

DESCRIPTION

The SSC8034GS6 is the N-Channel logic enhancement mode power field effect transistor is produced using high cell density advanced trench technology.

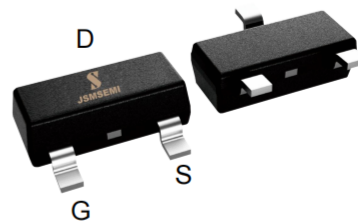
This high density process is especially tailored to minimize on-state resistance. These devices are particularly suited for low voltage application, and low in-line power loss are needed in a very small outline surface mount package.

FEATURE

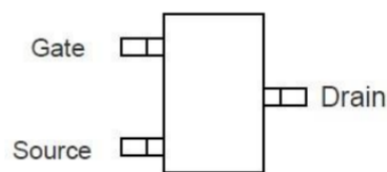
- ◆ 30V/6.0A, $R_{DS(ON)}=18m\Omega(\text{typ.})@V_{GS}=10V$
- ◆ 30V/4.8A, $R_{DS(ON)}=25m\Omega(\text{typ.})@V_{GS}=4.5V$
- ◆ Super high design for extremely low $R_{DS(ON)}$
- ◆ Exceptional on-resistance and Maximum DC current capability
- ◆ Full RoHS compliance
- ◆ SOT23 package design

APPLICATIONS

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



N-Channel MOSFET



TOP VIEW
SOT-23

ABSOLUTE MAXIMUM RATINGS ($T_A=25^\circ\text{C}$ 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 ($T_C=25^\circ\text{C}$) | $V_{GS}=10V$ | 6.0 | A |
| | Continuous Drain Current ($T_C=70^\circ\text{C}$) | | 5.0 | |
| I_{DM} | Pulsed Drain Current | | 20 | A |
| I_S | Continuous Source Current (Diode Conduction) | | 1.5 | A |
| P_D | Power Dissipation | $T_A=25^\circ\text{C}$ | 1.5 | W |
| | | $T_A=70^\circ\text{C}$ | 0.9 | |
| T_J | Operation Junction Temperature | | 150 | $^\circ\text{C}$ |
| T_{STG} | Storage Temperature Range | | -55~+150 | $^\circ\text{C}$ |
| $R_{\theta JA}$ | Thermal Resistance Junction to Ambient | | 90 | $^\circ\text{C/W}$ |

