

-30V P-Channel Mosfet

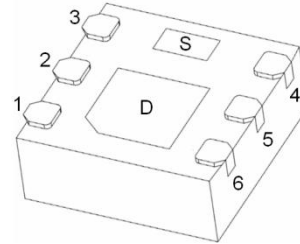
FEATURES

- $R_{DS(ON)} \leq 30m\Omega$ (25m Ω Typ.)
@ $V_{GS}=-10V$
- $R_{DS(ON)} \leq 45m\Omega$ (36m Ω Typ.)
@ $V_{GS}=-4.5V$

APPLICATIONS

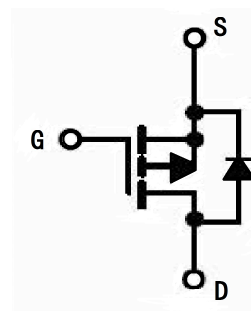
- PWM application
- Load switch
- Battery charge in cellular handse

DFN2*2-6L-J



1: D 3: G 5: D
2: D 4: S 6: D

P-CHANNEL MOSFET



MAXIMUM RATINGS (TC=25°C unless otherwise noted)

| Symbol | Parameter | Max. | Units |
|-----------------|---|-------------|---------------|
| V_{DSS} | Drain-Source Voltage | -30 | V |
| V_{GSS} | Gate-Source Voltage | ± 20 | V |
| I_D | Continuous Drain Current | -6.5 | A |
| I_{DM} | Pulsed Drain Current | -26 | A |
| P_D | Power Dissipation | 2 | W |
| $R_{\theta JC}$ | Thermal Resistance, Junction to Case | 62.5 | $^{\circ}C/W$ |
| T_J, T_{STG} | Operating and Storage Temperature Range | -55 to +150 | $^{\circ}C$ |

MOSFET ELECTRICAL CHARACTERISTICS Tc=25 °C unless otherwise specified

| Symbol | Parameter | Test Condition | Min. | Typ. | Max. | Units |
|---|--|--|------|-------|-----------|------------|
| Off Characteristic | | | | | | |
| $V_{(BR)DSS}$ | Drain-Source Breakdown Voltage | $V_{GS} = 0V, I_D = -250\mu A$ | -30 | - | - | V |
| I_{DSS} | Zero Gate Voltage Drain Current | $V_{DS} = -30V,$ $V_{GS} = 0V, T_J = 25^\circ C$ | - | - | -1 | μA |
| I_{GSS} | Gate to Body Leakage Current | $V_{GS} = \pm 20V, V_{DS} = 0V$ | - | - | ± 100 | nA |
| On Characteristics | | | | | | |
| $V_{GS(th)}$ | Gate Threshold Voltage | $V_{DS} = V_{GS}, I_D = -250\mu A$ | -1.0 | -1.5 | -2.5 | V |
| $R_{DS(on)}$ | Static Drain-Source On-Resistance | $V_{GS} = -10V, I_D = -4A$ | - | 25 | 30 | m Ω |
| | | $V_{GS} = -4.5V, I_D = -2A$ | - | 36 | 45 | m Ω |
| Dynamic Characteristics | | | | | | |
| C_{iss} | Input Capacitance | $V_{DS} = -15V, V_{GS} = 0V$ $f = 1.0MHz$ | - | 870 | - | pF |
| C_{oss} | Output Capacitance | | - | 130 | - | pF |
| C_{rss} | Reverse Transfer Capacitance | | - | 93 | - | pF |
| Q_g | Total Gate Charge | $V_{DS} = -15V, I_D = -5A,$ $V_{GS} = -4.5V$ | - | 7.8 | - | nC |
| Q_{gs} | Gate-Source Charge | | - | 2.7 | - | nC |
| Q_{gd} | Gate-Drain("Miller") Charge | | - | 2.8 | - | nC |
| Switching Characteristics | | | | | | |
| $t_{d(on)}$ | Turn-On Delay Time | $V_{GS} = -10V, V_{DS} = -15V$ $R_G = 6\Omega, I_D = -1A$ | - | 6.5 | - | ns |
| t_r | Turn-On Rise Time | | - | 8.8 | - | ns |
| $t_{d(off)}$ | Turn-Off Delay Time | | - | 73 | - | ns |
| t_f | Turn-Off Fall Time | | - | 44 | - | ns |
| Drain-Source Diode Characteristics and Maximum Ratings | | | | | | |
| I_S | Maximum Continuous Drain to Source Diode Forward Current | | - | - | -6.5 | A |
| V_{SD} | Drain to Source Diode Forward Voltage | $V_{GS} = 0V, I_{SD} = -1A$ $T_J = 25^\circ C$ | - | -0.75 | -1.0 | V |

