



SPN4426 N-Channel Enhancement Mode MOSFET

DESCRIPTION

The SPN4426 is the N-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 , notebook computer power management and other battery powered circuits where high-side switching .

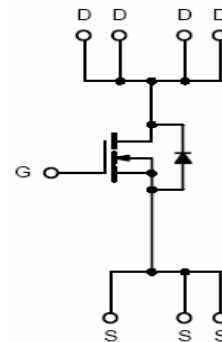
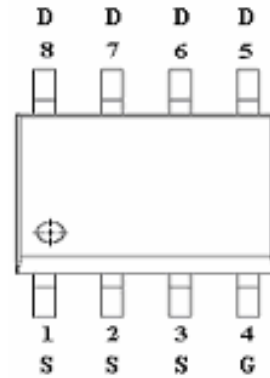
FEATURES

- ◆ 20V/8.0A, $R_{DS(ON)} = 28m\Omega @ V_{GS} = 4.5V$
- ◆ 20V/7.0A, $R_{DS(ON)} = 36m\Omega @ V_{GS} = 2.5V$
- ◆ 20V/3.0A, $R_{DS(ON)} = 42m\Omega @ V_{GS} = 1.8V$
- ◆ Super high density cell design for extremely low $R_{DS(ON)}$
- ◆ Exceptional on-resistance and maximum DC current capability
- ◆ SOP – 8P package design

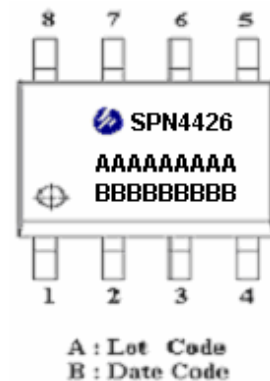
APPLICATIONS

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

PIN CONFIGURATION(SOP – 8P)



PART MARKING





SPN4426

N-Channel Enhancement Mode MOSFET

PIN DESCRIPTION

| Pin | Symbol | Description |
|-----|--------|-------------|
| 1 | S | Source |
| 2 | S | Source |
| 3 | S | Source |
| 4 | G | Gate |
| 5 | D | Drain |
| 6 | D | Drain |
| 7 | D | Drain |
| 8 | D | Drain |

ORDERING INFORMATION

| Part Number | Package | Part Marking |
|-------------|---------|--------------|
| SPN4426S8RG | SOP- 8P | SPN4426 |
| SPN4426S8TG | SOP- 8P | SPN4426 |

※ SPN4426S8RG : 13" Tape Reel ; Pb – Free

※ SPN4426S8TG : Tube ; Pb – Free

ABSOLUTE MAXIMUM RATINGS

(TA=25°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°C) | I _D | TA=25°C | 7.4 |
| | | TA=70°C | 6.0 |
| Pulsed Drain Current | I _{DM} | 35 | A |
| Continuous Source Current(Diode Conduction) | I _S | 2.3 | A |
| Power Dissipation | P _D | TA=25°C | 2.5 |
| | | TA=70°C | 1.6 |
| Operating Junction Temperature | T _J | -55/150 | °C |
| Storage Temperature Range | T _{STG} | -55/150 | °C |
| Thermal Resistance-Junction to Ambient | R _{θJA} | 80 | °C/W |



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ELECTRICAL CHARACTERISTICS

(TA=25°C Unless otherwise noted)

