## Features

- Voltage Controlled Small Signal Switch
- Surface Mount Package
- Moisture Sensitivity Level 1
- Halogen Free. "Green" Device (Note 1)
- Epoxy Meets UL 94 V-0 Flammability Rating
- Lead Free Finish/RoHS Compliant ("P" Suffix Designates RoHS Compliant. See Ordering Information)

# N-Channel MOSFET

## Maximum Ratings

- Operating Junction Temperature Range: -55°C to +150°C
- Storage Temperature: -55°C to +150°C
- Thermal Resistance: 357°C/W Junction to Ambient(Note 2)

| Parameter | | Symbol | Rating | Unit |
|---|---|---|---|---|
| Drain-Source Voltage | | $V_{DS}$ | 50 | V |
| Gate-Source Volltage | | $V_{GS}$ | ±20 | V |
| Continuous Drain Current | $T_A$=25°C | $I_D$ | 0.22 | A |
| | $T_A$=100°C | | 0.14 | |
| Pulsed Drain Current(Note3) | | $I_{DM}$ | 0.88 | A |
| Total Power Dissipation(Note4) | | $P_D$ | 0.35 | W |

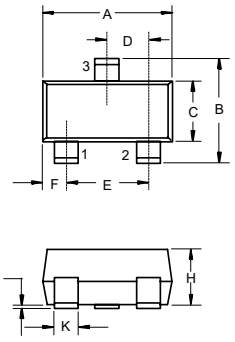
Note:

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

2.The value of RθJA is measured with the device mounted on the minimum recommend pad size, in the still air environment with TA =25℃.

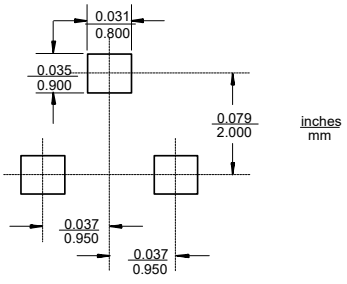
3. Repetitive rating; pulse width limited by max. junction temperature.
4. $P_D$ is based on max. junction temperature, using junction-ambient thermal resistance.

## SOT-23

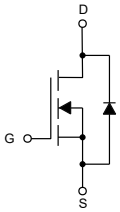



| DIMENSIONS | | | | | |
|---|---|---|---|---|---|
| DIM | INCHES | | MM | | NOTE |
| | MIN | MAX | MIN | MAX | |
| A | 0.110 | 0.120 | 2.80 | 3.04 | |
| B | 0.083 | 0.104 | 2.10 | 2.64 | |
| C | 0.047 | 0.055 | 1.20 | 1.40 | |
| D | 0.034 | 0.041 | 0.85 | 1.05 | |
| E | 0.067 | 0.083 | 1.70 | 2.10 | |
| 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 | |