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

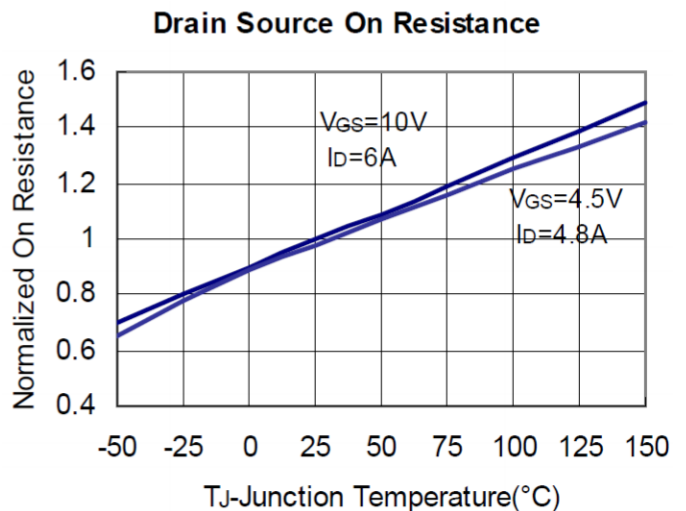
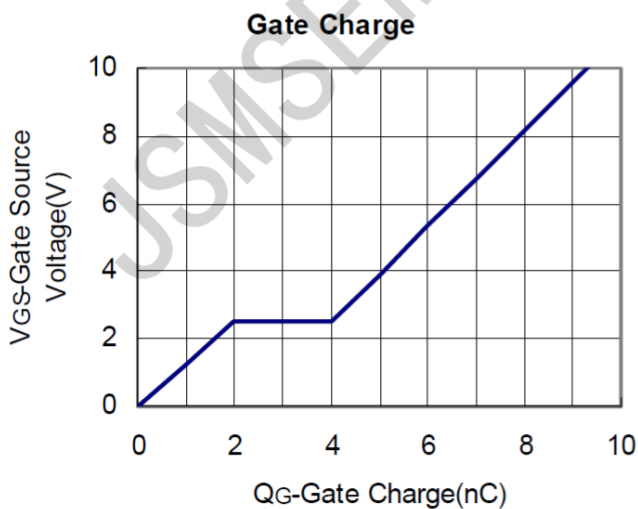
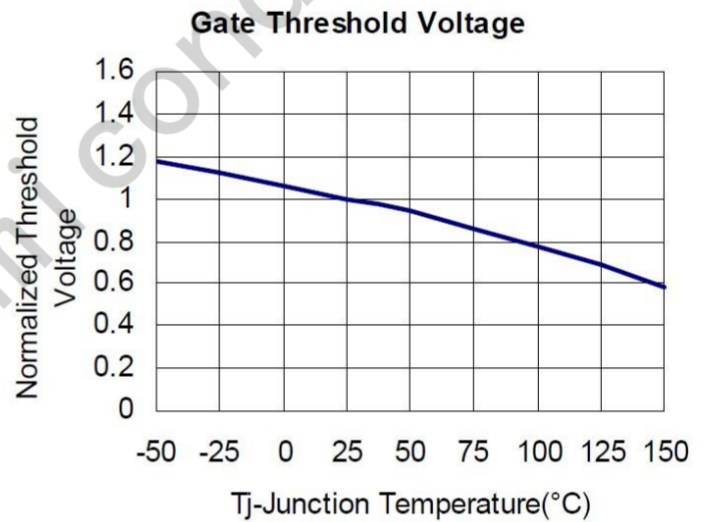
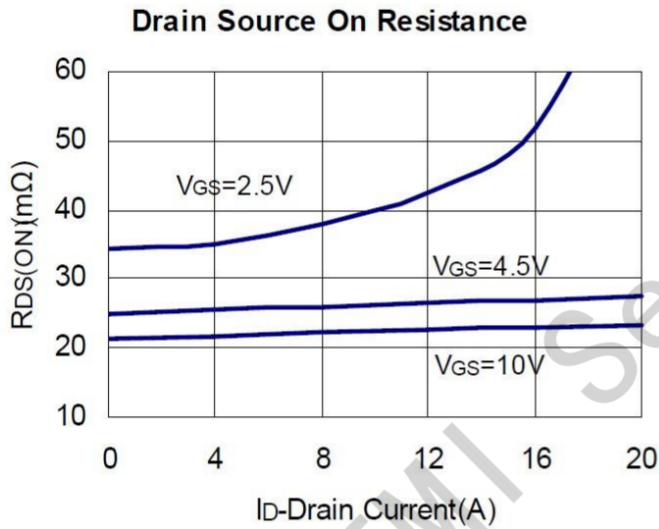
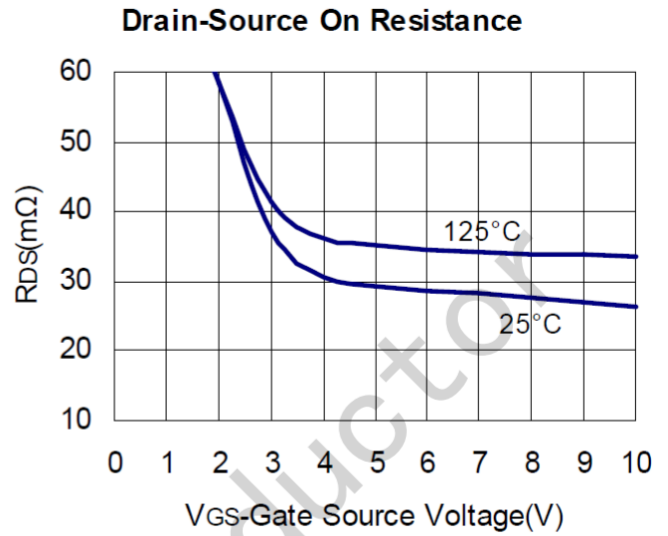
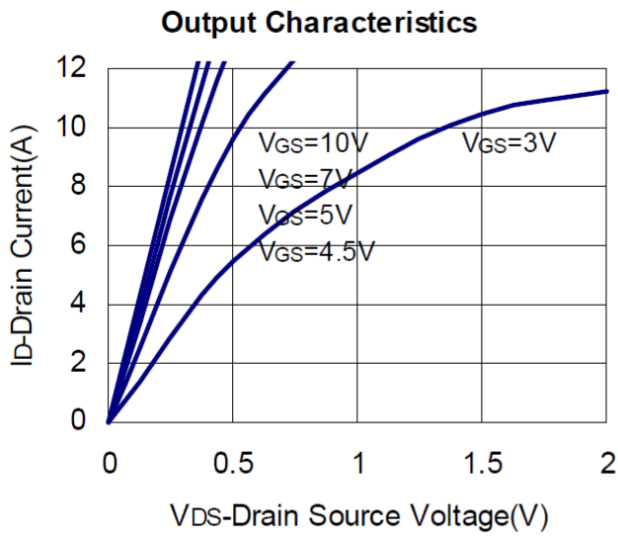
ELECTRICAL CHARACTERISTICS ($T_A=25^{\circ}\text{C}$ Unless otherwise noted)