TYPICAL PERFORMANCE CHARACTERISTICS

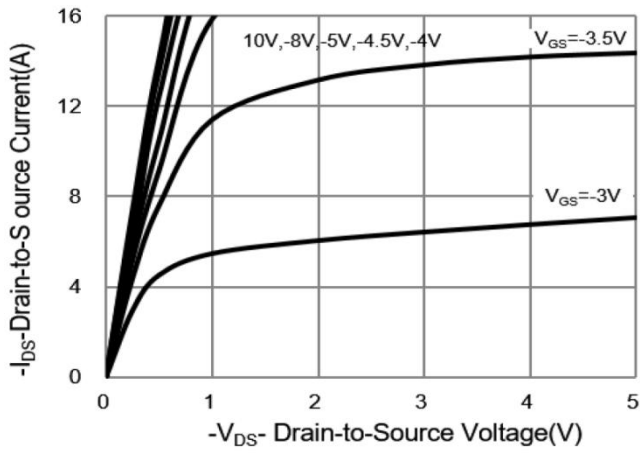


Fig.1 On-Region Characteristics

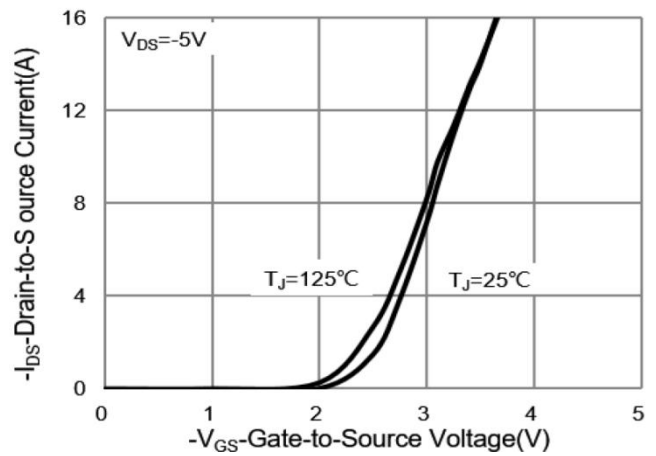


Fig.2 Transfer Characteristics

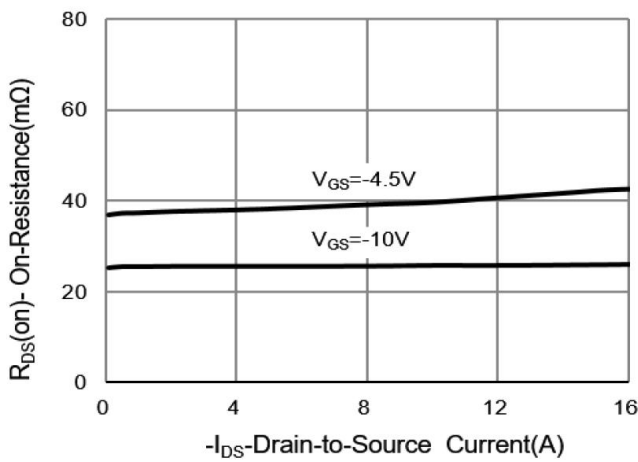


Fig.3 On-Resistance vs. Drain Current

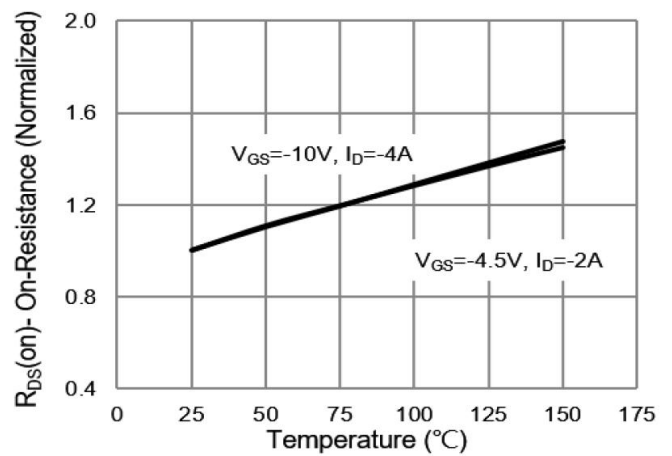


Fig.4 On-Resistance vs. Junction temperature