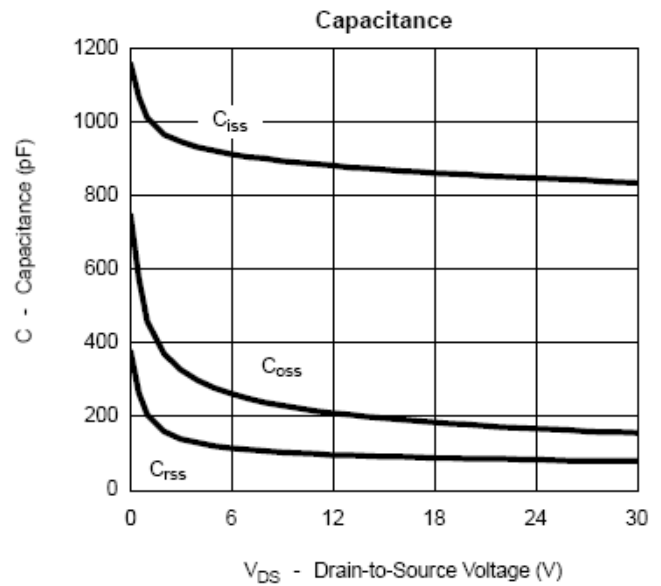
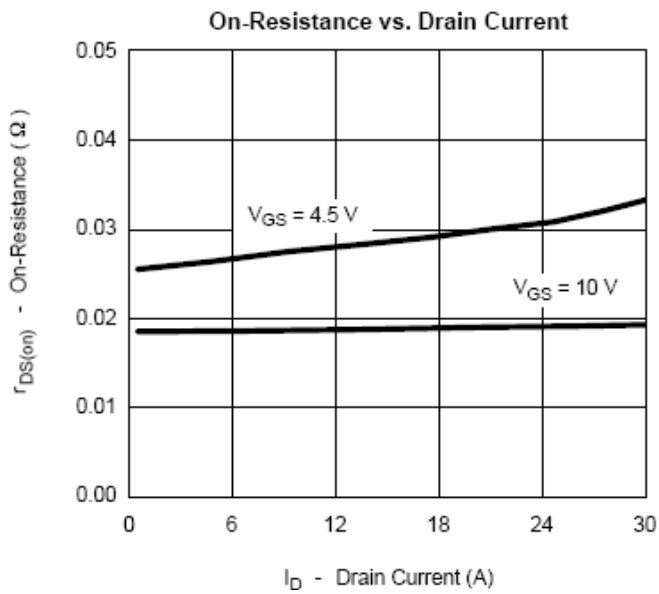
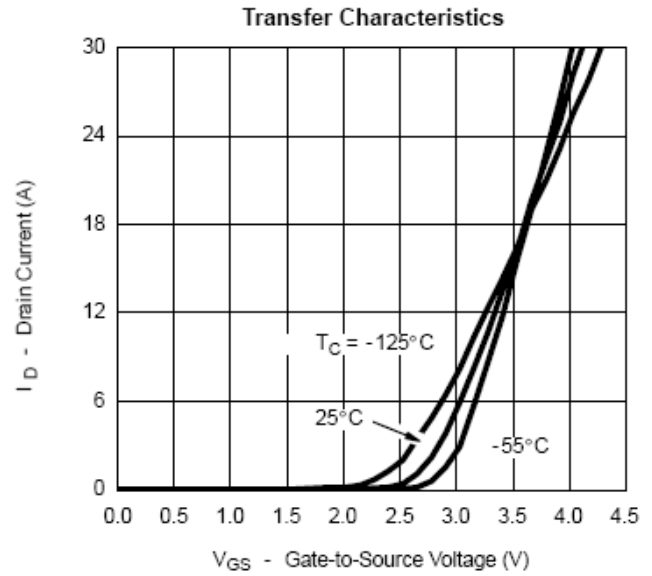
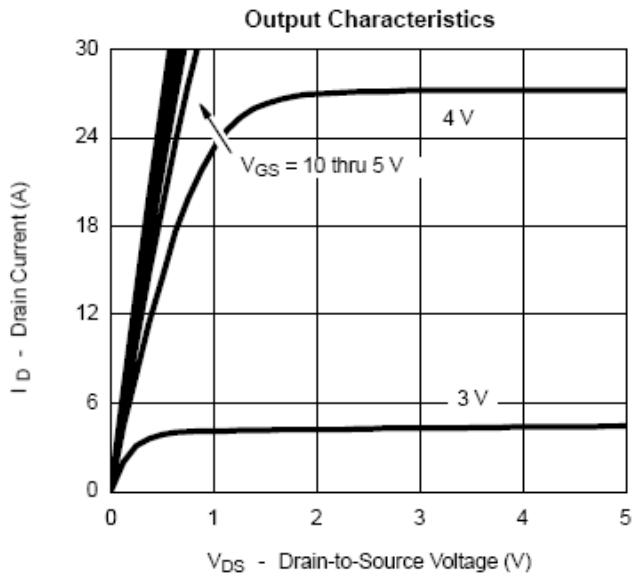
| Parameter | Symbol | Conditions | Min. | Typ | Max. | Unit |
|---------------------------------|----------------------|---|------|-------|-------|------|
| Static | | | | | | |
| Drain-Source Breakdown Voltage | V _{(BR)DSS} | V _{GS} =0V, I _D =250uA | 20 | | | V |
| Gate Threshold Voltage | V _{GS(th)} | V _{DS} =V _{GS} , I _D =250uA | 0.4 | | 1.0 | |
| Gate Leakage Current | I _{GSS} | V _{DS} =0V, V _{GS} =±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°C | | | 10 | |
| On-State Drain Current | I _{D(on)} | V _{DS} ≥5V, V _{GS} =4.5V | 6 | | | A |
| Drain-Source On-Resistance | R _{DSS(on)} | V _{GS} = 4.5V, I _D =8.0A | | 0.022 | 0.028 | Ω |
| | | V _{GS} = 2.5V, I _D =7.0A | | 0.026 | 0.038 | |
| | | V _{GS} = 1.8V, I _D =3.0A | | 0.032 | 0.042 | |
| Forward Transconductance | g _{fs} | V _{DS} =15V, I _D =5.0A | | 30 | | 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} =10V, V _{GS} =4.5V I _D =5.0A | | 10 | 13 | nC |
| Gate-Source Charge | Q _{gs} | | | 1.4 | | |
| Gate-Drain Charge | Q _{gd} | | | 2.1 | | |
| Input Capacitance | C _{iss} | V _{DS} =10V, V _{GS} =0V f=1MHz | | 600 | | pF |
| Output Capacitance | C _{oss} | | | 120 | | |
| Reverse Transfer Capacitance | C _{rss} | | | 100 | | |
| Turn-On Time | t _{d(on)} | V _{DD} =10V, R _L =10Ω I _D =1.0A, V _{GEN} =4.5V R _G =6Ω | | 15 | 25 | ns |
| | t _r | | | 40 | 60 | |
| Turn-Off Time | t _{d(off)} | | | 45 | 65 | |
| | t _f | | | 30 | 40 | |