| Symbol | Parameter | Condition | Min | Typ | Max | Unit |
|---------------------------|---------------------------------|--|-----|-----|-----------|------------|
| Static Parameters | | | | | | |
| $V_{(BR)DSS}$ | Drain-Source Breakdown Voltage | $V_{GS}=0V, I_D=250\mu A$ | 30 | | | V |
| $V_{GS(th)}$ | Gate Threshold Voltage | $V_{DS}=V_{GS}, I_D=250\mu A$ | 1 | | 2 | V |
| I_{GSS} | Gate Leakage Current | $V_{DS}=0V, V_{GS}=\pm 20V$ | | | ± 100 | nA |
| I_{DSS} | Zero Gate Voltage Drain Current | $V_{DS}=24V, V_{GS}=0$ | | | 1 | uA |
| | | $V_{DS}=24V, V_{GS}=0$ $T_J=55^{\circ}\text{C}$ | | | 5 | |
| $R_{DS(ON)}$ | Drain-Source On-Resistance | $V_{GS}=10V, I_D=6.0A$ | | 18 | 30 | m Ω |
| | | $V_{GS}=4.5V, I_D=4.8A$ | | 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 | $V_{DS}=20V$ | | 6 | | nC |
| Q_{gs} | Gate-Source Charge | $V_{GS}=4.5V$ | | 1.1 | | |
| Q_{gd} | Gate-Drain Charge | $I_D=6.0A$ | | 2.5 | | |
| C_{iss} | Input Capacitance | $V_{DS}=15V$ | | 414 | | pF |
| C_{oss} | Output Capacitance | $V_{GS}=0V$ | | 60 | | |
| C_{rss} | Reverse Transfer Capacitance | $f=1\text{MHz}$ | | 49 | | |
| $T_{d(on)}$ | Turn-On Time | $V_{DS}=15V$ | | 7.5 | | nS |
| T_r | | $I_D=5A$ | | 45 | | |
| $T_{d(off)}$ | Turn-Off Time | $V_{GEN}=10V$ | | 10 | | |
| T_f | | $R_G=3.3\Omega$ | | 4 | | |

Note: 1. Pulse test: pulse width $\leq 300\mu\text{s}$, duty cycle $\leq 2\%$

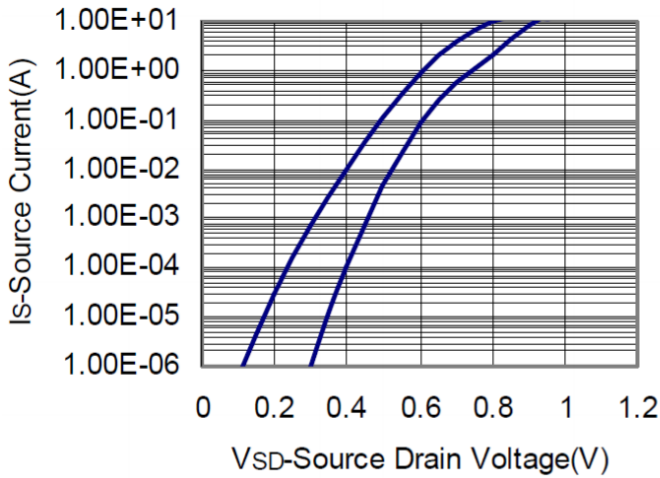
2. Static parameters are based on package level with recommended wire bonding

■ TYPICAL CHARACTERISTICS (25°C Unless Note)

