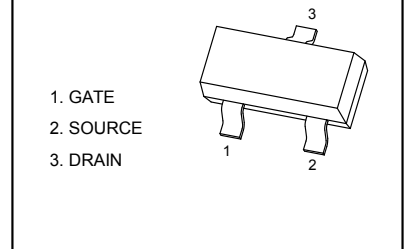


SOT-23 Plastic-Encapsulate MOSFETS

30V P-Channel MOSFET

| $V_{(BR)DSS}$ | $R_{DS(on)Typ}$ | $I_D Max$ |
|---------------|-----------------|-----------|
| -30V | 44mΩ@-10V | -4.2A |
| | 51mΩ@4.5V | |

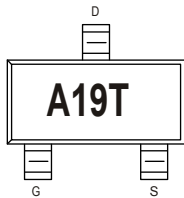
SOT-23



FEATURE

High dense cell design for extremely low RDS(ON)
Exceptional on-resistance and maximum DC current capability

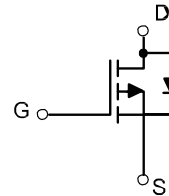
MARKING



APPLICATION

- Load/Power Switching
- Interfacing Switching

Equivalent circuit



PACKAGE SPECIFICATIONS

| Package | Reel Size | Reel DIA. (mm) | Q'TY/Reel (pcs) | Box Size (mm) | QTY/Box (pcs) | Carton Size (mm) | Q'TY/Carton (pcs) |
|---------|-----------|----------------|-----------------|---------------|---------------|------------------|-------------------|
| SOT-23 | 7' | 330 | 3000 | 203×203×195 | 45000 | 438×438×220 | 180000 |

Maximum Ratings and Thermal Characteristics (TA = 25°C unless otherwise noted)

| Parameter | Symbol | Limit | Unit | |
|--|----------------|--------------------|------|---|
| Drain-Source Voltage | V_{DS} | -30 | V | |
| Gate-Source Voltage | V_{GS} | ±12 | | |
| Continuous Drain Current | I_D | $T_A = 25^\circ C$ | -4.2 | A |
| | | $T_A = 70^\circ C$ | -3.2 | |
| Pulsed Drain Current ¹⁾ | I_{DM} | -16 | A | |
| Maximum Power Dissipation ²⁾ | P_D | $T_A = 25^\circ C$ | 1.2 | W |
| | | $T_A = 70^\circ C$ | 0.9 | |
| Operating Junction and Storage Temperature Range | T_J, T_{stg} | -50 to 150 | °C | |
| Junction-to-Ambient Thermal Resistance (PCB mounted) ²⁾ | R_{thJA} | 80 | °C/W | |

Notes

- ¹⁾ Pulse width limited by maximum junction temperature.
²⁾ Surface Mounted on FR4 Board, $t \leq 5$ sec.

The above data are for reference only.

MOSFET ELECTRICAL CHARACTERISTICS

$T_a=25\text{ }^\circ\text{C}$ unless otherwise specified

| Parameter | Symbol | Test Condition | Min | Typ | Max | Units |
|---|---------------|---|------|------|-----------|---------|
| Off Characteristics | | | | | | |
| Drain-source breakdown voltage | $V_{(BR)DSS}$ | $V_{GS} = 0V, I_D = -250\mu A$ | -30 | | | V |
| Zero gate voltage drain current | I_{DSS} | $V_{DS} = -30V, V_{GS} = 0V$ | | | -1 | μA |
| Gate-source leakage current | I_{GSS} | $V_{GS} = \pm 12V, V_{DS} = 0V$ | | | ± 100 | nA |
| On characteristics | | | | | | |
| Drain-source on-resistance (note 3) | $R_{DS(on)}$ | $V_{GS} = -10V, I_D = -4.2A$ | | 44 | 55 | m |
| | | $V_{GS} = -4.5V, I_D = -3A$ | | 50 | 60 | m |
| | | $V_{GS} = -3.3V, I_D = -3A$ | | 58 | 75 | m |
| Forward transconductance (note 3) | g_{FS} | $V_{DS} = -5V, I_D = -5A$ | 7 | | | S |
| Gate threshold voltage | $V_{GS(th)}$ | $V_{DS} = V_{GS}, I_D = -250\mu A$ | -0.5 | -0.8 | -1.2 | V |
| Dynamic Characteristics (note 4) | | | | | | |
| Input capacitance | C_{iss} | $V_{DS} = -15V, V_{GS} = 0V, f = 1MHz$ | | 655 | | pF |
| Output capacitance | C_{oss} | | | 65 | | pF |
| Reverse transfer capacitance | C_{rss} | | | 53 | | pF |
| Switching Characteristics (note 4) | | | | | | |
| Turn-on delay time | $t_{d(on)}$ | $V_{GS} = -10V, V_{DS} = -15V,$ $R_L = 3.3\ \Omega, R_{GEN} = 6\ \Omega$ | | 7 | | ns |
| Turn-on rise time | t_r | | | 3.8 | | ns |
| Turn-off delay time | $t_{d(off)}$ | | | 35 | | ns |
| Turn-off fall time | t_f | | | 10.5 | | ns |
| Drain-source diode characteristics and maximum ratings | | | | | | |
| Diode forward voltage (note 3) | V_{SD} | $I_S = 1A, V_{GS} = 0V$ | | | -1 | V |

