



Micro Commercial Components



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SI2321

Features

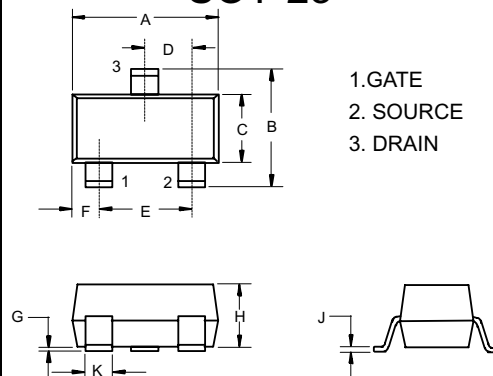
- Halogen free available upon request by adding suffix "-HF"
- -20V, -2.9A, $R_{DS(ON)}=57m\Omega$ @ $V_{GS}=-4.5V$
 $R_{DS(ON)}=76m\Omega$ @ $V_{GS}=-2.5V$
- High dense cell design for extremely low $R_{DS(ON)}$
- Rugged and reliable
- High Speed Switching
- SOT-23 Package
- Marking Code: S21 K
- Epoxy meets UL 94 V-0 flammability rating
- Moisture Sensitivity Level 1

Maximum Ratings @ 25°C Unless Otherwise Specified

| Symbol | Parameter | Rating | Unit |
|-----------------|--|-------------|------|
| V_{DS} | Drain-source Voltage | -20 | V |
| I_D | Drain Current-Continuous | -2.9 | A |
| I_{DM} | Drain Current-Pulsed | -12 | A |
| I_S | Continuous Source-Drain Diode Current | -0.59 | A |
| V_{GS} | Gate-source Voltage | ± 12 | V |
| P_D | Total Power Dissipation | 0.35 | W |
| $R_{\theta JA}$ | Thermal Resistance Junction to Ambient | 357 | °C/W |
| T_J | Operating Junction Temperature | -55 to +150 | °C |
| T_{STG} | Storage Temperature | -55 to +150 | °C |

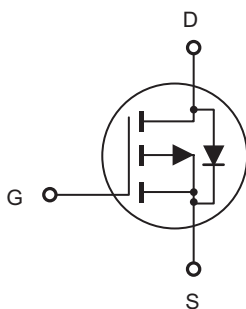
P-Channel Enhancement Mode Field Effect Transistor

SOT-23

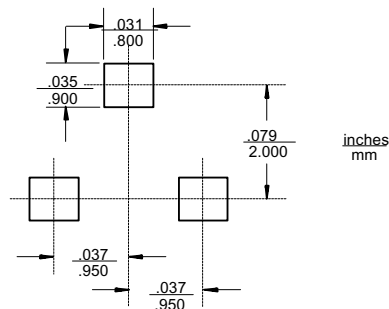


| DIM | INCHES | | MM | | NOTE |
|-----|--------|-------|------|------|------|
| | MIN | MAX | MIN | MAX | |
| A | .110 | .120 | 2.80 | 3.04 | |
| B | .083 | .104 | 2.10 | 2.64 | |
| C | .047 | .055 | 1.20 | 1.40 | |
| D | .035 | .041 | .89 | 1.03 | |
| E | .070 | .081 | 1.78 | 2.05 | |
| F | .018 |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

