

P-Channel Enhancement Mode Field Effect Transistor

Product Summary

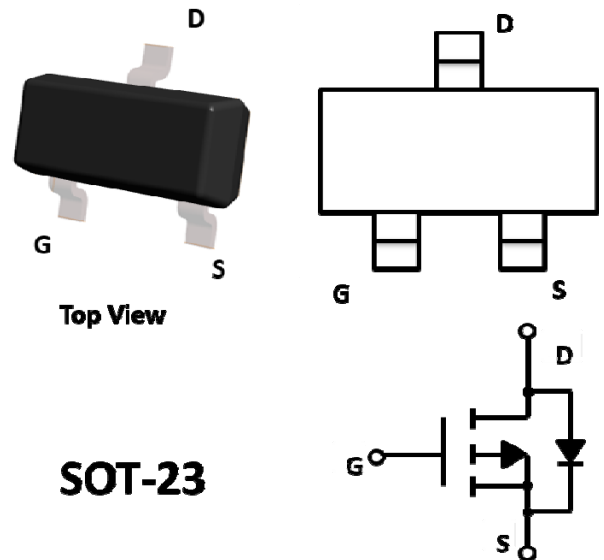
- V_{DS} -20V
- I_D -3.4A
- $R_{DS(ON)}$ (at $V_{GS}=-4.5V$) <64 mohm
- $R_{DS(ON)}$ (at $V_{GS}=-2.5V$) <80 mohm
- $R_{DS(ON)}$ (at $V_{GS}=-1.8V$) <95 mohm

General Description

- Trench Power LV MOSFET technology
- High Power and Current handling capability
- Low Gate Charge
- Marking : Δ 1SHB

Applications

- PWM applications
- Power management
- Load switch



Absolute Maximum Ratings ($T_A=25^\circ\text{C}$ unless otherwise noted)

| Parameter | | Symbol | Maximum | Unit |
|---|------------------------|-----------------|------------|---------------------------|
| Drain-source Voltage | | V_{DS} | -20 | V |
| Gate-source Voltage | | V_{GS} | ± 10 | V |
| Drain Current | $T_A=25^\circ\text{C}$ | I_D | -3.4 | A |
| | $T_A=70^\circ\text{C}$ | | -2.7 | |
| Pulsed Drain Current ^A | | I_{DM} | -14 | A |
| Total Power Dissipation @ $T_A=25^\circ\text{C}$ | | P_D | 1 | W |
| Thermal Resistance Junction-to-Ambient ^B | | $R_{\theta JA}$ | 125 | $^\circ\text{C}/\text{W}$ |
| Junction and Storage Temperature Range | | T_J, T_{STG} | -55 ~ +150 | $^\circ\text{C}$ |

