# ST7400

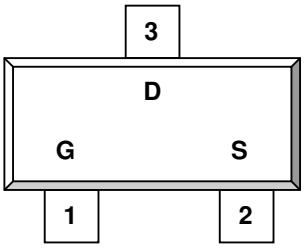
N Channel Enhancement Mode MOSFET

2.8A

## DESCRIPTION

ST7400 is the N-Channel logic enhancement mode power field effect transistor which 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, other battery powered circuits, and low in-line power loss are required. The product is in a very small outline surface mount package.

## PIN CONFIGURATION
## SOT-323 (SC-70)

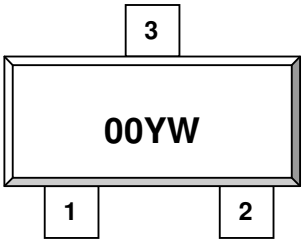



1.Gate 2.Source 3.Drain

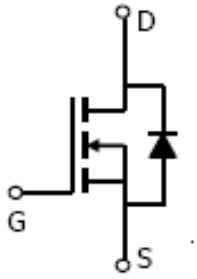
## FEATURE

- 30V/2.8A, $R_{DS(ON)}$ = 77mΩ @$V_{GS}$ =10V
- 30V/2.5A, $R_{DS(ON)}$ = 85mΩ @$V_{GS}$ = 4.5V
- 30V/1.5A, $R_{DS(ON)}$ = 170mΩ @$V_{GS}$ = 2.5V
- Super high density cell design for Extremely low $R_{DS(ON)}$
- Exceptional on-resistance and maximum DC current capability
- SOT-323 (SC-70) package design

## PART MARKING
## SOT-323




Y: Year Code A: Process Code




STANSON TECHNOLOGY
120 Bentley Square, Mountain View, Ca 94040 USA
http://www.stansontech.com

**ST7400**

N Channel Enhancement Mode MOSFET

2.8A

**ABSOULTE MAXIMUM RATINGS** (Ta = 25℃ Unless otherwise noted )

| Parameter | | Symbol | Typical | Unit |
|---|---|---|---|---|
| Drain-Source Voltage | | $V_{DSS}$ | 30 | V |
| Gate-Source Voltage | | $V_{GSS}$ | ±12 | V |
| Continuous Drain CurrentTJ=150℃) | TA=25℃<br>TA=70℃ | $I_D$ | 2.8<br>2.3 | A |
| Pulsed Drain Current | | $I_{DM}$ | 10 | A |
| Continuous Source Current (Diode Conduction) | | $I_S$ | 1.25 | A |
| Power Dissipation | TA=25℃<br>TA=70℃ | $P_D$ | 0.33<br>0.21 | W |
| Operation Junction Temperature | | $T_J$ | 150 | ℃ |
| Storage Temperature Range | | $T_{STG}$ | -55/150 | ℃ |
| Thermal Resistance-Junction to Ambient | | $R_{\theta JA}$ | 100 | ℃/W |

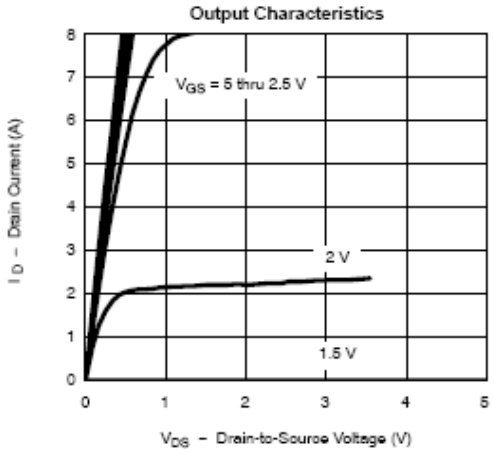
STANSON TECHNOLOGY
120 Bentley Square, Mountain View, Ca 94040 USA
http://www.stansontech.com

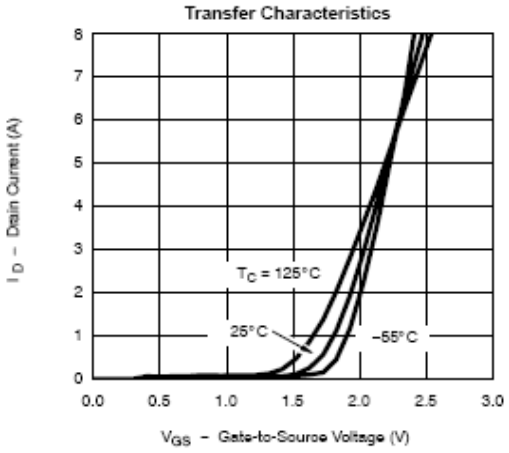
**ELECTRICAL CHARACTERISTICS** ( Ta = 25℃ Unless otherwise noted )