Note :

- 3). Pulse test: pulse width $\leq 300\mu s$, duty cycle $\leq 2\%$
- 4). Guaranteed by design, not subject to production testing

Typical Characteristics

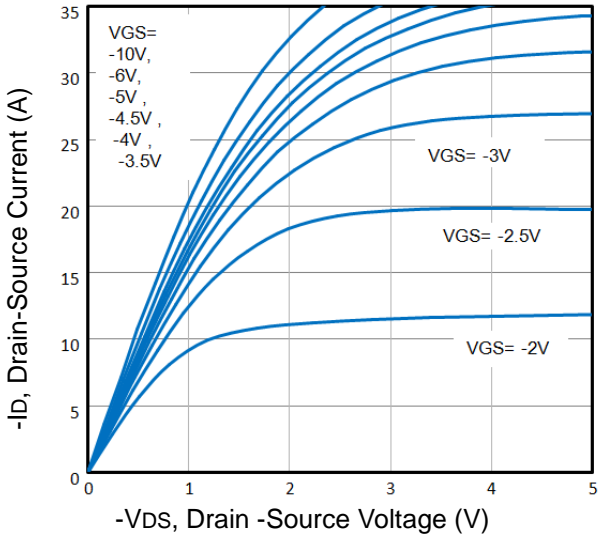


Fig1. Typical Output Characteristics

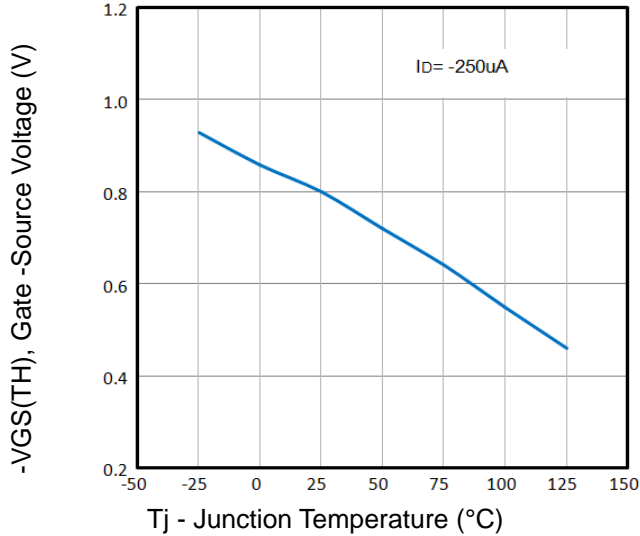


Fig2. Normalized Threshold Voltage Vs. Temperature

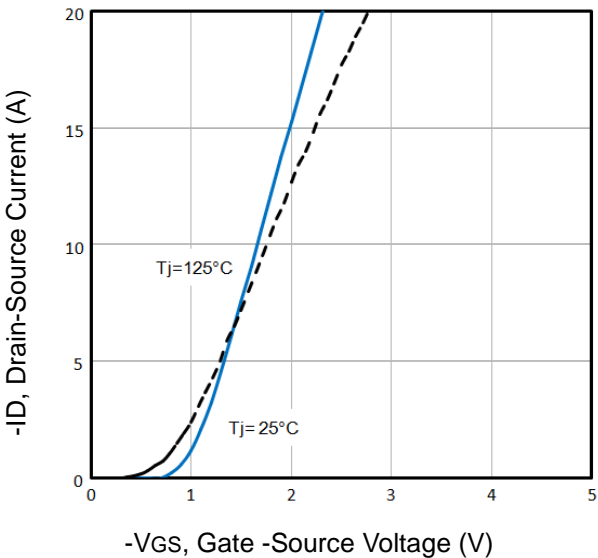


Fig3. Typical Transfer Characteristics