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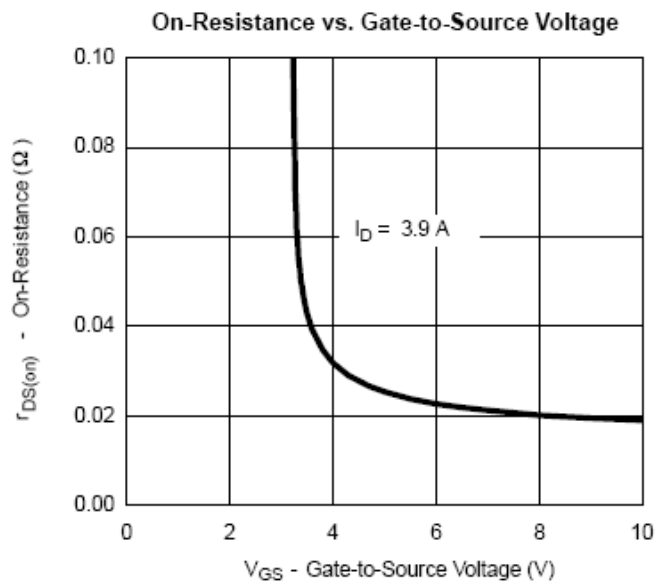
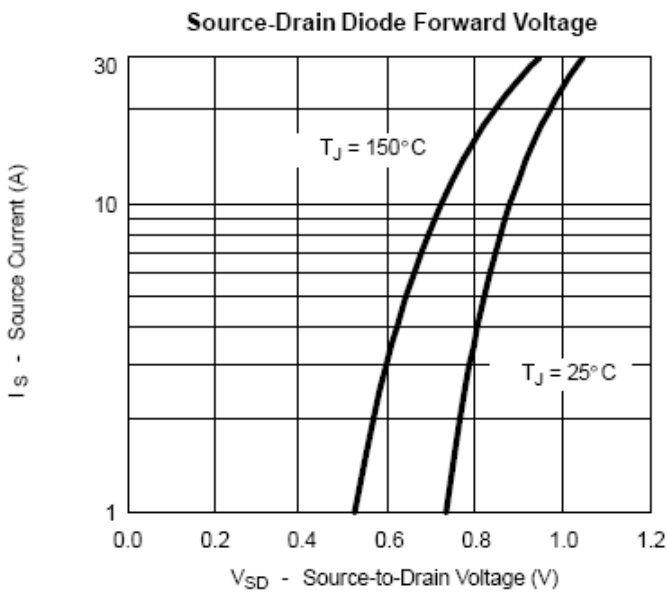
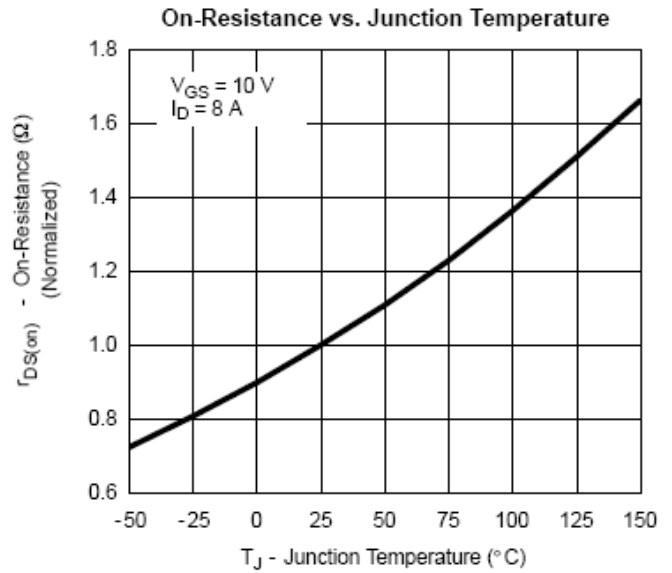
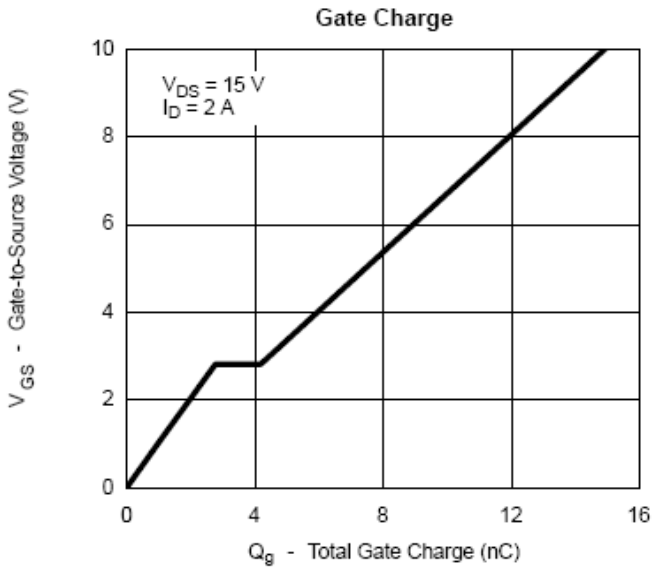
TYPICAL CHARACTERISTICS





