

Features

- Operated at Low Logic Level Gate Drive
- P-Channel Switch with Low $R_{DS(on)}$
- 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)

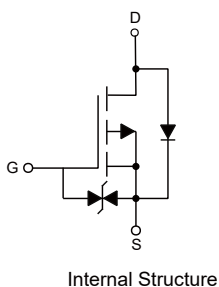
Maximum Ratings

- Operating Junction Temperature Range: -55°C to $+150^{\circ}\text{C}$
- Storage Temperature Range: -55°C to $+150^{\circ}\text{C}$
- Maximum Thermal Resistance: 833°C/W Junction to Ambient

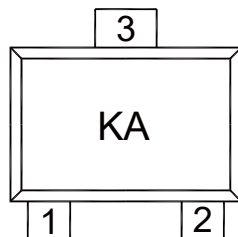
| Parameter | Symbol | Rating | Unit |
|--|----------|----------|------|
| Drain-Source Voltage | V_{DS} | -20 | V |
| Gate-Source Voltage | V_{GS} | ± 12 | V |
| Drain Current-Continuous | I_D | -0.66 | A |
| Pulsed Drain Current ^(Note 2) | I_{DM} | -1.2 | A |
| Power Dissipation | P_D | 0.15 | W |

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

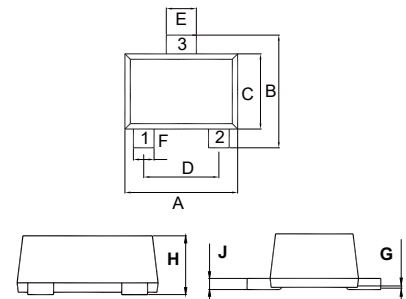


1. GATE
2. SOURCE
3. DRAIN



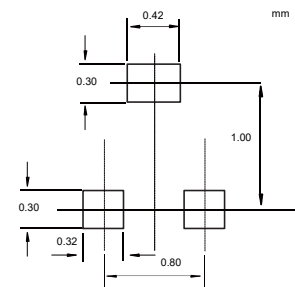
P-Channel MOSFET

SOT-723



| DIM | INCHES | | MM | | NOTE |
|-----|--------|-------|------|------|------|
| | MIN | MAX | MIN | MAX | |
| A | 0.043 | 0.051 | 1.10 | 1.30 | |
| B | 0.043 | 0.051 | 1.10 | 1.30 | |
| C | 0.028 | 0.035 | 0.70 | 0.90 | |
| D | 0.031 | | 0.80 | | TYP. |
| E | 0.009 | 0.017 | 0.22 | 0.42 | |
| F | 0.005 | 0.013 | 0.12 | 0.32 | |
| G | 0.000 | 0.002 | 0.00 | 0.05 | |
| H | 0.017 | 0.021 | 0.43 | 0.54 | |
| J | 0.003 | 0.006 | 0.08 | 0.15 | |

Suggested Solder Pad Layout



ELECTRICAL CHARACTERISTICS (Ta=25°C unless otherwise specified)

