

Features

- TrenchFET Power MOSFET
- 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)

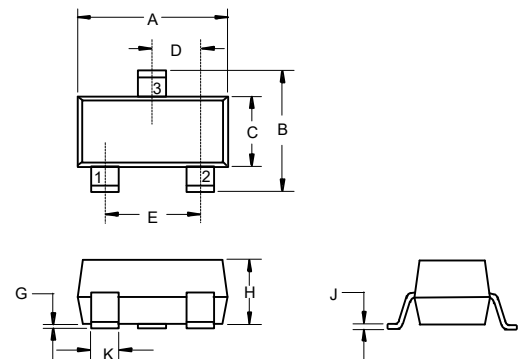
Maximum Ratings

- Operating Junction Temperature Range: -55°C to +150°C
- Storage Temperature: -55°C to +150°C
- Thermal Resistance: 150°C/W Junction to Ambient^(2,3)

| Parameter | Symbol | Rating | Unit |
|-------------------------------------------|----------|--------|------|
| Drain -source Voltage | V_{DS} | -100 | V |
| Gate -Source Voltage | V_{GS} | ±20 | V |
| Continuous Drain Current ^(2,3) | I_D | -3 | A |
| Continuous Source-Drain Diode Current | I_S | -3 | A |
| Power Dissipation | P_D | 0.83 | W |

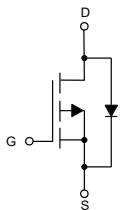
P-Channel MOSFET

SOT-23-3L

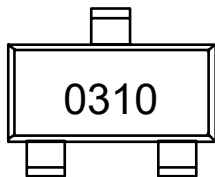


| DIM | INCHES | | MM | | NOTE |
|-----|--------|--------|-------|-------|------|
| | MIN | MAX | MIN | MAX | |
| A | 0.113 | 0.117 | 2.87 | 2.97 | |
| B | 0.108 | 0.112 | 2.75 | 2.85 | |
| C | 0.061 | 0.065 | 1.55 | 1.65 | |
| D | 0.036 | 0.038 | 0.914 | 0.965 | |
| E | 0.073 | 0.077 | 1.85 | 1.95 | |
| G | 0.0016 | 0.0039 | 0.04 | 0.100 | |
| H | 0.041 | 0.045 | 1.05 | 1.15 | |
| J | 0.006 | 0.007 | 0.14 | 0.17 | |
| K | 0.012 | 0.020 | 0.30 | 0.50 | |

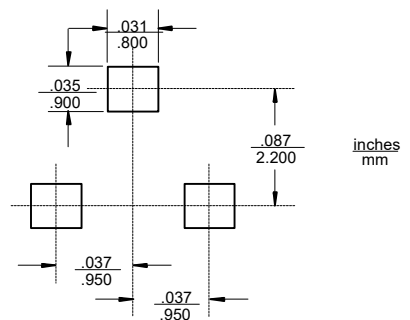
Internal Structure and Marking Code



1. GATE
2. SOURCE
3. DRAIN



Suggested Solder Pad Layout



MOSFET ELECTRICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$ unless otherwise noted)

