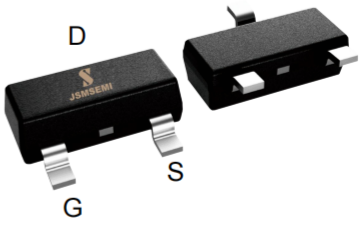
## ■ DESCRIPTION

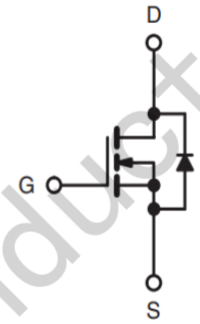
The CJ3400 is the N-Channel logic enhancement mode power field effect transistor is produced using high cell density advanced trench technology..

This high density process is especially tailored to minimize on-state resistance. These devices are particularly suited for low voltage application, and low in-line power loss are needed in a very small outline surface mount package.




## ■ FEATURE

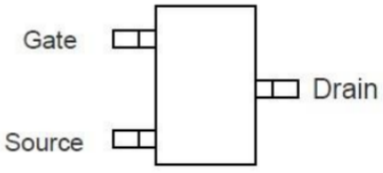
- 30V/6.0A, $R_{DS(ON)}$=18mΩ(typ.)@$V_{GS}$=10V
- 30V/4.8A, $R_{DS(ON)}$=25mΩ(typ.)@$V_{GS}$=4.5V
- Super high design for extremely low $R_{DS(ON)}$
- Exceptional on-resistance and Maximum DC current capability
- Full RoHS compliance
- SOT23 package design




N-Channel MOSFET

## ■ APPLICATIONS

- Power Management
- Portable Equipment
- DC/DC Converter
- Load Switch
- DSC




TOP VIEW
SOT-23



## ■ ABSOLUTE MAXIMUM RATINGS ($T_A$= 25℃ Unless otherwise noted )

| Symbol | Parameter | | Typical | Unit |
|---|---|---|---|---|
| $V_{DSS}$ | Drain-Source Voltage | | 30 | V |
| $V_{GSS}$ | Gate-Source Voltage | | ±20 | V |
| $I_D$ | Continuous Drain Current ($T_C$=25℃) | $V_{GS}$=10V | 6.0 | A |
| | Continuous Drain Current ($T_C$=70℃) | | 5.0 | |
| $I_{DM}$ | Pulsed Drain Current | | 20 | A |
| $I_S$ | Continuous Source Current (Diode Conduction) | | 1.5 | A |
| $P_D$ | Power Dissipation | $T_A$=25℃ | 1.5 | W |
| | | $T_A$=70℃ | 0.9 | |
| $T_J$ | Operation Junction Temperature | | 150 | ℃ |
| $T_{STG}$ | Storage Temperature Range | | -55~+150 | ℃ |
| $R_{\theta JA}$ | Thermal Resistance Junction to Ambient | | 90 | ℃/W |

**Note: Absolute maximum ratings are those values beyond which the device could be permanently damaged. Absolute maximum ratings are stress rating only and functional device operation is not implied**

