



General Description

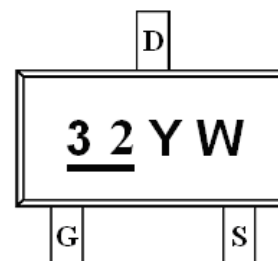
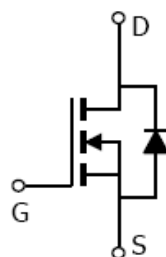
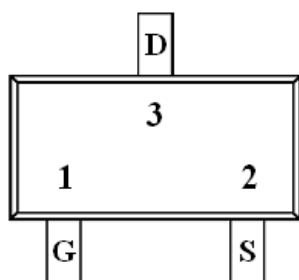
AFN2324A, N-Channel enhancement mode MOSFET, uses Advanced Trench Technology to provide excellent $R_{DS(ON)}$, low gate charge.

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

- $I_D=2.3A, R_{DS(ON)}=310m\Omega@V_{GS}=10V$
- $I_D=1.8A, R_{DS(ON)}=320m\Omega@V_{GS}=4.5V$
- Super high density cell design for extremely low $R_{DS(ON)}$
- Exceptional on-resistance and maximum DC current capability
- SOT-23 package design

Pin Description (SOT-23)



Application

- DC/DC Converters
- Load Switch
- LED Backlighting in LCD TVs

Pin Define

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

Ordering Information

| Part Ordering No. | Part Marking | Package | Unit | Quantity |
|-------------------|--------------|---------|-------------|----------|
| AFN2324AS23RG | 32YW | SOT-23 | Tape & Reel | 3000 EA |

- ※ 32 parts code
- ※ Y year code (0 ~ 9)
- ※ W week code (A ~ Z = 1 ~ 26 / a ~ z = 27 ~ 52)
- ※ AFN2324AS23RG : 7" Tape & Reel ; Pb- Free ; Halogen -Free



Absolute Maximum Ratings

(T_A=25°C Unless otherwise noted)

| Parameter | Symbol | Value | Unit |
|---|------------------|----------------------|------|
| Drain-Source Voltage | V _{DSS} | 100 | V |
| Gate –Source Voltage | V _{GSS} | ±20 | V |
| Continuous Drain Current(T _J =150°C) | I _D | T _c =25°C | 2.3 |
| | | T _c =70°C | 1.8 |
| Pulsed Drain Current | I _{DM} | 5 | A |
| Continuous Source Current(Diode Conduction) | I _S | 1.6 | A |
| Power Dissipation | P _D | T _A =25°C | 1.25 |
| | | T _A =70°C | 0.8 |
| 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 |

