



SPP2301A

P-Channel Enhancement Mode MOSFET

DESCRIPTION

The SPP2301A 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.

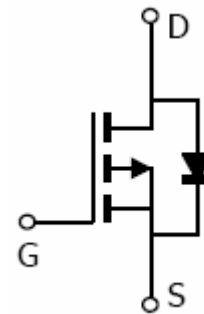
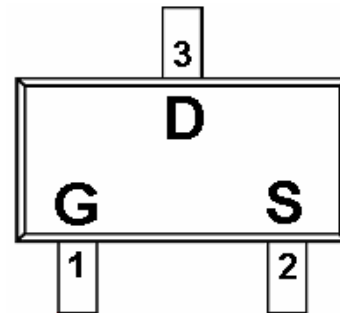
FEATURES

- -20V/-2.8A, $R_{DS(ON)}=130m\Omega@V_{GS}=-4.5V$
- -20V/-2.0A, $R_{DS(ON)}=200m\Omega@V_{GS}=-2.5V$
- Super high density cell design for extremely low $R_{DS(ON)}$
- Exceptional on-resistance and maximum DC current capability
- SOT-23-3L package design

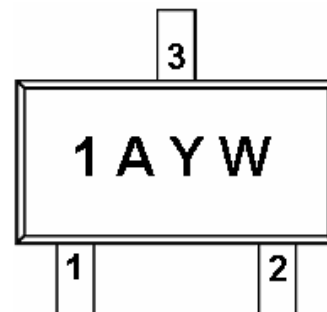
APPLICATIONS

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

PIN CONFIGURATION(SOT-23-3L)



PART MARKING



Y : Year Code
W : Week Code



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PIN DESCRIPTION

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

ORDERING INFORMATION

| Part Number | Package | Part Marking |
|----------------|-----------|--------------|
| SPP2301AS23RGB | SOT-23-3L | 1A |

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

※ SPP2301AS23RGB : Tape Reel ; Pb - Free ; Halogen - Free

ABSOLUTE MAXIMUM RATINGS

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

| Parameter | Symbol | Typical | Unit | |
|---|-----------------|--------------------------|-----------------------------|---|
| Drain-Source Voltage | V_{DSS} | -20 | V | |
| Gate -Source Voltage | V_{GSS} | ± 12 | V | |
| Continuous Drain Current($T_J=150^{\circ}\text{C}$) | I_D | $T_A=25^{\circ}\text{C}$ | -3.0 | A |
| | | $T_A=70^{\circ}\text{C}$ | -2.0 | |
| Pulsed Drain Current | I_{DM} | -10 | A | |
| Continuous Source Current(Diode Conduction) | I_S | -1.6 | A | |
| Power Dissipation | P_D | $T_A=25^{\circ}\text{C}$ | 1.25 | W |
| | | $T_A=70^{\circ}\text{C}$ | 0.8 | |
| Operating Junction Temperature | T_J | 150 | $^{\circ}\text{C}$ | |
| Storage Temperature Range | T_{STG} | -55/150 | $^{\circ}\text{C}$ | |
| Thermal Resistance-Junction to Ambient | $R_{\theta JA}$ | 120 | $^{\circ}\text{C}/\text{W}$ | |



