



SPP3052

P-Channel Enhancement Mode MOSFET

DESCRIPTION

The SPP3052 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 DC/DC converter and Desktop computer power management.

The package is universally preferred for commercial industrial surface mount applications

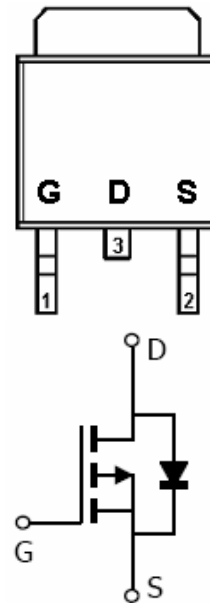
APPLICATIONS

- Power Management in Desktop Computer
- DC/DC Converter
- LCD Display inverter

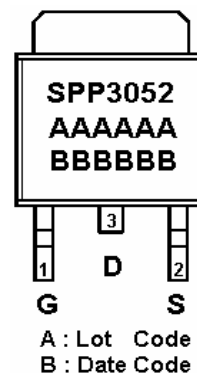
FEATURES

- ◆ -30V/- 25A, $R_{DS(ON)}=50m\Omega@V_{GS}=-10V$
- ◆ -30V/- 16A, $R_{DS(ON)}=85m\Omega@V_{GS}=-5V$
- ◆ Super high density cell design for extremely low $R_{DS(ON)}$
- ◆ Exceptional on-resistance and maximum DC current capability
- ◆ TO-252-2L package design

PIN CONFIGURATION (TO-252-2L)



PART MARKING





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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 |
|---------------|-----------|--------------|
| SPP3052T252RG | TO-252-2L | SPP3052 |

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

※ SPP3052T252RG : 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 | $T_A=25^{\circ}\text{C}$ -25 | A |
| | | $T_A=70^{\circ}\text{C}$ -18 | |
| Pulsed Drain Current | I_{DM} | -100 | A |
| Continuous Source Current(Diode Conduction) | I_S | -15 | A |
| Power Dissipation | P_D | $T_A=25^{\circ}\text{C}$ 40 | W |
| | | $T_A=70^{\circ}\text{C}$ 20 | |
| Operating Junction Temperature | T_J | -55/150 | $^{\circ}\text{C}$ |
| Storage Temperature Range | T_{STG} | -55/150 | $^{\circ}\text{C}$ |
| Thermal Resistance-Junction to Ambient | $R_{\theta JA}$ | 105 | $^{\circ}\text{C}/\text{W}$ |



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ELECTRICAL CHARACTERISTICS

(TA=25°C Unless otherwise noted)

