

Features

- Epoxy Meets UL 94 V-0 Flammability Rating
- AEC-Q101 Qualified
- Moisture Sensitivity Level 1
- Halogen Free. "Green" Device (Note 1)
- Lead Free Finish/RoHS Compliant ("P" Suffix Designates RoHS Compliant. See Ordering Information)

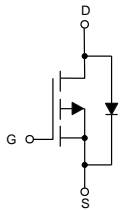
Maximum Ratings

- Operating Junction Temperature Range : -55°C to +150°C
- Storage Temperature Range: -55°C to +150°C
- Thermal Resistance: 96°C/W Junction to Ambient

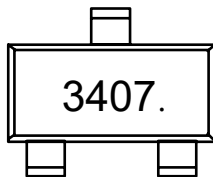
| Parameter | Symbol | Rating | Unit |
|--------------------------|----------|----------|------|
| Drain-Source Voltage | V_{DS} | -30 | V |
| Gate-Source Voltage | V_{GS} | ± 20 | V |
| Continuous Drain Current | I_D | -4.1 | A |
| Total Power Dissipation | P_D | 1.3 | W |

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 and Marking Code

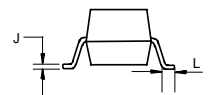
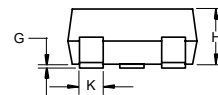
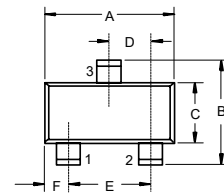


- 1. GATE
- 2. SOURCE
- 3. DRAIN



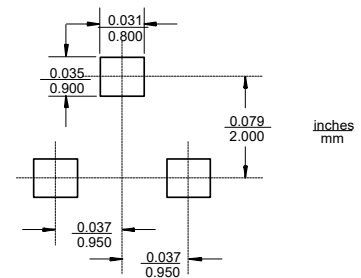
**P-CHANNEL
MOSFET**

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 @ 25°C (Unless Otherwise Specified)

| Parameter | Symbol | Test Conditions | Min | Typ | Max | Unit |
|---|---------------|---|-----|------|-----------|------------|
| Static Characteristics | | | | | | |
| Drain-Source Breakdown Voltage | $V_{(BR)DSS}$ | $V_{GS}=0V, I_D=-250\mu A$ | -30 | | | V |
| Gate-Source Leakage Current | I_{GSS} | $V_{DS}=0V, V_{GS}=\pm 20V$ | | | ± 100 | nA |
| Zero Gate Voltage Drain Current | I_{DSS} | $V_{DS}=-24V, V_{GS}=0V$ | | | -1 | μA |
| Gate-Threshold Voltage | $V_{GS(th)}$ | $V_{DS}=V_{GS}, I_D=-250\mu A$ | -1 | -1.4 | -3 | V |
| Drain-Source On-Resistance ^(Note 2) | $R_{DS(on)}$ | $V_{GS}=-10V, I_D=-4.1A$ | | 50 | 60 | m Ω |
| | | $V_{GS}=-4.5V, I_D=-3A$ | | 68 | 87 | |
| Diode Forward Voltage ^(Note 2) | V_{SD} | $V_{GS}=0V, I_S=-1A$ | | | -1.0 | V |
| Forward transconductance ^(Note 2) | g_{FS} | $V_{DS}=-5V, I_D=-4A$ | 5.5 | | | S |
| Dynamic Characteristics^(Note 3) | | | | | | |
| Input Capacitance | C_{iss} | $V_{DS}=-15V, V_{GS}=0V, f=1MHz$ | | 700 | | pF |
| Output Capacitance | C_{oss} | | | 120 | | |
| Reverse Transfer Capacitance | C_{rss} | | | 75 | | |
| Turn-On Delay Time | $t_{d(on)}$ | $V_{GS}=-10V, V_{DS}=-15V,$ $R_L=3.6\Omega, R_{GEN}=3\Omega$ | | 8.6 | | ns |
| Turn-On Rise Time | t_r | | | 5 | | |
| Turn-Off Delay Time | $t_{d(off)}$ | | | 28.2 | | |
| Turn-Off Fall Time | t_f | | | 13.5 | | |

