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Micro Commercial Components



Micro Commercial Components
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SI3404

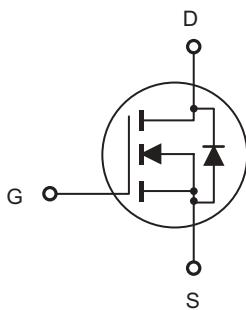
Features

- High dense cell design for extremely low $R_{DS(ON)}$
- Rugged and reliable
- Lead free product is acquired
- SOT-23 Package
- Marking Code: R4
- Epoxy meets UL 94 V-0 flammability rating
- Moisture Sensitivity Level 1
- Halogen free available upon request by adding suffix "-HF"

Maximum Ratings @ 25°C Unless Otherwise Specified

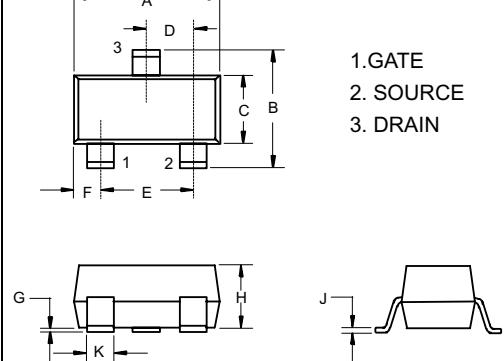
| Symbol | Parameter | Rating | Unit |
|-------------------|---|-------------|------|
| V_{DS} | Drain-source Voltage | 30 | V |
| I_D | Drain Current-Continuous | 5.8 | A |
| I_{DM} | Drain Current-Pulsed ^a | 30 | A |
| V_{GS} | Gate-source Voltage | ± 20 | V |
| P_D | Total Power Dissipation | 0.35 | W |
| $R_{\text{th}JA}$ | Thermal Resistance Junction to Ambient ^b | 357 | °C/W |
| T_J | Operating Junction Temperature | -55 to +150 | °C |
| T_{STG} | Storage Temperature | -55 to +150 | °C |

Internal Block Diagram



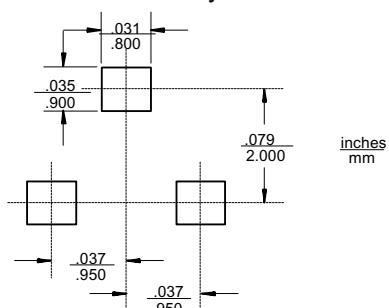
N-Channel Enhancement Mode Field Effect Transistor

SOT-23



| DIM | INCHES | | MM | | NOTE |
|-----|--------|-------|------|------|------|
| | MIN | MAX | MIN | MAX | |
| A | .110 | .120 | 2.80 | 3.04 | |
| B | .083 | .104 | 2.10 | 2.64 | |
| C | .047 | .055 | 1.20 | 1.40 | |
| D | .035 | .041 | .89 | 1.03 | |
| E | .070 | .081 | 1.78 | 2.05 | |
| F | .018 | .024 | .45 | .60 | |
| G | .0005 | .0039 | .013 | .100 | |
| H | .035 | .044 | .89 | 1.12 | |
| J | .003 | .007 | .085 | .180 | |
| K | .015 | .020 | .37 | .51 | |

Suggested Solder Pad Layout



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Electrical Characteristics $T_A = 25^\circ\text{C}$ unless otherwise noted