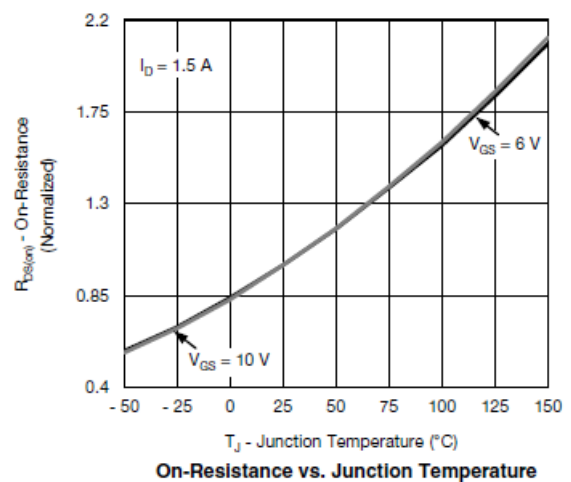
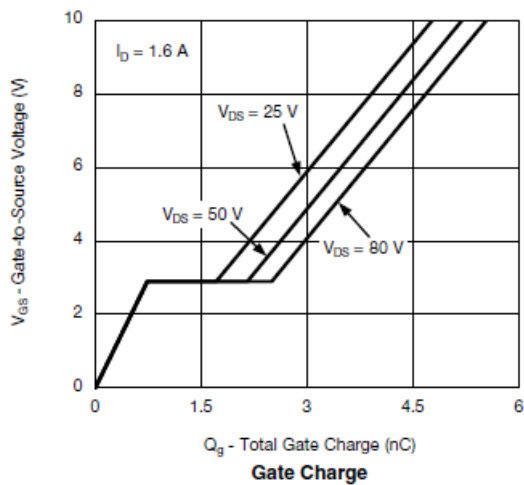
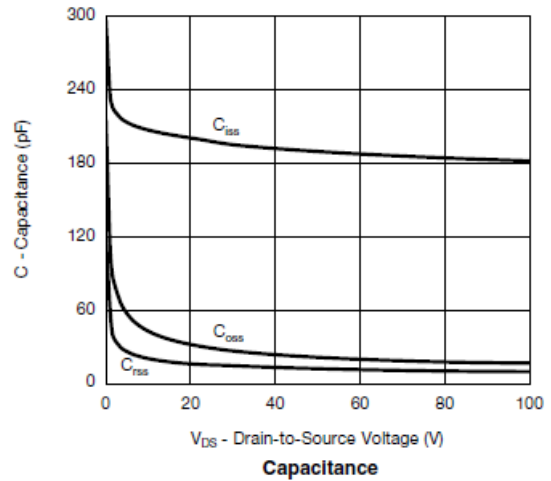
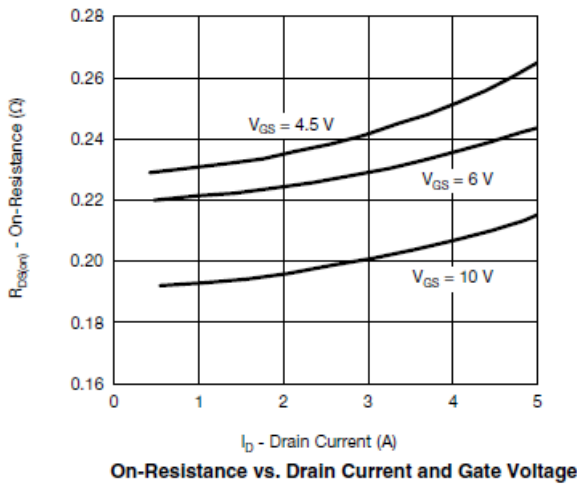
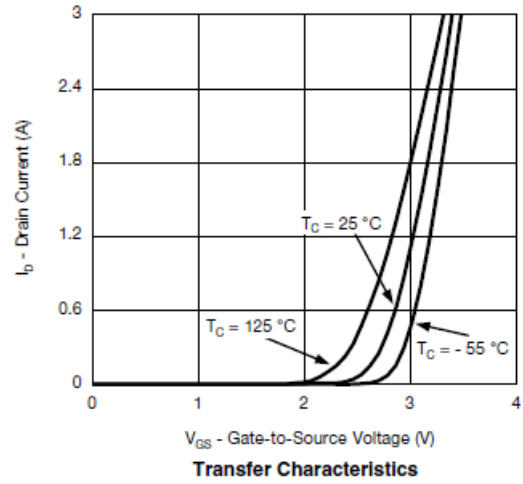
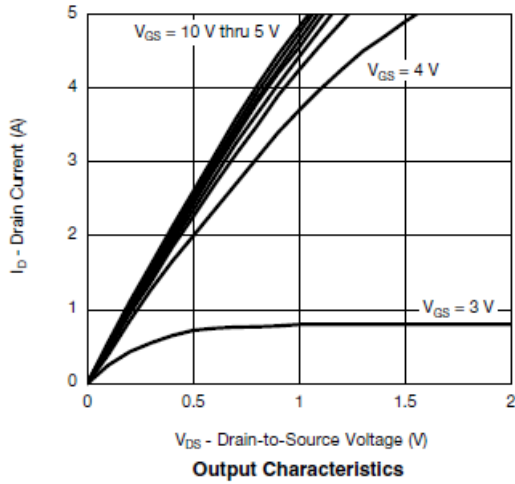
Electrical Characteristics

(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 | 100 | | | V |
| Gate Threshold Voltage | V _{GS(th)} | V _{DS} =V _{GS} , I _D =250uA | 1.0 | | 2.5 | |
| Gate Leakage Current | I _{GSS} | V _{DS} =0V, V _{GS} =±20V | | | ±100 | nA |
| Zero Gate Voltage Drain Current | I _{DSS} | V _{DS} =80V, V _{GS} =0V | | | 1 | uA |
| | | V _{DS} =80V, V _{GS} =0V T _J =85°C | | | 10 | |
| On-State Drain Current | I _{D(on)} | V _{DS} ≥ 5V, V _{GS} =4.5V | 5 | | | A |
| Drain-Source On-Resistance | R _{DS(on)} | V _{GS} =10V, I _D =2.3A | | 265 | 310 | mΩ |
| | | V _{GS} =4.5V, I _D =1.8A | | 275 | 320 | |
| Forward Transconductance | g _{FS} | V _{DS} =20V, I _D =1.5A | | 2 | | S |
| Diode Forward Voltage | V _{SD} | I _S =1.3A, V _{GS} =0V | | 0.85 | 1.2 | V |
| Dynamic | | | | | | |
| Total Gate Charge | Q _g | V _{DS} =50V, V _{GS} =4.5V I _D ≧1.6A | | 2.8 | 5.8 | nC |
| Gate-Source Charge | Q _{gs} | | | 0.75 | | |
| Gate-Drain Charge | Q _{gd} | | | 1.4 | | |
| Input Capacitance | C _{iss} | V _{DS} =50V, V _{GS} =0V f=1MHz | | 200 | | pF |
| Output Capacitance | C _{oss} | | | 22 | | |
| Reverse Transfer Capacitance | C _{rss} | | | 13 | | |
| Turn-On Time | t _{d(on)} | V _{DD} =50V, R _L =39Ω I _D ≧1.3A, V _{GEN} =4.5V R _G =1Ω | | 25 | 50 | ns |
| | t _r | | | 20 | 50 | |
| Turn-Off Time | t _{d(off)} | | | 15 | 30 | |
| | t _f | | | 10 | 25 | |