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

3. These parameters have no way to verify.

Curve Characteristics

Fig. 1 - Output Characteristics

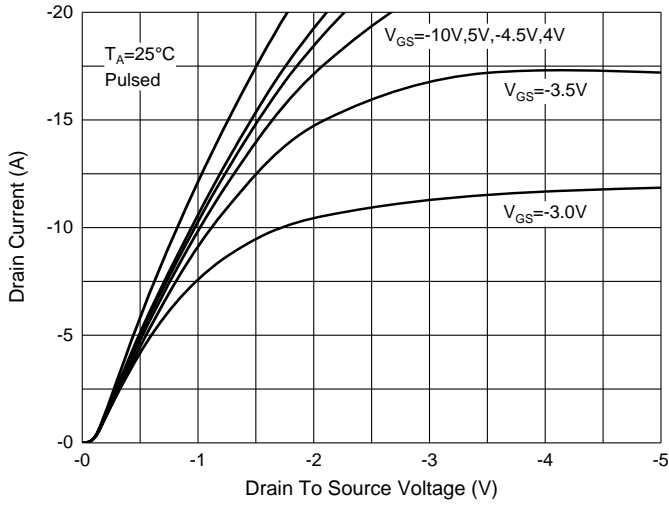


Fig. 2 - Transfer Characteristics

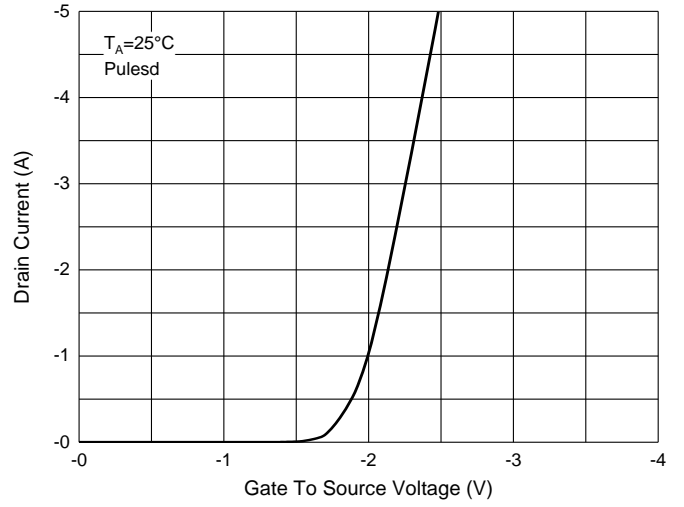


Fig. 3 - $R_{DS(ON)} - I_D$

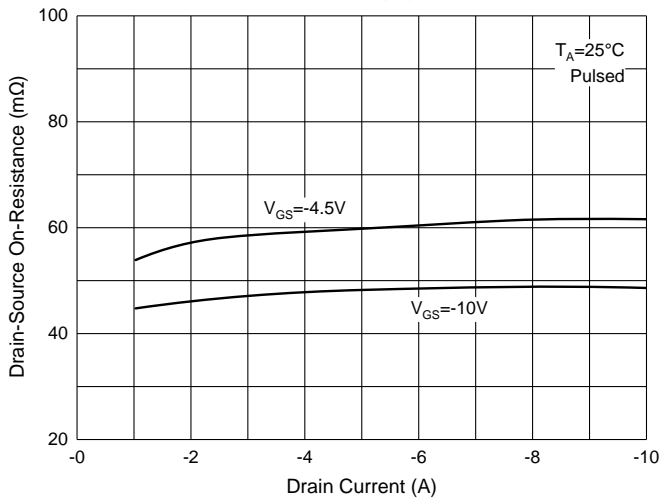


Fig. 4 - $R_{DS(ON)} - V_{GS}$

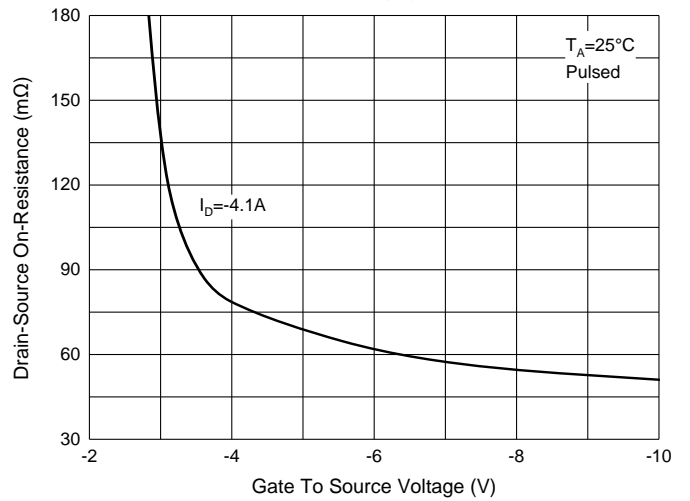


Fig. 5 - $I_s - V_{SD}$

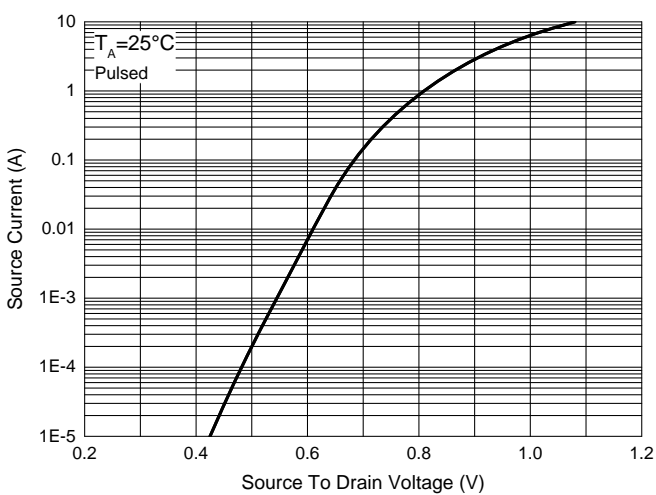
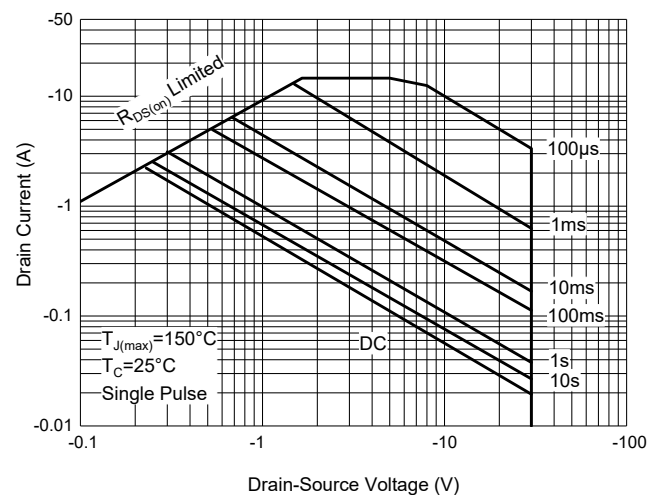


Fig. 6 - Safe Operation Area



Ordering Information

| Device | Packing |
|--------------|-----------------------|
| SI3407HE3-TP | Tape&Reel: 3Kpcs/Reel |

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