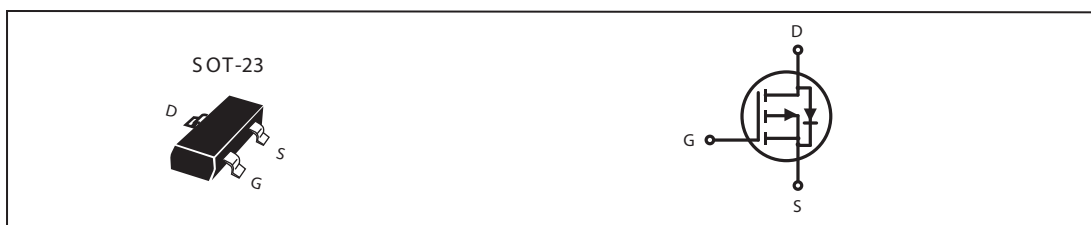


STS2307

| PRODUCT SUMMARY | | |
|------------------|----------------|-------------------------------|
| V _{DSS} | I _D | R _{DS(ON)} (mΩ) Max |
| -20V | -3A | 80 @ V _{GS} = -4.5V |
| | | 100 @ V _{GS} = -2.5V |

FEATURES

- Super high dense cell design for low R_{DS(ON)}.
- Rugged and reliable.
- SOT-23 package.



ABSOLUTE MAXIMUM RATINGS (T_A=25 °C unless otherwise noted)

| Parameter | Symbol | Limit | Unit |
|---|-----------------------------------|------------|------|
| Drain-Source Voltage | V _{DS} | -20 | V |
| Gate-Source Voltage | V _{GS} | ±12 | V |
| Drain Current-Continuous ^a @ T _J =125°C -Pulsed ^b | I _D | -3 | A |
| | I _{DM} | -11 | A |
| Drain-Source Diode Forward Current ^a | I _S | -1.25 | A |
| Maximum Power Dissipation ^a | P _D | 1.25 | W |
| Operating Junction and Storage Temperature Range | T _J , T _{STG} | -55 to 150 | °C |

THERMAL CHARACTERISTICS

| | | | |
|--|-------------------|-----|------|
| Thermal Resistance, Junction-to-Ambient ^a | R _{thJA} | 100 | °C/W |
|--|-------------------|-----|------|

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ELECTRICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$ unless otherwise noted)

| Parameter | Symbol | Condition | Min | Typ ^c | Max | Unit |
|--|--------------|--|------|------------------|-----------|---------|
| OFF CHARACTERISTICS | | | | | | |
| Drain-Source Breakdown Voltage | BV_{DSS} | $V_{GS} = 0V, I_D = -250\mu A$ | -20 | | | V |
| Zero Gate Voltage Drain Current | I_{DSS} | $V_{DS} = -16V, V_{GS} = 0V$ | | | 1 | μA |
| Gate-Body Leakage | I_{GSS} | $V_{GS} = \pm 10V, V_{DS} = 0V$ | | | ± 100 | nA |
| ON CHARACTERISTICS^b | | | | | | |
| Gate Threshold Voltage | $V_{GS(th)}$ | $V_{DS} = V_{GS}, I_D = -250\mu A$ | -0.5 | -0.8 | -1.5 | V |
| Drain-Source On-State Resistance | $R_{DS(ON)}$ | $V_{GS} = -4.5V, I_D = -4.0A$ | | 70 | 80 | m-ohm |
| | | $V_{GS} = -2.5V, I_D = -2.0A$ | | 85 | 100 | m-ohm |
| On-State Drain Current | $I_{D(ON)}$ | $V_{DS} = -5V, V_{GS} = -4.5V$ | -15 | | | A |
| Forward Transconductance | g_{FS} | $V_{DS} = -5V, I_D = -5A$ | 4 | | | S |
| DYNAMIC CHARACTERISTICS^c | | | | | | |
| Input Capacitance | C_{ISS} | $V_{DS} = -15V, V_{GS} = 0V$ $f = 1.0MHz$ | | 586 | | pF |
| Output Capacitance | C_{OSS} | | | 101 | | pF |
| Reverse Transfer Capacitance | C_{RSS} | | | 59 | | pF |
| SWITCHING CHARACTERISTICS^c | | | | | | |
| Turn-On Delay Time | $t_{D(ON)}$ | $V_{DD} = -10V,$ $I_D = -1A,$ $V_{GS} = -4.5V,$ $R_L = 10\text{ ohm}$ $R_{GEN} = 6\text{ ohm}$ | | 6.5 | | ns |
| Rise Time | t_r | | | 32.1 | | ns |
| Turn-Off Delay Time | $t_{D(OFF)}$ | | | 58.4 | | ns |
| Fall Time | t_f | | | 48 | | ns |
| Total Gate Charge | Q_g | $V_{DS} = -10V, I_D = -3A,$ $V_{GS} = -4.5V$ | | 5.92 | | nC |
| Gate-Source Charge | Q_{gs} | | | 1.36 | | nC |
| Gate-Drain Charge | Q_{gd} | | | 1.4 | | nC |

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ELECTRICAL CHARACTERISTICS ($T_A=25^{\circ}\text{C}$ unless otherwise noted)

| Parameter | Symbol | Condition | Min | Typ ^c | Max | Unit |
|---|----------|-----------------------------|-----|------------------|------|------|
| DRAIN-SOURCE DIODE CHARACTERISTICS ^b | | | | | | |
| Diode Forward Voltage | V_{SD} | $V_{GS} = 0V, I_s = -1.25A$ | | -0.815 | -1.2 | V |

Notes

- a. Surface Mounted on FR4 Board, $t \leq 10\text{sec}$.
- b. Pulse Test: Pulse Width $\leq 300\mu\text{s}$, Duty Cycle $\leq 2\%$.
- c. Guaranteed by design, not subject to production testing.