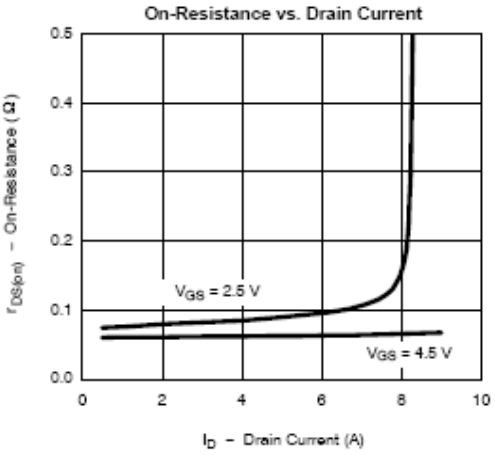
| Parameter | Symbol | Condition | Min | Typ | Max | Unit |
|---|---|---|---|---|---|---|
| **Static** | | | | | | |
| Drain-Source Breakdown Voltage | $V_{(BR)DSS}$ | $V_{GS}$=0V,$I_D$=250uA | 30 | | | V |
| Gate Threshold Voltage | $V_{GS(th)}$ | $V_{DS}$=$V_{GS}$,$I_D$=250uA | 0.8 | | 1.6 | V |
| Gate Leakage Current | $I_{GSS}$ | $V_{DS}$=0V,$V_{GS}$=±12V | | | ±100 | nA |
| Zero Gate Voltage Drain Current | $I_{DSS}$ | $V_{DS}$=24V,$V_{GS}$=0V | | | 1 | uA |
| | | $V_{DS}$=24V,$V_{GS}$=0V $T_J$=85℃ | | | 5 | |
| On-State Drain Current | $I_{D(on)}$ | $V_{DS}$≦-5V,$V_{GS}$=-4.5V | 4.0 | | | A |
| Drain-source On-Resistance | $R_{DS(on)}$ | $V_{GS}$=10V,$I_D$=2.8A<br>$V_{GS}$=4.5V,$I_D$=2.3A<br>$V_{GS}$=2.5V,$I_D$=1.5A | | 62<br>70<br>95 | 77<br>85<br>110 | mΩ |
| Forward Transconductance | $g_{fs}$ | $V_{DS}$=5V,$I_D$=4.0V | | 4 | | S |
| Diode Forward Voltage | $V_{SD}$ | $I_S$=1.0A,$V_{GS}$=0V | | 0.8 | 1.2 | V |
| **Dynamic** | | | | | | |
| Total Gate Charge | $Q_g$ | $V_{DS}$=15V<br>$V_{GS}$=4.5V<br>$I_D$-2.0A | | 4.2 | | nC |
| Gate-Source Charge | $Q_{gs}$ | | | 0.6 | | |
| Gate-Drain Charge | $Q_{gd}$ | | | 1.5 | | |
| Input Capacitance | $C_{iss}$ | $V_{DS}$=15V<br>$V_{GS}$=0V<br>F=1MHz | | 380 | | pF |
| Output Capacitance | $C_{oss}$ | | | 55 | | |
| Reverse Transfer Capacitance | $C_{rss}$ | | | 40 | | |
| Turn-On Time | $t_{d(on)}$<br>tr | $V_{DS}$=15V<br>$I_D$=1A<br>$R_L$=15Ω<br>$R_G$=3Ω<br>$V_{GEN}$=10V | | 2.5 | | nS |
| | | | | 2.5 | | |
| Turn-Off Time | $t_{d(off)}$<br>tf | | | 20 | | |
| | | | | 5 | | |

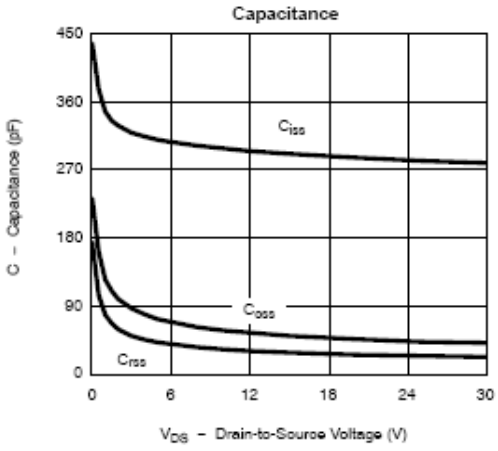
STANSON TECHNOLOGY
120 Bentley Square, Mountain View, Ca 94040 USA
http://www.stansontech.com

