

Features

- Lead Free Finish/RoHS Compliant ("P" Suffix Designates RoHS Compliant. See Ordering Information)
- Epoxy Meets UL 94 V-0 Flammability Rating
- Moisture Sensitivity Level 1
- Halogen Free. "Green" Device (Note1)
- Lead Free Finish/RoHS Compliant ("P" Suffix Designates RoHS Compliant. See Ordering Information)

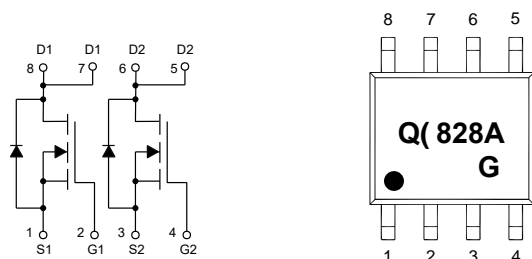
Maximum Ratings

- Operating Junction Temperature Range : -55°C to +150°C
- Storage Temperature Range: -55°C to +150°C
- Thermal Resistance: 100°C/W Junction to Ambient

| Parameter | Symbol | Rating | Unit |
|---|------------------|----------|------|
| Drain-Source Voltage | V_{DS} | 60 | V |
| Gate-Source Voltage | V_{GS} | ± 20 | V |
| Drain Current ($t \leq 10s$) ^(Note2) | I_D | 4.5 | A |
| Pulsed Drain Current ^(Note3) | I_{DM} | 20 | A |
| Repetitive Avalanche Energy 0.1mH | E_{AR}, E_{AS} | 18 | mJ |
| Total Power Dissipation | P_D | 1.25 | W |

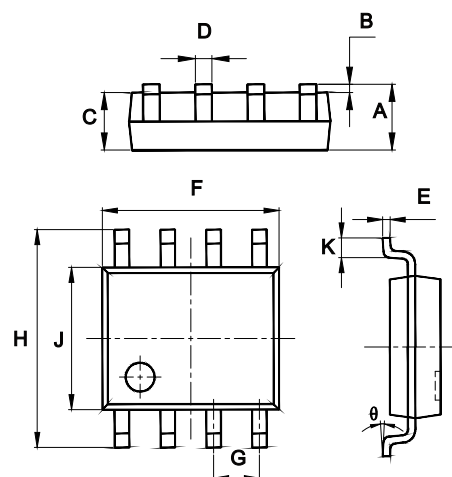
Note1. Halogen free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.

Internal Structure and Marking Code



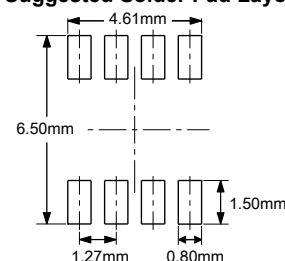
Dual N-Channel Power MOSFET

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 | | 1.270 | | TYP. |
| 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 | $V_{(BR)DSS}$ | $V_{GS}=0V, I_D=250\mu A$ | 60 | | | V |
| Gate-Source Leakage Current | I_{GSS} | $V_{DS}=0V, V_{GS}=\pm 20V$ | | | ± 100 | nA |
| Zero Gate Voltage Drain Current | I_{DSS} | $V_{DS}=60V, V_{GS}=0V$ | | | 1 | μA |
| Gate-Threshold Voltage ^(Note 3) | $V_{GS(th)}$ | $V_{DS}=V_{GS}, I_D=250\mu A$ | 1 | 2.1 | 3 | V |
| Drain-Source On-Resistance ^(Note 3) | $R_{DS(on)}$ | $V_{GS}=10V, I_D=4.5A$ | | 40 | 56 | m Ω |
| | | $V_{GS}=4.5V, I_D=3A$ | | 55 | 77 | |
| Forward Transconductance ^(Note 3) | g_{FS} | $V_{DS}=5V, I_D=4.5A$ | 6 | | | S |
| Diode Forward Voltage ^(Note 3) | V_{SD} | $V_{GS}=0V, I_S=1A$ | | | 1 | V |
| Dynamic Characteristics | | | | | | |
| Input Capacitance | C_{iss} | $V_{DS}=30V, V_{GS}=0V, f=1MHz$ | | | 540 | pF |
| Output Capacitance | C_{oss} | | | 60 | | |
| Reverse Transfer Capacitance | C_{rss} | | | 25 | | |
| Switching Characteristics | | | | | | |
| Turn-On Delay Time | $t_{d(on)}$ | $V_{GS}=10V, V_{DS}=30V$ $R_{GEN}=3\Omega, R_L=6.7\Omega$ | | 4.7 | | ns |
| Turn-On Rise Time | t_r | | | 2.3 | | |
| Turn-Off Delay Time | $t_{d(off)}$ | | | 15.7 | | |
| Turn-Off Fall Time | t_f | | | 1.9 | | |
| Total Gate Charge (10V) | Q_g | $V_{GS}=10V, V_{DS}=30V$ $I_D=4.5A$ | | | 10.5 | nC |
| Total Gate Charge (4.5V) | | | | | 5.5 | |
| Gate-Source Charge | Q_{gs} | | | 1.6 | | |
| Gate-Drain Charge | Q_{gd} | | | 2.2 | | |

