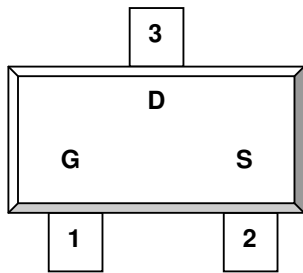


DESCRIPTION

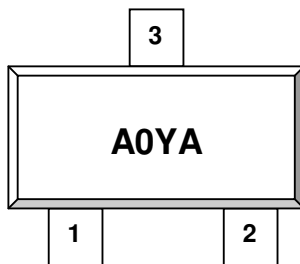
The ST3400SRG is the N-Channel logic enhancement mode power field effect transistor is produced using high cell density, DMOS trench technology. This high-density process is especially tailored to minimize on-state resistance. These devices are particularly suited for low voltage application such as cellular phone and notebook computer power management and other battery powered circuits where high side switching.

PIN CONFIGURATION
SOT-23


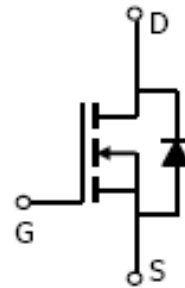
1.Gate 2.Source 3.Drain

FEATURE

- 30V/5.8A, $R_{DS(ON)} = 25m\Omega$ (Typ.) @ $V_{GS} = 10V$
- 30V/4.8A, $R_{DS(ON)} = 30m\Omega$ @ $V_{GS} = 4.5V$
- 30V/4.0A, $R_{DS(ON)} = 40m\Omega$ @ $V_{GS} = 2.5V$
- Super high density cell design for extremely low $R_{DS(ON)}$
- Exceptional on-resistance and maximum DC current capability
- SOT-23 package design

PART MARKING
SOT-23


Y: Year Code A: Week Code





ST3400SRG 

N Channel Enhancement Mode MOSFET

5.8A

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

| Parameter | Symbol | Typical | Unit |
|--|------------------|-----------------------------|------|
| Drain-Source Voltage | V _{DSS} | 30 | V |
| Gate-Source Voltage | V _{GSS} | ±12 | V |
| Continuous Drain Current (T _J =150°C) | I _D | T _A =25°C 5.8 | A |
| | | T _A =70°C 3.5 | |
| Pulsed Drain Current | I _{DM} | 25 | A |
| Continuous Source Current (Diode Conduction) | I _S | 1.7 | A |
| Power Dissipation | P _D | T _A =25°C 2.0 | W |
| | | T _A =70°C 1.3 | |
| Operation Junction Temperature | T _J | 150 | °C |
| Storage Temperature Range | T _{STG} | -55/150 | °C |
| Thermal Resistance-Junction to Ambient | R _{θJA} | 90 | °C/W |



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

| Parameter | Symbol | Condition | 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 | $V_{GS(th)}$ | $V_{DS}=V_{GS}, I_D=250\mu A$ | 0.5 | | 1.5 | V |
| Gate Leakage Current | I_{GSS} | $V_{DS}=0V, V_{GS}=\pm 12V$ | | | ± 100 | nA |
| Zero Gate Voltage Drain Current | I_{DSS} | $V_{DS}=24V, V_{GS}=0V$ | | | 1 | uA |
| | | $V_{DS}=24V, V_{GS}=0V$ $T_J=55^\circ C$ | | | 10 | |
| Drain-source On-Resistance | $R_{DS(on)}$ | $V_{GS}=10V, I_D=5.8A$ $V_{GS}=4.5V, I_D=4.8A$ $V_{GS}=2.5V, I_D=4.0A$ | | 25 30 40 | | mΩ |
| Forward Transconductance | g_{fs} | $V_{DS}=4.5V, I_D=5.8A$ | | 12 | | S |
| Diode Forward Voltage | V_{SD} | $I_S=1.7A, V_{GS}=0V$ | | | 1.2 | V |
| Dynamic | | | | | | |
| Total Gate Charge | Q_g | $V_{DS}=15V$ $V_{GS}=10V$ $I_D=6.7A$ | | 9.7 | 18 | nC |
| Gate-Source Charge | Q_{gs} | | | 1.6 | | |
| Gate-Drain Charge | Q_{gd} | | | 3.1 | | |
| Input Capacitance | C_{iss} | $V_{DS}=15V$ $V_{GS}=0V$ $F=1MHz$ | | 450 | | pF |
| Output Capacitance | C_{oss} | | | 240 | | |
| Reverse Transfer Capacitance | C_{rss} | | | 38 | | |
| Turn-On Time | $t_{d(on)}$ t_r | $V_{DD}=15V$ $R_L=15\Omega$ $I_D=1.0A$ $V_{GEN}=10V$ $R_G=6\Omega$ | | 7 | 15 | nS |
| | | | | 10 | 20 | |
| Turn-Off Time | $t_{d(off)}$ t_f | | | 20 | 40 | |
| | | | | 11 | 20 | |