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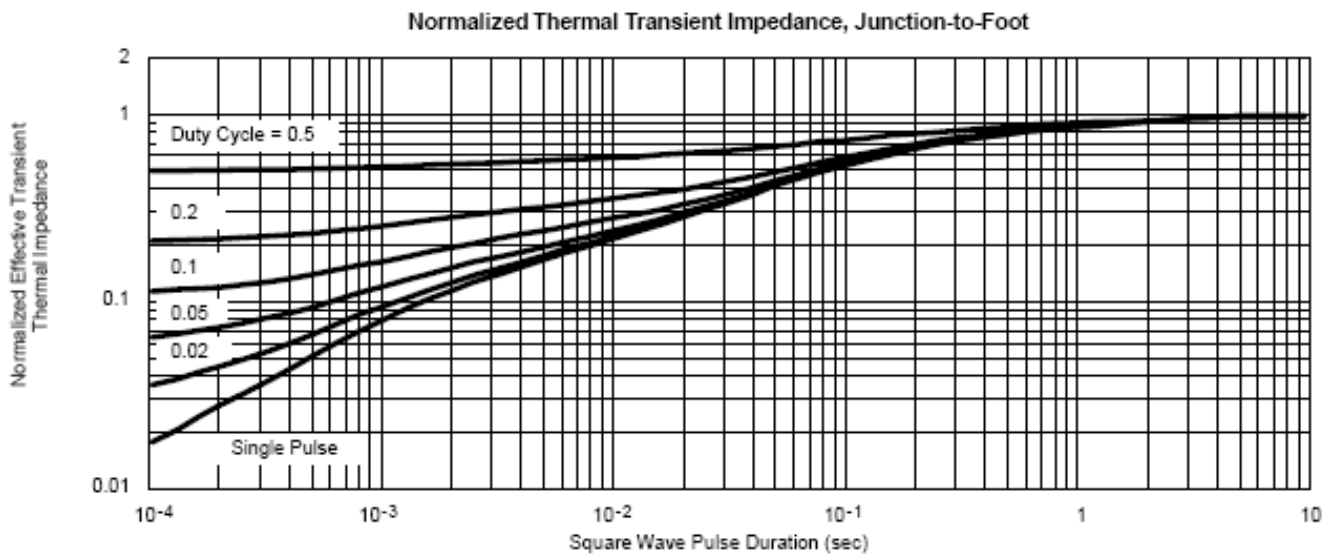
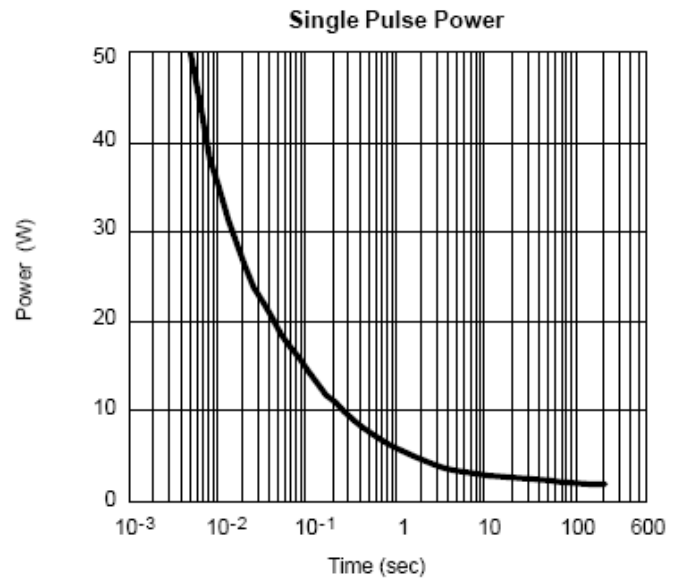
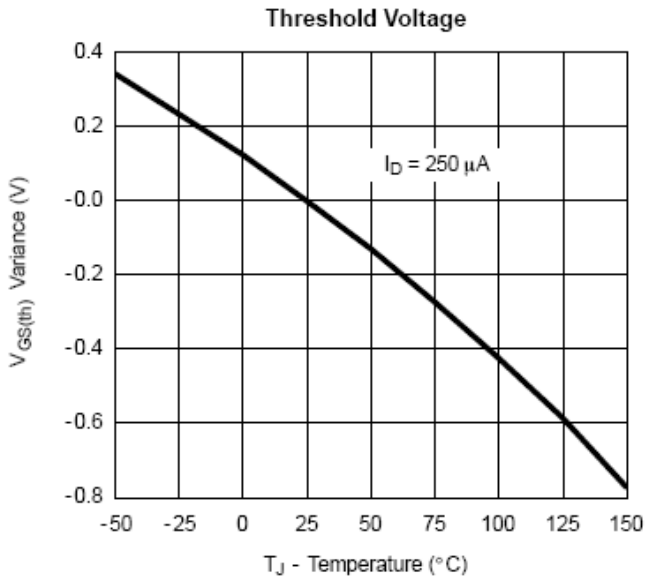
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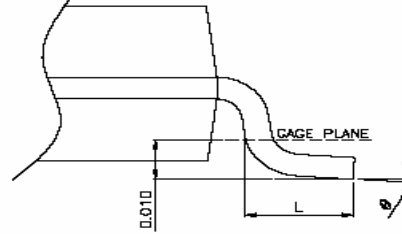
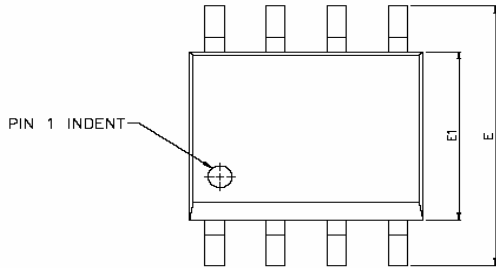
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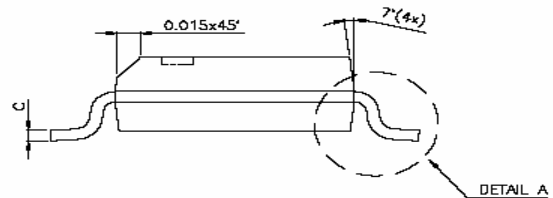
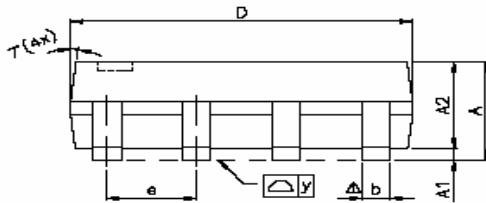


