

Features

- Split Gate Trench MOSFET Technology
- Low Gate Charge
- Halogen Free
- Epoxy Meets UL 94 V-0 Flammability Rating
- Lead Free Finish/RoHS Compliant ("P" Suffix Designates RoHS Compliant. See Ordering Information)

Maximum Ratings

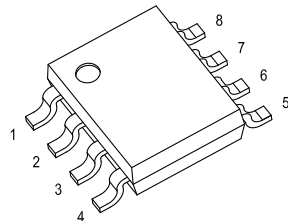
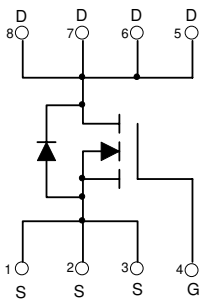
- Operating Junction Temperature Range : -55°C to +150°C
- Storage Temperature Range: -55°C to +150°C
- Thermal Resistance: 62.5°C/W Junction to Ambient ⁽¹⁾

| Parameter | Symbol | Rating | Unit |
|---|-----------------|--------|------|
| Drain-Source Voltage | V _{DS} | 100 | V |
| Gate-Source Voltage | V _{GS} | ±20 | V |
| Continuous Drain Current | I _D | 15 | A |
| Pulsed Drain Current ⁽²⁾ | I _{DM} | 36 | A |
| Total Power Dissipation | P _D | 2 | W |
| Single Pulsed Avalanche Energy ⁽³⁾ | E _{AS} | 45 | mJ |

Note:

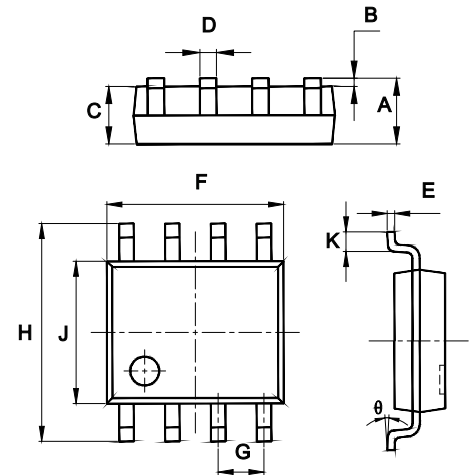
1. Surface Mounted on 1 in² pad area, t ≤ 10 sec.
2. Pulse Test: Pulse Width ≤ 10µs, Duty Cycle ≤ 1%.
3. T_J = 25°C, L = 0.1mH, V_{DD} = 50V.

Internal Structure:



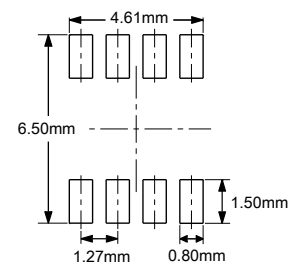
**N-CHANNEL
MOSFET**

SOP-8



| DIM | INCHES | | MM | | NOTE |
|-----|--------|-------|-------|------|------|
| | MIN | MAX | MIN | MAX | |
| A | 0.053 | 0.069 | 1.35 | 1.75 | |
| B | 0.004 | 0.010 | 0.10 | 0.25 | |
| C | 0.053 | 0.061 | 1.35 | 1.55 | |
| D | 0.013 | 0.020 | 0.33 | 0.51 | |
| E | 0.007 | 0.010 | 0.17 | 0.25 | |
| F | 0.185 | 0.200 | 4.70 | 5.10 | |
| G | 0.050 | BSC | 1.270 | BSC | |
| H | 0.228 | 0.244 | 5.80 | 6.20 | |
| J | 0.150 | 0.157 | 3.80 | 4.00 | |
| K | 0.016 | 0.050 | 0.40 | 1.27 | |
| θ | 0° | 8° | 0° | 8° | |

Suggested Solder Pad Layout



Electrical Characteristics @ 25°C (Unless Otherwise Specified)

