**P-channel -30V, -3A, SOT-23 Trench Power MOSFET 沟槽式功率场效应管**

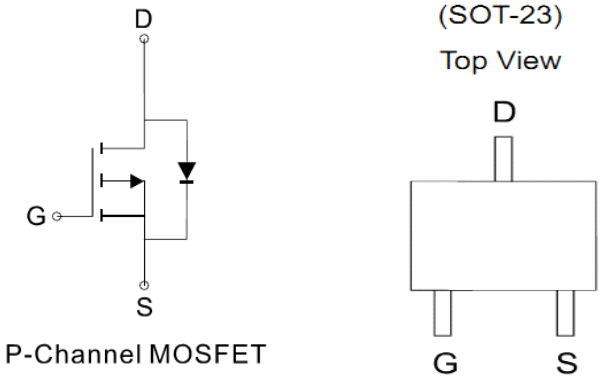
## ■Features 特點

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
$R_{DS(ON)}$≤70mΩ@VGS=-10V
$R_{DS(ON)}$≤95mΩ@VGS=-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 最大额定值

| 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 TA = 25°C） | -3 | A |
| Drain Current (pulsed)漏極電流-脉冲 | $I_{DM}$ | -12 | A |
| Total Device Dissipation 總耗散功率 | $P_{TOT}$(at TA = 25°C<br>at TA = 70°C) | 1.04<br>0.67 | W |
| Thermal Resistance Junction-Ambient 熱阻 | $R_{\Theta JA}$ | 120 | ℃/W |
| Junction/Storage Temperature 結溫/儲存溫度 | $T_J$,$T_{stg}$ | -55~150 | ℃ |

## ■Electerical Characteristics 電特性

($T_A$=25℃ unless otherwise noted 如無特殊說明，溫度爲 25℃)

| Characteristic<br>特性參數 | Symbol<br>符號 | Min<br>最小值 | Typ<br>典型值 | Max<br>最大值 | Unit<br>單位 |
|---|---|---|---|---|---|
| Drain-Source Breakdown Voltage<br>漏極-源極擊穿電壓($I_D$ =-250uA,$V_{GS}$=0V) | $BV_{DSS}$ | -30 | — | — | V |
| Gate Threshold Voltage<br>柵極開启電壓($I_D$ =-250uA,$V_{GS}$= $V_{DS}$) | $V_{GS(th)}$ | -1 | — | -3 | V |
| Zero Gate Voltage Drain Current<br>零柵壓漏極電流($V_{GS}$=0V, $V_{DS}$= -30V) | $I_{DSS}$ | — | — | -1 | uA |
| Gate Body Leakage<br>柵極漏電流($V_{GS}$=±20V, $V_{DS}$=0V) | $I_{GSS}$ | — | — | ±100 | nA |
| Static Drain-Source On-State Resistance<br>静态漏源導通電阻($I_D$=-3.2A,$V_{GS}$=-10V)<br>($I_D$=-2.5A,$V_{GS}$=-4.5V) | $R_{DS(ON)}$ | — | 58<br>75 | 70<br>95 | mΩ |
| Diode Forward Voltage Drop<br>内附二極管正向壓降($I_{SD}$=-1A,$V_{GS}$=0V) | $V_{SD}$ | — | — | -1.2 | V |
| Input Capacitance 輸入電容<br>($V_{GS}$=0V, $V_{DS}$=-15V,f=1MHz) | $C_{ISS}$ | — | 460 | — | pF |
| Common Source Output Capacitance<br>共源輸出電容($V_{GS}$=0V, $V_{DS}$=-15V,f=1MHz) | $C_{OSS}$ | — | 74 | — | pF |
| Gate Source Charge 柵源電荷密度<br>($V_{DS}$=-15V, $I_D$=-1.7A, $V_{GS}$=-4.5V) | $Q_{gs}$ | — | 2.8 | — | nC |
| Gate Drain Charge 柵漏電荷密度<br>($V_{DS}$=-15V, $I_D$=-1.7A, $V_{GS}$=-4.5V) | $Q_{gd}$ | — | 2.3 | — | nC |
| Turn-On Delay Time 開启延迟時間<br>($V_{DS}$=-15V, $I_D$=-1A, $R_{GEN}$=6Ω,$V_{GS}$=-10V) | $t_{d(on)}$ | — | 33 | — | ns |
| Turn-On Rise Time 開启上升時間<br>($V_{DS}$=-15V, $I_D$=-1A, $R_{GEN}$=6Ω,$V_{GS}$=-10V) | $t_r$ | — | 17 | — | ns |
| Turn-Off Delay Time 關断延迟時間<br>($V_{DS}$=-15V, $I_D$=-1A, $R_{GEN}$=6Ω,$V_{GS}$=-10V) | $t_{d(off)}$ | — | 39 | — | ns |
| Turn-On Fall Time 開启下降時間<br>($V_{DS}$=-15V, $I_D$=-1A, $R_{GEN}$=6Ω,$V_{GS}$=-10V) | $t_f$ | — | 5 | — | ns |