Internal Block Diagram



Suggested Solder Pad Layout





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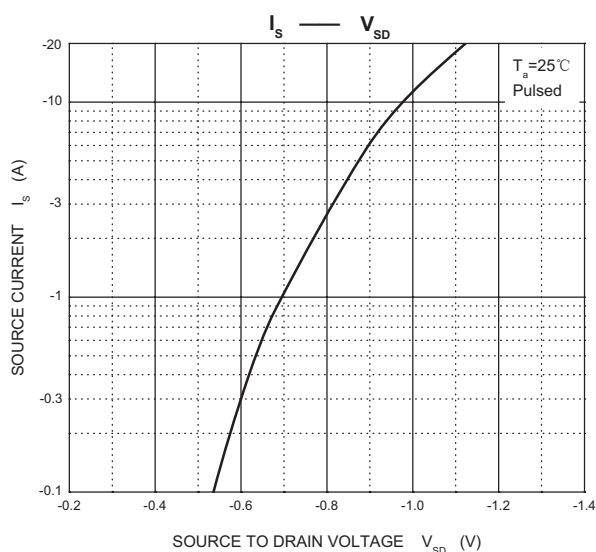
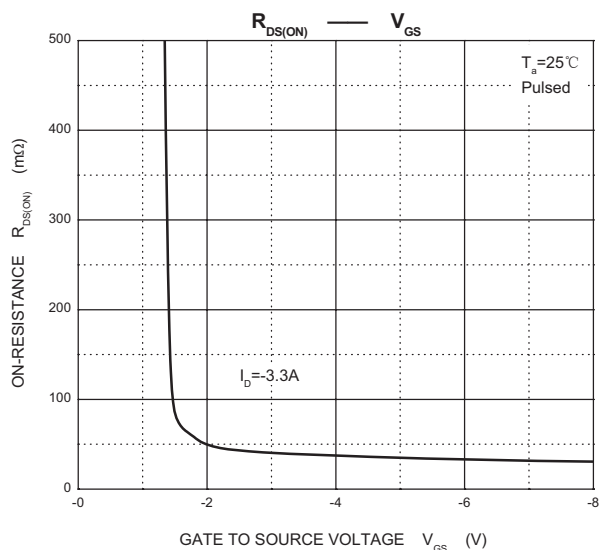
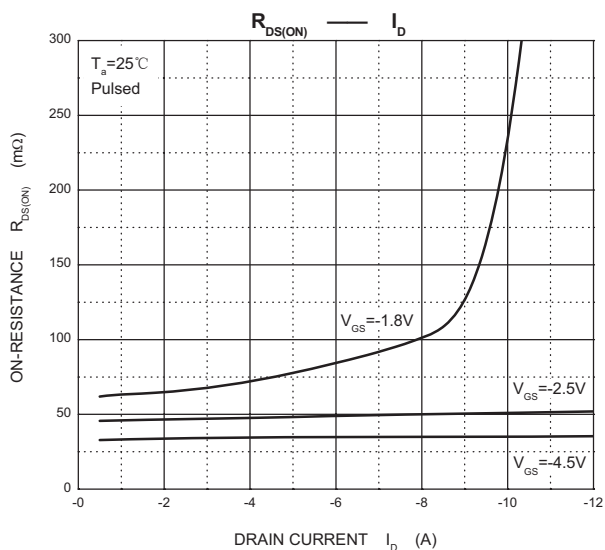
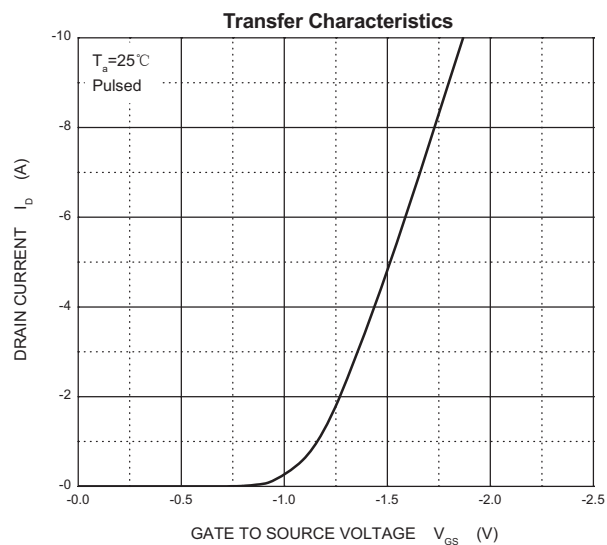
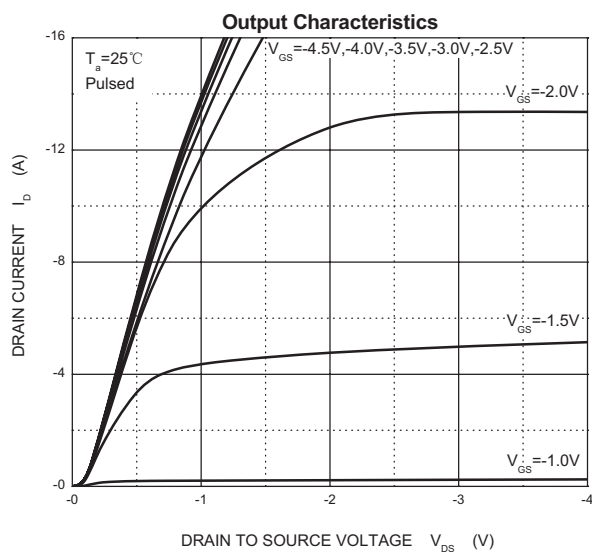
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Electrical characteristics ($T_a=25^{\circ}\text{C}$ unless otherwise noted)

| Parameter | Symbol | Test Condition | Min | Typ | Max | Unit |
|---|-----------------------|---|------|-----|-------|------|
| Static | | | | | | |
| Drain-source breakdown voltage | V _{(BR) DSS} | V _{GS} = 0V, I _D =-10μA | -20 | | | V |
| Gate-source leakage | I _{GSS} | V _{DS} =0V, V _{GS} =±12V | | | ±100 | nA |
| Zero Gate voltage drain current | I _{DSS} | V _{DS} =-16V, V _{GS} =0V | | | -1.0 | μA |
| Gate-source threshold voltage | V _{GS(th)} | V _{DS} =V _{GS} , I _D =-250μA | -0.4 | | -0.9 | V |
| Drain-source on-state resistance | R _{DS(on)} | V _{GS} =-4.5V, I _D =-3.3A | | | 0.057 | Ω |
| | | V _{GS} =-2.5V, I _D =-2.8A | | | 0.076 | |
| | | V _{GS} =-1.8V, I _D =-2.3A | | | 0.110 | |
| Forward tranconductance | g _{fs} | V _{DS} =-5V, I _D =-3.3A | 3 | | | S |
| Forward diode voltage | V _{SD} | V _{GS} =0V,I _S =-1.6A | | | -1.2 | V |
| Dynamic | | | | | | |
| Input capacitance ^{a,b} | C _{iss} | V _{DS} =-6V,V _{GS} =0V,f =1MHz | | 715 | | pF |
| Output capacitance ^{a,b} | C _{oss} | | | 170 | | |
| Reverse transfer capacitance ^{a,b} | C _{rss} | | | 120 | | |
| Total Gate charge ^a | Q _g | V _{DS} =-6V,V _{GS} =-4.5V,I _D =-3.3A | | | 13 | nc |
| Gate-Source charge ^a | Q _{gs} | | | 1.2 | | nc |
| Gate-Drain charge ^a | Q _{gd} | | | 2.2 | | nc |
| Switching ^{a,b} | | | | | | |
| Turn-on delay Time | t _{d(on)} | V _{GEN} =-4.5V,V _{DD} =-6V, I _D =-1.0A,R _G =6Ω, R _L =6Ω | | | 25 | ns |
| Rise time | t _r | | | | 55 | |
| Turn-off delay time | t _{d(off)} | | | | 90 | |
| Fall time | t _f | | | | 60 | |

Notes :

a. Pulse Test : pulse width $\leq 300\mu s$, duty cycle $\leq 2\%$.



Ordering Information :

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

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