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ELECTRICAL CHARACTERISTICS

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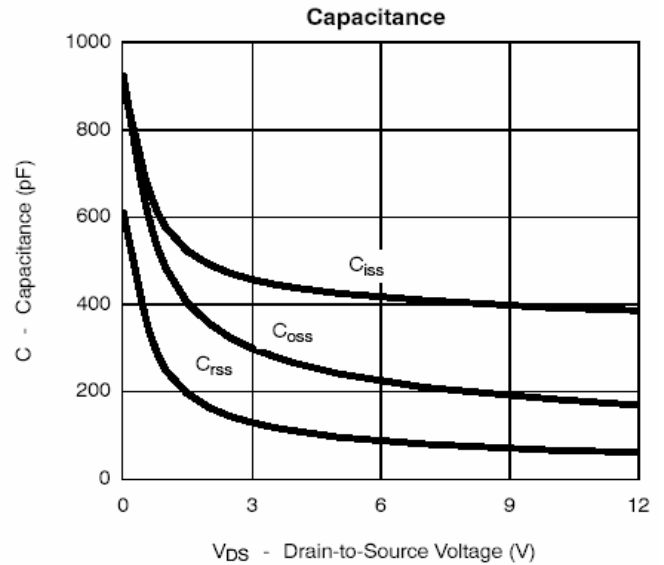
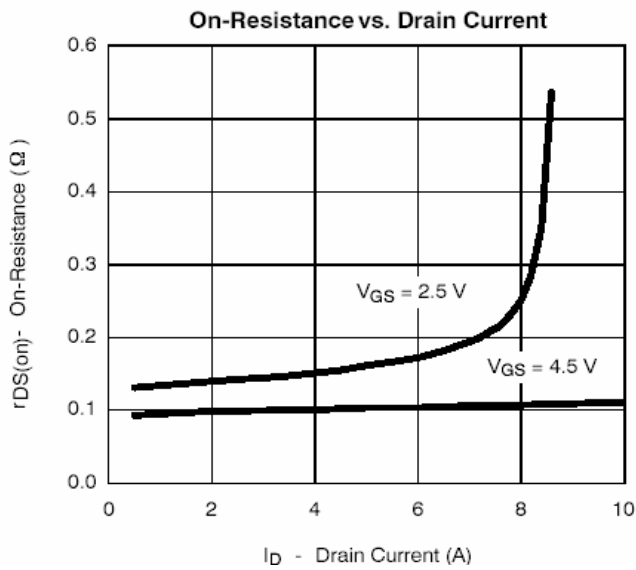
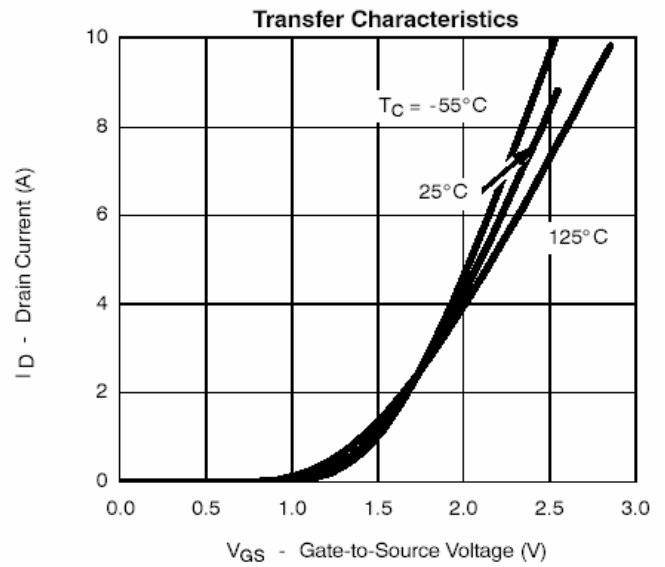
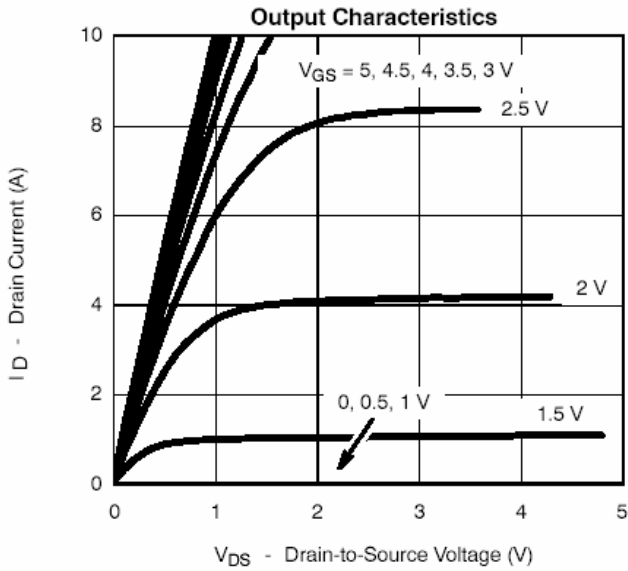
| Parameter | Symbol | Conditions | Min. | Typ | Max. | Unit |
|---------------------------------|---------------|--|-------|-------|-----------|----------|
| Static | | | | | | |
| Drain-Source Breakdown Voltage | $V_{(BR)DSS}$ | $V_{GS}=0V, I_D=-250\mu A$ | -20 | | | V |
| Gate Threshold Voltage | $V_{GS(th)}$ | $V_{DS}=V_{GS}, I_D=-250\mu A$ | -0.45 | | -1.5 | |
| Gate Leakage Current | I_{GSS} | $V_{DS}=0V, V_{GS}=\pm 12V$ | | | ± 100 | nA |
| Zero Gate Voltage Drain Current | I_{DSS} | $V_{DS}=-20V, V_{GS}=0V$ | | | -1 | uA |
| | | $V_{DS}=-20V, V_{GS}=0V$ $T_J=55^{\circ}\text{C}$ | | | -10 | |
| On-State Drain Current | $I_{D(on)}$ | $V_{DS}\leq -5V, V_{GS}=-4.5V$ | -6 | | | A |