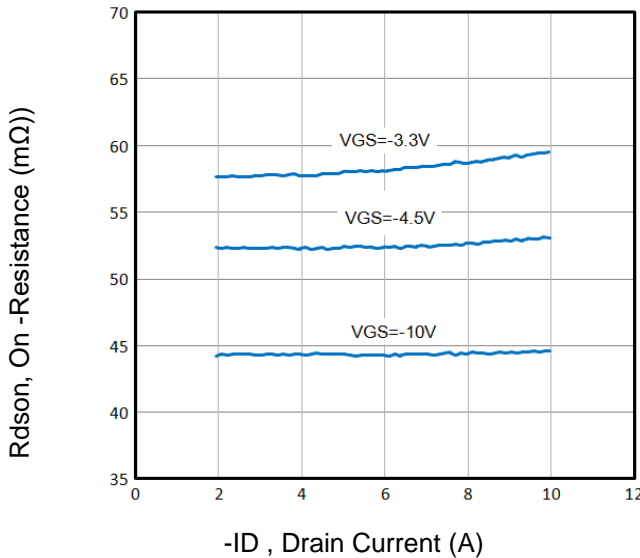


Fig4. On-Resistance vs. Drain Current and Gate

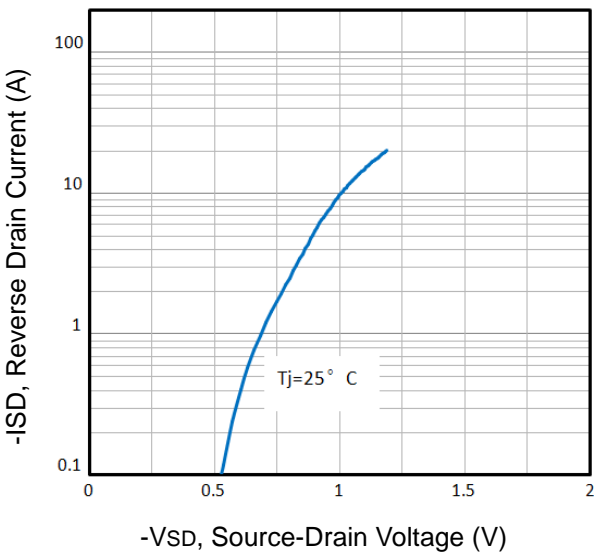


Fig5. Typical Source-Drain Diode Forward Voltage

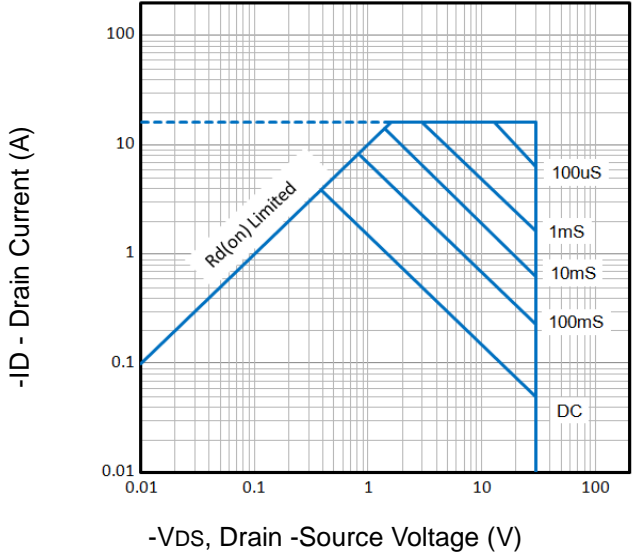


Fig6. Maximum Safe Operating Area

Typical Characteristics

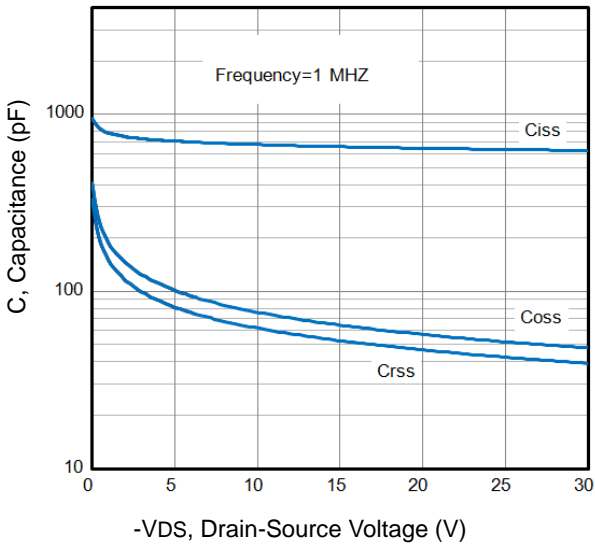


Fig7. Typical Capacitance Vs. Drain-Source Voltage

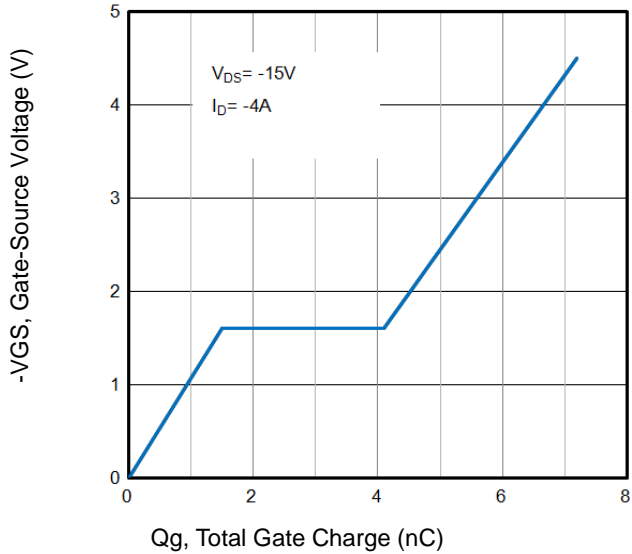


