

Product Summary

| $V_{(BR)DSS}$ | $R_{DS(on)MAX}$ | I_D |
|---------------|-----------------|-------|
| 20V | 380mΩ@4.5V | 0.75A |
| | 450mΩ@2.5V | |
| | 800mΩ@1.8V | |

Feature

- N-Channel Switch with Low RDS (on)
- Operated at Low Logic Level Gate Drive h
- Surface Mount Package
- ESD protected

Application

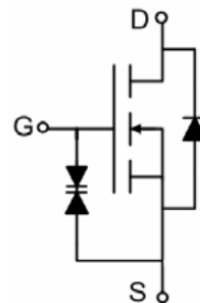
- Load/Power Switching
- Interfacing Switching
- Logic Level Shift
- Battery Management for Ultra Small Portable Electronics

Package

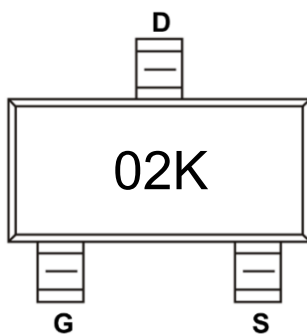


SOT-23

Circuit diagram



Marking



Absolute maximum ratings (Ta=25°C unless otherwise noted)

| Parameter | Symbol | Value | Unit |
|---|-----------------|------------|------|
| Drain-Source Voltage | V_{DS} | 20 | V |
| Gate-Source Voltage | V_{GS} | ±12 | V |
| Continuous Drain Current | I_D | 0.75 | A |
| Pulsed Drain Current | I_{DM} | 1.8 | A |
| Power Dissipation | P_D | 0.35 | W |
| Thermal Resistance from Junction to Ambient | $R_{\theta JA}$ | 357 | °C/W |
| Junction Temperature | T_J | 150 | °C |
| Storage Temperature | T_{STG} | -55 ~ +150 | °C |