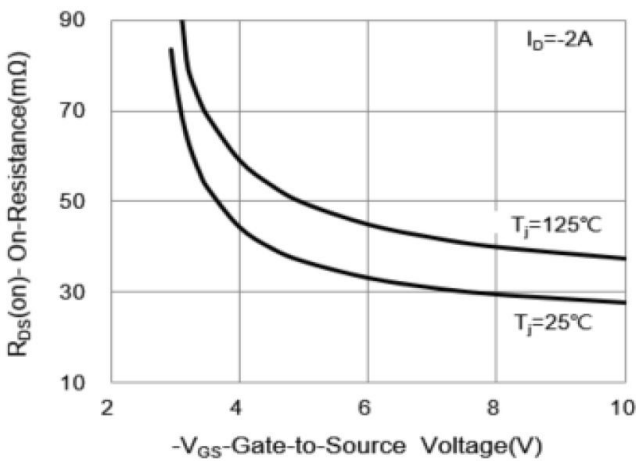


Fig.5 On-Resistance Variation with V_GS.

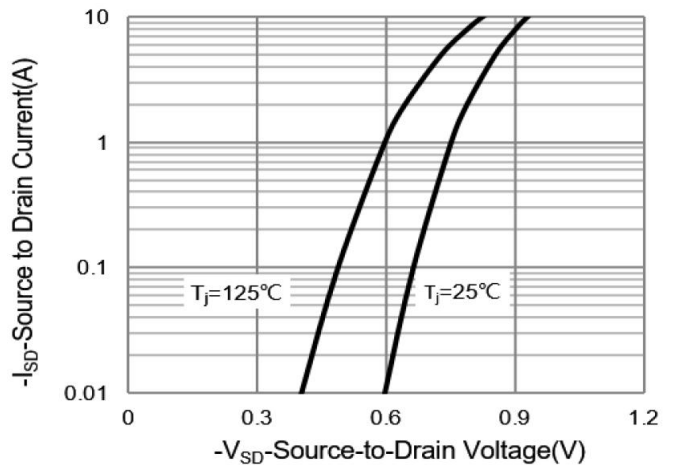


Fig.6 Body Diode Characteristics

TYPICAL PERFORMANCE CHARACTERISTICS (cont.)

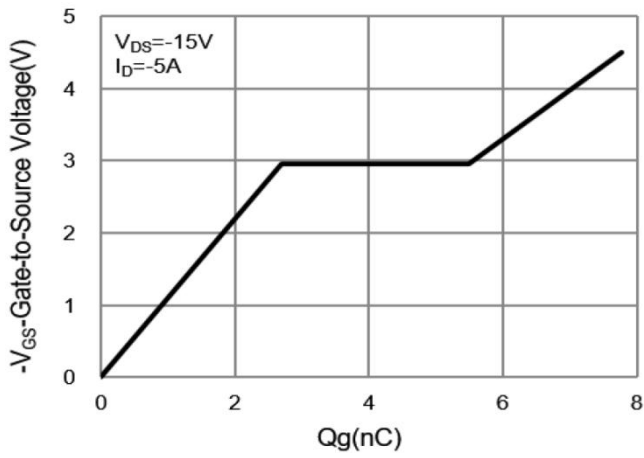


Fig.7 Gate-Charge Characteristics

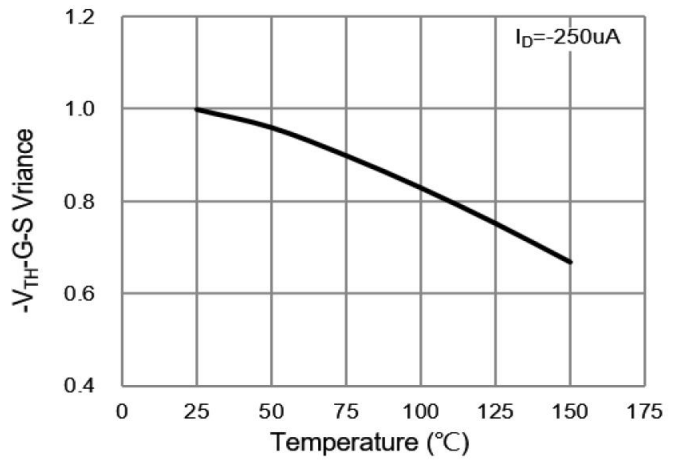


Fig.8 Threshold Voltage Variation with Temperature.