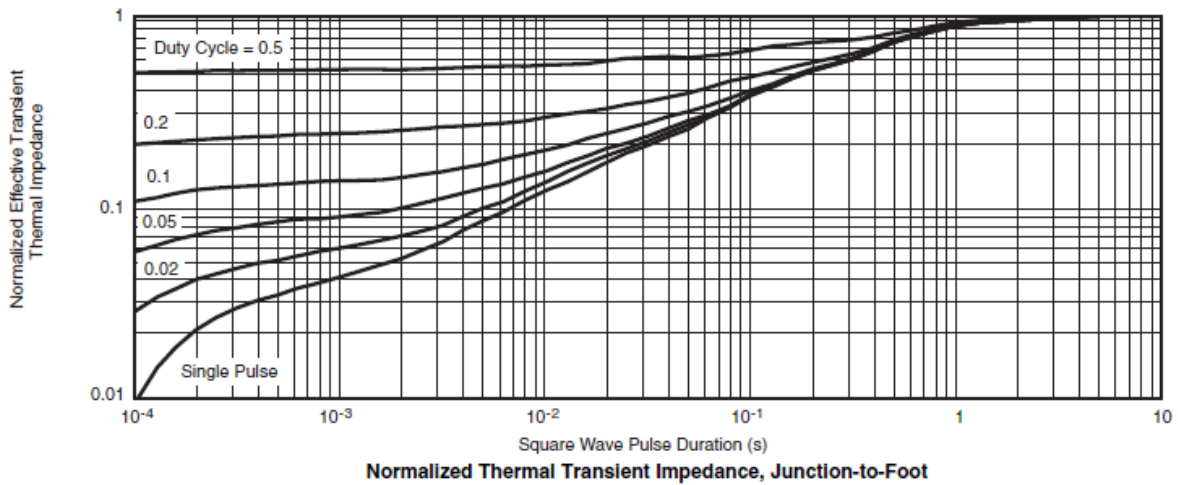
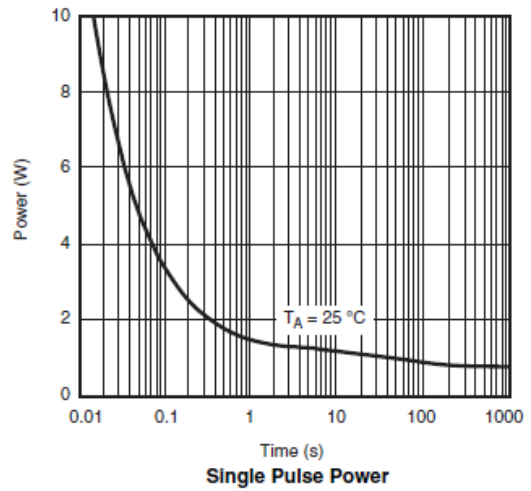
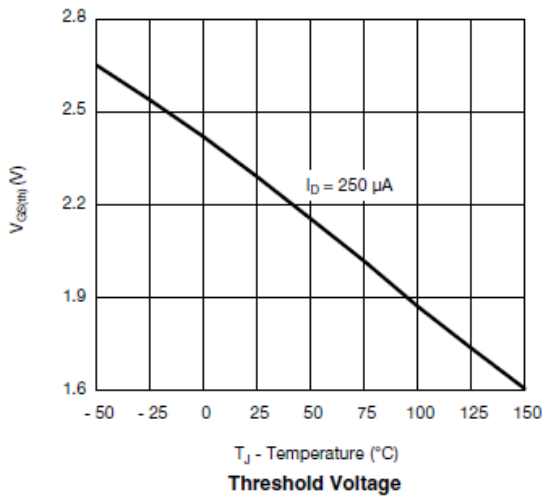
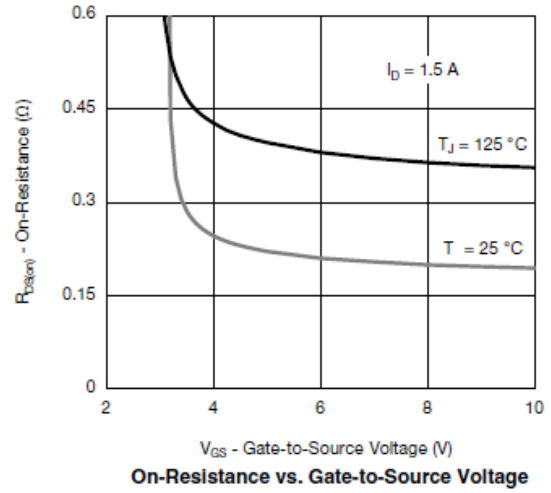
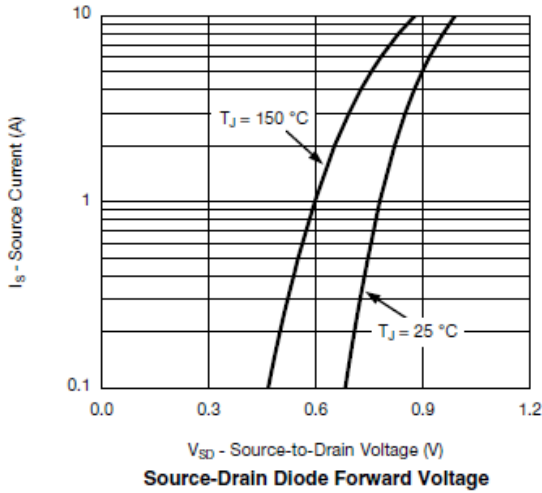