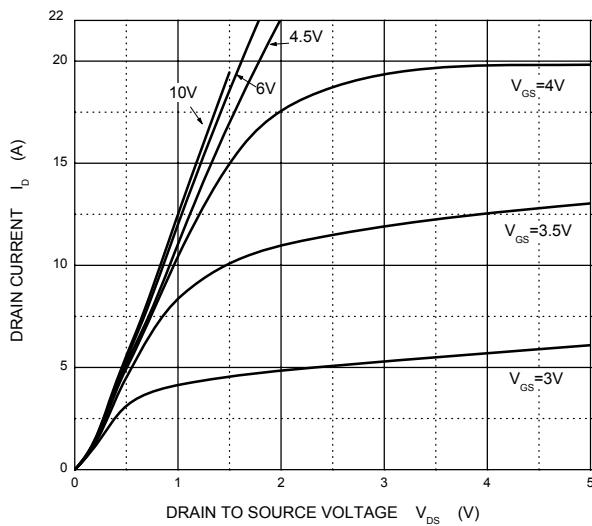
| Parameter | Symbol | Test Condition | Min | Typ | Max | Units |
|--------------------------------------|-----------------------------|--|-----|------|-----------|------------------|
| STATIC PARAMETERS | | | | | | |
| Drain-source breakdown voltage | $V_{(\text{BR})\text{DSS}}$ | $V_{\text{GS}} = 0\text{V}, I_{\text{D}} = 250\mu\text{A}$ | 30 | | | V |
| Zero gate voltage drain current | I_{DSS} | $V_{\text{DS}} = 30\text{V}, V_{\text{GS}} = 0\text{V}$ | | | 1 | μA |
| Gate-body leakage current | I_{GSS} | $V_{\text{GS}} = \pm 20\text{V}, V_{\text{DS}} = 0\text{V}$ | | | ± 100 | nA |
| Gate threshold voltage | $V_{\text{GS}(\text{th})}$ | $V_{\text{DS}} = V_{\text{GS}}, I_{\text{D}} = 250\mu\text{A}$ | 1 | | 3 | V |
| Drain-source on-resistance (note 1) | $R_{\text{DS}(\text{on})}$ | $V_{\text{GS}} = 10\text{V}, I_{\text{D}} = 5.8\text{A}$ | | | 28 | $\text{m}\Omega$ |
| | | $V_{\text{GS}} = 4.5\text{V}, I_{\text{D}} = 4.8\text{A}$ | | | 42 | $\text{m}\Omega$ |
| Forward transconductance (note 1) | g_{FS} | $V_{\text{DS}} = 5\text{V}, I_{\text{D}} = 5.8\text{A}$ | 5 | | | S |
| Diode forward voltage | V_{SD} | $I_{\text{S}} = 1\text{A}$ | | | 1 | V |
| DYNAMIC PARAMETERS (note 2) | | | | | | |
| Input capacitance | C_{iss} | $V_{\text{DS}} = 15\text{V}, V_{\text{GS}} = 0\text{V}, f = 1\text{MHz}$ | | | 820 | pF |
| Output capacitance | C_{oss} | | | 118 | | pF |
| Reverse transfer capacitance | C_{rss} | | | 85 | | pF |
| Gate resistance | R_{g} | $V_{\text{DS}} = 0\text{V}, V_{\text{GS}} = 0\text{V}, f = 1\text{MHz}$ | | | 1.5 | Ω |
| SWITCHING PARAMETERS (note 2) | | | | | | |
| Turn-on delay time | $t_{\text{d}(\text{on})}$ | $V_{\text{GS}} = 10\text{V}, V_{\text{DS}} = 15\text{V}, R_{\text{L}} = 2.6\Omega, R_{\text{GEN}} = 3\Omega$ | | | 6.5 | ns |
| Turn-on rise time | t_{r} | | | 3.1 | | ns |
| Turn-off delay time | $t_{\text{d}(\text{off})}$ | | | 15.1 | | ns |
| Turn-off fall time | t_{f} | | | 2.7 | | ns |

Note :

