



General Description

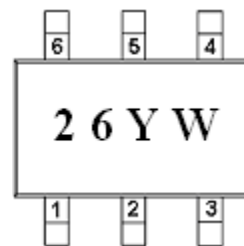
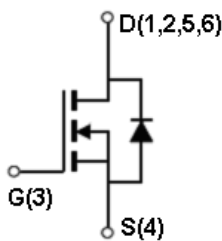
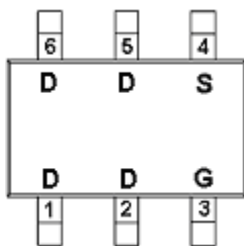
AFN3426, N-Channel enhancement mode MOSFET, uses Advanced Trench Technology to provide excellent $R_{DS(ON)}$, low gate charge.

These devices are particularly suited for low voltage power management, such as smart phone and notebook computer and other battery powered circuits, and low in-line power loss are needed in commercial industrial surface mount applications.

Features

- 20V/4.0A, $R_{DS(ON)}=36m\Omega@V_{GS}=4.5V$
- 20V/3.2A, $R_{DS(ON)}=40m\Omega@V_{GS}=2.5V$
- 20V/2.8A, $R_{DS(ON)}=52m\Omega@V_{GS}=1.8V$
- Super high density cell design for extremely low $R_{DS(ON)}$
- Exceptional on-resistance and maximum DC current capability
- TSOP-6 package design

Pin Description (TSOP-6)



Application

- Portable Equipment
- Battery Powered System
- Net Working System

Pin Define

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

Ordering Information

| Part Ordering No. | Part Marking | Package | Unit | Quantity |
|-------------------|--------------|---------|-------------|----------|
| AFN3426TS6RG | 26YW | TSOP-6 | Tape & Reel | 3000 EA |

- ※ 26 parts code
- ※ Y year code (0 ~ 9)
- ※ W week code (A ~ Z = 1 ~ 26 / a ~ z = 27 ~ 52)
- ※ AFN3426TS6RG : 7" Tape & Reel ; Pb- Free ; Halogen- Free



Absolute Maximum Ratings

(T_A=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 | T _A =25°C | 4.0 |
| | | T _A =70°C | 2.8 |
| Pulsed Drain Current | I _{DM} | 20 | A |
| Continuous Source Current(Diode Conduction) | I _S | 1.6 | A |
| Power Dissipation | P _D | T _A =25°C | 2.0 |
| | | T _A =70°C | 1.3 |
| Operating Junction Temperature | T _J | 150 | °C |
| Storage Temperature Range | T _{STG} | -55/150 | °C |
| Thermal Resistance-Junction to Ambient | R _{θJA} | 120 | °C/W |

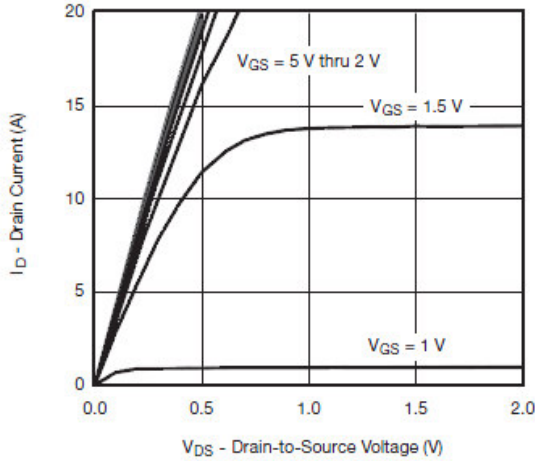
Electrical Characteristics

(T_A=25°C Unless otherwise noted)