## ■ ELECTRICAL CHARACTERISTICS ($T_A$=25℃ Unless otherwise noted)

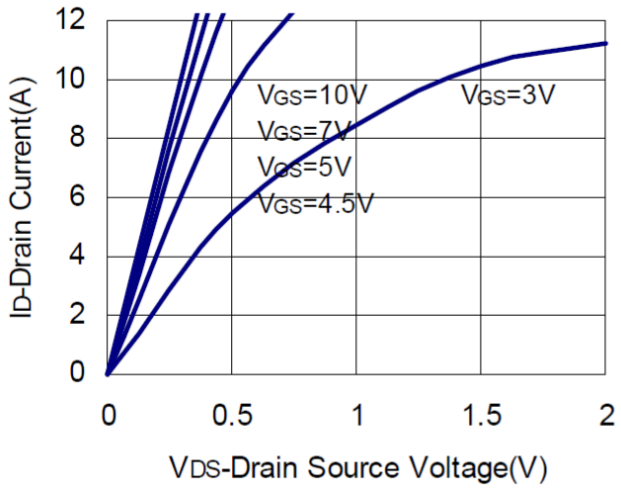
| Symbol | Parameter | Condition | Min | Typ | Max | Unit |
|---|---|---|---|---|---|---|
| **Static Parameters** | | | | | | |
| $V_{(BR)DSS}$ | Drain-Source Breakdown Voltage | $V_{GS}$=0V, $I_D$=250uA | 30 | | | V |
| $V_{GS(th)}$ | Gate Threshold Voltage | $V_{DS}$=$V_{GS}$, $I_D$=250uA | 1 | | 2 | V |
| $I_{GSS}$ | Gate Leakage Current | $V_{DS}$=0V, $V_{GS}$=±20V | | | ±100 | nA |
| $I_{DSS}$ | Zero Gate Voltage Drain Current | $V_{DS}$=24V, $V_{GS}$=0 | | | 1 | uA |
| | | $V_{DS}$=24V, $V_{GS}$=0<br>$T_J$=55℃ | | | 5 | |
| $R_{DS(ON)}$ | Drain-Source On-Resistance | $V_{GS}$=10V, $I_D$=6.0A | | 18 | 30 | mΩ |
| | | $V_{GS}$=4.5V, $I_D$=4.8A | | 25 | 40 | |
| **Source-Drain Diode** | | | | | | |
| $V_{SD}$ | Diode Forward Voltage | $I_S$=1.0A, $V_{GS}$=0V | | 0.7 | 1.0 | V |
| **Dynamic Parameters** | | | | | | |
| $Q_g$ | Total Gate Charge | $V_{DS}$=20V<br>$V_{GS}$=4.5V<br>$I_D$=6.0A | | 6 | | nC |
| $Q_{gs}$ | Gate-Source Charge | | | 1.1 | | |
| $Q_{gd}$ | Gate-Drain Charge | | | 2.5 | | |
| $C_{iss}$ | Input Capacitance | $V_{DS}$=15V<br>$V_{GS}$=0V<br>f=1MHz | | 414 | | pF |
| $C_{oss}$ | Output Capacitance | | | 60 | | |
| $C_{rss}$ | Reverse Transfer Capacitance | | | 49 | | |
| $T_{d(on)}$ | Turn-On Time | $V_{DS}$=15V<br>$I_D$=5A<br>$V_{GEN}$=10V<br>$R_G$=3.3Ω | | 7.5 | | nS |
| $T_r$ | | | | 45 | | |
| $T_{d(off)}$ | Turn-Off Time | | | 10 | | |
| $T_f$ | | | | 4 | | |

**Note: 1. Pulse test: pulse width<=300uS, duty cycle<=2%**

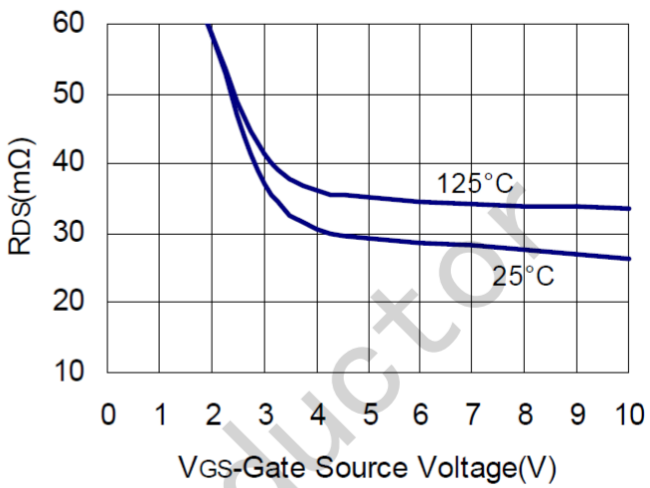
**2.Static parameters are based on package level with recommended wire bonding**