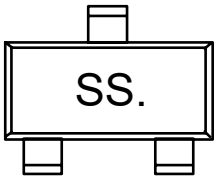
**Suggested Solder Pad Layout**




## Internal Structure and Marking Code




1. GATE
2. SOURCE
3. DRAIN



## ELECTRICAL CHARACTERISTICS (Ta=25℃ unless otherwise specified)

| Parameter | Symbol | Test Conditions | Min | Typ | Max | Unit |
|---|---|---|---|---|---|---|
| **Static Characteristics** | | | | | | |
| Drain-Source Breakdown Voltage | $V_{(BR)DSS}$ | $V_{GS}$=0V, $I_D$=250μA | 50 | | | V |
| Gate-Threshold Voltage(Note5) | $V_{GS(th)}$ | $V_{DS}$=$V_{GS}$, $I_D$=1mA | 0.8 | 1.1 | 1.5 | V |
| Gate-Body Leakage Current | $I_{GSS}$ | $V_{GS}$=±20V, $V_{DS}$=0V | | | ±100 | nA |
| Zero Gate Voltage Drain Current | $I_{DSS}$ | $V_{DS}$=50V, $V_{GS}$=0V | | | 100 | nA |
| Drain-Source On-Resistance(Note5) | $R_{DS(on)}$ | $V_{GS}$=10V, $I_D$=0.3A | | 0.9 | 2.5 | Ω |
| | | $V_{GS}$=4.5V, $I_D$=0.2A | | 1.05 | 3 | |
| Forward Transconductance(Note5) | $g_{FS}$ | $V_{DS}$=10V, $I_D$=0.22A | 120 | | | mS |
| Gate Resistance | $R_g$ | f=1 MHz, Open drain | | 4.2 | | Ω |
| **Diode Characteristics** | | | | | | |
| Continuous Body Diode Current | $I_S$ | | | | 0.22 | A |
| Diode Forward Voltage(Note5) | $V_{SD}$ | $V_{GS}$=0V, $I_S$=0.44A | | | 1.4 | V |
| Reverse Recovery Time | $t_{rr}$ | $I_F$=300mA, $dI_F/dt$=100A/μs | | 12.2 | | ns |
| Reverse Recovery Charge | $Q_{rr}$ | | | 2.6 | | nC |
| **Dynamic Characteristics** | | | | | | |
| Input Capacitance | $C_{iss}$ | $V_{DS}$=25V,$V_{GS}$=0V,f=1MHz | | 27 | 60 | pF |
| Output Capacitance | $C_{oss}$ | | | 3 | 10 | |
| Reverse Transfer Capacitance | $C_{rss}$ | | | 2 | 6 | |
| Total Gate Charge | $Q_g$ | $V_{DS}$=25V,$V_{GS}$=10V,$I_D$=0.3A | | 1.65 | | nC |
| Gate-Source Charge | $Q_{gs}$ | | | 0.24 | | |
| Gate-Drain Charge | $Q_{gd}$ | | | 0.4 | | |
| Turn-On Delay Time | $t_{d(on)}$ | $V_{DD}$=30V, $V_{GS}$=10V,$R_G$=6Ω, $I_D$=0.29A | | | 5 | ns |
| Turn-On Rise Time | $t_r$ | | | | 18 | |
| Turn-Off Delay Time | $t_{d(off)}$ | | | | 36 | |
| Turn-Off Fall Time | $t_f$ | | | | 73 | |

Note:

5.Pulse Test : Pulse Width=300μs, Duty Cycle≤2%.