Fig8. Typical Gate Charge Vs. Gate-Source Voltage

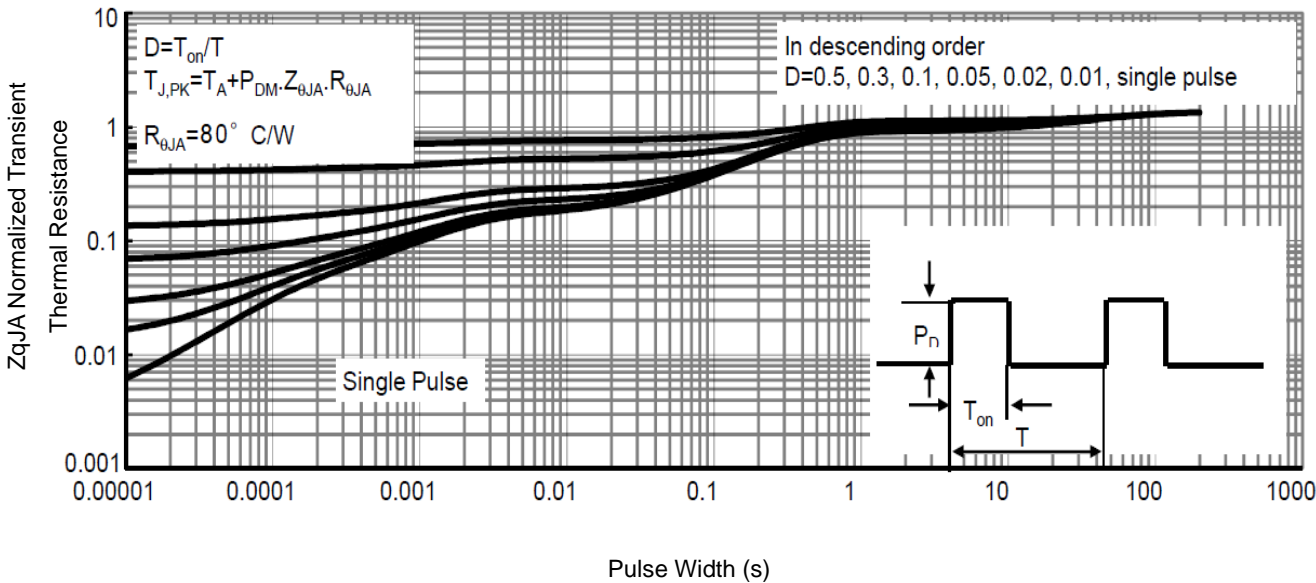


Fig9. Normalized Maximum Transient Thermal Impedance

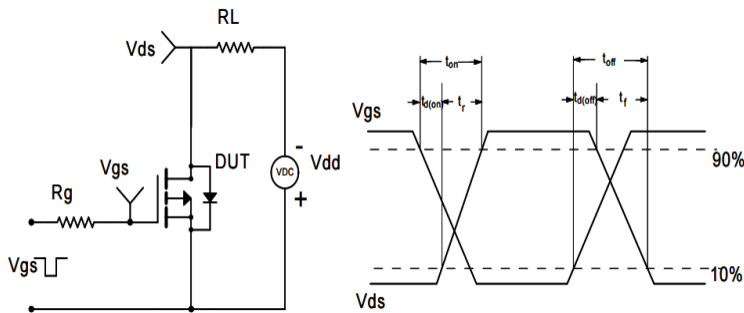
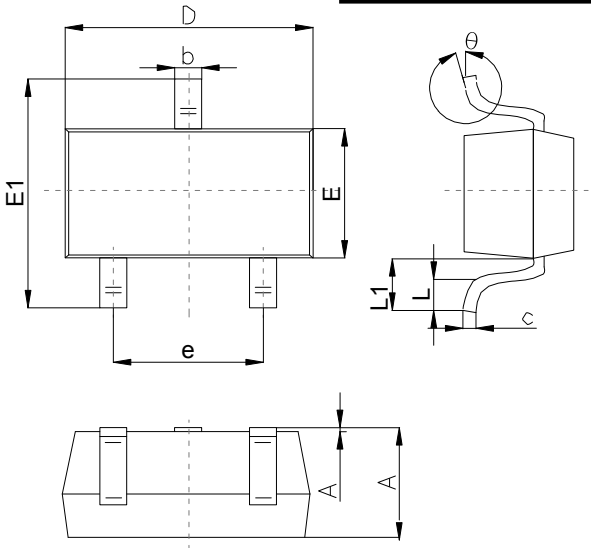


Fig10. Switching Time Test Circuit and waveforms

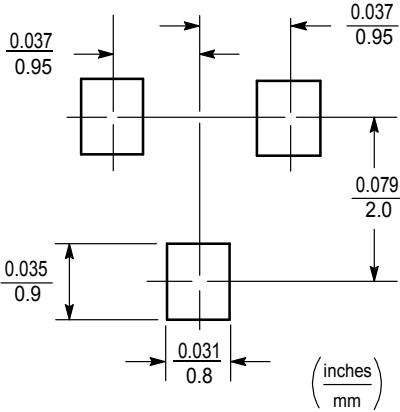
Outlitne Drawing

SOT-23 Package Outline Dimensions



| Symbol | Dimensions In Millimeters | | |
|--------|---------------------------|------|------|
| | Min | Typ | Max |
| A | 1.00 | | 1.40 |
| A1 | | | 0.10 |
| b | 0.35 | | 0.50 |
| c | 0.10 | | 0.20 |
| D | 2.70 | 2.90 | 3.10 |
| E | 1.40 | | 1.60 |
| E1 | 2.4 | | 2.80 |
| e | | 1.90 | |
| L | 0.10 | | 0.30 |
| L1 | 0.4 | | |
| theta | 0° | | 10° |

Suggested Pad Layout



Note:
 1. Controlling dimension:in/millimeters. 2.General tolerance: ±0.05mm.
 3.The pad layout is for reference purposes only.