| Parameter | Symbol | Test Condition | Min | Type | Max | Unit |
|-----------------------------------------|---------------|-------------------------------------------------------------|------|------|-----------|------------|
| Off Characteristics | | | | | | |
| Drain-source breakdown voltage | $V_{(BR)DSS}$ | $V_{GS} = 0V, I_D = -250\mu A$ | -100 | | | V |
| Zero gate voltage drain current | I_{DSS} | $V_{DS} = -100V, V_{GS} = 0V$ | | | -1 | μA |
| Gate-body leakage current | I_{GSS} | $V_{GS} = \pm 20V, V_{DS} = 0V$ | | | ± 100 | nA |
| On Characteristics⁽⁴⁾ | | | | | | |
| Gate threshold voltage | $V_{GS(th)}$ | $V_{DS} = V_{GS}, I_D = -250\mu A$ | -1.1 | -1.6 | -2.0 | V |
| Drain-source on-resistance | $R_{DS(on)}$ | $V_{GS} = -10V, I_D = -1.0A$ | | 239 | 286 | m Ω |
| | | $V_{GS} = -4.5V, I_D = -0.5A$ | | 258 | 335 | |
| Dynamic Characteristics | | | | | | |
| Input Capacitance | C_{iss} | $V_{DS} = -50V, V_{GS} = 0V, f = 1MHz$ | | 1010 | | pF |
| Output Capacitance | C_{oss} | | | 26 | | |
| Reverse Transfer Capacitance | C_{rss} | | | 27 | | |
| Switching Characteristics | | | | | | |
| Total Gate Charge | Q_g | $V_{DS} = -50V, V_{GS} = -10V, I_D = -1A$ | | 19 | | nC |
| Gate-Source Charge | Q_{gs} | | | 4.6 | | |
| Gate-Drain Charge | Q_{gd} | | | 1.8 | | |
| Turn-on delay time | $t_{d(on)}$ | $V_{DD} = -50V, V_G = -10V, I_D = -1A$ $R_G = 3.9\Omega$ | | 5.8 | | ns |
| Turn-on rise time | t_r | | | 2.8 | | |
| Turn-off delay time | $t_{d(off)}$ | | | 28 | | |
| Turn-off fall time | t_f | | | 18 | | |
| Diode Characteristics | | | | | | |
| Reverse Recovery Time | t_{rr} | $I_F = -1A, di/dt = 100A/\mu s$ | | 21 | | ns |
| Reverse Recovery Charge | Q_{rr} | | | 18 | | nC |
| Diode Forward voltage | V_{DS} | $V_{GS} = 0V, I_S = -1A$ | | | -1.3 | V |

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

2. $R_{\theta JA}$ is measured with the device mounted on 1 in² FR4 board with 1oz. single side copper, in a still air environment with $T_A = 25^\circ\text{C}$.

