



SPN2328

N-Channel Enhancement Mode MOSFET

DESCRIPTION

The SPN2328 is the N-Channel logic enhancement mode power field effect transistor which is produced using super high cell density DMOS trench technology. The SPN2328 has been designed specifically to improve the overall efficiency of DC/DC converters using either synchronous or conventional switching PWM controllers. It has been optimized for low gate charge, low $R_{DS(ON)}$ and fast switching speed.

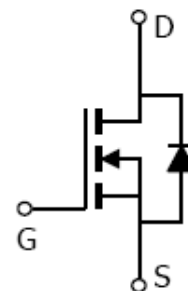
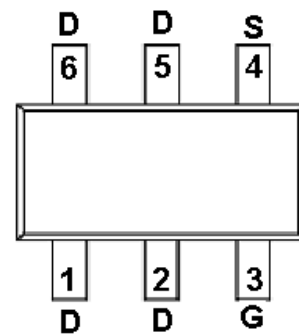
APPLICATIONS

- Powered System
- DC/DC Converter
- Load Switch

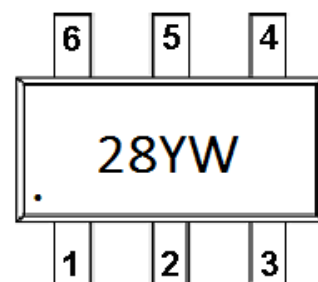
FEATURES

- ◆ 150V/2A, $R_{DS(ON)}=350m\Omega@V_{GS}=10V$
- ◆ High density cell design for extremely low $R_{DS(ON)}$
- ◆ Exceptional on-resistance and maximum DC current capability
- ◆ SOT-23-6L package design

PIN CONFIGURATION(SOT-23-6L)



PART MARKING





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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 |
|---------------|-----------|--------------|
| SPN2328S26RGB | SOT-23-6L | 28YW |

※ SPN2328S26RGB : Tape Reel ; Pb – Free ; Halogen – Free

ABSOLUTE MAXIMUM RATINGS (TA=25°C Unless otherwise noted)

| Parameter | Symbol | Typical | Unit | |
|---|------------------|---------|------|---|
| Drain-Source Voltage | V _{DSS} | 150 | V | |
| Gate –Source Voltage | V _{GSS} | ±20 | V | |
| Continuous Drain Current(T _J =150°C) | I _D | TA=25°C | 3.0 | A |
| | | TA=70°C | 2.0 | |
| Pulsed Drain Current | I _{DM} | 10 | A | |
| Power Dissipation | P _D | TA=25°C | 1.25 | W |
| | | TA=70°C | 0.8 | |
| Operating Junction Temperature | T _J | -55/150 | °C | |
| Storage Temperature Range | T _{STG} | -55/150 | °C | |
| Thermal Resistance-Junction to Ambient | R _{θJA} | 100 | °C/W | |



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ELECTRICAL CHARACTERISTICS (TA=25°C Unless otherwise noted)