Typical Characteristics





Typical Characteristics





Typical Characteristics

Gate Charge Test Circuit & Waveform



Resistive Switching Test Circuit & Waveforms

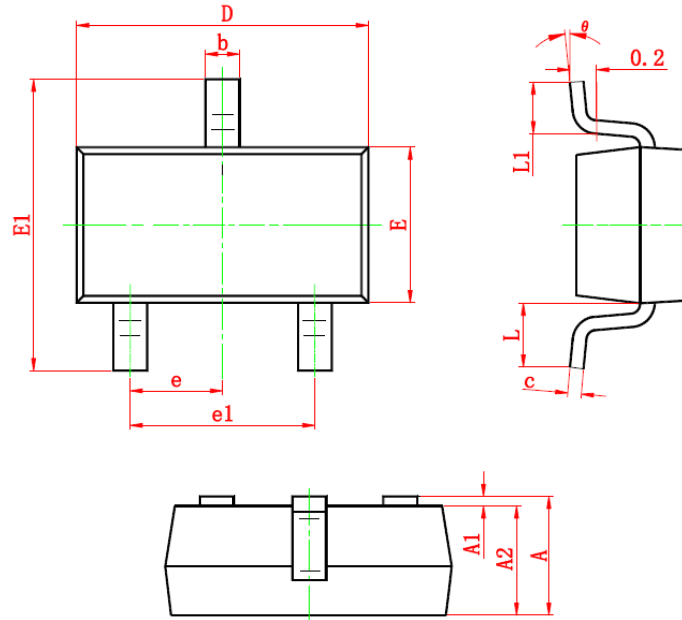


Unclamped Inductive Switching Test Circuit & Waveforms





Package Information (SOT-23)



| Symbol | Dimensions In Millimeters | | Dimensions In Inches | |
|--------|---------------------------|-------|----------------------|-------|
| | Min | Max | Min | Max |
| A | 0.900 | 1.200 | 0.035 | 0.043 |
| A1 | 0.000 | 0.100 | 0.000 | 0.004 |
| A2 | 0.900 | 1.100 | 0.035 | 0.039 |
| b | 0.300 | 0.500 | 0.012 | 0.020 |
| c | 0.080 | 0.150 | 0.003 | 0.006 |
| D | 2.800 | 3.000 | 0.110 | 0.118 |
| E | 1.200 | 1.400 | 0.047 | 0.055 |
| E1 | 2.250 | 2.550 | 0.089 | 0.100 |
| e | 0.950 TYP | | 0.037 TYP | |
| e1 | 1.800 | 2.000 | 0.071 | 0.079 |
| L | 0.550 REF | | 0.022 REF | |
| L1 | 0.300 | 0.500 | 0.012 | 0.020 |
| θ | 0° | 8° | 0° | 6° |

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