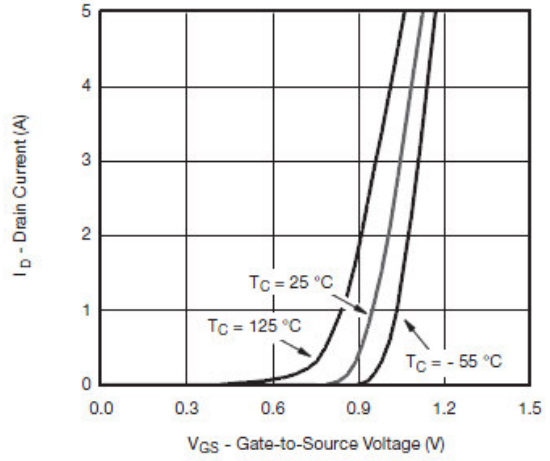
| Parameter | Symbol | Conditions | Min. | Typ | Max. | Unit |
|---------------------------------|----------------------|--|------|------|------|------|
| Static | | | | | | |
| Drain-Source Breakdown Voltage | V _{(BR)DSS} | V _{GS} =0V, I _D =250uA | 20 | | | V |
| Gate Threshold Voltage | V _{GS(th)} | V _{DS} =V _{GS} , I _D =250uA | 0.4 | | 0.8 | |
| Gate Leakage Current | I _{GSS} | V _{DS} =0V, V _{GS} =±12V | | | ±100 | nA |
| Zero Gate Voltage Drain Current | I _{DSS} | V _{DS} =16V, V _{GS} =0V | | | 1 | uA |
| | | V _{DS} =16V, V _{GS} =0V T _J =85°C | | | 10 | |
| On-State Drain Current | I _{D(on)} | V _{DS} ≥ 5V, V _{GS} =4.5V | 6 | | | A |
| | | V _{DS} ≥ 5V, V _{GS} =2.5V | 4 | | | |
| Drain-Source On-Resistance | R _{DS(on)} | V _{GS} =4.5V, I _D =4.0A | | 32 | 36 | mΩ |
| | | V _{GS} =2.5V, I _D =3.2A | | 36 | 40 | |
| | | V _{GS} =1.8V, I _D =2.8A | | 45 | 52 | |
| Forward Transconductance | g _{FS} | V _{DS} =5V, I _D =3.6A | | 10 | | S |
| Diode Forward Voltage | V _{SD} | I _S =1.6A, V _{GS} =0V | | 0.85 | 1.2 | V |
| Dynamic | | | | | | |
| Total Gate Charge | Q _g | V _{DS} =10V, V _{GS} =4.5V I _D ≧4.0A | | 8.2 | 14 | nC |
| Gate-Source Charge | Q _{gs} | | | 1.2 | | |
| Gate-Drain Charge | Q _{gd} | | | 1.0 | | |
| Input Capacitance | C _{iss} | V _{DS} =10V, V _{GS} =0V f=1MHz | | 850 | | pF |
| Output Capacitance | C _{oss} | | | 120 | | |
| Reverse Transfer Capacitance | C _{rss} | | | 60 | | |
| Turn-On Time | t _{d(on)} | V _{DD} =10V, R _L =2.2Ω I _D ≧4.0A, V _{GEN} =4.5V R _G =1Ω | | 10 | 16 | ns |
| | t _r | | | 16 | 25 | |
| Turn-Off Time | t _{d(off)} | | | 31 | 45 | |
| | t _f | | | 10 | 16 | |