Notes :

2. The Value In Any Given Application Depends On The User's Specific Board Design.
3. Pulse Test : Pulse Width $\leq 300\mu s$, Duty Cycle $\leq 0.5\%$.

Curve Characteristics

Fig. 1 - Output Characteristics

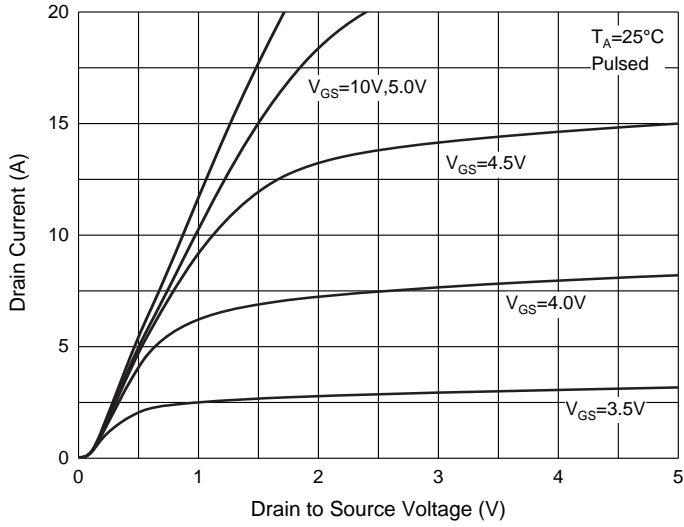


Fig. 2 - Transfer Characteristics

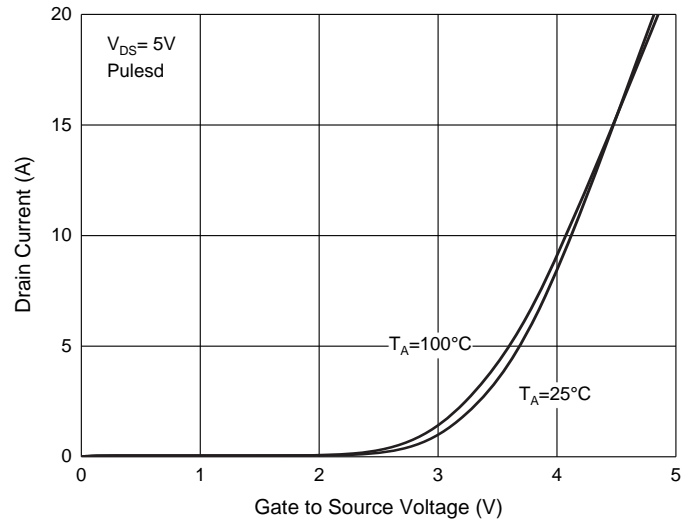


Fig. 3 - $R_{DS(ON)} - I_D$