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SOP- 8 PACKAGE OUTLINE



DETAIL A



| SYMBOLS | DIMENSIONS IN MILLIMETERS | | | DIMENSIONS IN INCHES | | |
|------------|---------------------------|------|-------|----------------------|-------|--------|
| | MIN | NOM | MAX | MIN | NOM | MAX |
| A | 1.47 | 1.60 | 1.73 | 0.058 | 0.063 | 0.068 |
| A1 | 0.10 | — | 0.25 | 0.004 | — | 0.010 |
| A2 | — | 1.45 | — | — | 0.057 | — |
| b | 0.33 | 0.41 | 0.51 | 0.013 | 0.016 | 0.020 |
| C | 0.19 | 0.20 | 0.25 | 0.0075 | 0.008 | 0.0098 |
| D | 4.80 | 4.85 | 4.95 | 0.189 | 0.191 | 0.195 |
| E | 5.80 | 6.00 | 6.20 | 0.228 | 0.236 | 0.244 |
| E1 | 3.80 | 3.90 | 4.00 | 0.150 | 0.154 | 0.157 |
| e | — | 1.27 | — | — | 0.050 | — |
| L | 0.38 | 0.71 | 1.27 | 0.015 | 0.028 | 0.050 |
| Δ y | — | — | 0.076 | — | — | 0.003 |
| θ | 0° | — | 8° | 0° | — | 8° |



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