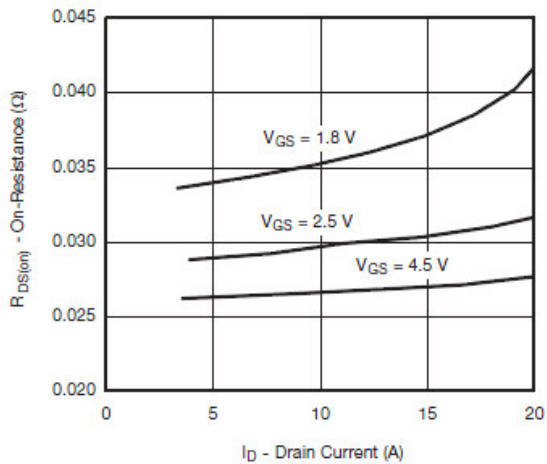
Typical Characteristics



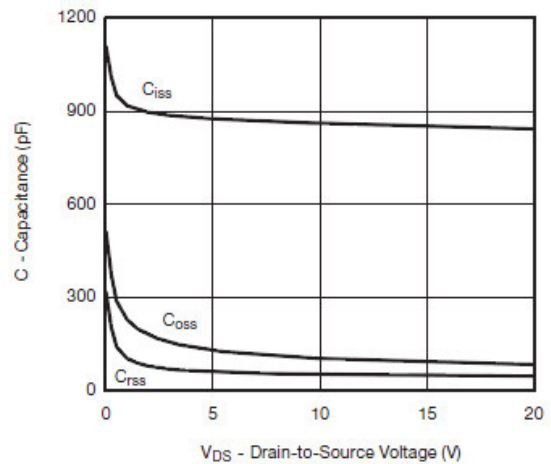
Output Characteristics



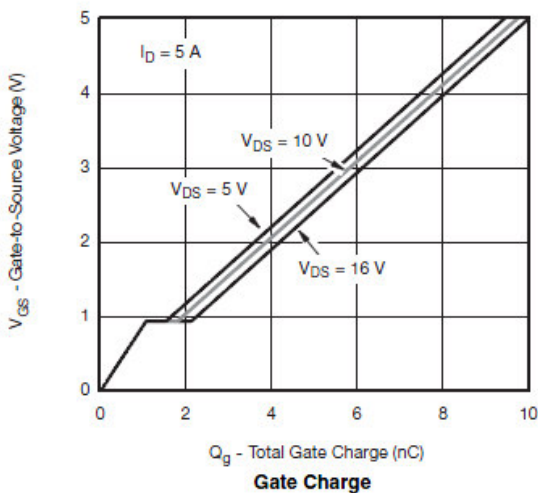
Transfer Characteristics



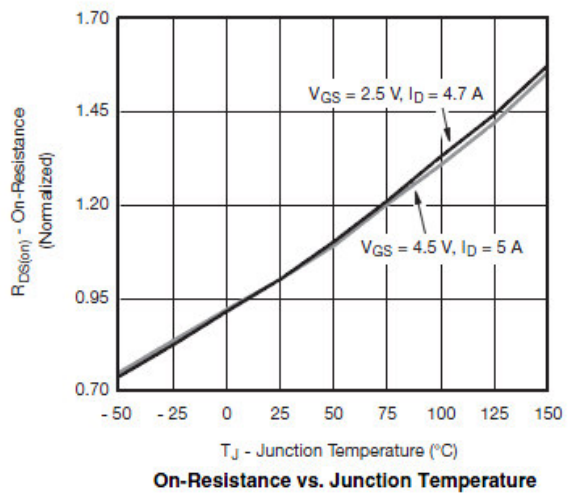
On-Resistance vs. Drain Current and Gate Voltage