## Curve Characteristics

Fig. 1 - Typical Output Characteristics

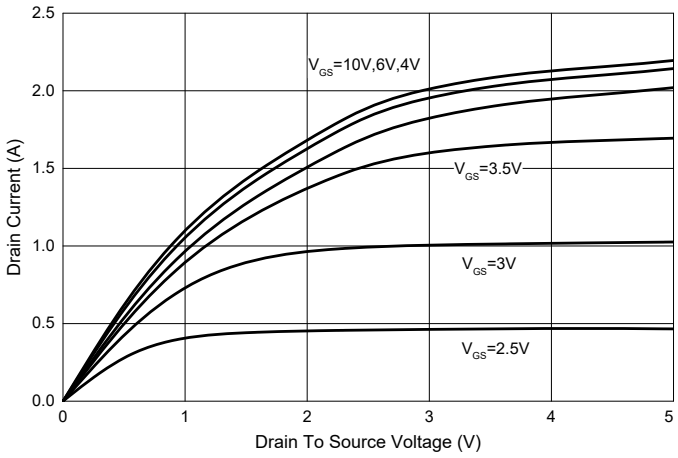



Fig. 2 - Transfer Characteristics

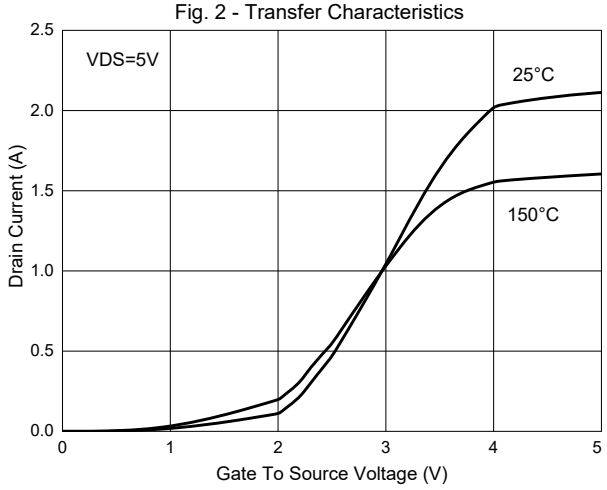



Fig. 3 - $R_{DS(ON)}$—$I_D$

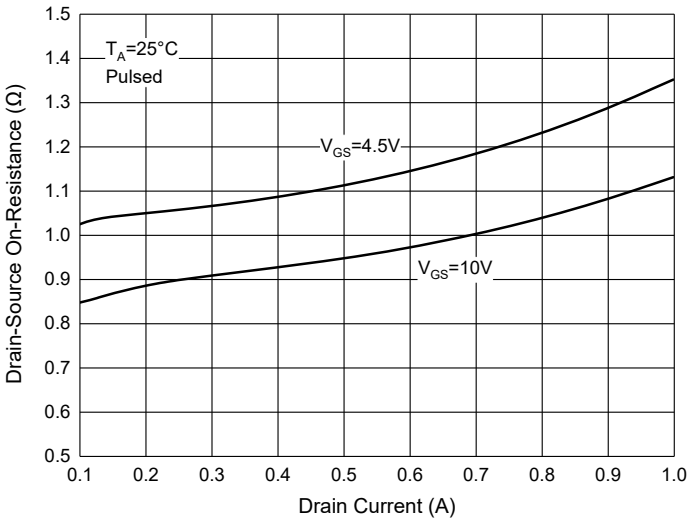



Fig. 4 - $R_{DS(ON)}$—$V_{GS}$