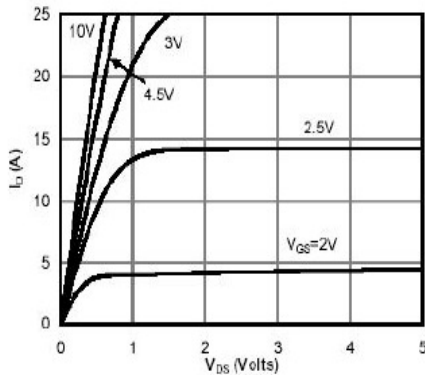
TYPICAL CHARACTERISTICS (25°C Unless noted)


Fig 1: On-Region Characteristics

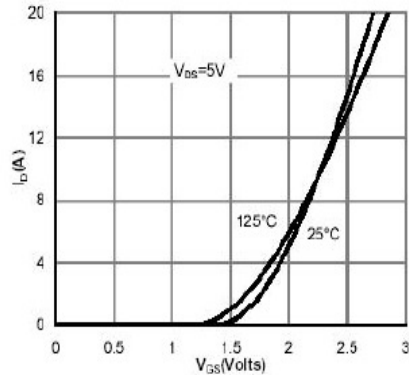


Figure 2: Transfer Characteristics

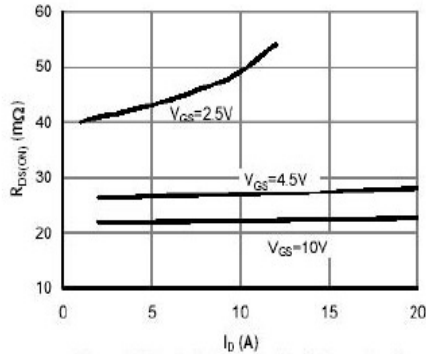


Figure 3: On-Resistance vs. Drain Current and Gate Voltage

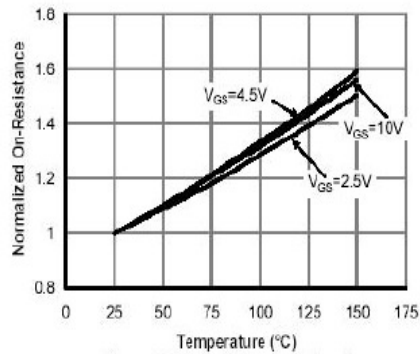


Figure 4: On-Resistance vs. Junction Temperature

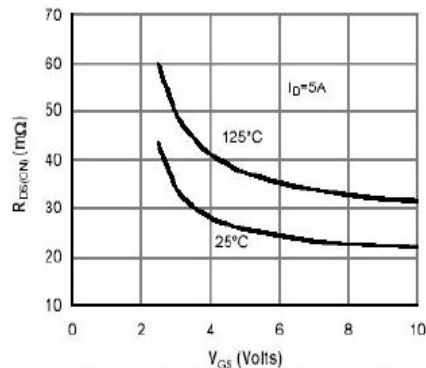


Figure 5: On-Resistance vs. Gate-Source Voltage

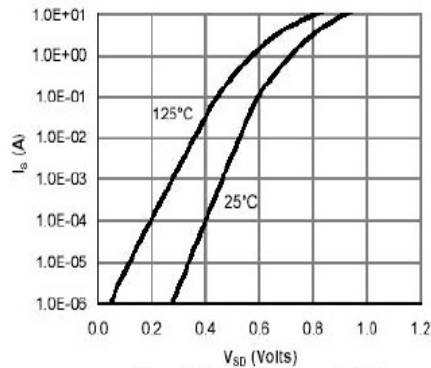
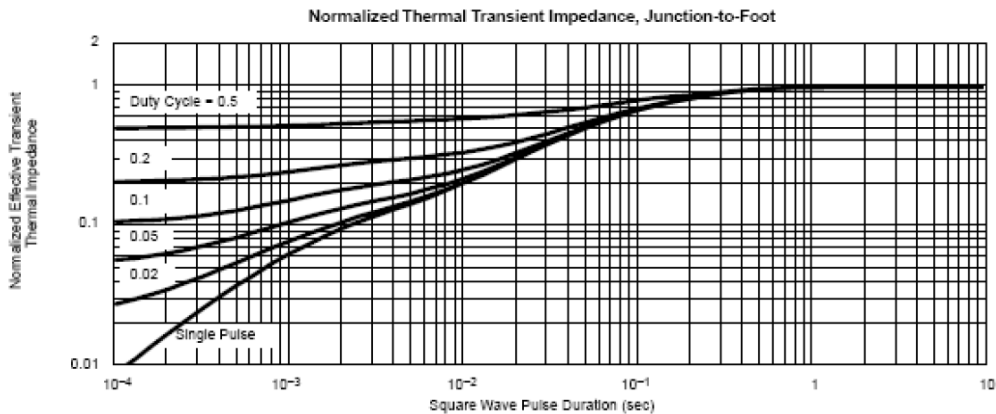
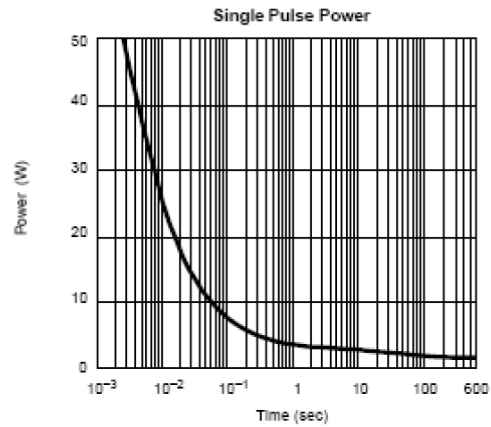
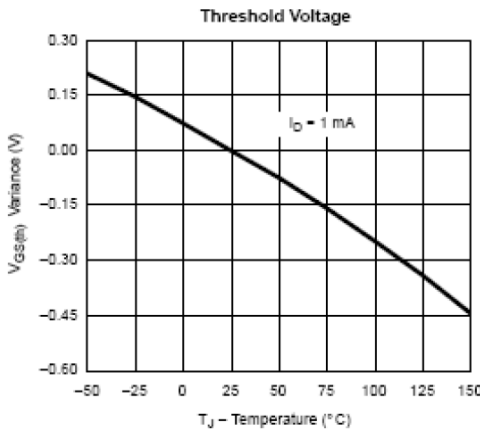
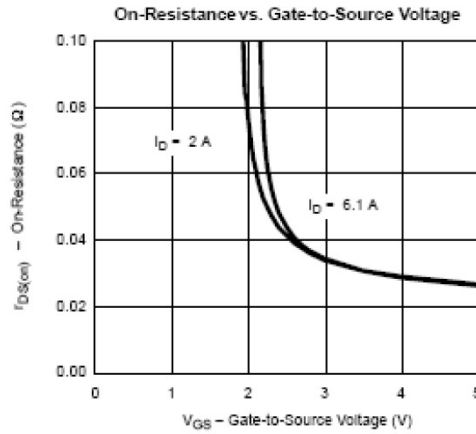
