

N-Channel MOSFET

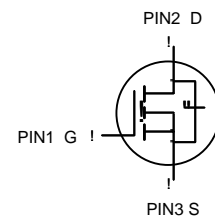
- $V_{DSS}=60\text{ V}$ $I_D=3.0\text{ A}$
- $R_{DS(on)} < 120\text{m}\Omega @ V_{GS}=10\text{ V}$
- $R_{DS(on)} < 136\text{m}\Omega @ V_{GS}=4.5\text{ V}$

PIN2 D

PIN3 S

PIN1 G

SOT23



N-Channel MOSFET

FEATURE

- High power and current handing capability
- Lead free product is acquired
- Surface mount package

APPLICATION

- Battery Switch
- DC/DC Converter

Maximum ratings ($T_a=25^\circ\text{C}$ unless otherwise noted)

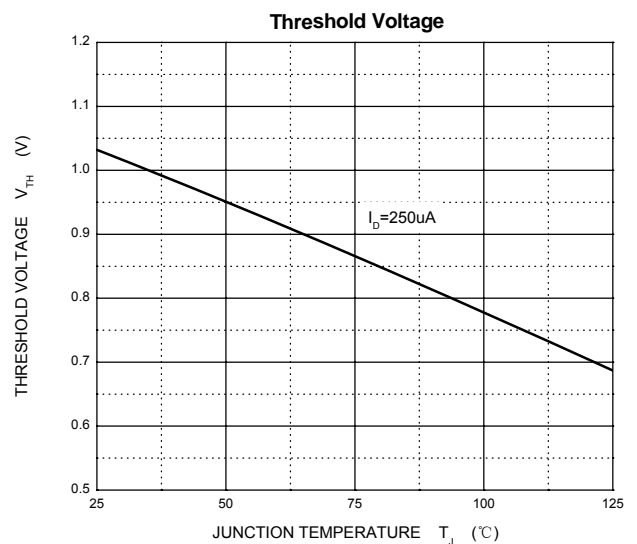
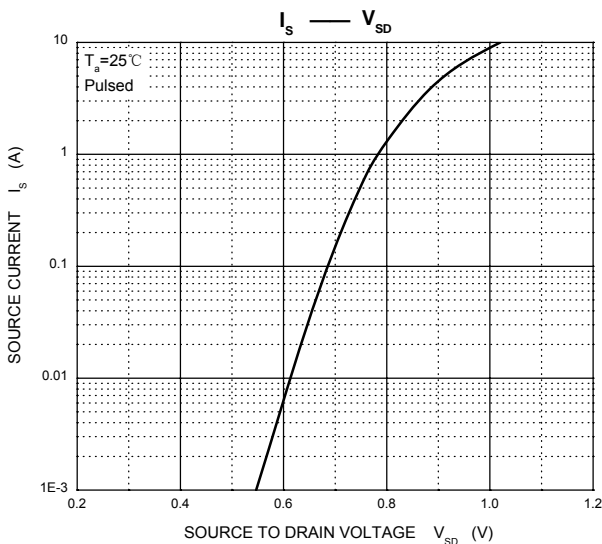
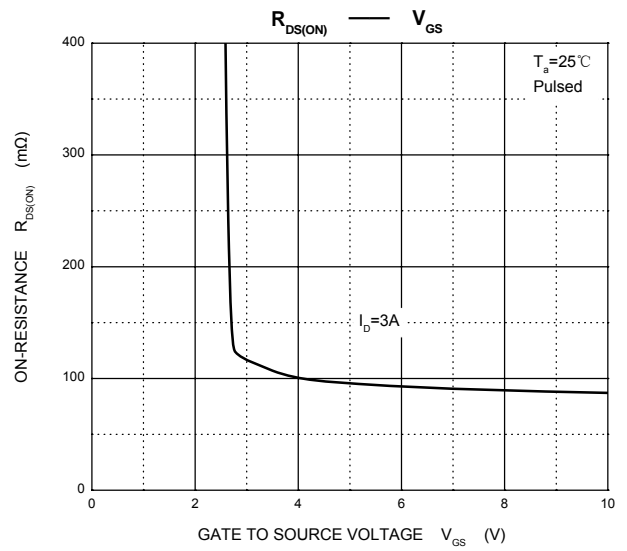
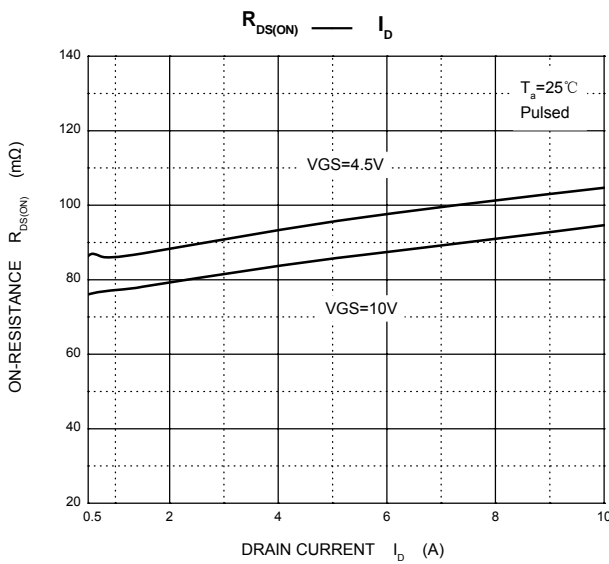