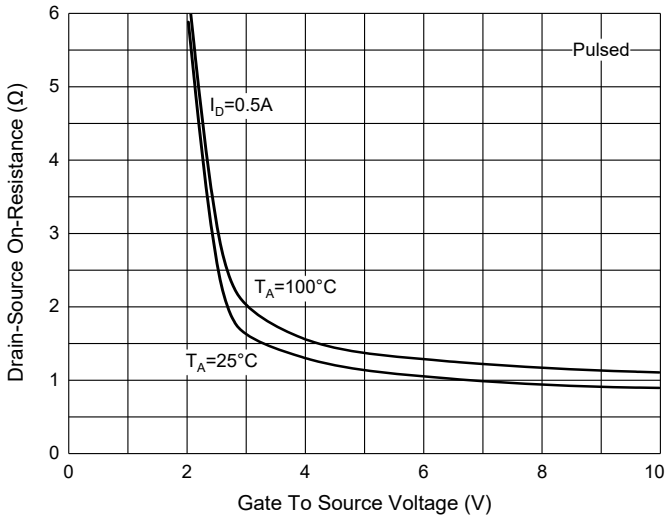



Fig. 5 - $I_S$—$V_{SD}$

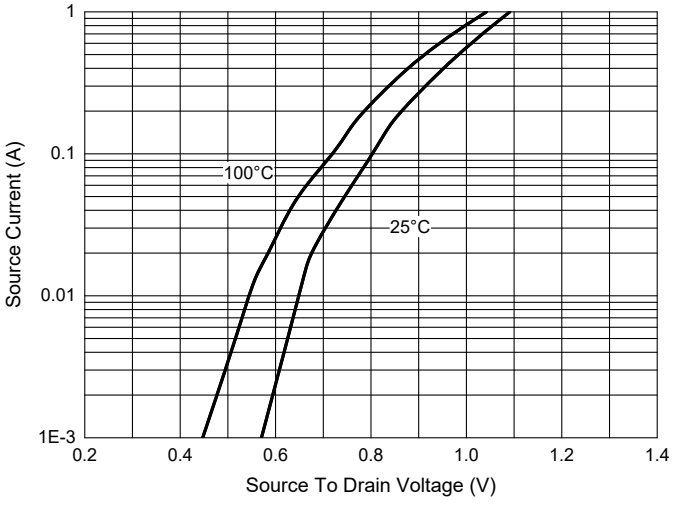



Fig. 6 - Threshold Voltage

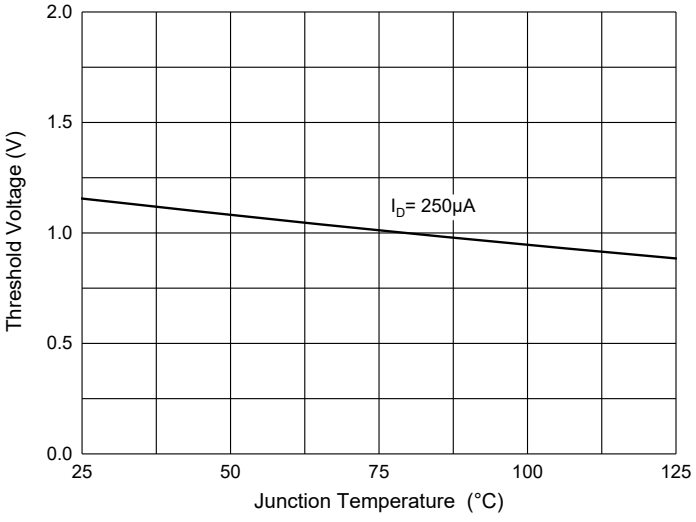


Fig. 7 - Normalized On Resistance Characteristics

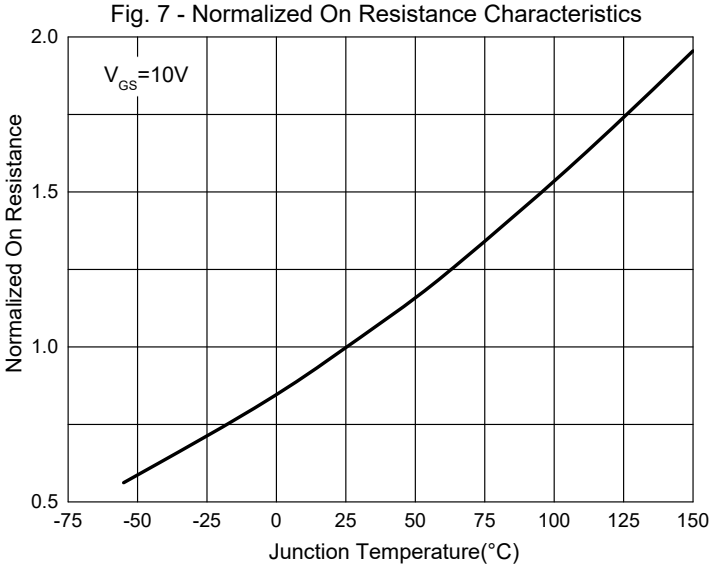



Fig. 8 - Gate Charge

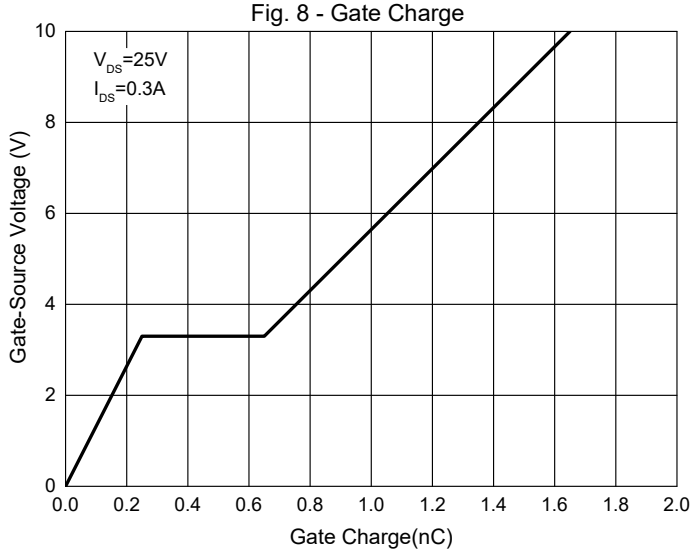