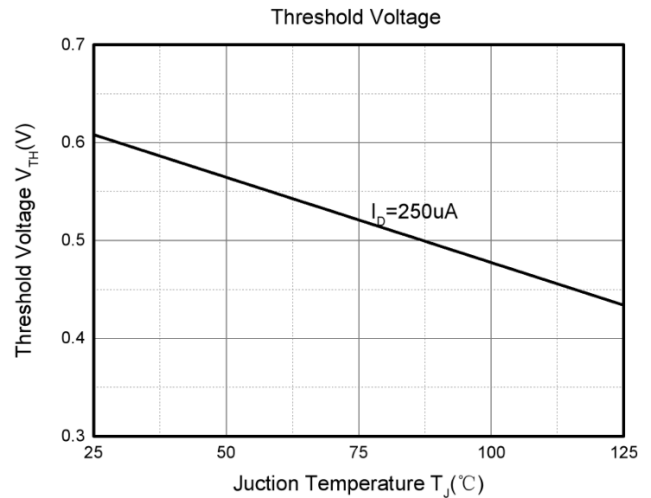
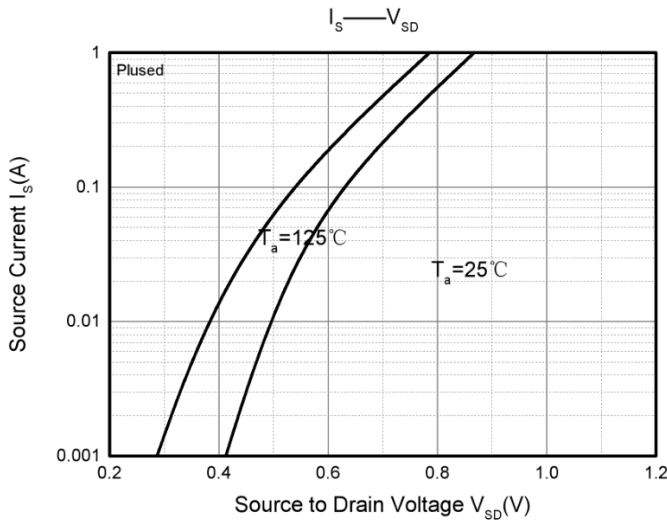
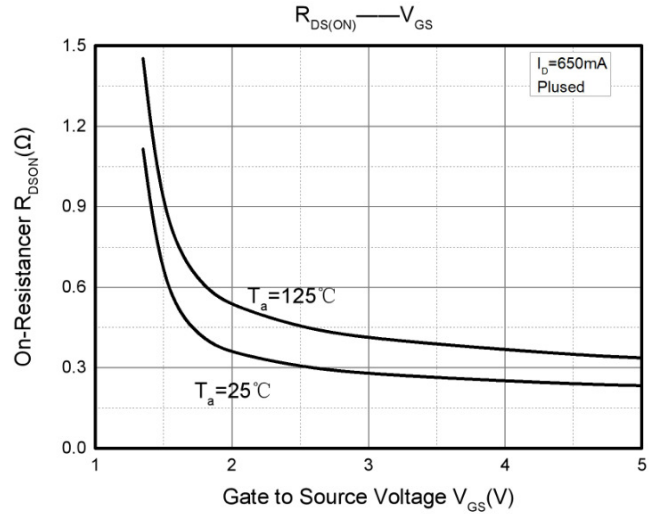
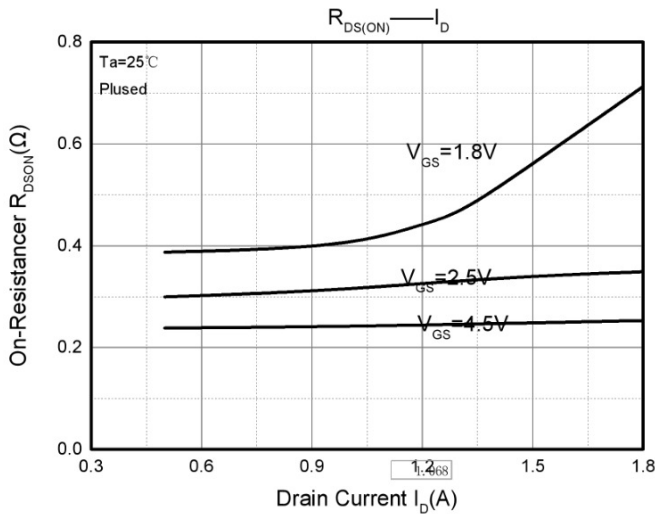
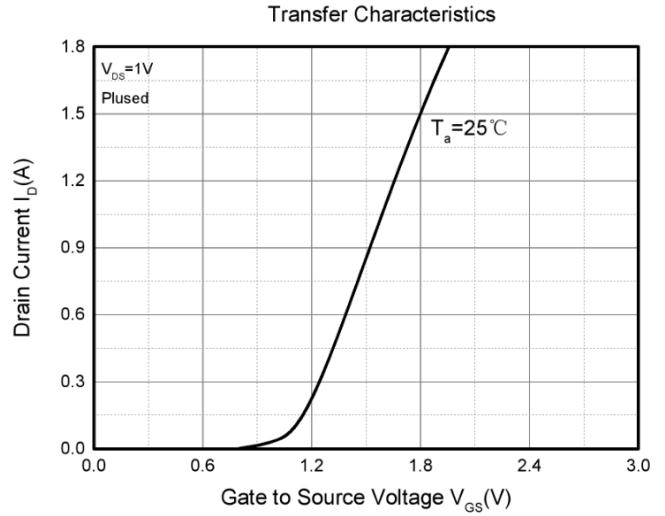
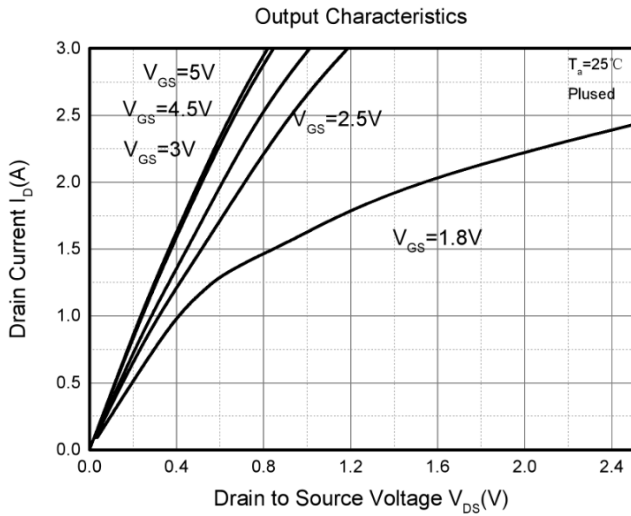
Electrical characteristics (Ta=25 °C, unless otherwise noted)