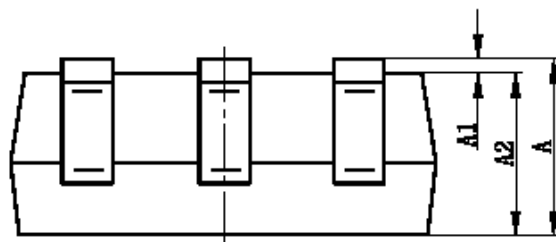
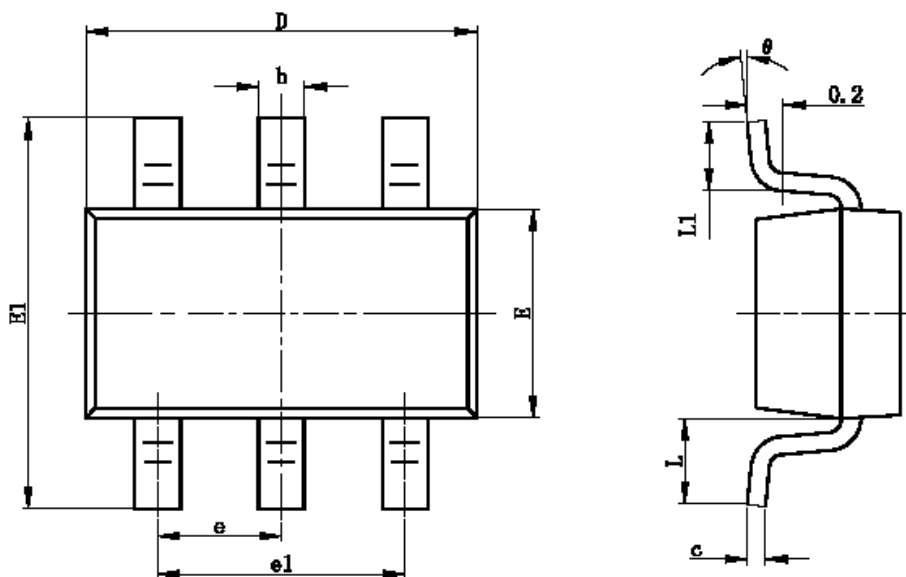
| Parameter | Symbol | Conditions | Min. | Typ | Max. | Unit |
|---------------------------------|----------------------|---|------|------|------|------|
| Static | | | | | | |
| Drain-Source Breakdown Voltage | V _{(BR)DSS} | V _{GS} =0V, I _D =250uA | 150 | | | V |
| Gate Threshold Voltage | V _{GS(th)} | V _{DS} =V _{GS} , I _D =250uA | 1 | 1.5 | 2.5 | |
| Gate Leakage Current | I _{GSS} | V _{DS} =0V, V _{GS} =±20V | | | ±100 | nA |
| Zero Gate Voltage Drain Current | I _{DSS} | V _{DS} =120V, V _{GS} =0V | | | 1 | uA |
| | | V _{DS} =120V, V _{GS} =0V T _J =125°C | | | 5 | |
| On-State Drain Current | I _{D(on)} | V _{DS} ≥5V, V _{GS} =10V | 3.0 | | | A |
| Drain-Source On-Resistance | R _{DS(on)} | V _{GS} =10V, I _D =2A | | 0.32 | 0.35 | Ω |
| | | V _{GS} =4.5V, I _D =1A | | 0.35 | 0.4 | |
| Forward Transconductance | g _{fs} | V _{DS} =10V, I _D =2A | | 2.4 | | S |
| Diode Forward Voltage | V _{SD} | I _S =1A, V _{GS} =0V | | | 1.2 | V |
| Dynamic | | | | | | |
| Total Gate Charge | Q _g | V _{DS} =120V, V _{GS} =10V I _D =2A | | 9 | 13 | nC |
| Gate-Source Charge | Q _{gs} | | | 2 | | |
| Gate-Drain Charge | Q _{gd} | | | 1.4 | | |
| Input Capacitance | C _{iss} | V _{DS} =120V, V _{GS} =0V f=1MHz | | 508 | | pF |
| Output Capacitance | C _{oss} | | | 29 | | |
| Reverse Transfer Capacitance | C _{rss} | | | 16.5 | | |
| Turn-On Time | t _{d(on)} | V _{DD} =120V, R _L =10Ω I _D =2A, V _{GEN} =10V R _G =3.3Ω | | 2 | | nS |
| | t _r | | | 21.5 | | |
| Turn-Off Time | t _{d(off)} | | | 11.2 | | |
| | t _f | | | 18.8 | | |



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SOT-23-6L PACKAGE OUTLINE



| Symbol | Dimensions In Millimeters | | Dimensions In Inches | |
|--------|---------------------------|-------|----------------------|-------|
| | Min | Max | Min | Max |
| A | 1.050 | 1.250 | 0.041 | 0.049 |
| A1 | 0.000 | 0.100 | 0.000 | 0.004 |
| A2 | 1.050 | 1.150 | 0.041 | 0.045 |
| b | 0.300 | 0.400 | 0.012 | 0.016 |
| c | 0.100 | 0.200 | 0.004 | 0.008 |
| D | 2.820 | 3.020 | 0.111 | 0.119 |
| E | 1.500 | 1.700 | 0.059 | 0.067 |
| E1 | 2.650 | 2.950 | 0.104 | 0.116 |
| e | 0.950TYP | | 0.037TYP | |
| e1 | 1.800 | 2.000 | 0.071 | 0.079 |
| L | 0.700REF | | 0.028REF | |
| L1 | 0.300 | 0.600 | 0.012 | 0.024 |
| θ | 0° | 8° | 0° | 8° |



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