## TYPICAL CHARACTERICTICS



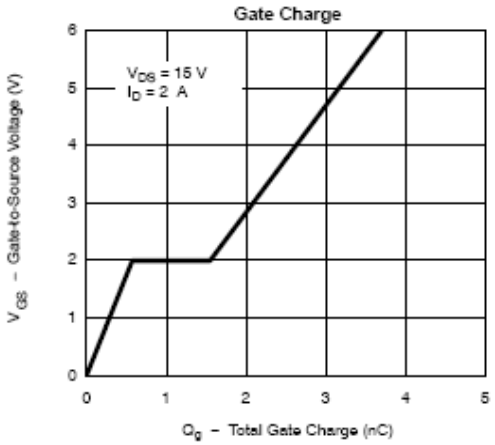



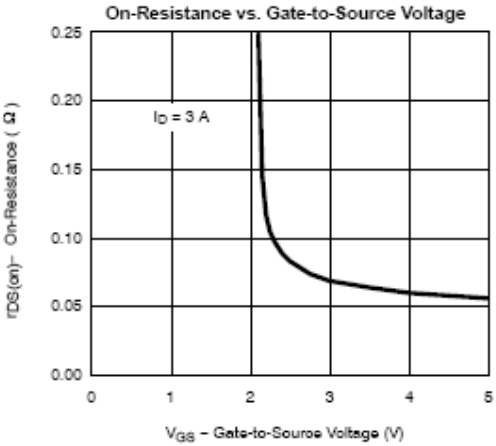



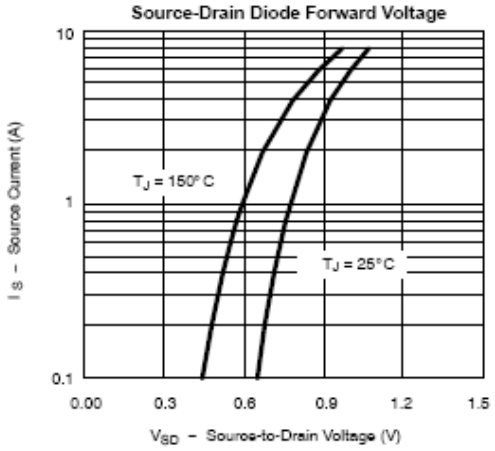



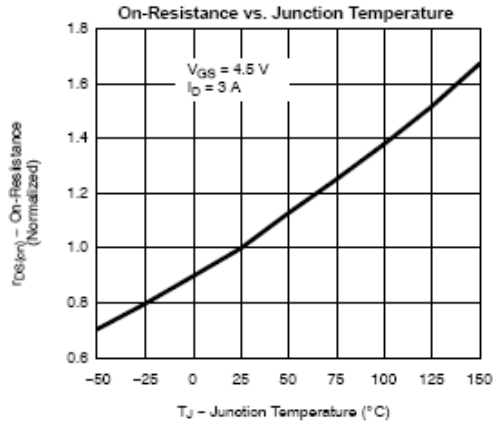

STANSON TECHNOLOGY
120 Bentley Square, Mountain View, Ca 94040 USA
http://www.stansontech.com