| | | $V_{DS}\leq -5V, V_{GS}=-2.5V$ | -3 | | | |
| Drain-Source On-Resistance | $R_{DS(on)}$ | $V_{GS}=-4.5V, I_D=-2.8A$ | | 0.095 | 0.130 | Ω |
| | | $V_{GS}=-2.5V, I_D=-1.6A$ | | 0.165 | 0.200 | |
| Forward Transconductance | g_{fs} | $V_{DS}=-5V, I_D=-2.8A$ | | 6.5 | | S |
| Diode Forward Voltage | V_{SD} | $I_S=-1.6A, V_{GS}=0V$ | | -0.8 | -1.2 | V |
| Dynamic | | | | | | |
| Total Gate Charge | Q_g | $V_{DS}=-6V, V_{GS}=-4.5V$ $I_D=-2.8A$ | | 4.8 | 8 | nC |
| Gate-Source Charge | Q_{gs} | | | 0.75 | | |
| Gate-Drain Charge | Q_{gd} | | | 1.3 | | |
| Input Capacitance | C_{iss} | $V_{DS}=-6V, V_{GS}=0V$ $f=1\text{MHz}$ | | 35 | | pF |
| Output Capacitance | C_{oss} | | | 150 | | |
| Reverse Transfer Capacitance | C_{rss} | | | 60 | | |
| Turn-On Time | $t_{d(on)}$ | $V_{DD}=-6V, R_L=6\Omega$ $I_D=-1.0A, V_{GEN}=-4.5V$ $R_G=6\Omega$ | | 10 | 20 | nS |
| | t_r | | | 32 | 45 | |
| Turn-Off Time | $t_{d(off)}$ | | | 38 | 55 | |
| | t_f | | | 30 | 50 | |