Capacitance



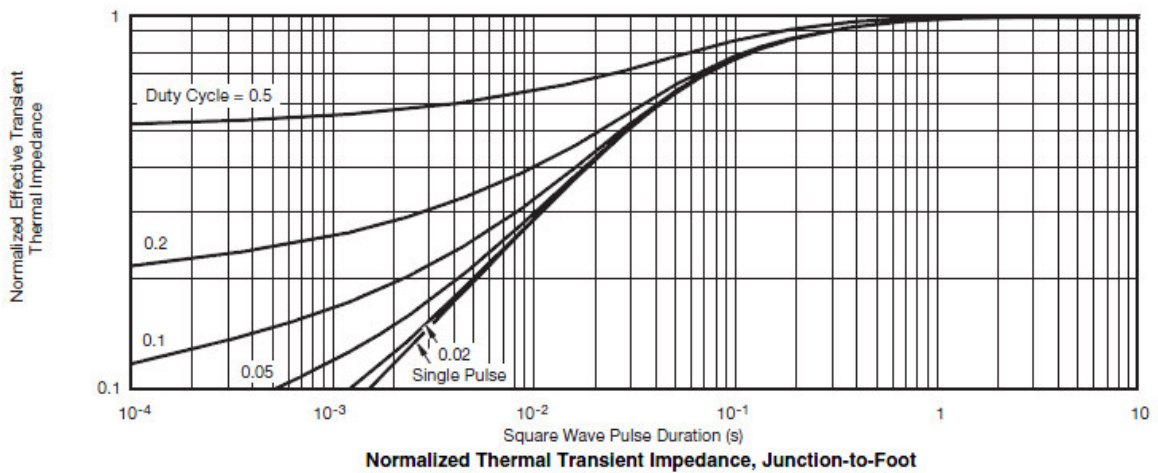
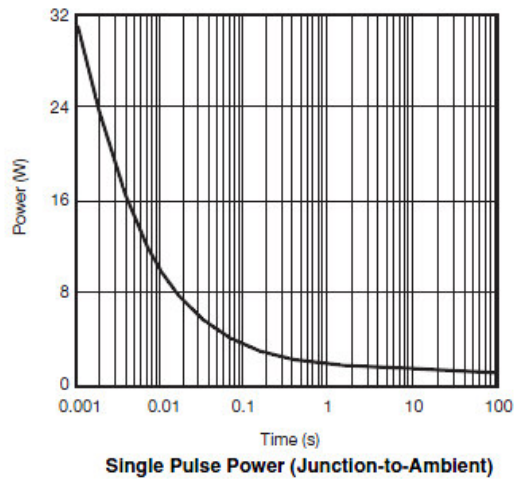
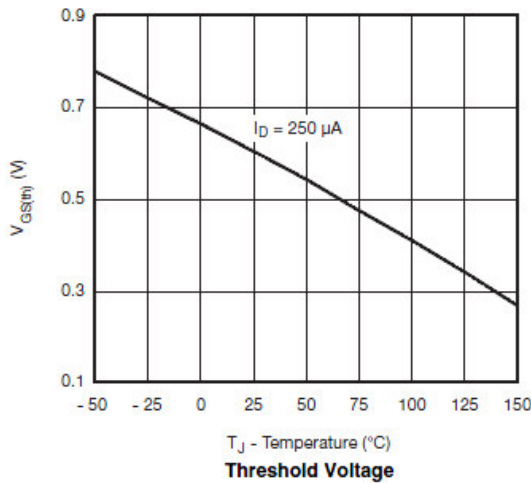
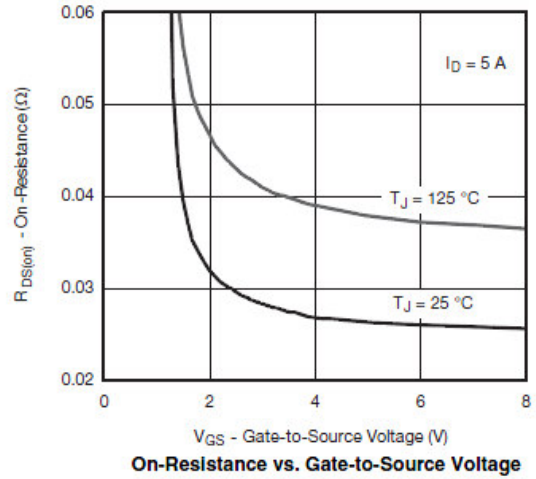
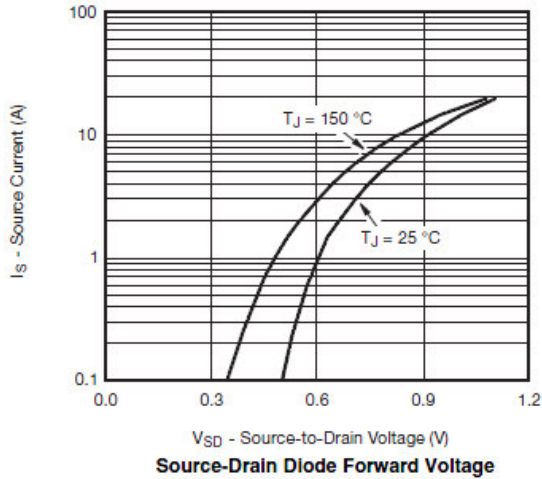
Gate Charge