Fig. 9 - Capacitance Characteristics

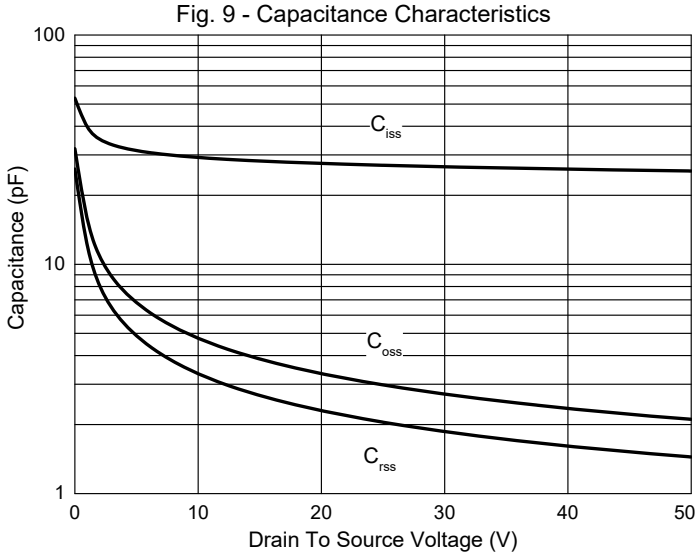



Fig. 10 - Current dissipation

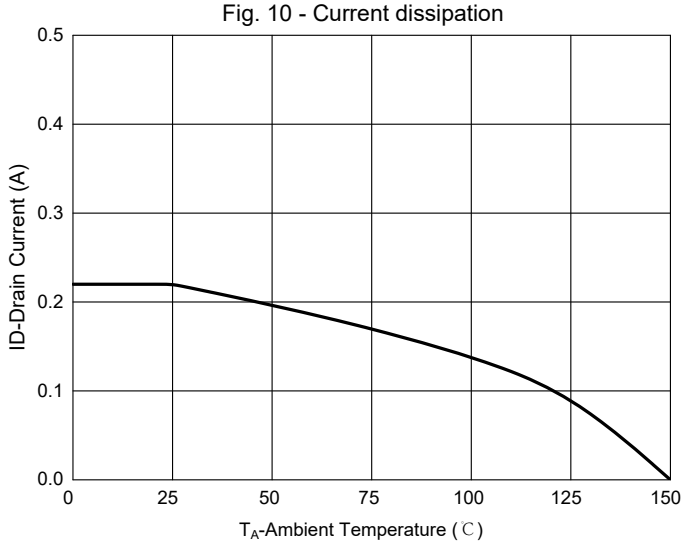



Fig. 11 - PD—TJ

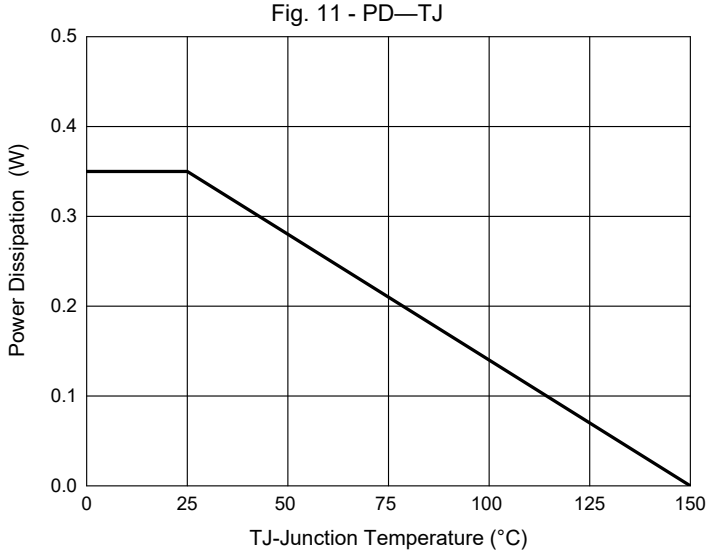


Fig. 12 - Safe Operation Area

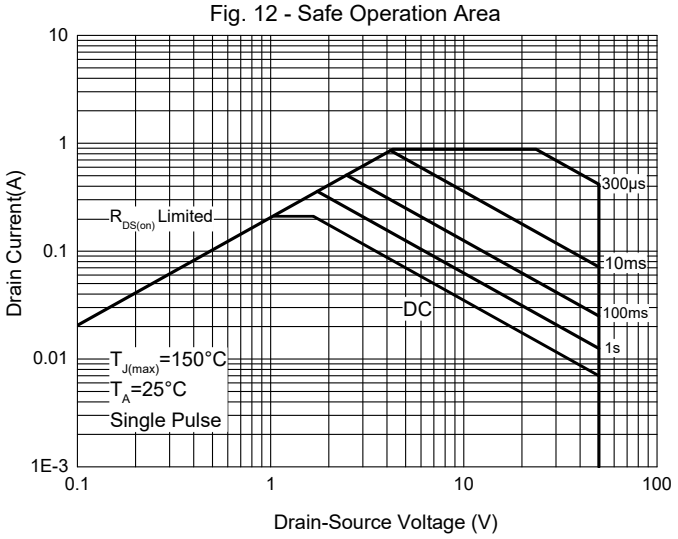