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

| Parameter | Symbol | Conditions | Min | Typ | Max | Units |
|---------------------------------------|--------------|---|------|-------|-----------|------------|
| Static Parameter | | | | | | |
| Drain-Source Breakdown Voltage | BV_{DSS} | $V_{GS}=0V, I_D=-250\mu A$ | -20 | | | V |
| Zero Gate Voltage Drain Current | I_{DSS} | $V_{DS}=-20V, V_{GS}=0V, T_C=25^{\circ}\text{C}$ | | | -1 | μA |
| Gate-Body Leakage Current | I_{GSS} | $V_{GS}=\pm 10V, V_{DS}=0V$ | | | ± 100 | nA |
| Gate Threshold Voltage | $V_{GS(th)}$ | $V_{DS}=V_{GS}, I_D=-250\mu A$ | -0.4 | -0.62 | -1.0 | V |
| Static Drain-Source On-Resistance | $R_{DS(on)}$ | $V_{GS}=-4.5V, I_D=-3.4A$ | | 49 | 64 | m Ω |
| | | $V_{GS}=-2.5V, I_D=-3A$ | | 59 | 80 | |
| | | $V_{GS}=-1.8V, I_D=-2.5A$ | | 79 | 95 | |
| Diode Forward Voltage | V_{SD} | $I_S=-3.4A, V_{GS}=0V$ | | -0.8 | -1.2 | V |
| Maximum Body-Diode Continuous Current | I_S | | | | -3.4 | A |
| Dynamic Parameters | | | | | | |
| Input Capacitance | C_{iss} | $V_{DS}=-10V, V_{GS}=0V, f=1\text{MHz}$ | | 550 | | pF |
| Output Capacitance | C_{oss} | | | 89 | | |
| Reverse Transfer Capacitance | C_{rss} | | | 65 | | |
| Switching Parameters | | | | | | |
| Total Gate Charge | Q_g | $V_{GS}=-4.5V, V_{DS}=-10V, I_D=-3.4A$ | | 4.3 | | nC |
| Gate Source Charge | Q_{gs} | | | 0.8 | | |
| Gate Drain Charge | Q_{gd} | | | 1.1 | | |
| Turn-on Delay Time | $t_{D(on)}$ | $V_{GS}=-4.5V, V_{DD}=-10V, I_D=-1A, R_{GEN}=2.5\Omega$ | | 12 | | ns |
| Turn-on Rise Time | t_r | | | 54 | | |
| Turn-off Delay Time | $t_{D(off)}$ | | | 15 | | |
| Turn-off Fall Time | t_f | | | 9 | | |