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TYPICAL CHARACTERISTICS

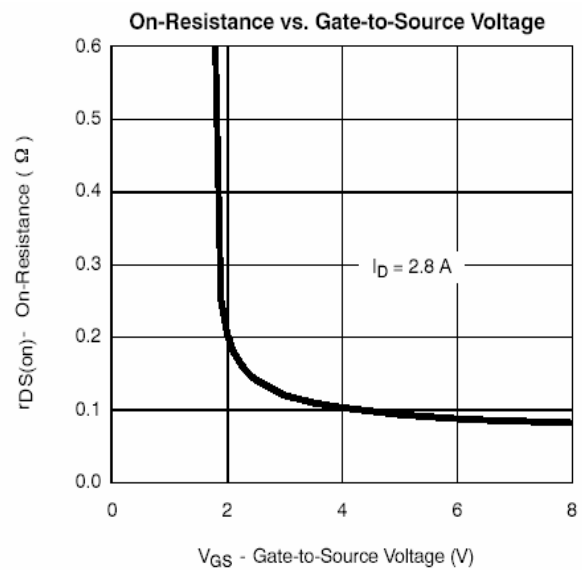
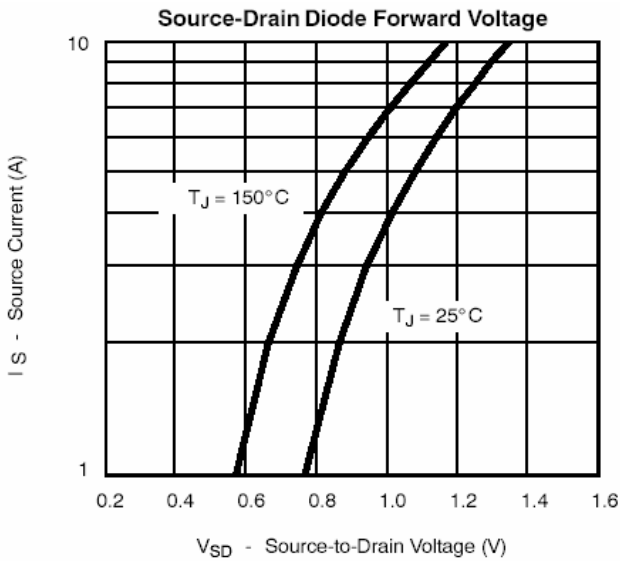
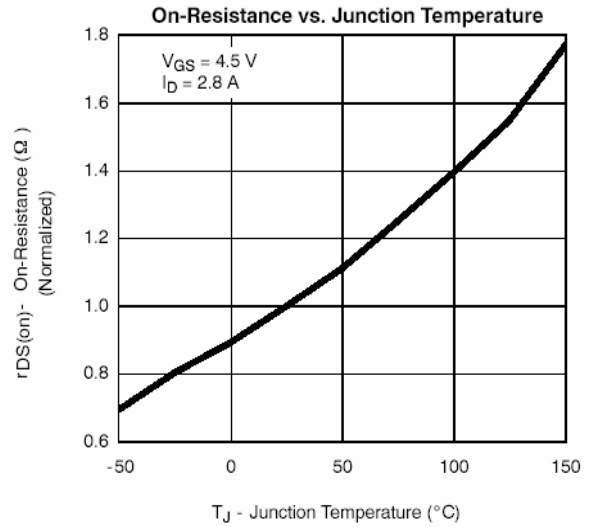
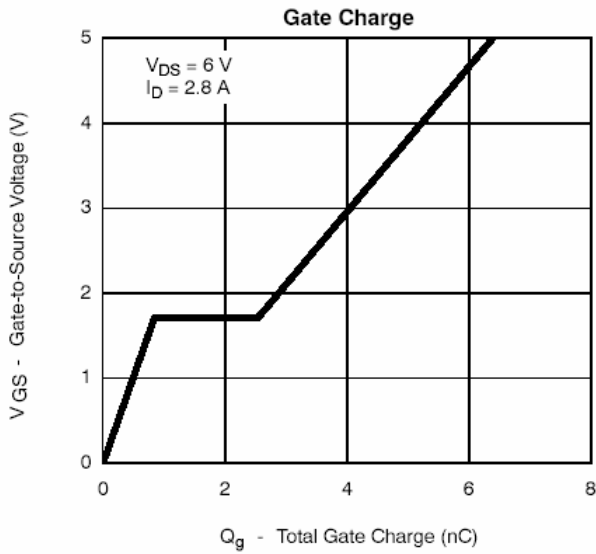