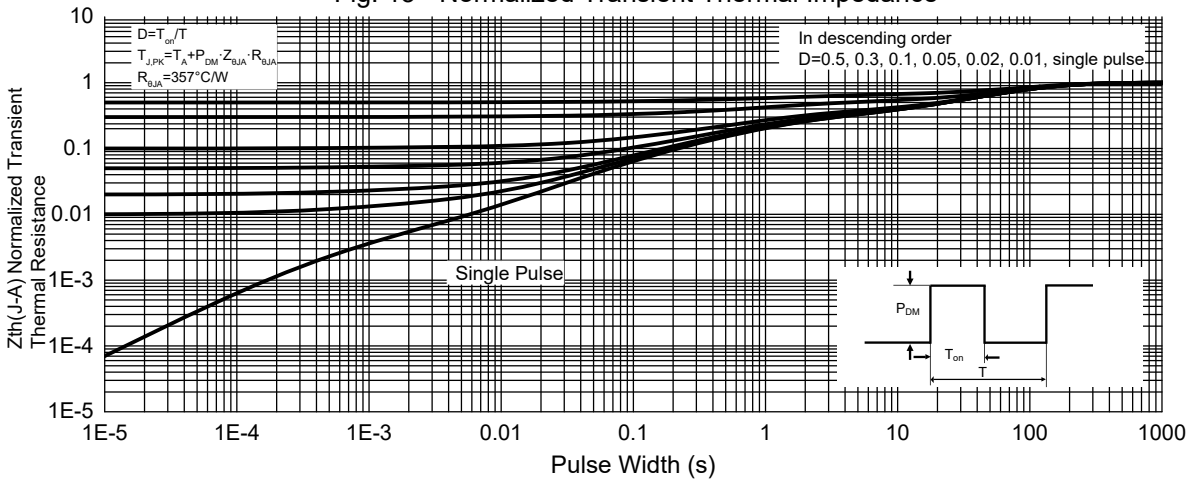



Fig. 13 - Normalized Transient Thermal Impedance



## Ordering Information

| Device | Packing |
|---|---|
| Part Number-TP | Tape&Reel: 3Kpcs/Reel |
| Part Number-13P | Tape&Reel: 10Kpcs/Reel |

单击下面可查看定价，库存，交付和生命周期等信息

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