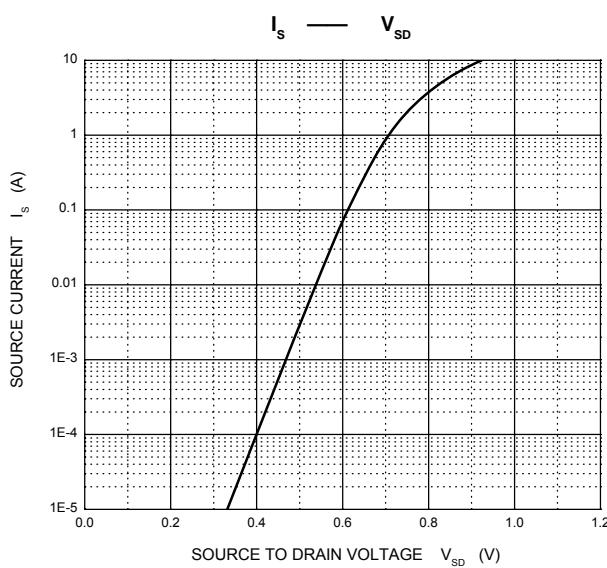
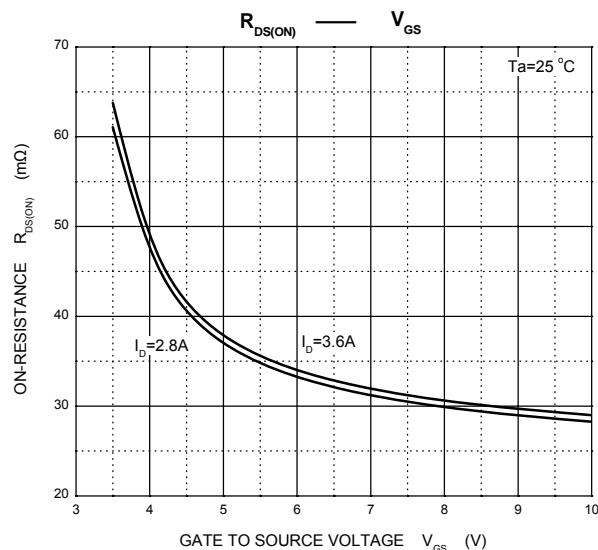
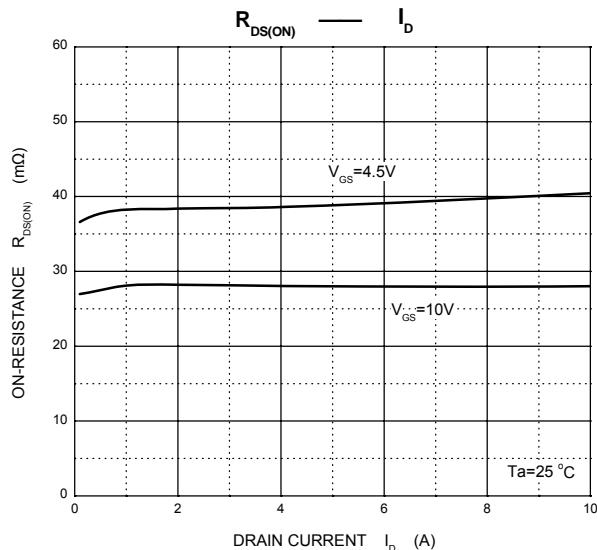
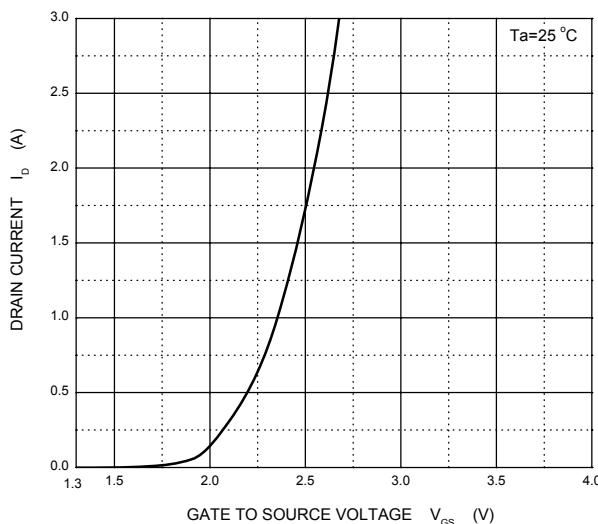
1. Pulse Test : Pulse width $\leq 300\mu\text{s}$, duty cycle $\leq 0.5\%$.
2. These parameters have no way to verify.

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Output Characteristics



Transfer Characteristics





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Ordering Information :

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

Note : Adding "-HF" suffix for halogen free, eg. Part Number-TP-HF

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