



**浩畅半导体**  
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SI2328 N-Channel 100-V (D-S) MOSFET

SOT-23 Plastic-Encapsulate MOSFETS

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品保部

采购部

签名

日期

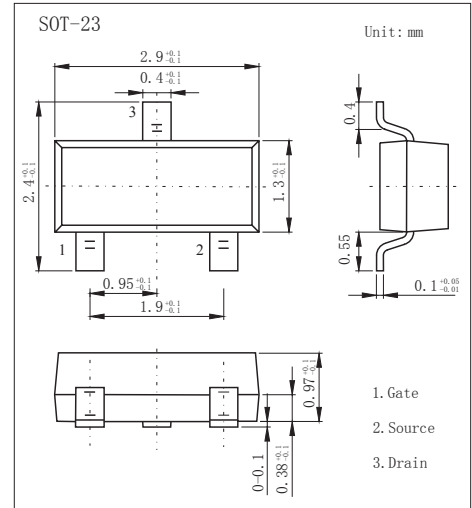
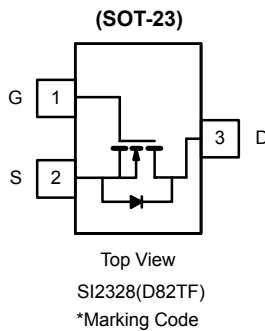


**SOT-23 Plastic-Encapsulate MOSFETS**

**SI2328 N-Channel 100-V (D-S) MOSFET**

■ Features

- $V_{DS} (V) = 100V$
- $I_D = 1.5A$
- $R_{DS(ON)} 0.300 @ V_{GS} = 10V$



**ABSOLUTE MAXIMUM RATINGS ( $T_A = 25^\circ C$  UNLESS OTHERWISE NOTED)**

| Parameter   |                    | Symbol         | 5 sec      | Steady State | Unit       |
|---|--------------------|----------------|------------|--------------|------------|
| Drain-Source Voltage  |                    | $V_{DS}$       | 100        |              | V          |
| Gate-Source Voltage   |                    | $V_{GS}$       | $\pm 20$   |              |            |
| Continuous Drain Current ( $T_J = 150^\circ C$ ) <sup>a</sup> | $T_A = 25^\circ C$ | $I_D$          | 1.5        | 1.15         | A          |
| Pulsed Drain Current <sup>b</sup>                             |                    | $I_{DM}$       | 6          |              |            |
| Avalanche Current <sup>b</sup>                                | $L = 0.1$ mH       | $I_{AS}$       | 6          |              |            |
| Single Avalanche Energy                                       |                    | $E_{AS}$       | 1.8        |              | mJ         |
| Continuous Source Current (Diode Conduction) <sup>a</sup>     |                    | $I_S$          | 0.6        |              | A          |
| Power Dissipation <sup>a</sup>                                | $T_A = 25^\circ C$ | $P_D$          | 1.25       | 0.73         | W          |
| Operating Junction and Storage Temperature Range              |                    | $T_J, T_{stg}$ | -55 to 150 |              | $^\circ C$ |

**THERMAL RESISTANCE RATINGS**

| Parameter                                |                | Symbol     | Typical | Maximum | Unit         |
|--|----------------|------------|---------|---------|--------------|
| Maximum Junction-to-Ambient <sup>a</sup> | $t \leq 5$ sec | $R_{thJA}$ | 80      | 100     | $^\circ C/W$ |
|  | Steady State   |            | 130     | 170     |              |
| Maximum Junction-to-Foot                 | Steady State   | $R_{thJF}$ | 45      | 55      |              |

Notes  
a. Surface Mounted on 1" x 1" FR4 Board.  
b. Pulse width limited by maximum junction temperature