A. Pulse Test: Pulse Width $\leq 300\mu s$, Duty cycle $\leq 2\%$.

B. Device mounted on FR-4 PCB, 1 inch x 0.85 inch x 0.062 inch.

Typical Performance Characteristics

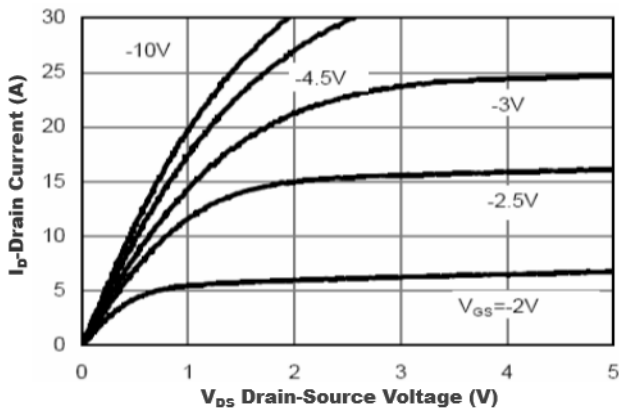


Figure1. Output Characteristics

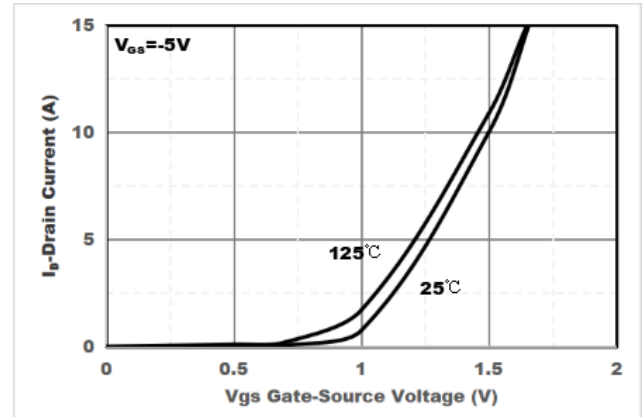


Figure2. Transfer Characteristics

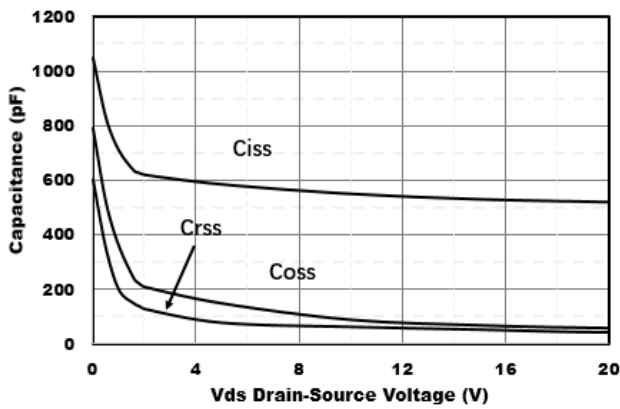


Figure3. Capacitance Characteristics

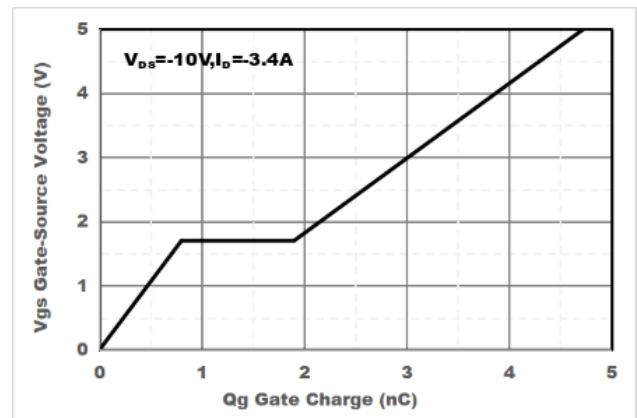