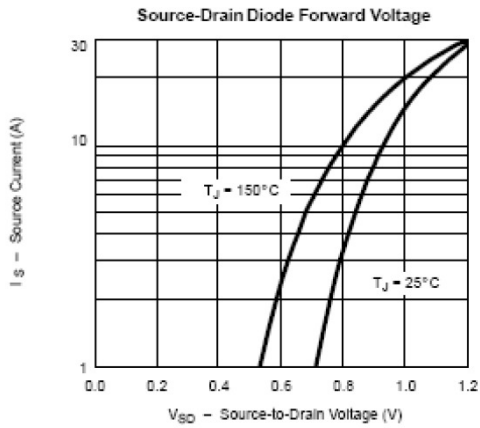
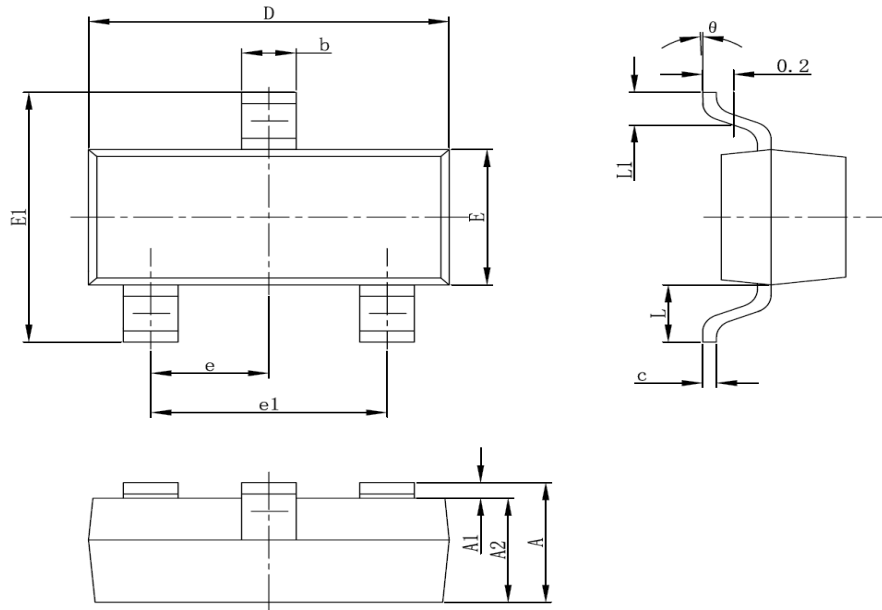


Figure 6: Body-Diode Characteristics



TYPICAL CHARACTERISTICS (25°C Unless noted)



SOT-23 PACKAGE OUTLINE


| Symbol | Dimensions In Millimeters | | Dimensions In Inches | |
|--------|---------------------------|-------|----------------------|-------|
| | Min | Max | Min | Max |
| A | 0.900 | 1.100 | 0.035 | 0.043 |
| A1 | 0.000 | 0.100 | 0.000 | 0.004 |
| A2 | 0.900 | 1.000 | 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 | 0.950TYP | | 0.037TYP | |
| e1 | 1.800 | 2.000 | 0.071 | 0.079 |
| L | 0.550REF | | 0.022REF | |
| L1 | 0.300 | 0.500 | 0.012 | 0.020 |
| θ | 0° | 8° | 0° | 8° |