| Parameter | Symbol | Test conditions | Min | Typ | Max | Unit |
|---|---------------|---|-------|-----|----------|----------|
| Static Characteristics | | | | | | |
| Drain-Source Breakdown Voltage | $V_{(BR)DSS}$ | $V_{GS}=0V, I_D=-250\mu A$ | -20 | | | V |
| Gate-Threshold Voltage ^(Note 3) | $V_{GS(th)}$ | $V_{DS}=V_{GS}, I_D=-250\mu A$ | -0.35 | | -1.1 | V |
| Zero Gate Voltage Drain Current | I_{DSS} | $V_{DS}=-20V, V_{GS}=0V$ | | | -1.0 | μA |
| Gate-body Leakage Current | I_{GSS} | $V_{GS}=\pm 10V, V_{DS}=0V$ | | | ± 10 | μA |
| Drain-Source On-Resistance ^(Note 3) | $R_{DS(on)}$ | $V_{GS}=-4.5V, I_D=-500mA$ | | | 0.85 | Ω |
| | | $V_{GS}=-2.5V, I_D=-300mA$ | | | 1.2 | |
| | | $V_{GS}=-1.8V, I_D=-200mA$ | | | 2.0 | |
| Forward transconductance | g_{FS} | $V_{DS}=-10V, I_D=-500mA$ | 0.8 | | | S |
| Diode Forward Voltage ^(Note 3) | V_{SD} | $V_{GS}=0V, I_S=-500mA$ | | | -1.2 | V |
| Dynamic Characteristics^(Note 4) | | | | | | |
| Input Capacitance | C_{iss} | $V_{DS}=-16V, V_{GS}=0V, f=1MHz$ | | 40 | | pF |
| Output Capacitance | C_{oss} | | | 16 | | |
| Reverse Transfer Capacitance | C_{rss} | | | 11 | | |
| Total Gate Charge | Q_g | $V_{GS}=-4.5V, V_{DS}=-10V, I_D=-1A$ | | 860 | | pC |
| Gate-Source Charge | Q_{gs} | | | 320 | | |
| Gate-Drain Charge | Q_{gd} | | | 200 | | |
| Switching Characteristics^(Note 4) | | | | | | |
| Turn-on Delay Time | $t_{d(on)}$ | $V_{DS}=-10V, V_{GS}=-4.5V, I_D=-500mA, R_G=10\Omega$ | | 3.8 | | ns |
| Turn-off Delay Time | $t_{d(off)}$ | | | 9.4 | | |
| Rise Time | t_r | | | 19 | | |
| Fall Time | t_f | | | 23 | | |

Notes :

2. Repetitive Rating : Pulse Width Limited by Junction Temperature.
3. Pulse Test : Pulse Width $\leq 300\mu s$, Duty Cycle $\leq 0.5\%$.
4. Guaranteed by Design, Not Subject to Production Testing.