## ■ TYPICAL CHARACTERISTICS (25℃ Unless Note)

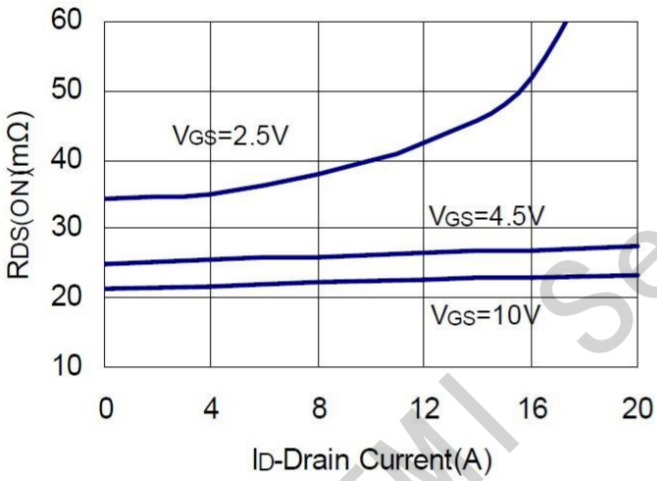
**Output Characteristics**



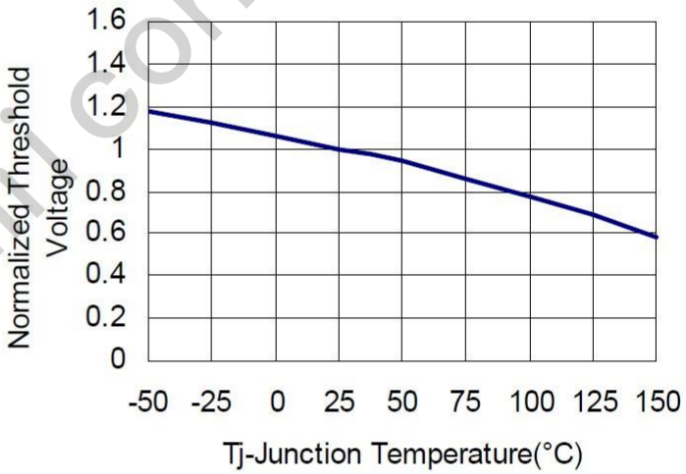

**Drain-Source On Resistance**



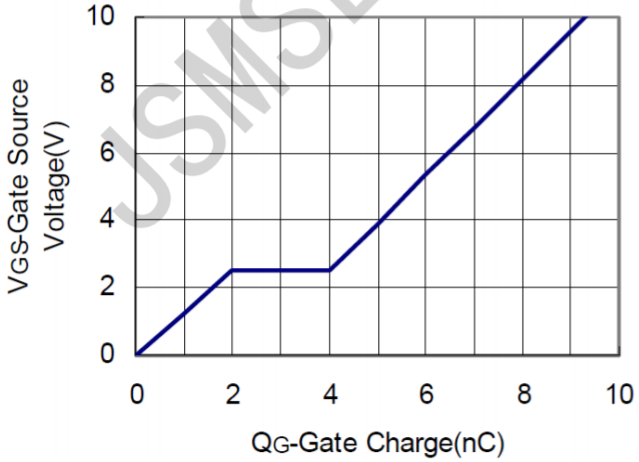

**Drain Source On Resistance**



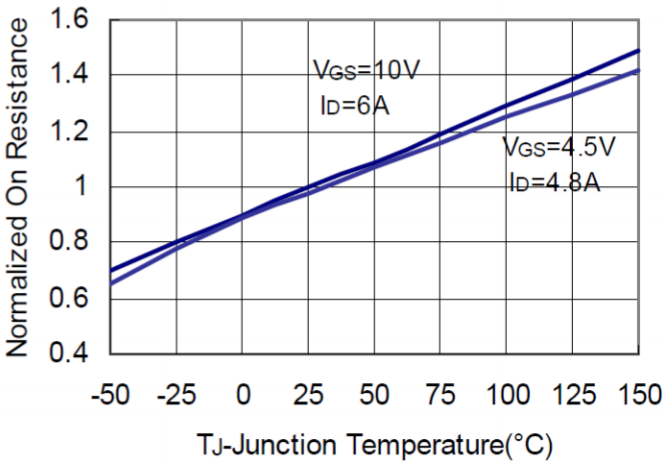

**Gate Threshold Voltage**




**Gate Charge**

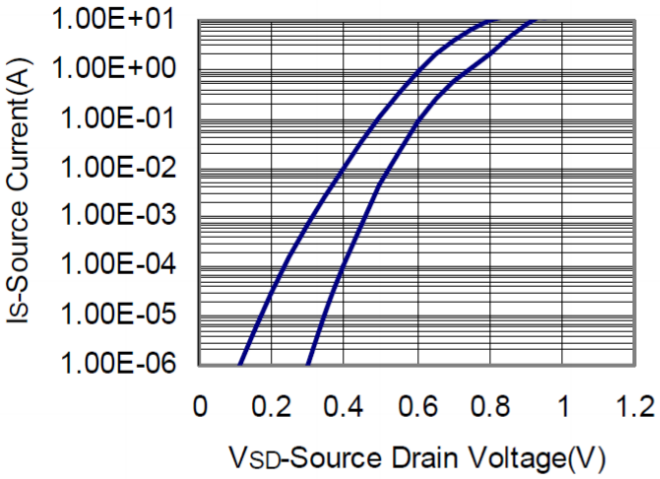