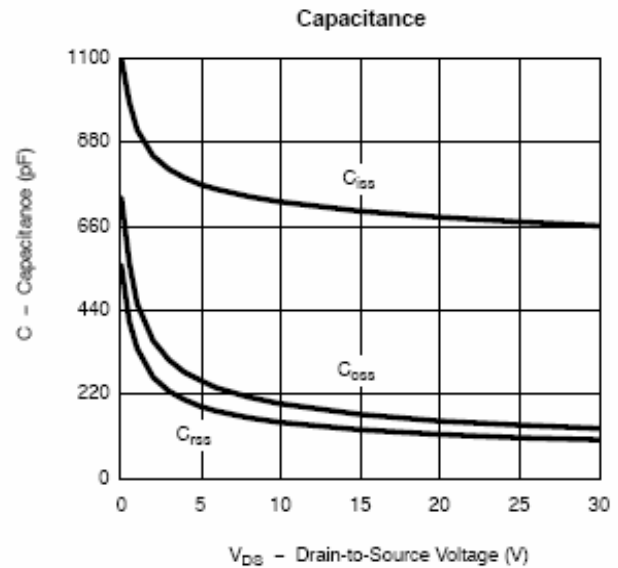
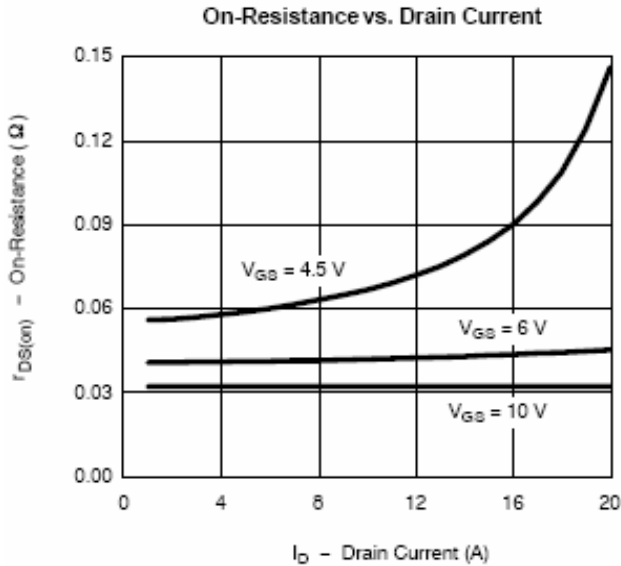
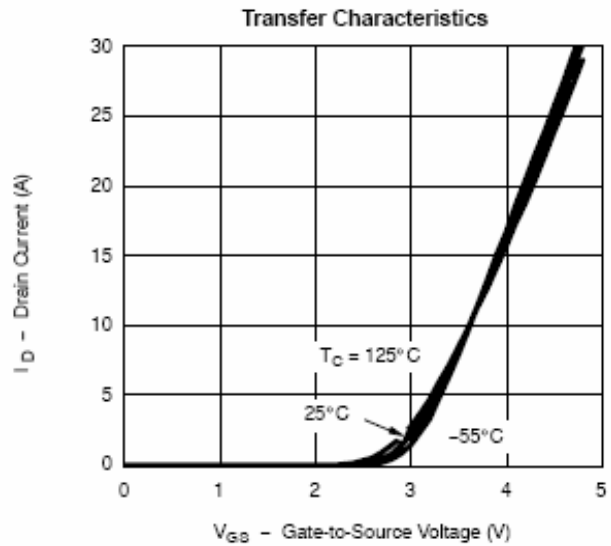
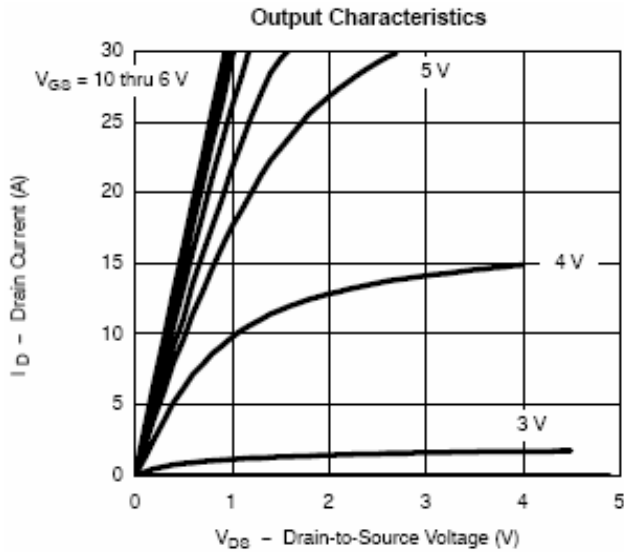
| Parameter | Symbol | Conditions | Min. | Typ | Max. | Unit |
|---------------------------------|---------------|---|------|-------|-----------|----------|
| Static | | | | | | |
| Drain-Source Breakdown Voltage | $V_{(BR)DSS}$ | $V_{GS}=0V, I_D=-250\mu A$ | -30 | | | V |
| Gate Threshold Voltage | $V_{GS(th)}$ | $V_{DS}=V_{GS}, I_D=-250\mu A$ | -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 |
| | | $V_{DS}=-24V, V_{GS}=0V$ $T_J=85^\circ C$ | | | -5 | |
| Drain-Source On-Resistance | $R_{DS(on)}$ | $V_{GS}=-10V, I_D=-25A$ | | 0.040 | 0.050 | Ω |
| | | $V_{GS}=-5V, I_D=-16A$ | | 0.068 | 0.085 | |
| Forward Transconductance | g_{fs} | $V_{DS}=-10V, I_D=-8A$ | | 8 | | S |
| Diode Forward Voltage | V_{SD} | $I_S=-16A, V_{GS}=0V$ | | -0.8 | -1.2 | V |
| Dynamic | | | | | | |
| Total Gate Charge | Q_g | $V_{DS}=-15V, V_{GS}=-10V$ $I_D=-3.5A$ | | 16 | 24 | nC |
| Gate-Source Charge | Q_{gs} | | | 2.3 | | |
| Gate-Drain Charge | Q_{gd} | | | 4.5 | | |
| Input Capacitance | C_{iss} | $V_{DS}=-15V, V_{GS}=0V$ $f=1MHz$ | | 680 | | pF |
| Output Capacitance | C_{oss} | | | 120 | | |
| Reverse Transfer Capacitance | C_{rss} | | | 75 | | |
| Turn-On Time | $t_{d(on)}$ | $V_{DD}=-15V, R_L=15\Omega$ $I_D=-1.0A, V_{GEN}=-10V$ $R_G=6\Omega$ | | 14 | 25 | ns |
| | t_r | | | 15 | 26 | |
| Turn-Off Time | $t_{d(off)}$ | | | 42 | 70 | |
| | t_f | | | 30 | 50 | |