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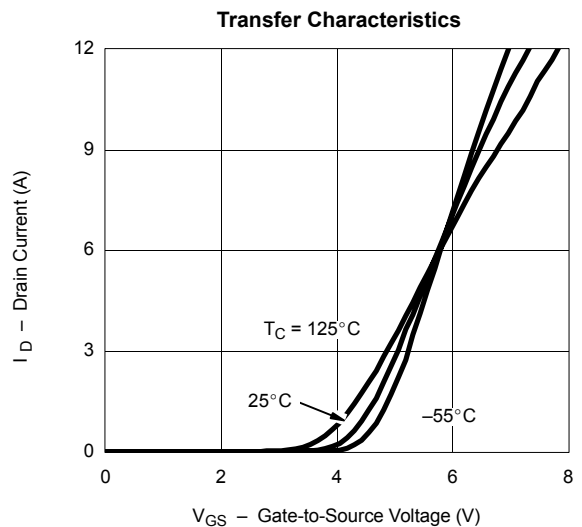
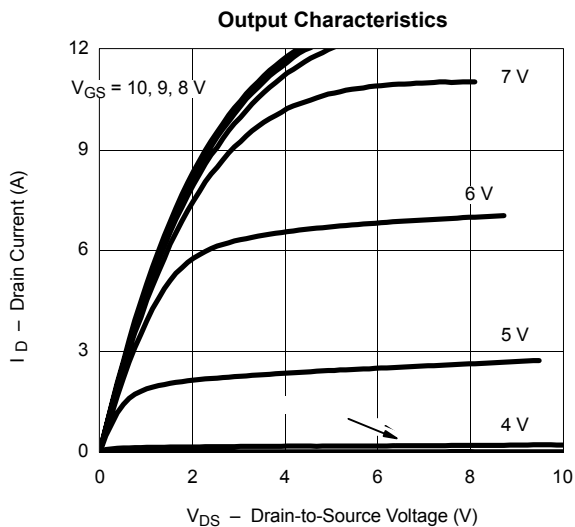
## SPECIFICATIONS ( $T_A = 25^\circ\text{C}$ UNLESS OTHERWISE NOTED)

| Parameter                               | Symbol        | Test Conditions  | Limits |       |           | Unit     |
|---|---------------|--|--------|-------|-----------|----------|
|   |               |  | Min    | Typ   | Max       |          |
| <b>Static</b>                           |               |  |        |       |           |          |
| Drain-Source Breakdown Voltage          | $V_{(BR)DSS}$ | $V_{GS} = 0\text{ V}, I_D = 250\mu\text{A}$  | 100    |       |           | V        |
| Gate-Threshold Voltage                  | $V_{GS(th)}$  | $V_{DS} = V_{GS}, I_D = 250\mu\text{A}$  | 1.3    |       | 2.5       |          |
| Gate-Body Leakage                       | $I_{GSS}$     | $V_{DS} = 0\text{ V}, V_{GS} = \pm 20\text{ V}$  |        |       | $\pm 100$ | nA       |
| Zero Gate Voltage Drain Current         | $I_{DSS}$     | $V_{DS} = 80\text{ V}, V_{GS} = 0\text{ V}$  |        |       | 200       | nA       |
| On-State Drain Current <sup>a</sup>     | $I_{D(on)}$   | $V_{DS} \geq 15\text{ V}, V_{GS} = 10\text{ V}$  | 6      |       |           | A        |
| Drain-Source On-Resistance <sup>a</sup> | $r_{DS(on)}$  | $V_{GS} = 10\text{ V}, I_D = 1.5\text{ A}$   |        | 0.250 | 0.300     | $\Omega$ |
| Forward Transconductance <sup>a</sup>   | $g_{fs}$      | $V_{DS} = 15\text{ V}, I_D = 1.5\text{ A}$   |        | 4     |           | S        |
| Diode Forward Voltage                   | $V_{SD}$      | $I_S = 1.0\text{ A}, V_{GS} = 0\text{ V}$  |        | 0.8   | 1.2       | V        |
| <b>Dynamic<sup>b</sup></b>              |               |  |        |       |           |          |
| Total Gate Charge                       | $Q_g$         | $V_{DS} = 50\text{ V}, V_{GS} = 10\text{ V}, I_D = 1.5\text{ A}$   |        | 3.3   | 4.0       | nC       |
| Gate-Source Charge                      | $Q_{gs}$      |  | 0.47   |       |           |          |
| Gate-Drain Charge                       | $Q_{gd}$      |  | 1.45   |       |           |          |
| <b>Switching</b>                        |               |  |        |       |           |          |
| Turn-On Delay Time                      | $t_{d(on)}$   | $V_{DD} = 50\text{ V}, R_L = 33\Omega$<br>$I_D \cong 0.2\text{ A}, V_{GEN} = 10\text{ V}, R_G = 6\Omega$ |        | 7     | 11        | ns       |
| Rise Time                               | $t_r$         |  |        | 11    | 17        |          |
| Turn-Off Delay Time                     | $t_{d(off)}$  |  |        | 9     | 15        |          |
| Fall-Time                               | $t_f$         |  |        | 10    | 15        |          |
| Source-Drain Reverse Recovery Time      | $t_{rr}$      | $I_F = 1.5\text{ A}, di/dt = 100\text{ A}/\mu\text{s}$   |        | 50    | 100       | ns       |