Curve Characteristics

Fig. 1 - Typical Output Characteristics

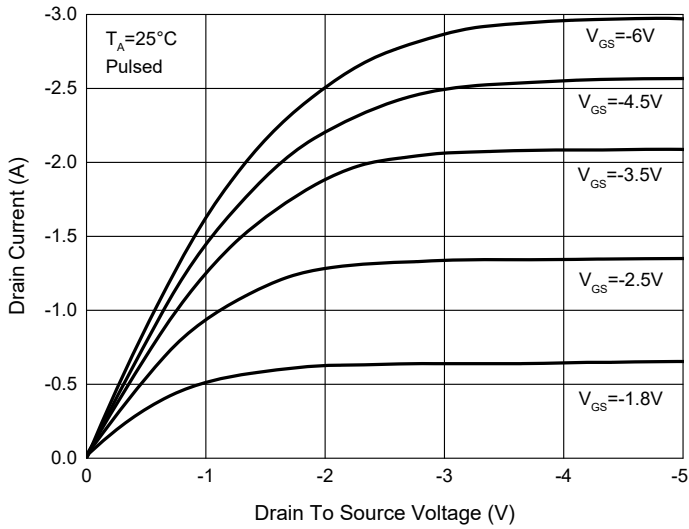


Fig. 2 - Transfer Characteristics

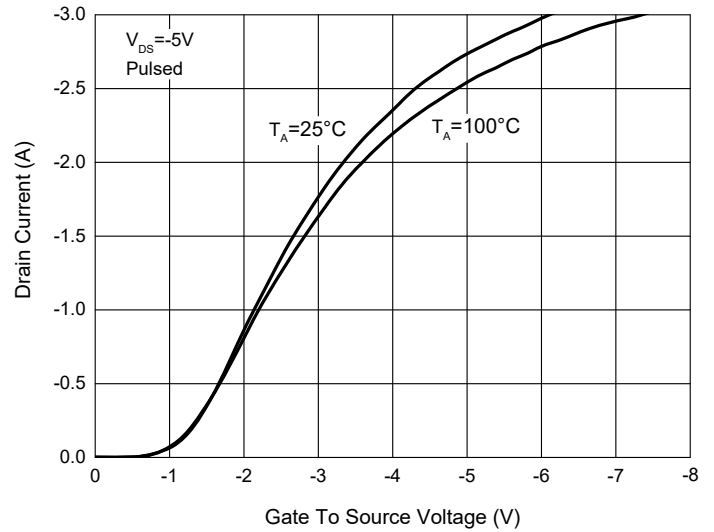


Fig. 3 - $R_{DS(ON)} - I_D$

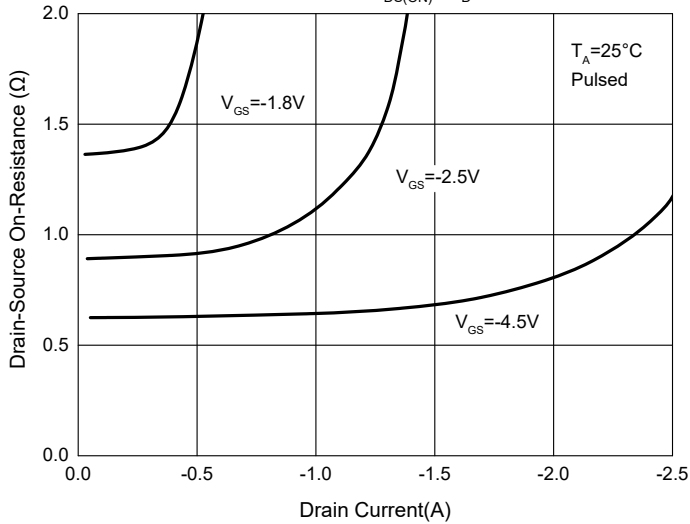


Fig. 4 - $R_{DS(ON)} - V_{GS}$

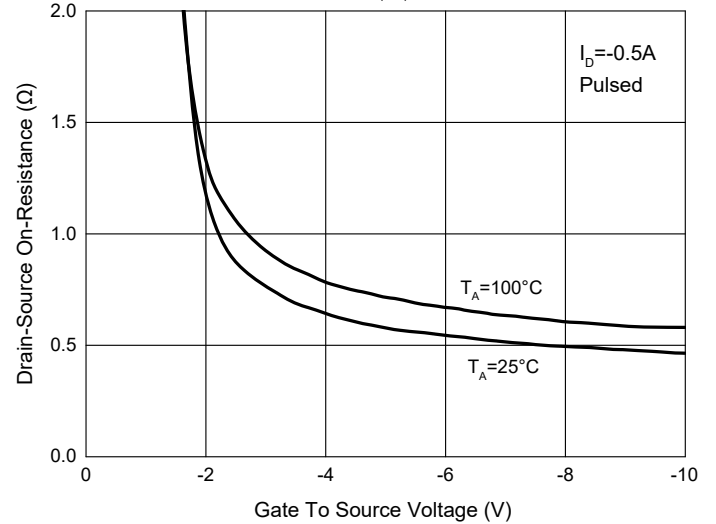


Fig. 5 - $I_S - V_{SD}$

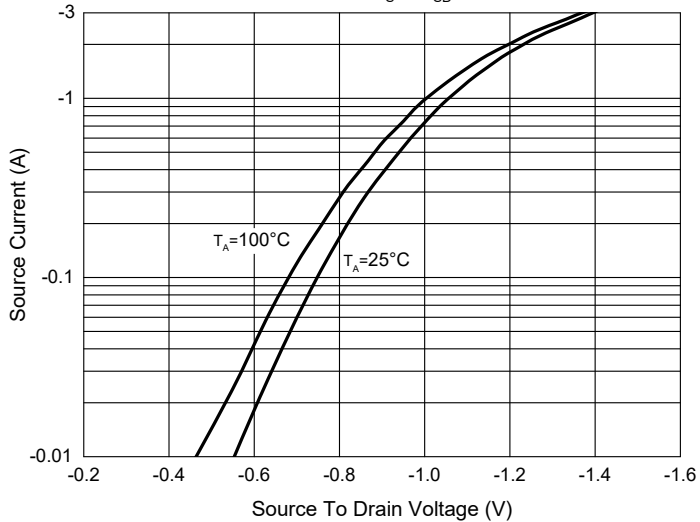