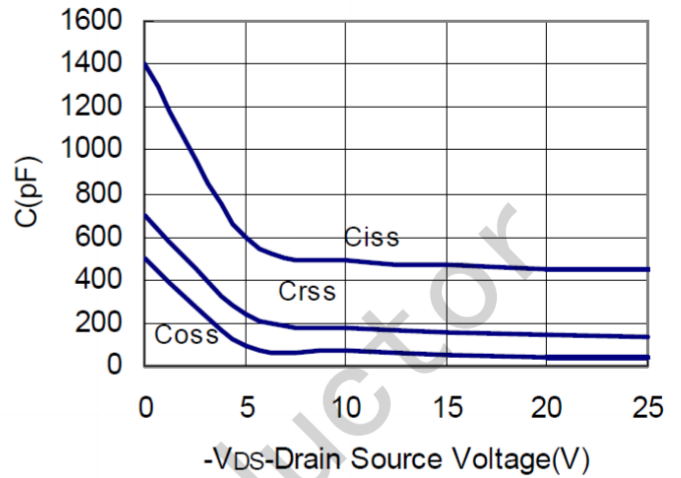


■ TYPICAL CHARACTERISTICS (continuous)

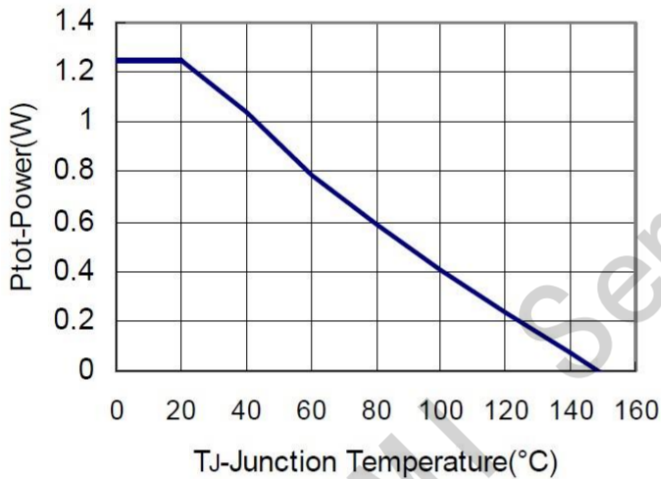
Source Drain Diode Forward



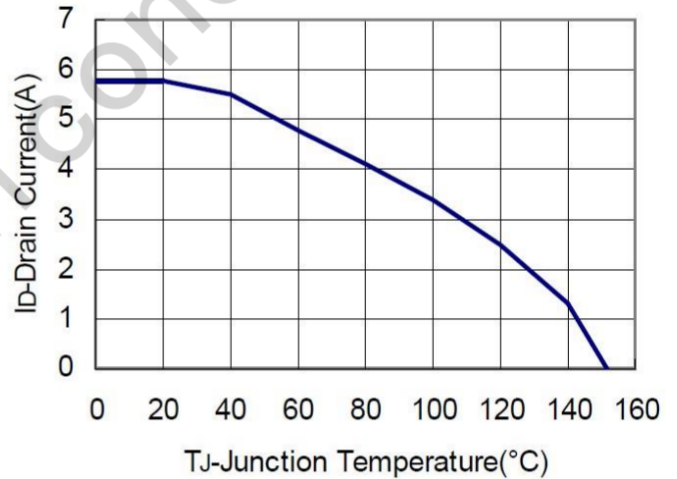
Capacitance



