

■ Features 特點

Low on-resistance and maximum DC current capability 低導通電阻和最大直流電流能力

Super high density cell design 超高元胞密度設計

$R_{DS(ON)} \leq 70m\Omega @ V_{GS} = -10V$

$R_{DS(ON)} \leq 95m\Omega @ V_{GS} = -4.5V$

■ Applications 应用

Power Management in Note book 筆記本電源管理

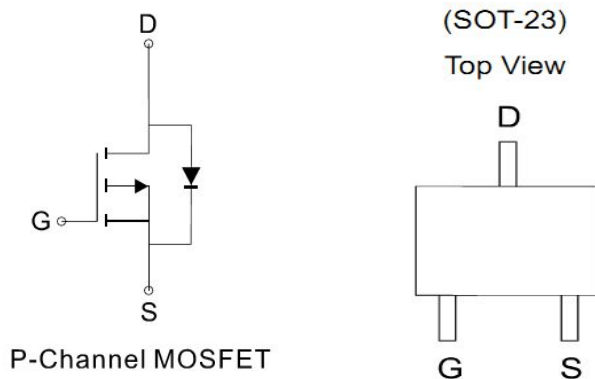
Portable Equipment 便攜式設備

Battery Powered System 電池電源系統

DC/DC Converter 直流/直流变换

Load Switch 負載開關應用

■ Internal Schematic Diagram 内部结构



■ Absolute Maximum Ratings 最大額定值

| Characteristic 特性參數 | Symbol 符號 | Max 最大值 | Unit 單位 |
|--|---|--------------|--------------|
| Drain-Source Voltage 漏極-源極電壓 | BV_{DSS} | -30 | V |
| Gate- Source Voltage 柵極-源極電壓 | V_{GS} | ± 20 | V |
| Drain Current (continuous) 漏極電流-連續 | I_D (at $T_A = 25^\circ C$) | -3 | A |
| Drain Current (pulsed) 漏極電流-脈沖 | I_{DM} | -12 | A |
| Total Device Dissipation 總耗散功率 | P_{TOT} (at $T_A = 25^\circ C$ at $T_A = 70^\circ C$) | 1.04 0.67 | W |
| Thermal Resistance Junction-Ambient 熱阻 | $R_{\theta JA}$ | 120 | $^\circ C/W$ |
| Junction/Storage Temperature 結溫/儲存溫度 | T_J, T_{stg} | -55~150 | $^\circ C$ |

■ Electrical Characteristics 電特性

($T_A=25^{\circ}\text{C}$ unless otherwise noted 如無特殊說明，溫度為 25°C)

| Characteristic 特性參數 | Symbol 符號 | Min 最小值 | Typ 典型值 | Max 最大值 | Unit 單位 |
|--|--------------|------------|------------|------------|------------------|
| Drain-Source Breakdown Voltage 漏極-源極擊穿電壓($I_D=-250\mu\text{A}, V_{GS}=0\text{V}$) | BV_{DSS} | -30 | — | — | V |
| Gate Threshold Voltage 柵極開啓電壓($I_D=-250\mu\text{A}, V_{GS}=V_{DS}$) | $V_{GS(th)}$ | -1 | — | -3 | V |
| Zero Gate Voltage Drain Current 零柵壓漏極電流($V_{GS}=0\text{V}, V_{DS}=-30\text{V}$) | I_{DSS} | — | — | -1 | μA |
| Gate Body Leakage 柵極漏電流($V_{GS}=\pm 16\text{V}, V_{DS}=0\text{V}$) | I_{GSS} | — | — | ± 100 | nA |
| Static Drain-Source On-State Resistance 靜態漏源導通電阻($I_D=-3.2\text{A}, V_{GS}=-10\text{V}$) ($I_D=-2.5\text{A}, V_{GS}=-4.5\text{V}$) | $R_{DS(ON)}$ | — | 58 75 | 70 95 | $\text{m}\Omega$ |
| Diode Forward Voltage Drop 內附二極管正向壓降($I_{SD}=-1\text{A}, V_{GS}=0\text{V}$) | V_{SD} | — | — | -1.2 | V |
| Input Capacitance 輸入電容 ($V_{GS}=0\text{V}, V_{DS}=-15\text{V}, f=1\text{MHz}$) | C_{ISS} | — | 460 | — | pF |
| Common Source Output Capacitance 共源輸出電容($V_{GS}=0\text{V}, V_{DS}=-15\text{V}, f=1\text{MHz}$) | C_{OSS} | — | 74 | — | pF |
| Gate Source Charge 柵源電荷密度 ($V_{DS}=-15\text{V}, I_D=-1.7\text{A}, V_{GS}=-4.5\text{V}$) | Q_{gs} | — | 2.8 | — | nC |
| Gate Drain Charge 柵漏電荷密度 ($V_{DS}=-15\text{V}, I_D=-1.7\text{A}, V_{GS}=-4.5\text{V}$) | Q_{gd} | — | 2.3 | — | nC |
| Turn-On Delay Time 開啓延遲時間 ($V_{DS}=-15\text{V}, I_D=-1\text{A}, R_{GEN}=6\Omega, V_{GS}=-10\text{V}$) | $t_{d(on)}$ | — | 33 | — | ns |
| Turn-On Rise Time 開啓上升時間 ($V_{DS}=-15\text{V}, I_D=-1\text{A}, R_{GEN}=6\Omega, V_{GS}=-10\text{V}$) | t_r | — | 17 | — | ns |
| Turn-Off Delay Time 關斷延遲時間 ($V_{DS}=-15\text{V}, I_D=-1\text{A}, R_{GEN}=6\Omega, V_{GS}=-10\text{V}$) | $t_{d(off)}$ | — | 39 | — | ns |
| Turn-On Fall Time 開啓下降時間 ($V_{DS}=-15\text{V}, I_D=-1\text{A}, R_{GEN}=6\Omega, V_{GS}=-10\text{V}$) | t_f | — | 5 | — | ns |