### Notes

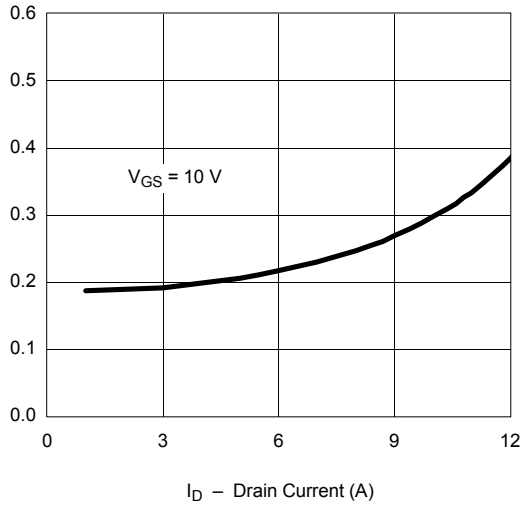
- Pulse test:  $PW \leq 300\mu\text{s}$  duty cycle  $\leq 2\%$ .
- Guaranteed by design, not subject to production testing.

## TYPICAL CHARACTERISTICS ( $25^\circ\text{C}$ UNLESS NOTED)

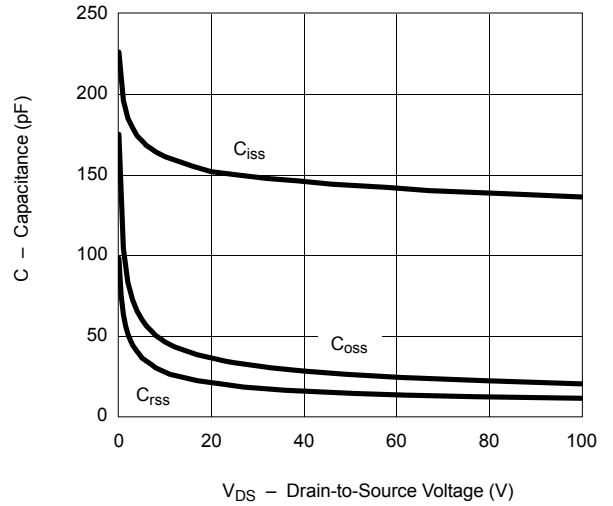


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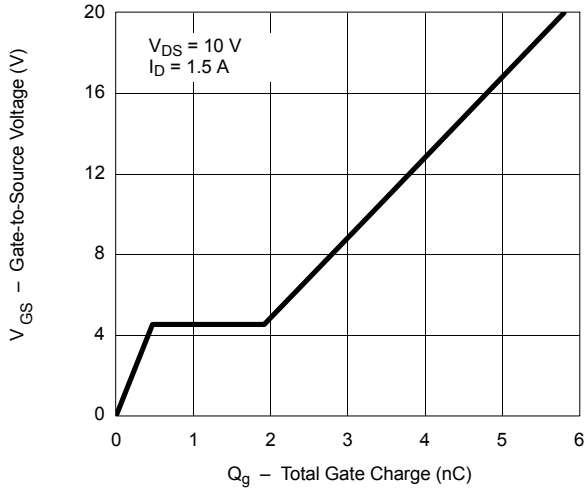