3. $R_{\theta JA}$ is measured in the steady state

4. Pulse test : Pulse width $\leq 380\mu s$, duty cycle $\leq 2\%$.

Curve Characteristics

Fig. 1 - Typical Output Characteristics

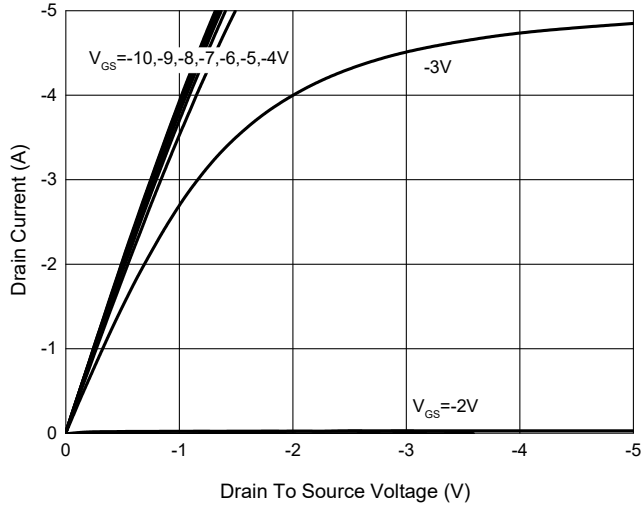


Fig. 2 - Transfer Characteristics

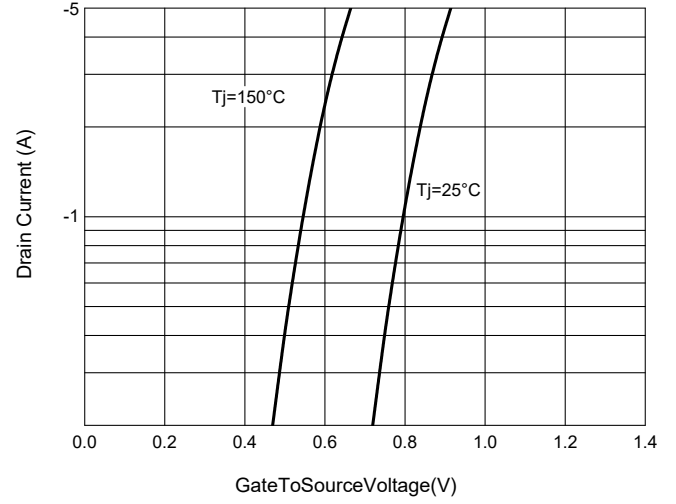


Fig. 3 - $R_{DS(ON)} - I_D$

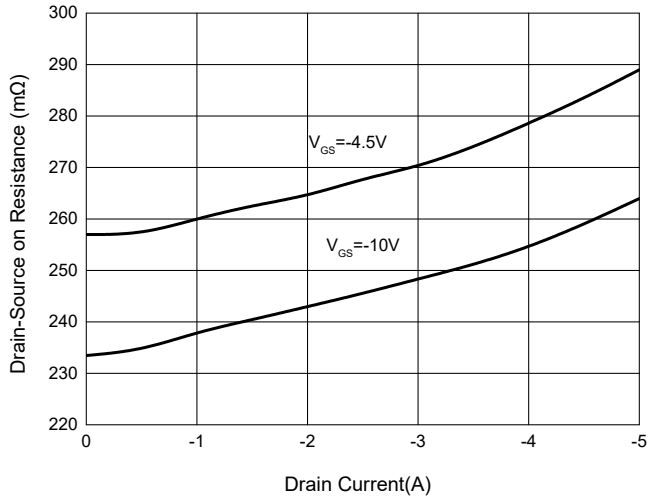


Fig. 4 - Normalized On Resistance Characteristics

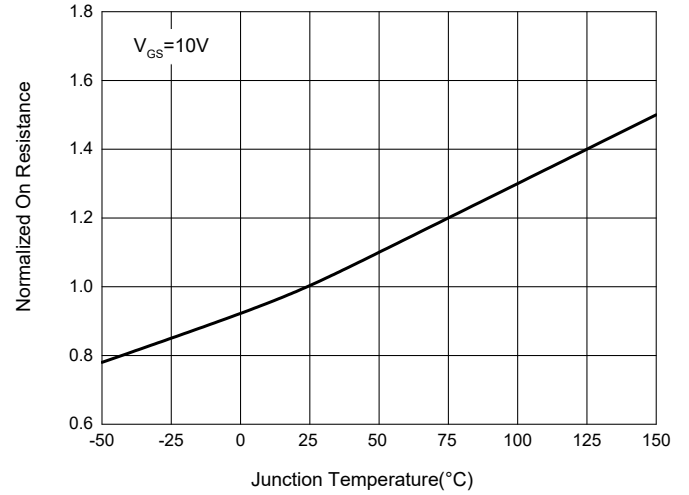


Fig. 5 - Gate Charge

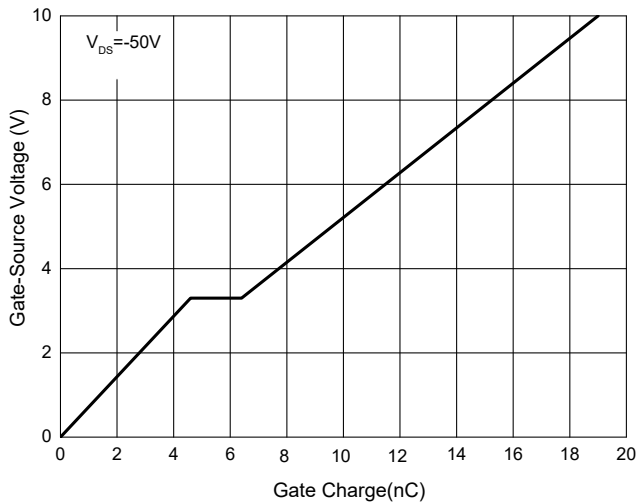
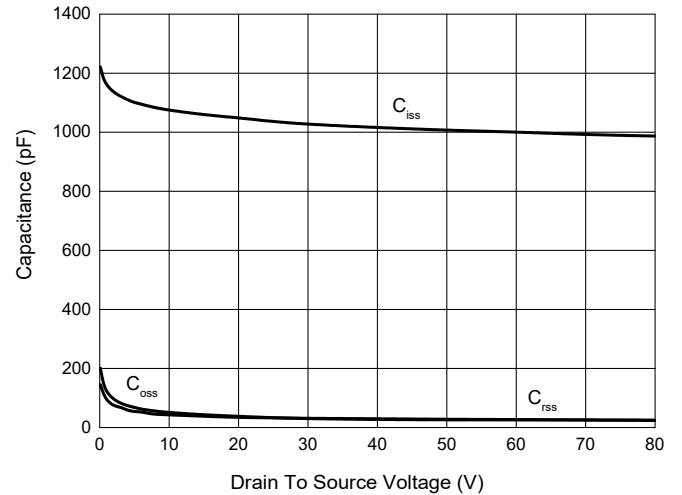


Fig. 6 - Capacitance Characteristics



Ordering Information

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

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