On-Resistance vs. Junction Temperature



Typical Characteristics





Typical Characteristics

Gate Charge Test Circuit & Waveform



Resistive Switching Test Circuit & Waveforms

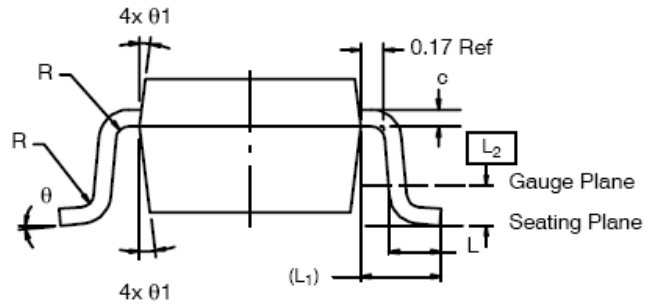
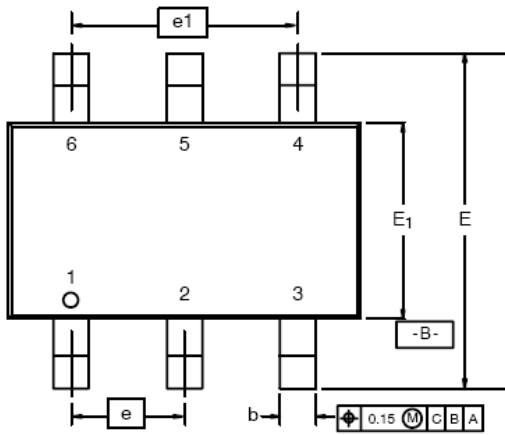


Unclamped Inductive Switching Test Circuit & Waveforms





Package Information (TSOP-6)



| Dim | MILLIMETERS | | | INCHES | | |
|----------------|-------------|------|------|------------|-------|-------|
| | Min | Nom | Max | Min | Nom | Max |
| A | 0.91 | - | 1.10 | 0.036 | - | 0.043 |
| A ₁ | 0.01 | - | 0.10 | 0.0004 | - | 0.004 |
| A ₂ | 0.90 | - | 1.00 | 0.035 | 0.038 | 0.039 |
| b | 0.30 | 0.32 | 0.45 | 0.012 | 0.013 | 0.018 |
| c | 0.10 | 0.15 | 0.20 | 0.004 | 0.006 | 0.008 |
| D | 2.95 | 3.05 | 3.10 | 0.116 | 0.120 | 0.122 |
| E | 2.70 | 2.85 | 2.96 | 0.106 | 0.112 | 0.117 |
| E ₁ | 1.55 | 1.65 | 1.70 | 0.061 | 0.065 | 0.067 |
| e | 1.00 BSC | | | 0.0394 BSC | | |
| e ₁ | 1.90 | 2.00 | 2.10 | 0.075 | 0.080 | 0.085 |
| L | 0.35 | - | 0.50 | 0.014 | - | 0.020 |
| L ₁ | 0.60 Ref | | | 0.024 Ref | | |
| L ₂ | 0.25 BSC | | | 0.010 BSC | | |
| R | 0.10 | - | - | 0.004 | - | - |
| θ | 0° | 4° | 8° | 0° | 4° | 8° |
| θ ₁ | 7° Nom | | | 7° Nom | | |

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