**On-Resistance vs. Drain Current**



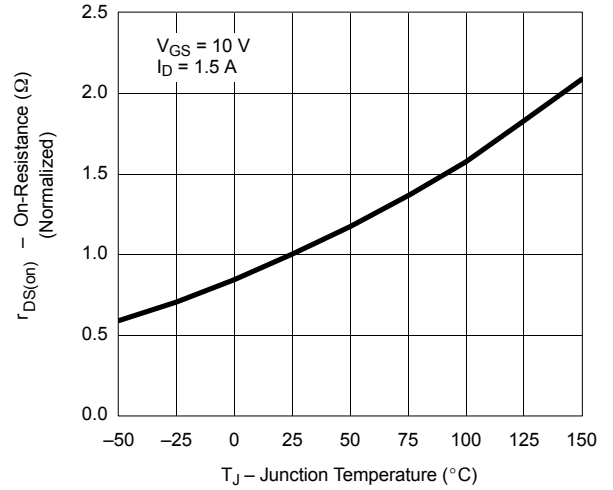
**Capacitance**



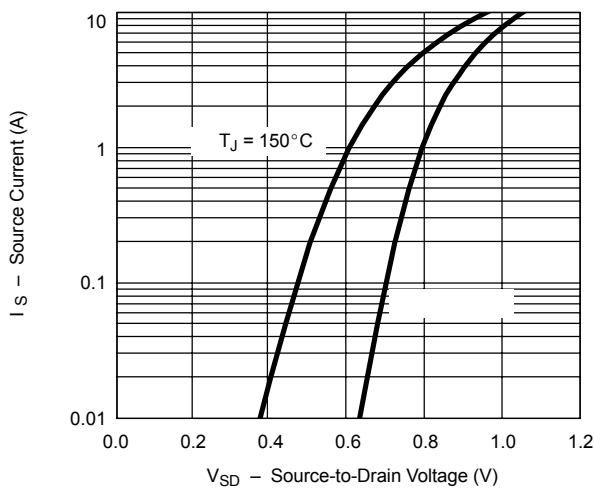
**Gate Charge**



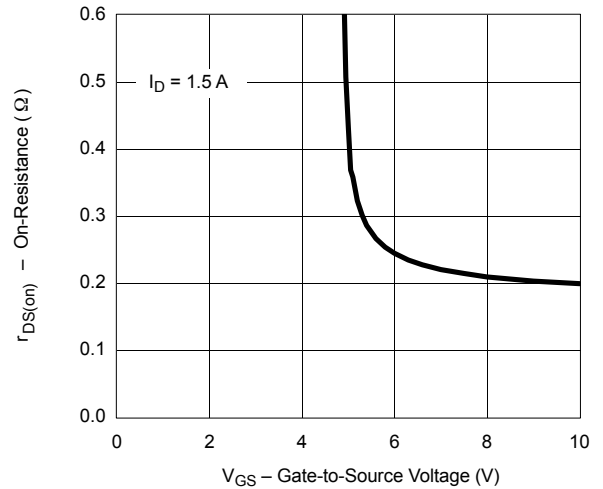
**On-Resistance vs. Junction Temperature**



**Source-Drain Diode Forward Voltage**



**On-Resistance vs. Gate-to-Source Voltage**



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## TYPICAL CHARACTERISTICS (25°C UNLESS NOTED)