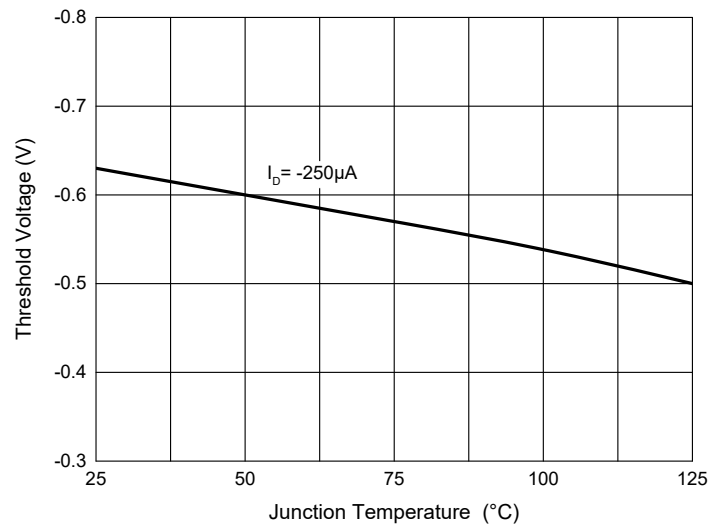


Fig. 6 - Threshold Voltage



Curve Characteristics

Fig. 7 - Capacitance Characteristics

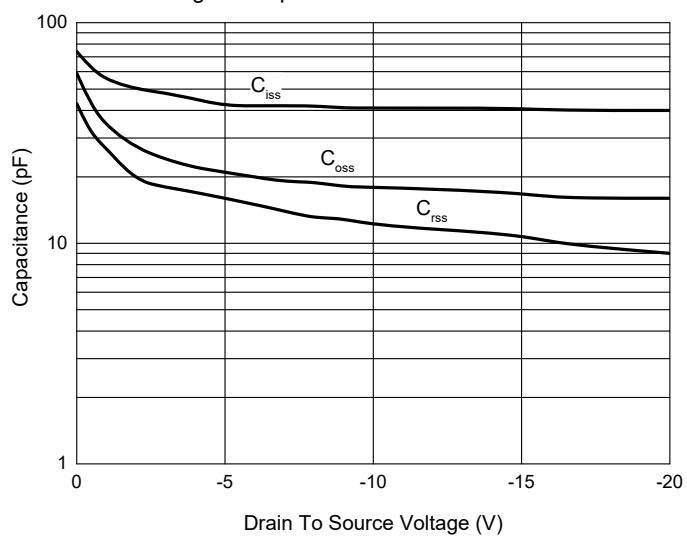
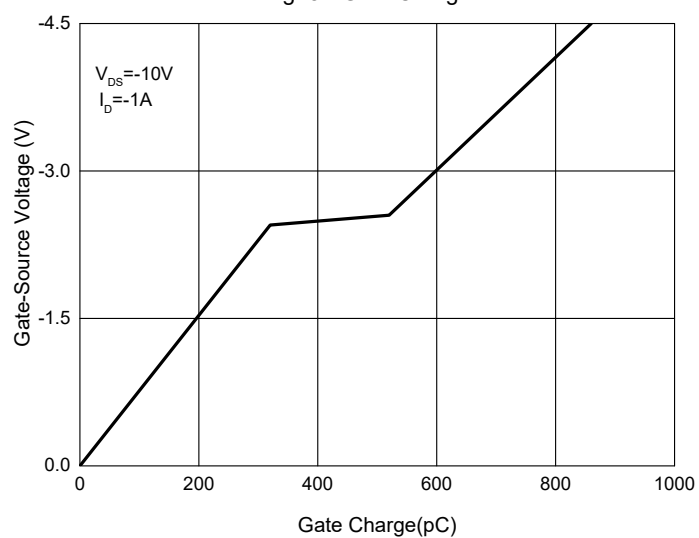


Fig. 8 - Gate Charge



Ordering Information

| Device | Packing |
|----------------|----------------------|
| Part Number-TP | Tape&Reel:8Kpcs/Reel |

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