| Parameter | Symbol | Test Conditions | Min | Typ | Max | Unit |
|---------------------------------|---------------|---|-----|------|-----------|------------|
| Static Characteristics | | | | | | |
| Drain-Source Breakdown Voltage | $V_{(BR)DSS}$ | $V_{GS}=0V, I_D=250\mu A$ | 100 | | | V |
| Gate-Source Leakage Current | I_{GSS} | $V_{DS}=0V, V_{GS}=\pm 20V$ | | | ± 100 | nA |
| Zero Gate Voltage Drain Current | I_{DSS} | $V_{DS}=80V, V_{GS}=0V$ | | | 1 | μA |
| Gate-Threshold Voltage | $V_{GS(th)}$ | $V_{DS}=V_{GS}, I_D=250\mu A$ | 1 | | 3 | V |
| Drain-Source On-Resistance | $R_{DS(on)}$ | $V_{GS}=10V, I_D=8A$ | | 9.6 | 11.5 | m Ω |
| | | $V_{GS}=4.5V, I_D=5A$ | | 12.6 | 16.4 | m Ω |
| Diode Characteristics | | | | | | |
| Continuous Body Diode Current | I_S | | | | 15 | A |
| Diode Forward Voltage | V_{SD} | $V_{GS}=0V, I_S=8A$ | | | 1.3 | V |
| Reverse Recovery Time | t_{rr} | $I_S=8A, di/dt=100A/\mu s$ | | 53 | | ns |
| Reverse Recovery Charge | Q_{rr} | | | 64 | | nC |
| Dynamic Characteristics | | | | | | |
| Input Capacitance | C_{iss} | $V_{DS}=50V, V_{GS}=0V, f=1MHz$ | | 1925 | | pF |
| Output Capacitance | C_{oss} | | | 341 | | |
| Reverse Transfer Capacitance | C_{rss} | | | 46 | | |
| Total Gate Charge | Q_g | $V_{DS}=50V, V_{GS}=10V, I_D=8A$ | | 42 | | nC |
| Gate-Source Charge | Q_{gs} | | | 7.8 | | |
| Gate-Drain Charge | Q_{gd} | | | 10 | | |
| Turn-On Delay Time | $t_{d(on)}$ | $V_{DS}=50V, V_{GEN}=10V, R_G=4.5\Omega, R_L=6.25\Omega, I_{DS}=8A$ | | 9.3 | | ns |
| Turn-On Rise Time | t_r | | | 21 | | |
| Turn-Off Delay Time | $t_{d(off)}$ | | | 33 | | |
| Turn-Off Fall Time | t_f | | | 25 | | |