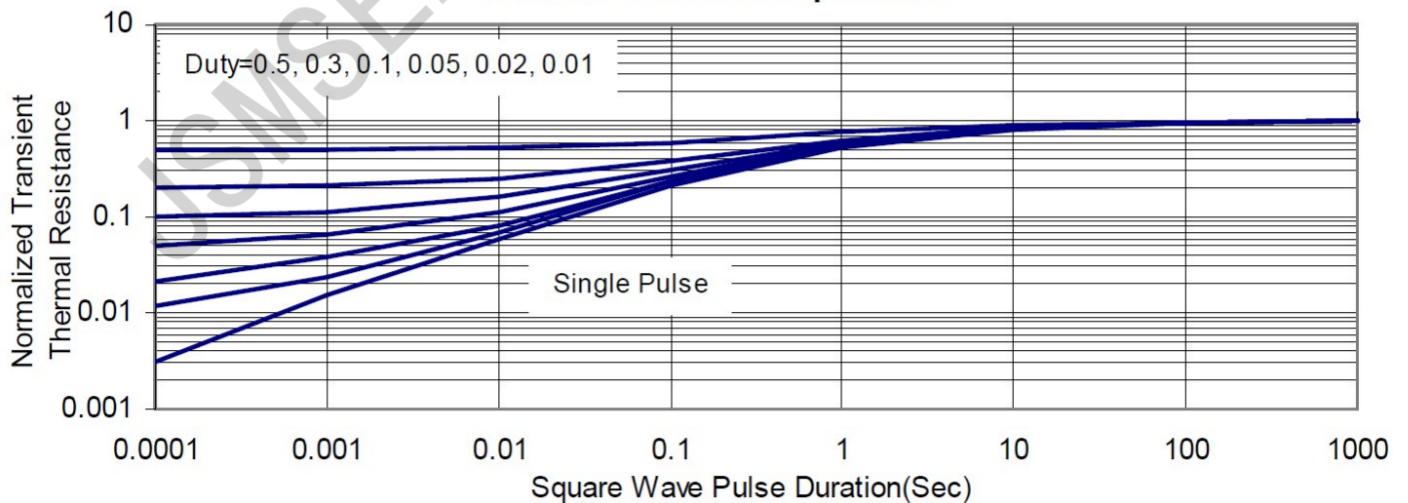
Power Dissipation



Drain Current

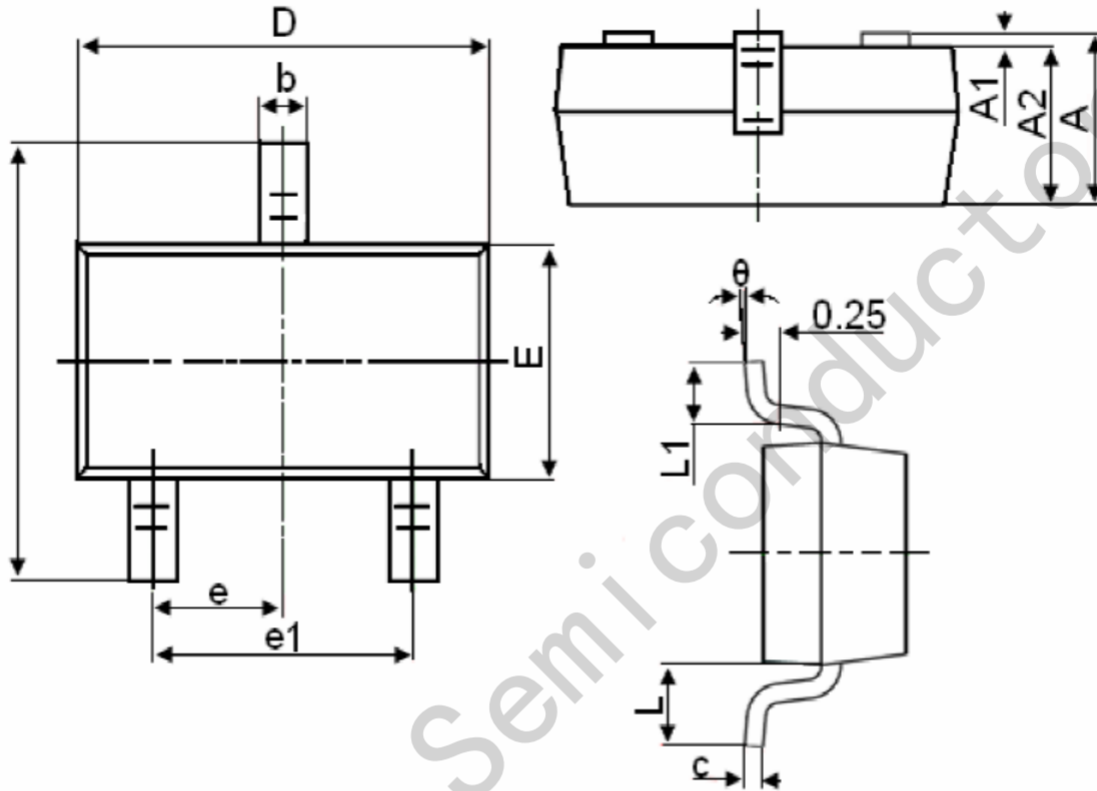


Thermal Transient Impedance



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 |
| theta | 0° | 8° | 0° | 8° |