■ TYPICAL CHARACTERISTIC CURVE 典型特性曲线

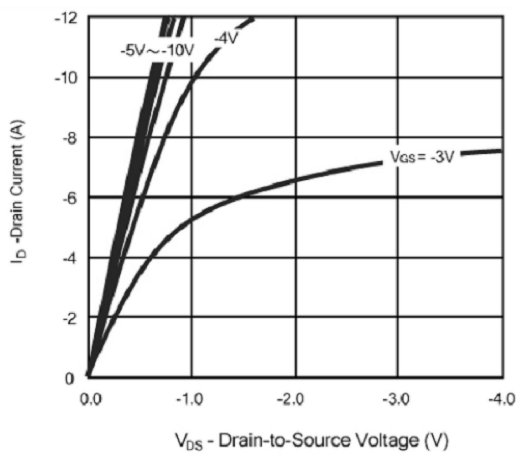


Figure 1. Output Characteristics

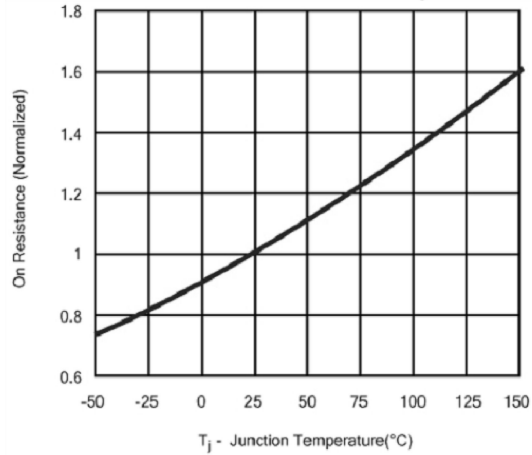


Figure 2. On-Resistance Variation with Temperature

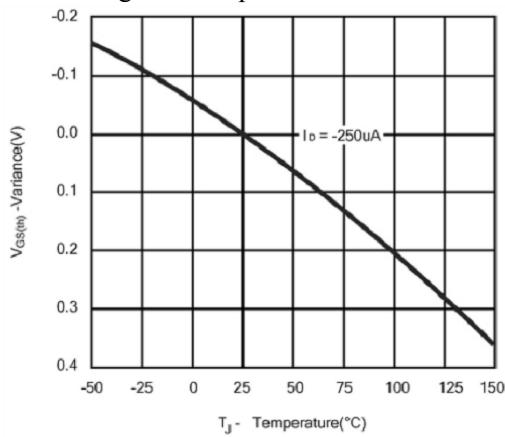


Figure 3. Gate Threshold Variation with Temperatures

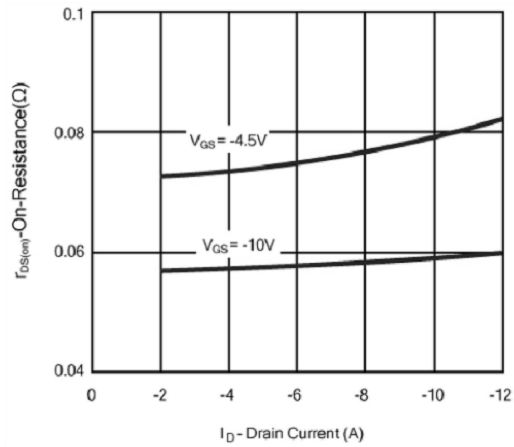


Figure 4. On-Resistance Variation with Drain Current

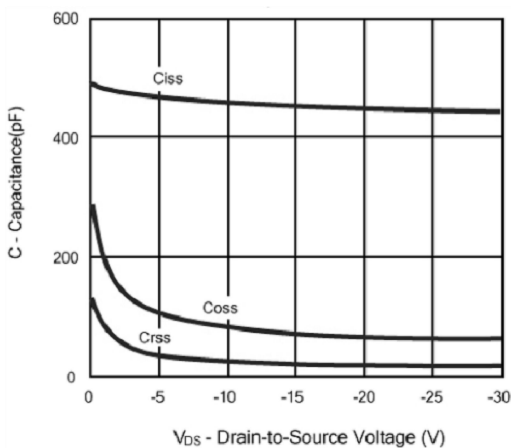


Figure 5. Capacitance Variation with Drain-source Voltage

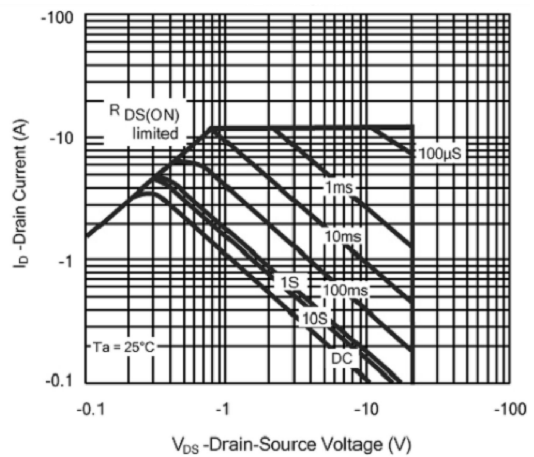
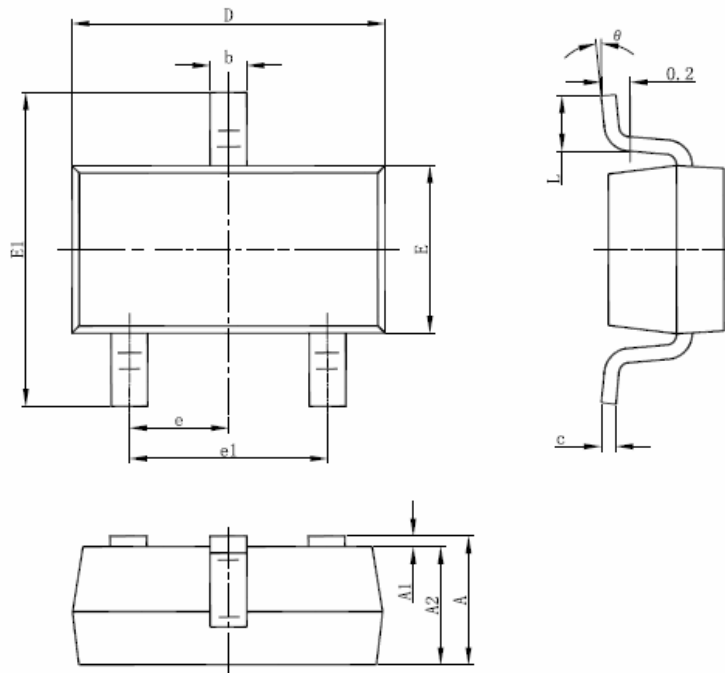


Figure 6. Maximum Safe Operating Area

SOT-23-3L Package Information



| Symbol | Dimensions In Millimeters | | Dimensions In Inches | |
|--------|---------------------------|-------|----------------------|-------|
| | Min | Max | Min | Max |
| A | 1.050 | 1.250 | 0.041 | 0.049 |
| A1 | 0.000 | 0.100 | 0.000 | 0.004 |
| A2 | 1.050 | 1.150 | 0.041 | 0.045 |
| b | 0.300 | 0.500 | 0.012 | 0.020 |
| c | 0.100 | 0.200 | 0.004 | 0.008 |
| D | 2.820 | 3.020 | 0.111 | 0.119 |
| E | 1.500 | 1.700 | 0.059 | 0.067 |
| E1 | 2.650 | 2.950 | 0.104 | 0.116 |
| e | 0.950(BSC) | | 0.037(BSC) | |
| e1 | 1.800 | 2.000 | 0.071 | 0.079 |
| L | 0.300 | 0.600 | 0.012 | 0.024 |
| θ | 0° | 8° | 0° | 8° |

Notes

1. All dimensions are in millimeters.
2. Tolerance $\pm 0.10\text{mm}$ (4 mil) unless otherwise specified
3. Package body sizes exclude mold flash and gate burrs. Mold flash at the non-lead sides should be less than 5 mils.
4. Dimension L is measured in gauge plane.
5. Controlling dimension is millimeter, converted inch dimensions are not necessarily exact.

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