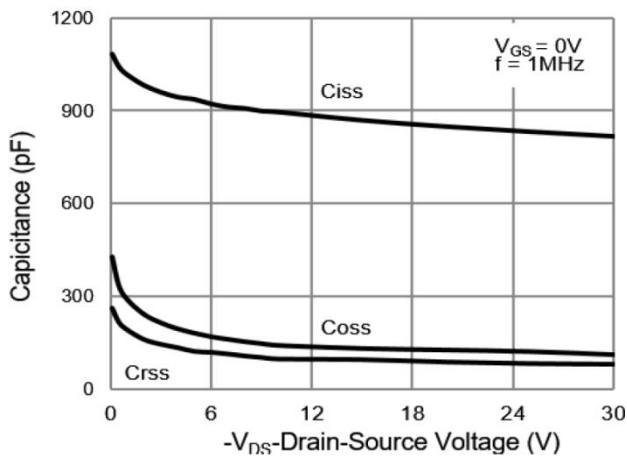
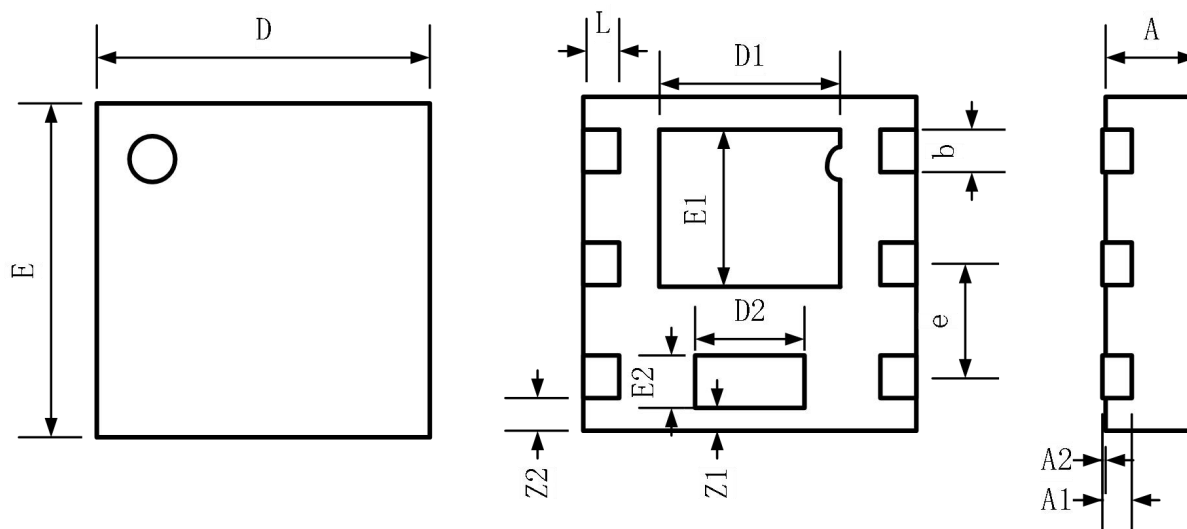


Fig.9 Capacitance vs. Drain-Source Voltage.

DFN2*2-6L-J PACKAGE OUTLINE DRAWING



| Symbol | Dimensions In Millimeters | | |
|--------|---------------------------|-------|-------|
| | Min. | Typ. | Max. |
| D | 1.95 | 2.00 | 2.05 |
| E | 1.95 | 2.00 | 2.05 |
| D1 | 1.10 | 1.15 | 1.20 |
| E1 | 0.90 | 0.95 | 1.00 |
| D2 | 0.65 | 0.70 | 0.75 |
| E2 | 0.33 | 0.38 | 0.43 |
| L | 0.225 | 0.275 | 0.325 |
| b | 0.25 | 0.30 | 0.35 |
| e | 0.65BSC | | |
| A | 0.47 | 0.5 | 0.55 |
| A1 | 0.20REF | | |
| A2 | 0.00 | | 0.05 |
| Z1 | 0.06 | 0.11 | 0.16 |
| Z2 | 0.15 | 0.20 | 0.25 |