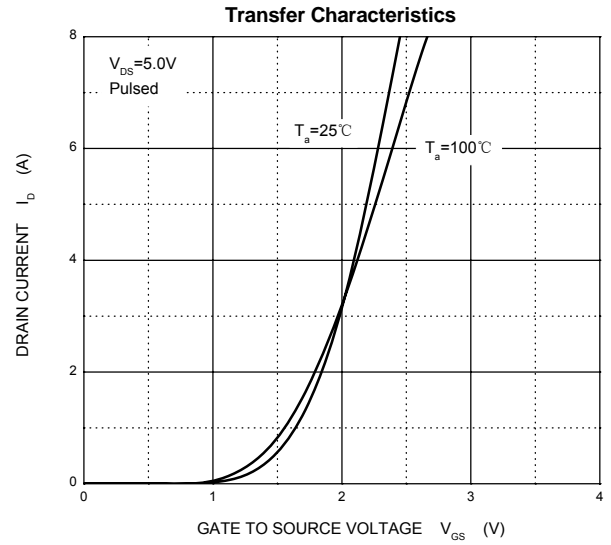
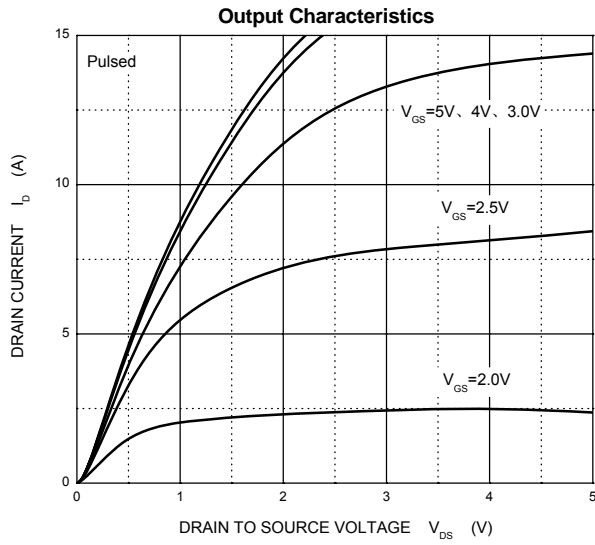
| Parameter | Symbol | Value | Unit |
|--|-----------------|----------|--------------------|
| Drain-Source Voltage | V_{DS} | 60 | V |
| Gate-Source Voltage | V_{GS} | ± 20 | V |
| Continuous Drain Current | I_D | 3 | A |
| Pulsed Drain Current (note 1) | I_{DM} | 10 | A |
| Power Dissipation | P_D | 0.35 | W |
| Thermal Resistance from Junction to Ambient (note 2) | $R_{\theta JA}$ | 357 | $^\circ\text{C/W}$ |
| Junction Temperature | T_J | 150 | $^\circ\text{C}$ |
| Storage Temperature | T_{STG} | -55~+150 | $^\circ\text{C}$ |

