

SPP3481

DESCRIPTION

The SPP3481 is the P-Channel logic enhancement mode power field effect transistors are produced using high cell density, DMOS trench technology.

This high density process is especially tailored to minimize on-state resistance.

These devices are particularly suited for low voltage application such as cellular phone and notebook computer power management and other battery powered circuits, and low in-line power loss are needed in a very small outline surface mount package.

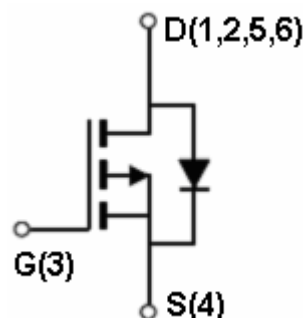
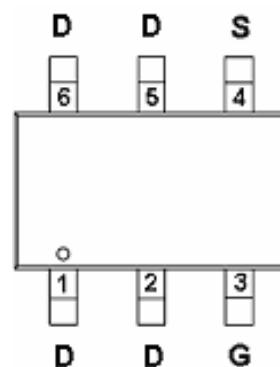
FEATURES

- ◆ -30V/-5.2A, $R_{DS(ON)} = 55m\Omega @ V_{GS} = -10V$
- ◆ -30V/-4.2A, $R_{DS(ON)} = 75m\Omega @ V_{GS} = -4.5V$
- ◆ Super high density cell design for extremely low $R_{DS(ON)}$
- ◆ Exceptional on-resistance and maximum DC current capability
- ◆ TSOP-6P package design

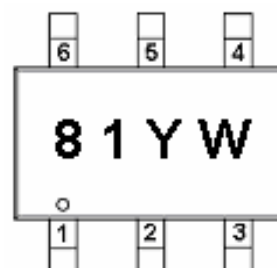
APPLICATIONS

- Power Management in Note book
- Portable Equipment
- Battery Powered System
- DC/DC Converter
- Load Switch
- DSC
- LCD Display inverter

PIN CONFIGURATION(TSOP-6P)



PART MARKING



Y : Year Code
W : Week Code

SPP3481

PIN DESCRIPTION

| Pin | Symbol | Description |
|-----|--------|-------------|
| 1 | D | Drain |
| 2 | D | Drain |
| 3 | G | Gate |
| 4 | S | Source |
| 5 | D | Drain |
| 6 | D | Drain |

ORDERING INFORMATION

| Part Number | Package | Part Marking |
|--------------|---------|--------------|
| SPP3481ST6RG | TSOP-6P | 81YW |

※ Week Code : A ~ Z (1 ~ 26) ; a ~ z (27 ~ 52)

※ SPP3481ST6RG : Tape Reel ; Pb – Free

ABSOLUTE MAXIMUM RATINGS

($T_A=25^{\circ}\text{C}$ Unless otherwise noted)

| Parameter | Symbol | Typical | Unit |
|-------------------------------------------------------|-----------------|--------------------------|-----------------------------|
| Drain-Source Voltage | V_{DSS} | -30 | V |
| Gate –Source Voltage | V_{GSS} | ± 20 | V |
| Continuous Drain Current($T_J=150^{\circ}\text{C}$) | I_D | $T_A=25^{\circ}\text{C}$ | -5.2 |
| | | $T_A=70^{\circ}\text{C}$ | -4.2 |
| Pulsed Drain Current | I_{DM} | -20 | A |
| Continuous Source Current(Diode Conduction) | I_S | -1.7 | A |
| Power Dissipation | P_D | $T_A=25^{\circ}\text{C}$ | 2.0 |
| | | $T_A=70^{\circ}\text{C}$ | 1.3 |
| Operating Junction Temperature | T_J | 150 | $^{\circ}\text{C}$ |
| Storage Temperature Range | T_{STG} | -55/150 | $^{\circ}\text{C}$ |
| Thermal Resistance-Junction to Ambient | $R_{\theta JA}$ | 90 | $^{\circ}\text{C}/\text{W}$ |

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ELECTRICAL CHARACTERISTICS

(TA=25°C Unless otherwise noted)

| Parameter | Symbol | Conditions | Min. | Typ | Max. | Unit |
|---------------------------------|---------------|---------------------------------------------------------------------------|------|-------|-----------|----------|
| Static | | | | | | |
| Drain-Source Breakdown Voltage | $V_{(BR)DSS}$ | $V_{GS}=0V, I_D=-250\mu A$ | -30 | | | V |
| Gate Threshold Voltage | $V_{GS(th)}$ | $V_{DS}=V_{GS}, I_D=-250\mu A$ | -1.0 | | -3.0 | |
| Gate Leakage Current | I_{GSS} | $V_{DS}=0V, V_{GS}=\pm 20V$ | | | ± 100 | nA |
| Zero Gate Voltage Drain Current | I_{DSS} | $V_{DS}=-24V, V_{GS}=0V$ | | | -1 | uA |
| | | $V_{DS}=-24V, V_{GS}=0V$ $T_J=55^\circ C$ | | | -10 | |
| On-State Drain Current | $I_{D(on)}$ | $V_{DS} \leq -5V, V_{GS}=-10V$ | -10 | | | A |
| Drain-Source On-Resistance | $R_{DS(on)}$ | $V_{GS}=-10V, I_D=-5.2A$ | | 0.042 | 0.055 | Ω |
| | | $V_{GS}=-4.5V, I_D=-4.2A$ | | 0.058 | 0.075 | |
| Forward Transconductance | g_{fs} | $V_{DS}=-5.0V, I_D=-4.0A$ | | 10 | | S |
| Diode Forward Voltage | V_{SD} | $I_S=-1.0A, V_{GS}=0V$ | | -0.8 | -1.2 | V |
| Dynamic | | | | | | |
| Total Gate Charge | Q_g | $V_{DS}=-15V, V_{GS}=-10V$ $I_D=-4.0A$ | | 14 | 21 | nC |
| Gate-Source Charge | Q_{gs} | | | 1.9 | | |
| Gate-Drain Charge | Q_{gd} | | | 3.7 | | |
| Input Capacitance | C_{iss} | $V_{DS}=-15V, V_{GS}=0V$ $f=1MHz$ | | 540 | | pF |
| Output Capacitance | C_{oss} | | | 131 | | |
| Reverse Transfer Capacitance | C_{rss} | | | 105 | | |
| Turn-On Time | $t_{d(on)}$ | $V_{DD}=-15V, R_L=15\Omega$ $I_D=-1.0A, V_{GEN}=-10V$ $R_G=6\Omega$ | | 10 | 15 | ns |
| | t_r | | | 15 | 25 | |
| Turn-Off Time | $t_{d(off)}$ | | | 31 | 50 | |
| | t_f | | | 20 | 30 | |