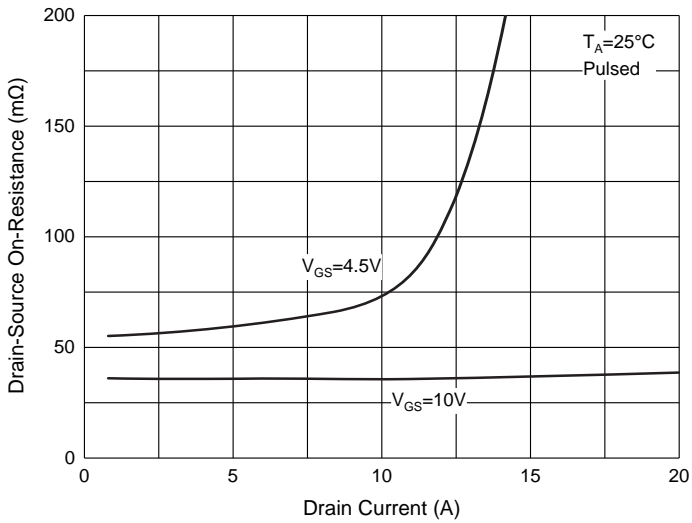


Fig. 4 - $R_{DS(ON)} - V_{GS}$

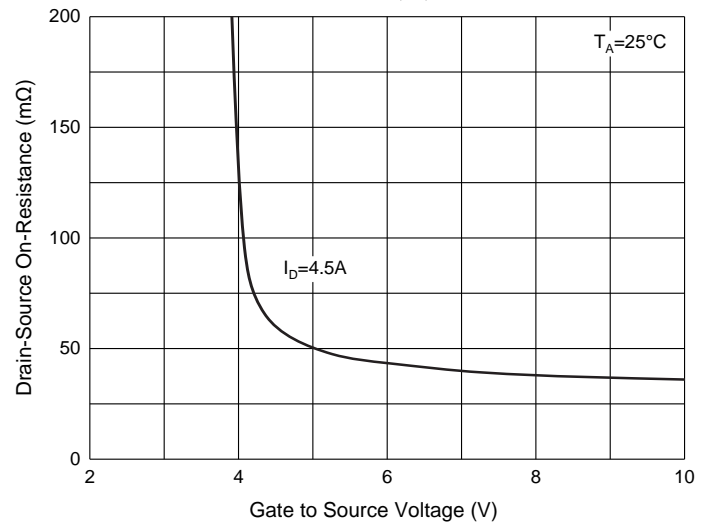


Fig. 5 - $I_S - V_{SD}$

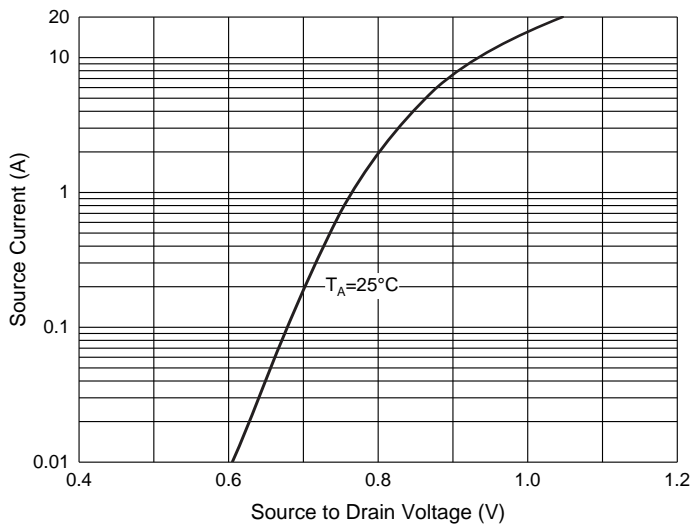
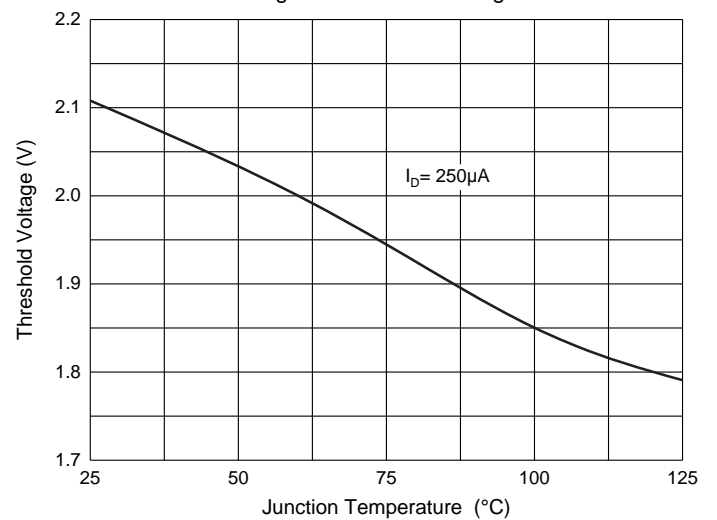


Fig. 6 - Threshold Voltage



Ordering Information

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

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