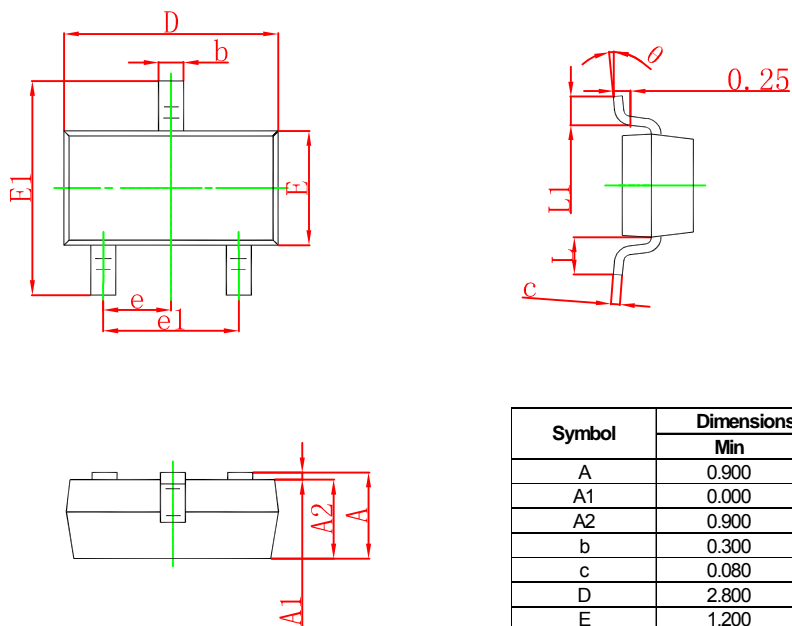
$T_a=25^{\circ}\text{C}$ unless otherwise specified

| Parameter | Symbol | Test Condition | Min | Typ | Max | Unit |
|---|---------------|--|-----|------|-----------|------------|
| STATIC CHARACTERISTICS | | | | | | |
| Drain-source breakdown voltage | $V_{(BR)DSS}$ | $V_{GS} = 0V, I_D = 250\mu A$ | 60 | | | V |
| Zero gate voltage drain current | I_{DSS} | $V_{DS} = 60V, V_{GS} = 0V$ | | | 1 | μA |
| Gate-body leakage current | I_{GSS} | $V_{GS} = \pm 20V, V_{DS} = 0V$ | | | ± 100 | nA |
| Gate threshold voltage (note 3) | $V_{GS(th)}$ | $V_{DS} = V_{GS}, I_D = 250\mu A$ | 0.5 | | 2 | V |
| Drain-source on-resistance (note 3) | $R_{DS(on)}$ | $V_{GS} = 10V, I_D = 3A$ | | 105 | 120 | m Ω |
| | | $V_{GS} = 4.5V, I_D = 3A$ | | 118 | 136 | m Ω |
| Forward tranconductance (note 3) | g_{FS} | $V_{DS} = 15V, I_D = 2A$ | 1.4 | | | S |
| Diode forward voltage (note 3) | V_{SD} | $I_S = 3A, V_{GS} = 0V$ | | | 1.2 | V |
| DYNAMIC CHARACTERISTICS (note 4) | | | | | | |
| Input Capacitance | C_{iss} | $V_{DS} = 30V, V_{GS} = 0V, f = 1MHz$ | | 247 | | pF |
| Output Capacitance | C_{oss} | | | 34 | | pF |
| Reverse Transfer Capacitance | C_{rss} | | | 19.5 | | pF |
| SWITCHING CHARACTERISTICS (note 4) | | | | | | |
| Turn-on delay time | $t_{d(on)}$ | $V_{GS} = 10V, V_{DD} = 30V,$ $I_D = 1.5A, R_{GEN} = 1\Omega$ | | 6 | | ns |
| Turn-on rise time | t_r | | | 15 | | ns |
| Turn-off delay time | $t_{d(off)}$ | | | 15 | | ns |
| Turn-off fall time | t_f | | | 10 | | ns |
| Total Gate Charge | Q_g | $V_{DS} = 30V, V_{GS} = 4.5V, I_D = 3A$ | | 6 | | nC |
| Gate-Source Charge | Q_{gs} | | | 1 | | nC |
| Gate-Drain Charge | Q_{gd} | | | 1.3 | | nC |

Notes :

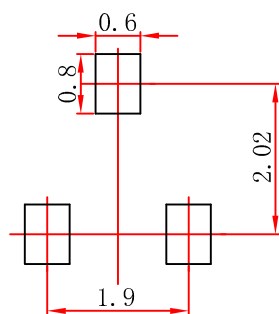
1. Repetitive rating : Pulse width limited by junction temperature.
2. Surface mounted on FR4 board , $t_s \leq 10s$.
3. Pulse Test : Pulse Width $\leq 300\mu s$, Duty Cycle $\leq 0.5\%$.
4. Guaranteed by design, not subject to producing.





| 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 | 0.150 | 0.003 | 0.006 |
| 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 |
| θ | 0° | 8° | 0° | 8° |

SOT-23 Suggested Pad Layout



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