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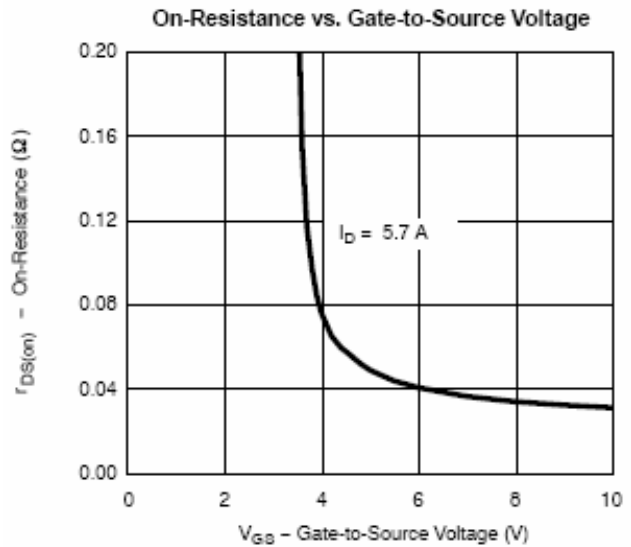
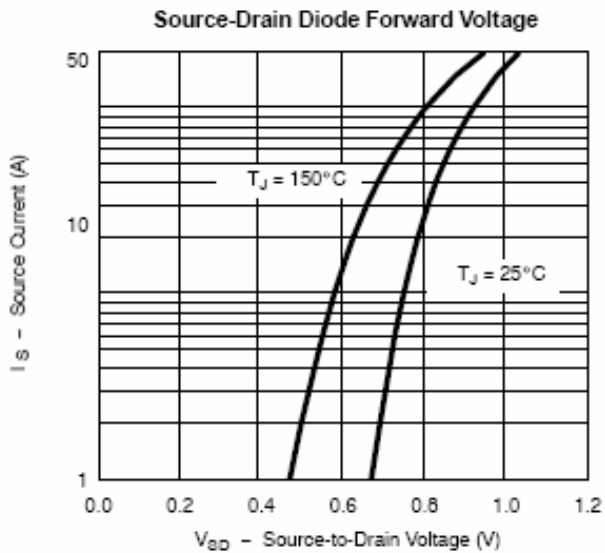
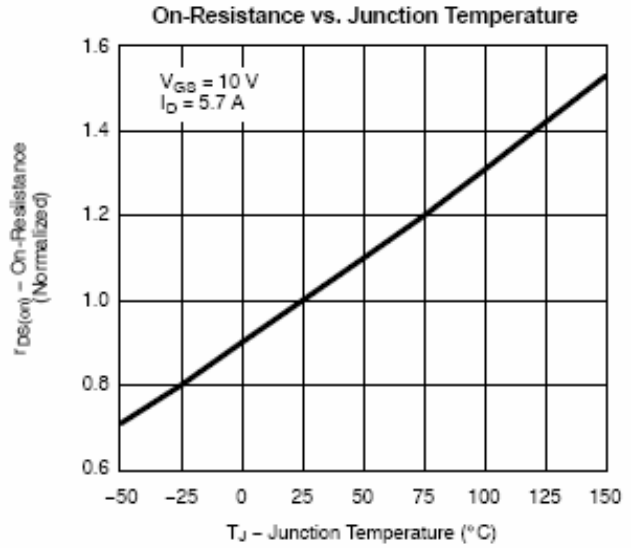
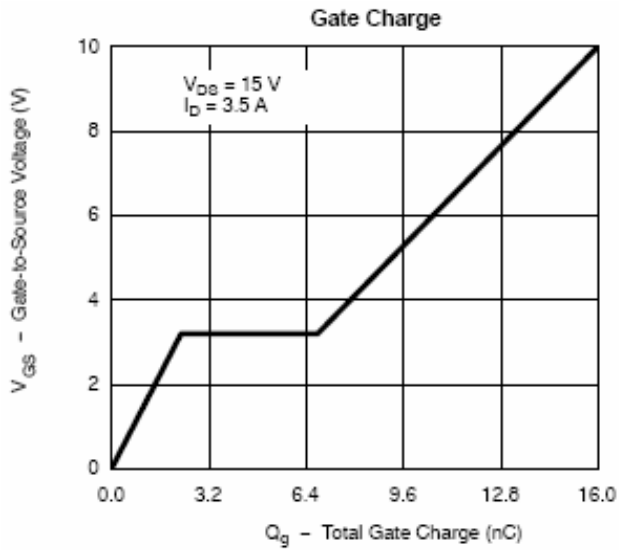
TYPICAL CHARACTERISTICS