## ■TYPICAL CHARACTERISTIC CURVE 典型特性曲线

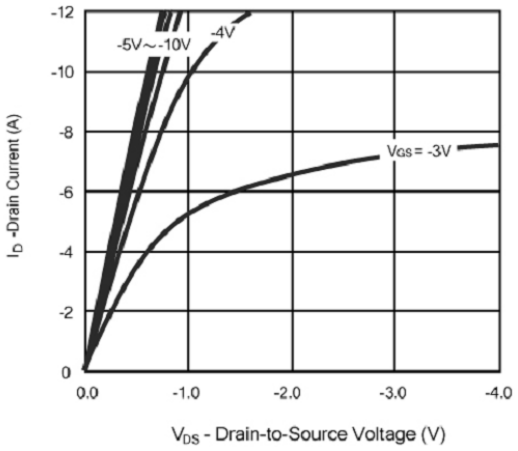



Figure 1.Output Characteristics

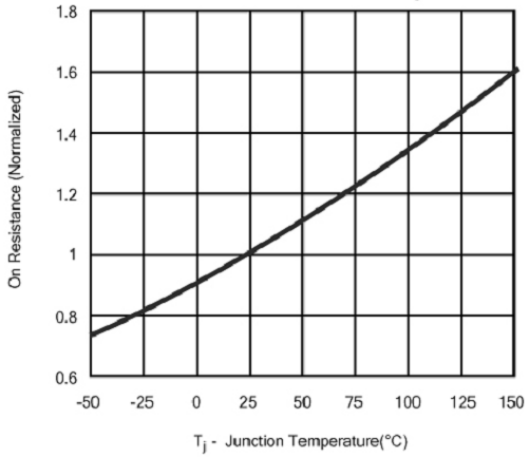



Figure2.On-Resistance Variation with Temperature

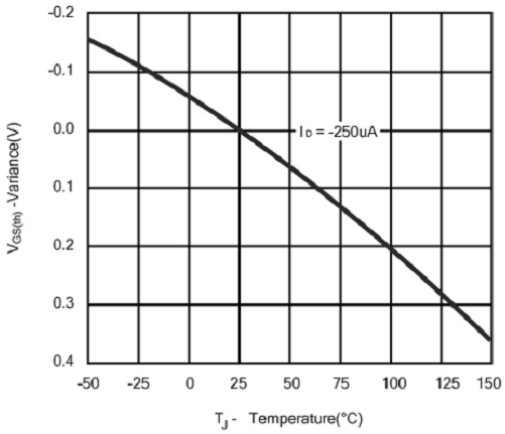



Figure3.Gate Threshold Variation with Temperatures

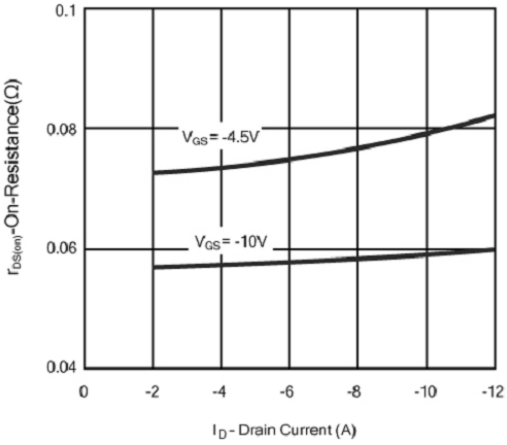



Figure4.On-Resistance Variation with Drain Current

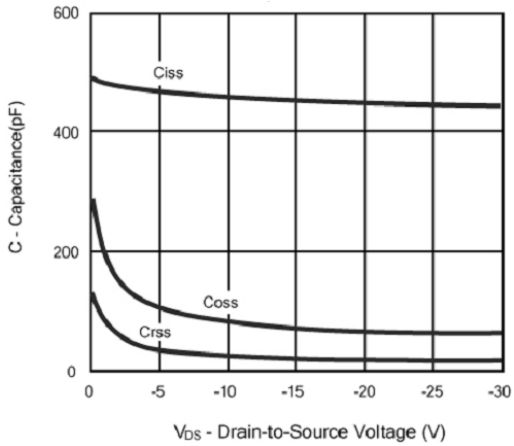



Figure5. Capacitance Variation with. Drain-source Voltage

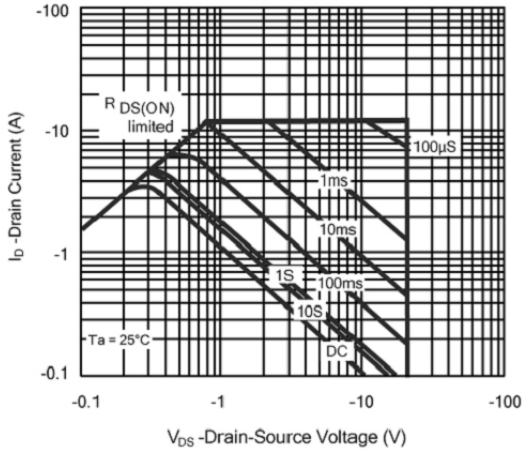



Figure6.Maximum Safe Operating Area