Curve Characteristics

Fig. 1 - Typical Output Characteristics

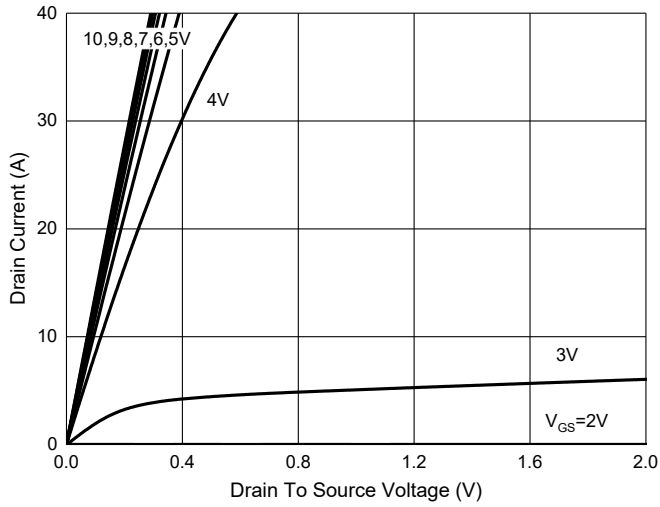


Fig. 2 - I_S—V_{SD}

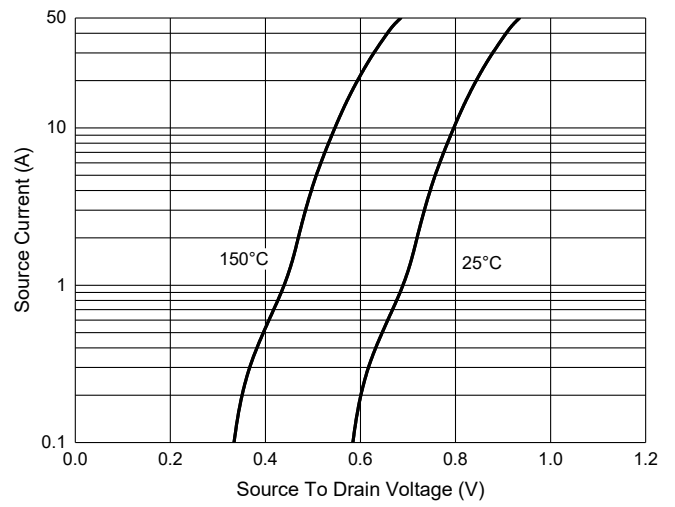


Fig. 3 - R_{DS(ON)}—I_D

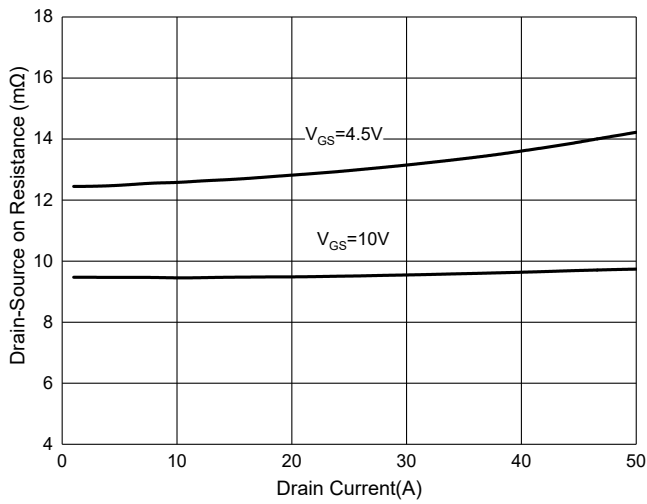


Fig. 4 - Normalized On Resistance Characteristics

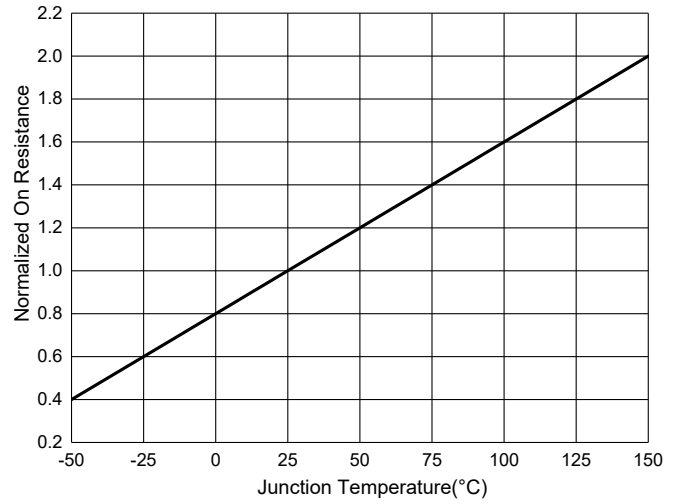


Fig. 5 - Capacitance Characteristics

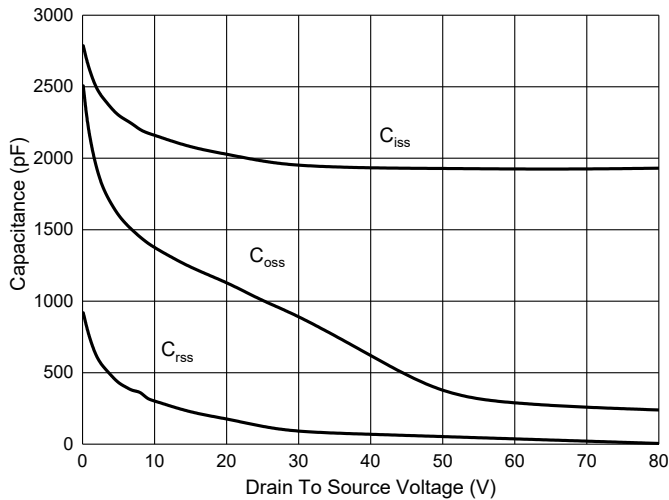
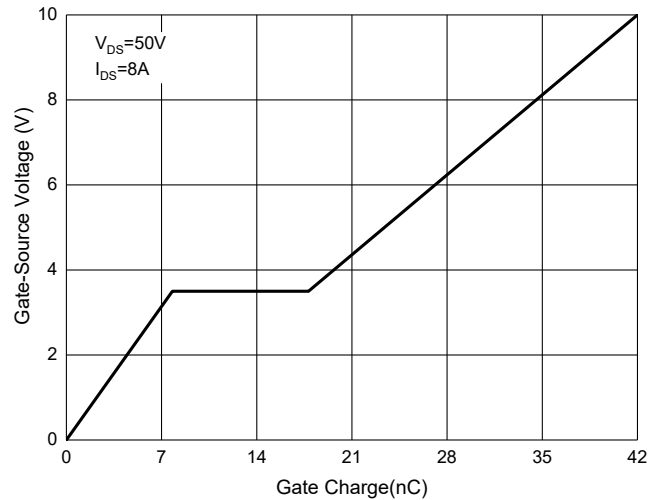
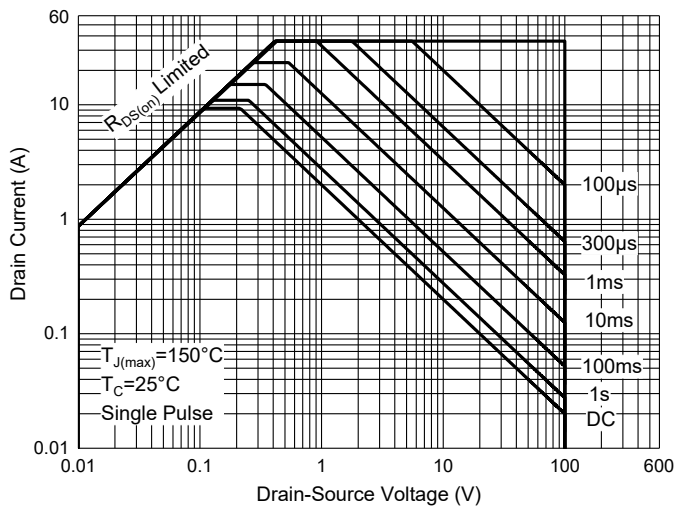


Fig. 6 - Gate Charge



Curve Characteristics

Fig. 7 - Safe Operation Area



Ordering Information

| Device | Packing |
|----------------|-----------------------|
| Part Number-TP | Tape&Reel: 4Kpcs/Reel |

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