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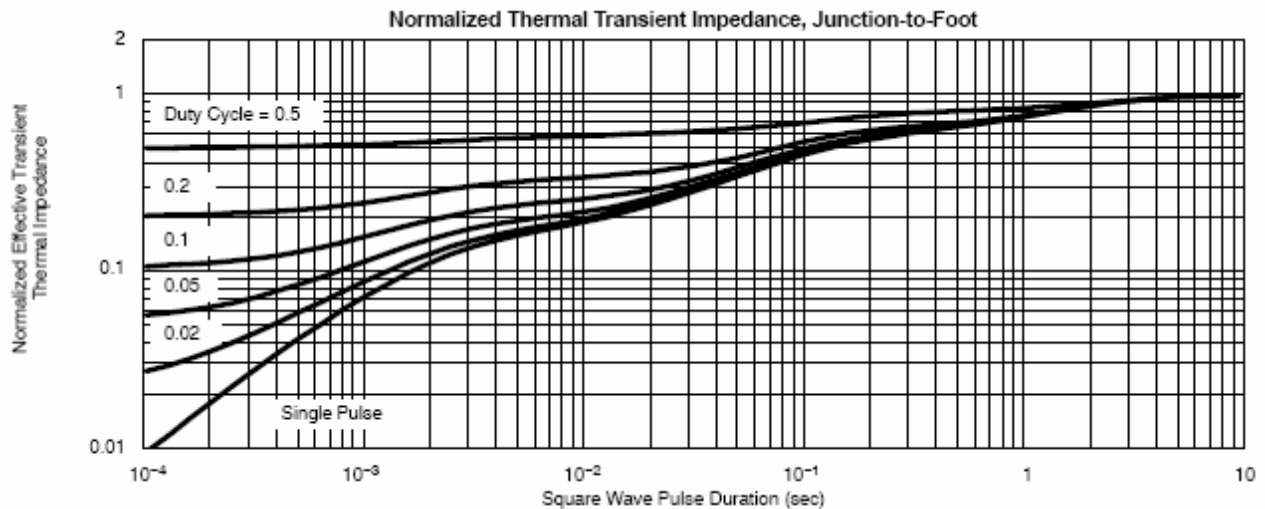
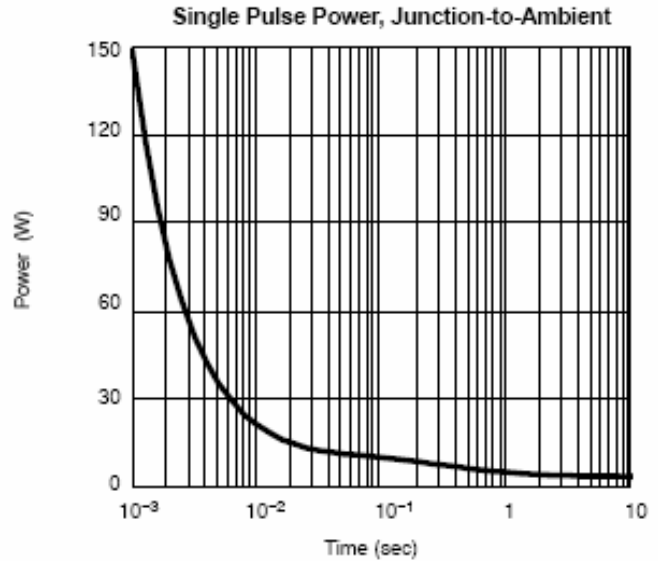
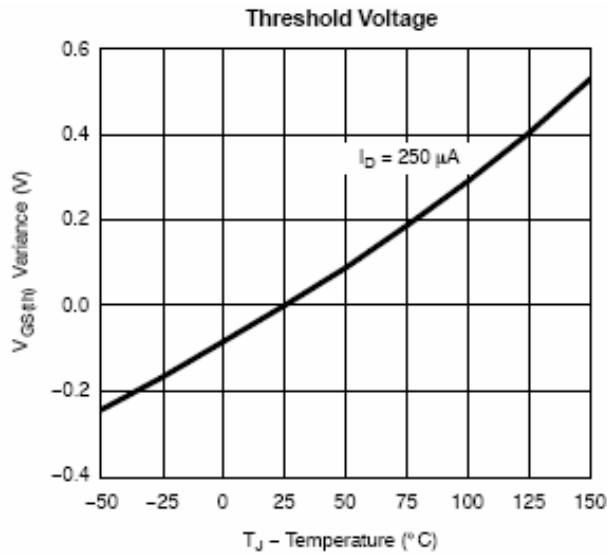
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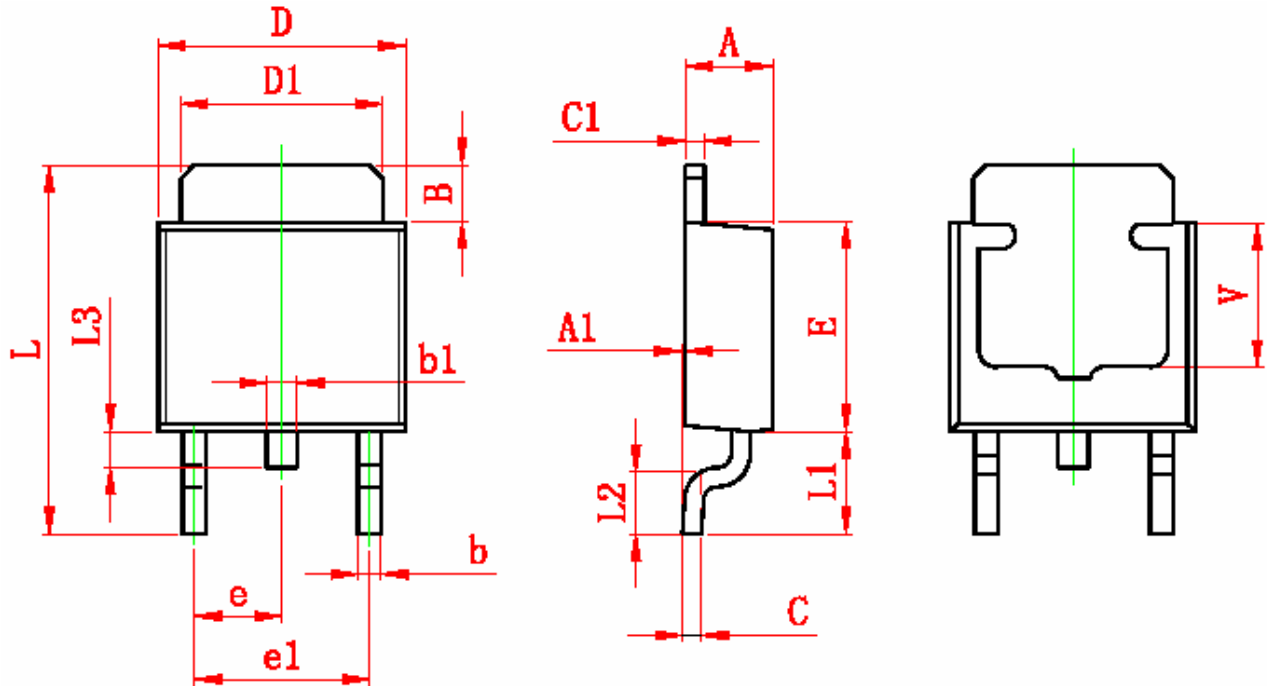