Figure4. Gate Charge

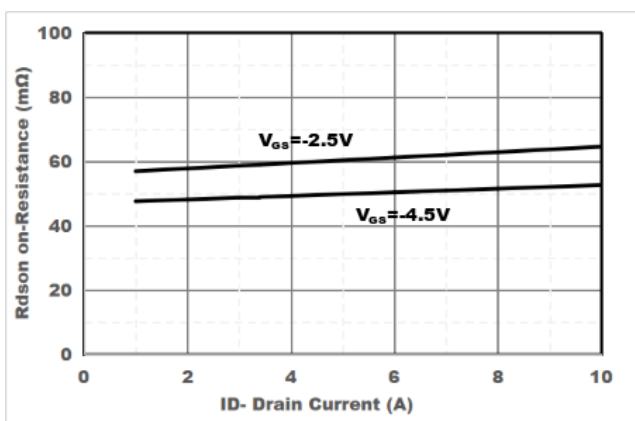


Figure5. Drain-Source on Resistance

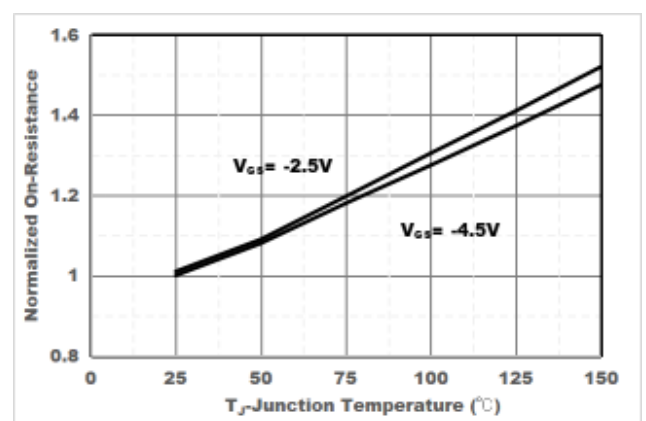


Figure6. Drain-Source on Resistance

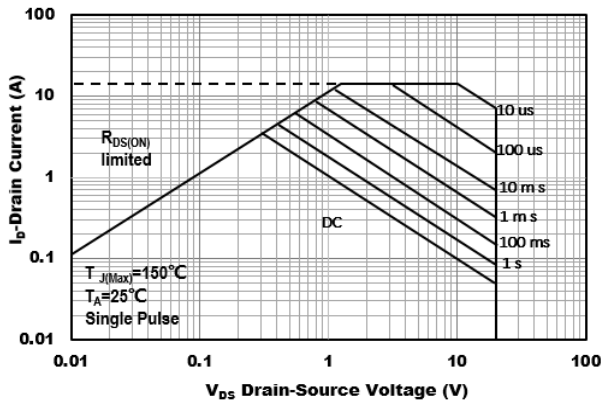


Figure7. Safe Operation Area

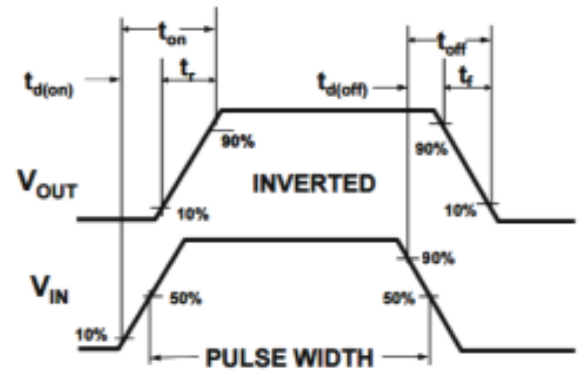
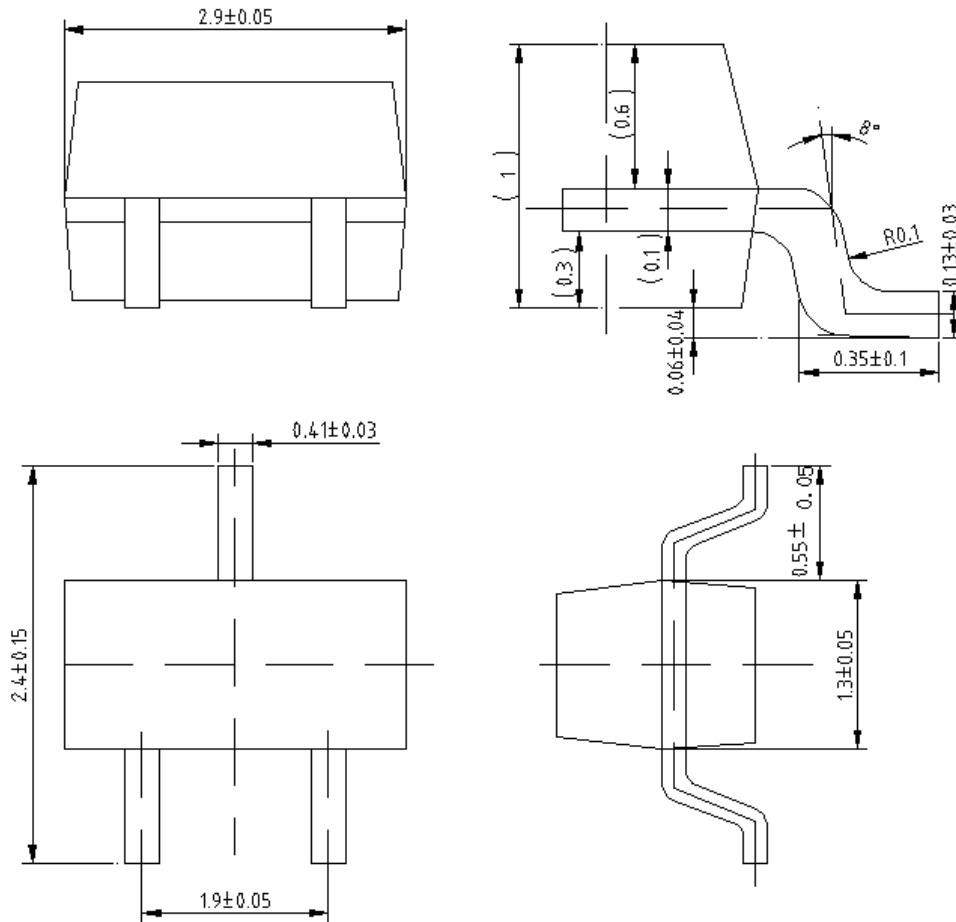


Figure8. Switching wave



单击下面可查看定价，库存，交付和生命周期等信息

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