## YPICAL CHARACTERICTICS



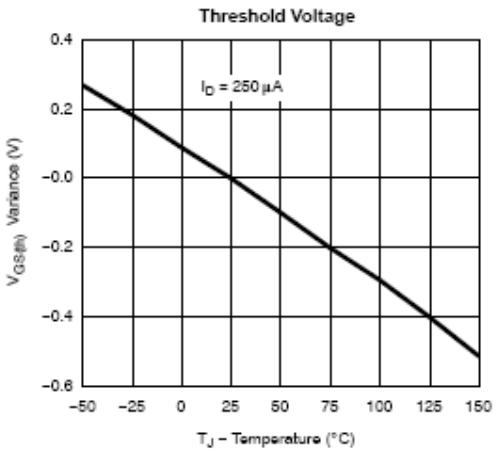



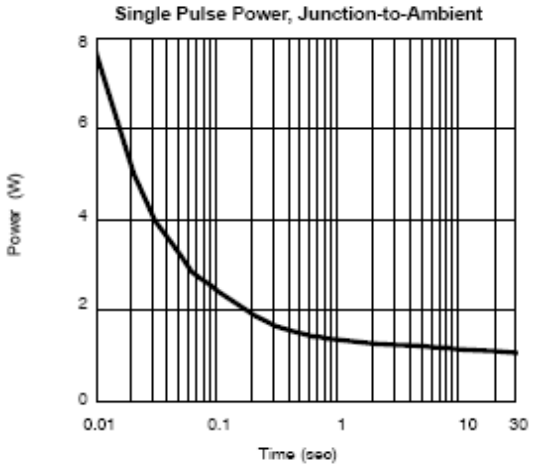



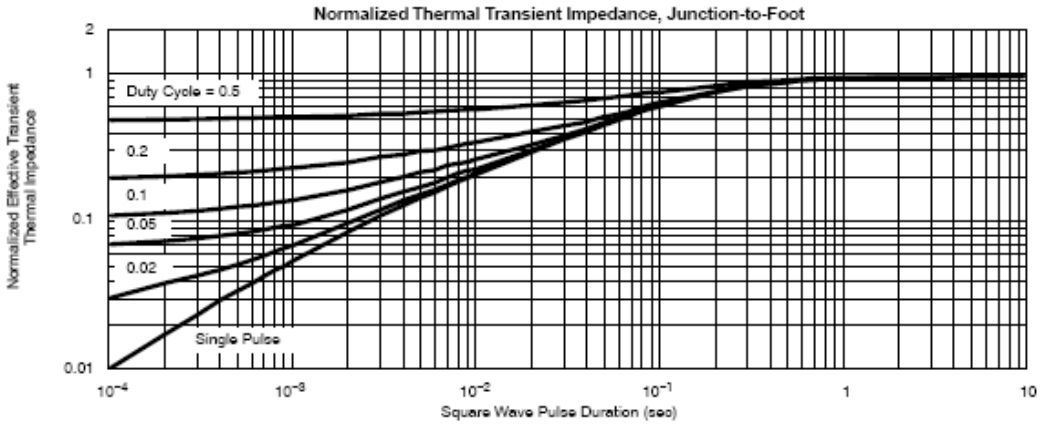




STANSON TECHNOLOGY
120 Bentley Square, Mountain View, Ca 94040 USA
http://www.stansontech.com

## YPICAL CHARACTERICTICS

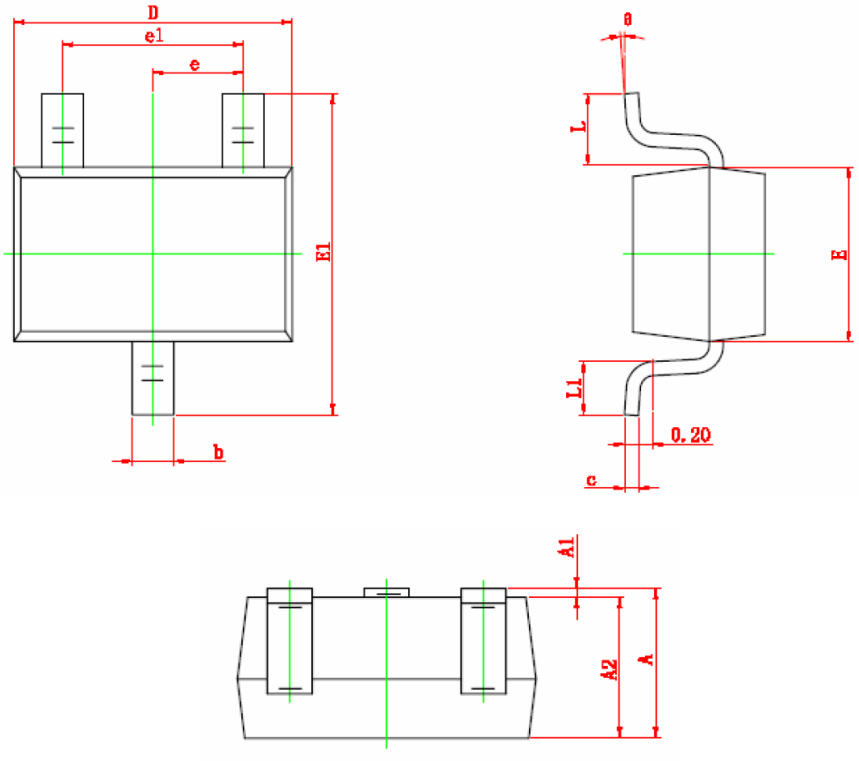



STANSON TECHNOLOGY
120 Bentley Square, Mountain View, Ca 94040 USA
http://www.stansontech.com

## SOT-323 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 | 0.200 | 0.400 | 0.008 | 0.016 |
| c | 0.080 | 0.150 | 0.003 | 0.006 |
| D | 2.000 | 2.200 | 0.079 | 0.087 |
| E | 1.150 | 1.350 | 0.045 | 0.053 |
| E1 | 2.150 | 2.450 | 0.085 | 0.096 |
| e | 0.650 TYP | | 0.026 TYP | |
| e1 | 1.200 | 1.400 | 0.047 | 0.055 |
| L | 0.525 REF | | 0.021 REF | |
| L1 | 0.260 | 0.460 | 0.010 | 0.018 |
| θ | 0° | 8° | 0° | 8° |

STANSON TECHNOLOGY
120 Bentley Square, Mountain View, Ca 94040 USA
http://www.stansontech.com

**ST7400**

N Channel Enhancement Mode MOSFET

2.8A

STANSON TECHNOLOGY
120 Bentley Square, Mountain View, Ca 94040 USA
http://www.stansontech.com