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TO-252-2L PACKAGE OUTLINE



| Symbol | Dimensions In Millimeters | | Dimensions In Inches | |
|--------|---------------------------|-------|----------------------|-------|
| | Min. | Max. | Min. | Max. |
| A | 2.200 | 2.400 | 0.087 | 0.094 |
| A1 | 0.000 | 0.127 | 0.000 | 0.005 |
| B | 1.350 | 1.650 | 0.053 | 0.065 |
| b | 0.500 | 0.700 | 0.020 | 0.028 |
| b1 | 0.700 | 0.900 | 0.028 | 0.035 |
| c | 0.430 | 0.580 | 0.017 | 0.023 |
| c1 | 0.430 | 0.580 | 0.017 | 0.023 |
| D | 6.350 | 6.650 | 0.250 | 0.262 |
| D1 | 5.200 | 5.400 | 0.205 | 0.213 |
| E | 5.400 | 5.700 | 0.213 | 0.224 |
| e | 2.300 TYP. | | 0.091 TYP. | |
| e1 | 4.500 | 4.700 | 0.177 | 0.185 |
| L | 9.500 | 9.900 | 0.374 | 0.390 |
| L1 | 2.550 | 2.900 | 0.100 | 0.114 |
| L2 | 1.400 | 1.780 | 0.055 | 0.070 |
| L3 | 0.600 | 0.900 | 0.024 | 0.035 |
| V | 3.800 REF. | | 0.150 REF. | |



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