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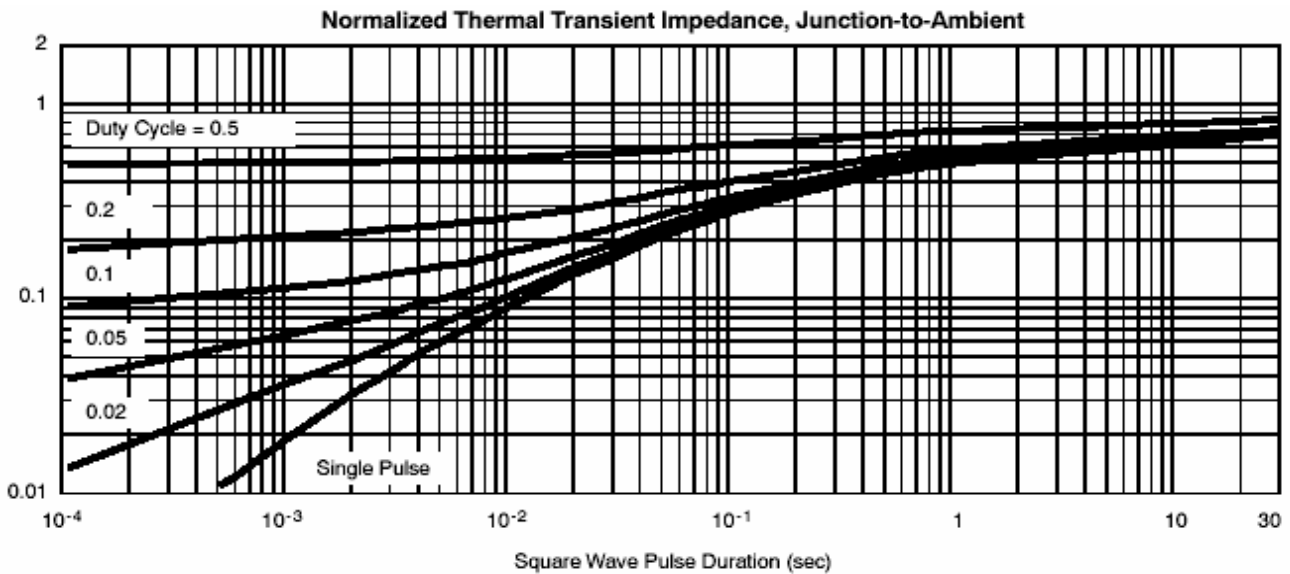
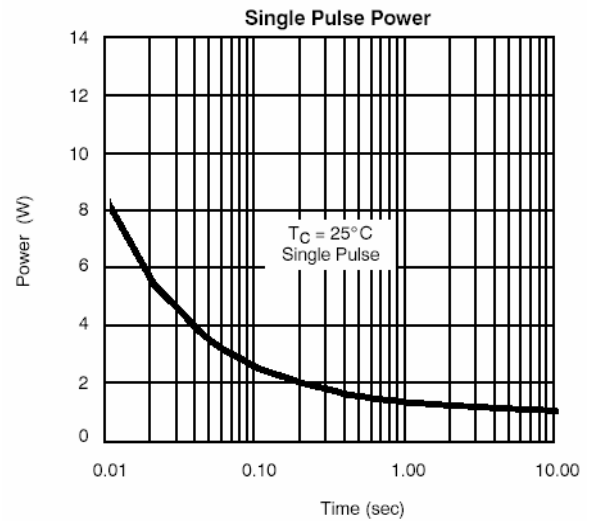
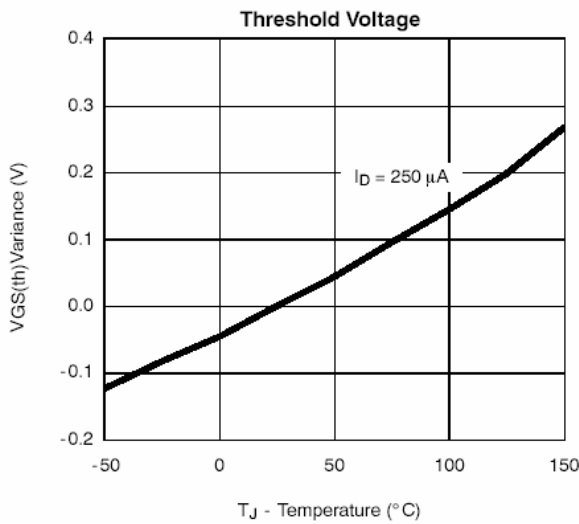
TYPICAL CHARACTERISTICS





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TYPICAL CHARACTERISTICS





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