| Parameter | Symbol | Test Condition | Min. | Typ. | Max. | Unit |
|---|---------------|---|------|------|------|------|
| Static Characteristics | | | | | | |
| Drain-source breakdown voltage | $V_{(BR)DSS}$ | $V_{GS} = 0V, I_D = 250\mu A$ | 20 | | | V |
| Zero gate voltage drain current | I_{DSS} | $V_{DS} = 16V, V_{GS} = 0V$ | | | 1 | μA |
| Gate-body leakage current | I_{GSS} | $V_{GS} = \pm 10V, V_{DS} = 0V$ | | | ±10 | μA |
| Gate threshold voltage | $V_{GS(th)}$ | $V_{DS} = V_{GS}, I_D = 250\mu A$ | 0.3 | | 1.0 | V |
| Drain-source on-resistance ¹⁾ | $R_{DS(on)}$ | $V_{GS} = 4.5V, I_D = 0.5A$ | | 250 | 380 | mΩ |
| | | $V_{GS} = 2.5V, I_D = 0.5A$ | | 350 | 450 | |
| | | $V_{GS} = 1.8V, I_D = 0.5A$ | | 400 | 800 | |
| Dynamic characteristics²⁾ | | | | | | |
| Input Capacitance | C_{iss} | $V_{DS} = 16V, V_{GS} = 0V, f = 1MHz$ | | 79 | | pF |
| Output Capacitance | C_{oss} | | | 13 | | |
| Reverse Transfer Capacitance | C_{rss} | | | 9 | | |
| Turn-on delay time | $t_{d(on)}$ | $V_{DD} = 10V, V_{GS} = 4.5V, I_D = 0.5A$ $R_{GEN} = 10\Omega$ | | 6.7 | | nS |
| Turn-on rise time | t_r | | | 4.8 | | |
| Turn-off delay time | $t_{d(off)}$ | | | 17.3 | | |
| Turn-off fall time | t_f | | | 7.4 | | |
| Source-Drain Diode characteristics | | | | | | |
| Diode Forward voltage | V_{DS} | $V_{GS} = 0V, I_S = 0.5A$ | | | 1.3 | V |

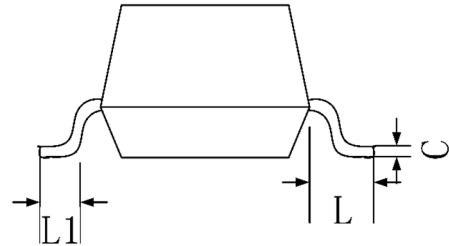
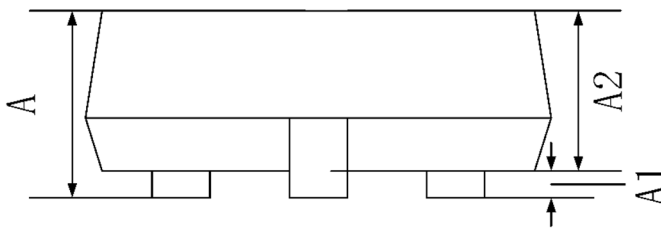
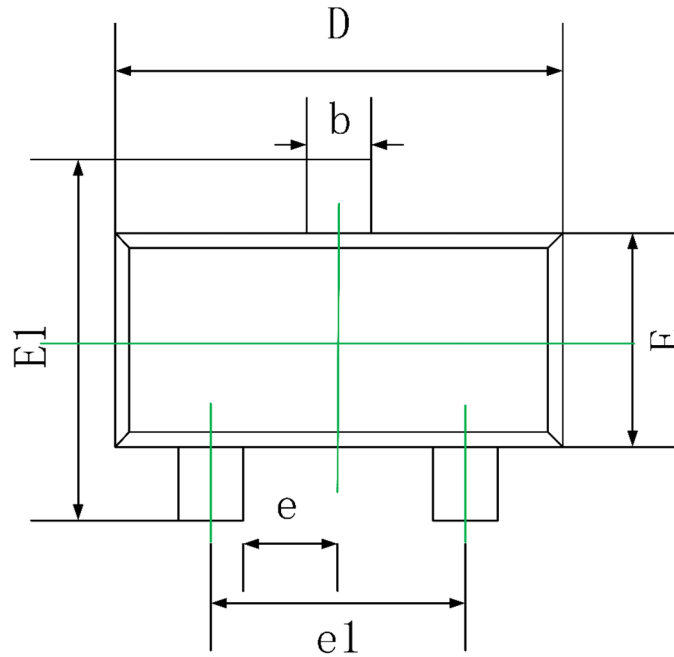
Notes:

- 1) Pulse Test: Pulse Width < 300μs, Duty Cycle ≤2%.
- 2) Guaranteed by design, not subject to production testing.

Typical Characteristics



SOT-23 Package Information



| Symbol | Dimensions In Millimeters | | Dimensions In Inches | |
|--------|---------------------------|-------|----------------------|-------|
| | Min. | Max. | Min. | Max. |
| A | 0.900 | 1.150 | 0.035 | 0.045 |
| A1 | 0.000 | 0.100 | 0.000 | 0.004 |
| A2 | 0.900 | 1.050 | 0.035 | 0.041 |
| b | 0.300 | 0.500 | 0.012 | 0.020 |
| c | 0.080 | 0.200 | 0.003 | 0.008 |
| D | 2.800 | 3.000 | 0.110 | 0.118 |
| E | 1.200 | 1.400 | 0.047 | 0.055 |
| E1 | 2.250 | 2.550 | 0.089 | 0.100 |
| e | 0.950 TYP. | | 0.037 TYP. | |
| e1 | 1.800 | 2.000 | 0.071 | 0.079 |
| L | 0.550 REF. | | 0.022 REF. | |
| L1 | 0.300 | 0.500 | 0.012 | 0.020 |