**Drain Source On Resistance**

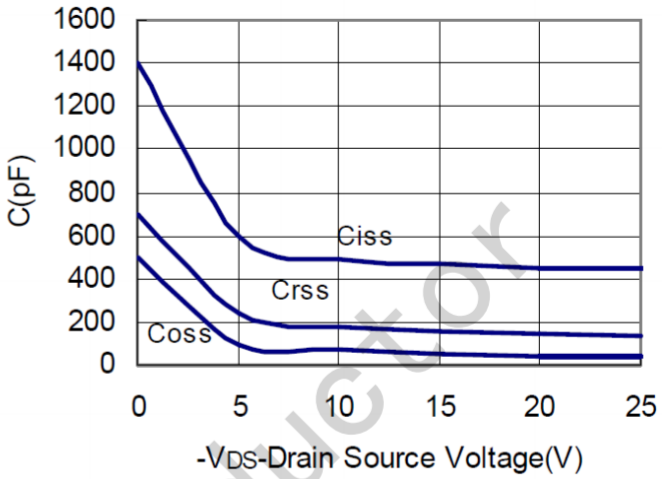


## ■ TYPICAL CHARACTERISTICS (continuous)

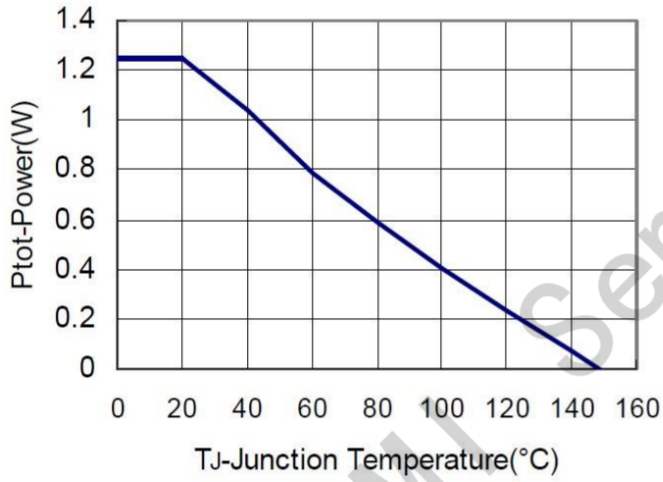
**Source Drain Diode Forward**



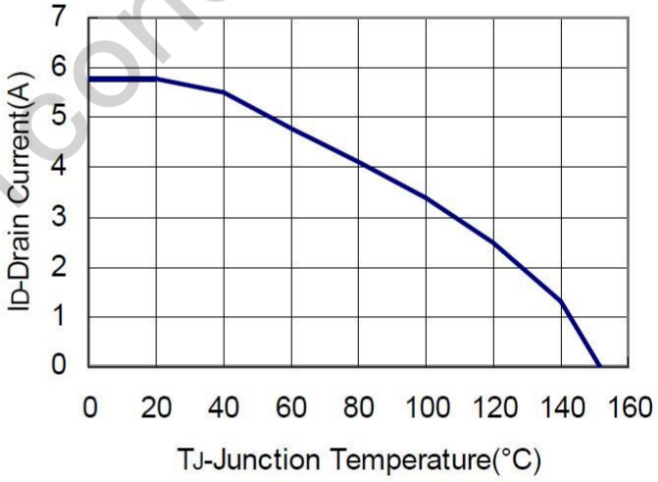

**Capacitance**



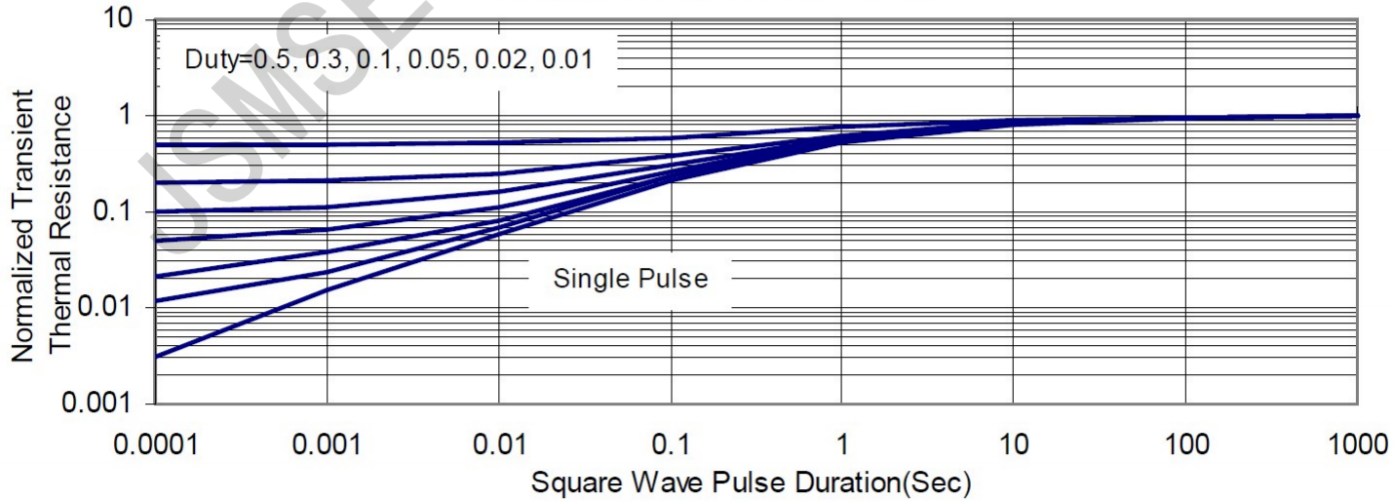

**Power Dissipation**




**Drain Current**

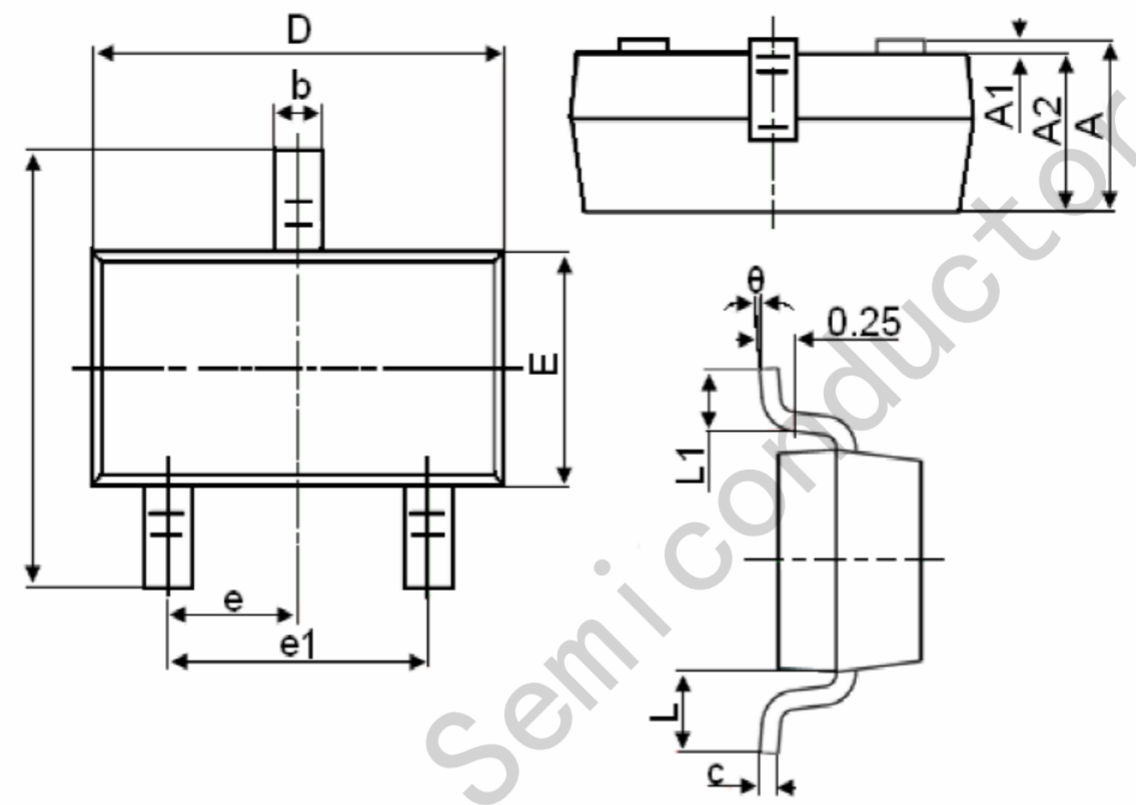



**Thermal Transient Impedance**



## Package Information

SOT-23






| Symbol | Dimensions in Millimeters(mm) | | Dimensions In Inches | |
|---|---|---|---|---|
| | Min | Max | Min | Max |
| A | 0.900 | 1.150 | 0.035 | 0.045 |
| A1 | 0.000 | 0.100 | 0.000 | 0.004 |
| A2 | 0.900 | 1.050 | 0.035 | 0.041 |
| 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° |