DS(on)}$ | $V_{GS}=10V, I_D=500mA$ | | | 5.0 | Ω |
| | | $V_{GS}=4.5V, I_D=200mA$ | | | 5.3 | |
| Recovered Charge | Q_r | $V_{GS}=0V, I_S=300mA, V_R=25V,$ $di/dt=-100A/\mu s$ | | 30 | | nC |
| Input Capacitance | C_{iss} | $V_{DS}=10V, V_{GS}=0V, f=1MHz$ | | | 40 | pF |
| Output Capacitance | C_{oss} | | | | 30 | |
| Reverse Transfer Capacitance | C_{rss} | | | | 10 | |
| Turn-On Time | $t_{d(on)}$ | $V_{DD}=50V, R_L=250\Omega,$ $R_{GS}=50\Omega, V_{GS}=10V,$ $R_{GEN}=50\Omega$ | | | 10 | ns |
| Turn-Off Time | $t_{d(off)}$ | | | | 15 | |
| Reverse Recovery Time | t_{rr} | $V_{GS}=0V, I_S=300mA, V_R=25V,$ $di/dt=-100A/\mu s$ | | 30 | | |

Curve Characteristics

Fig. 1 - Output Characteristics

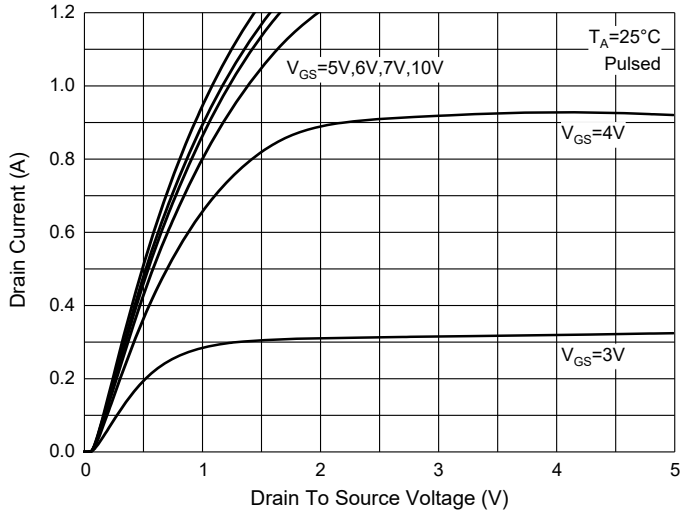


Fig. 2 - Transfer Characteristics

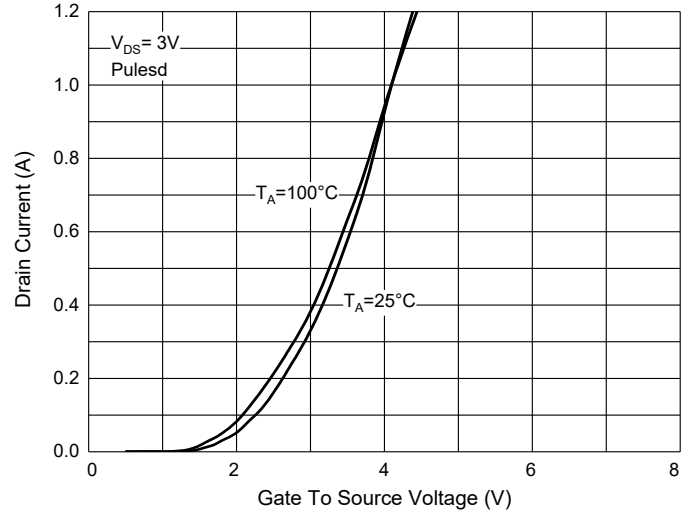


Fig. 3 - $R_{DS(ON)} - I_D$

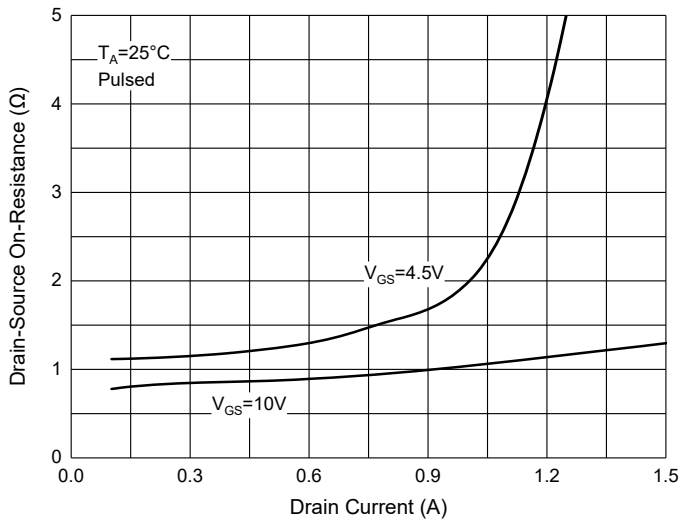


Fig. 4 - $R_{DS(ON)} - V_{GS}$

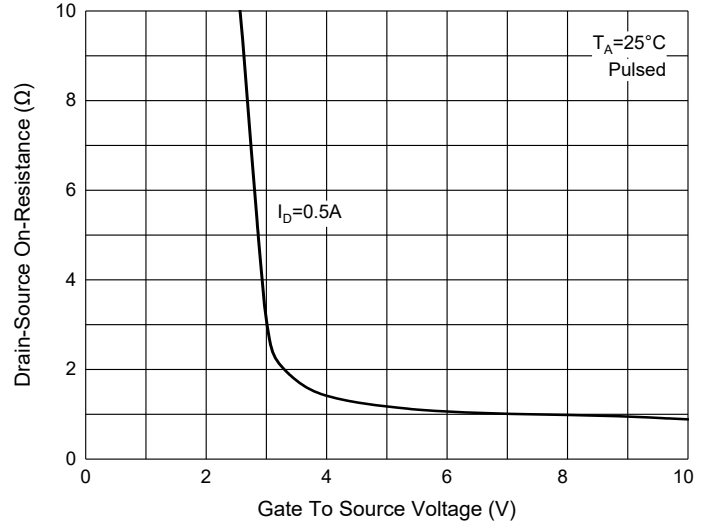


Fig. 5 - $I_S - V_{SD}$

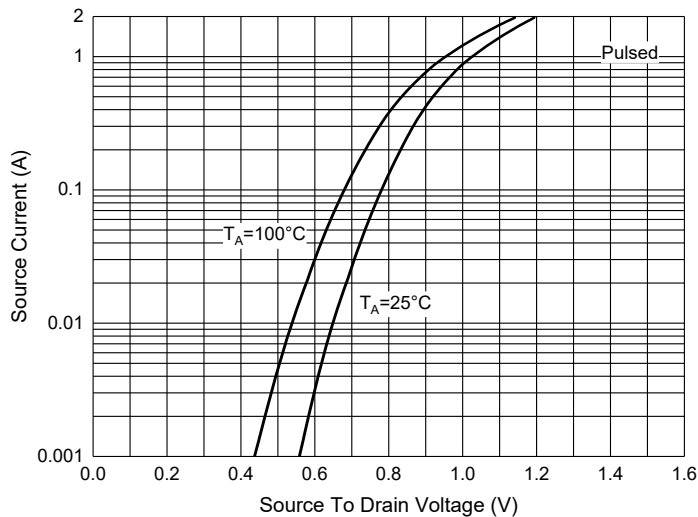
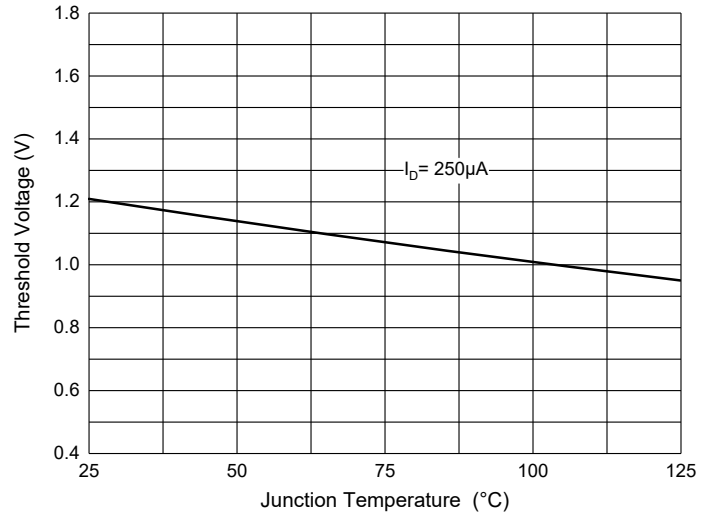
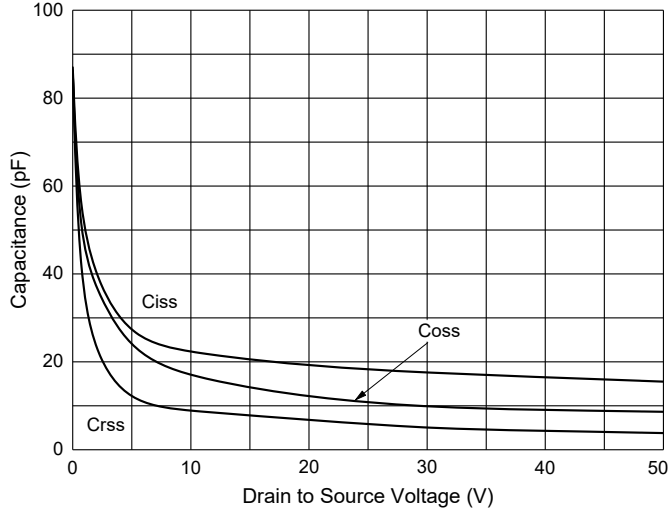


Fig. 6 - Threshold Voltage



Curve Characteristics

Fig. 7 - Capacitance Characteristics



Ordering Information

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

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