# SSC8022GS8

## N-Channel Small Switching MOSFET

### ➢ Features

| $V_{DS}$ | $V_{GS}$ | $R_{DS(ON)}$ Typ. | $I_D$ |
|---|---|---|---|
| 20V | ±12V | 62mΩ@4.5V | 3.2A |
| | | 75mΩ@2.5V | |

### ➢ Description

This device is an N-Channel enhancement mode MOSFET, with low on-resistance, fast switching speed and low threshold voltage, it is ideal for portable equipment.

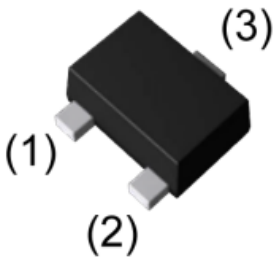
### ➢ Applications

- Direct Logic-Level Interface: TTL/CMOS
- Drivers: Relays, Solenoids, Lamps, Hammers
- Display, Memories, Transistors, etc.
- Battery Operated System
- Solid-State Relays

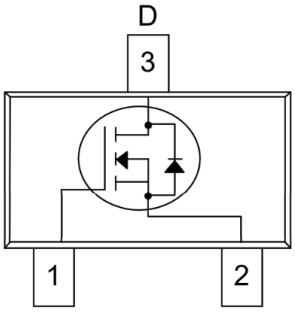
### ➢ Ordering Information

| Device | Package | Shipping |
|---|---|---|
| SSC8022GS8 | SOT-523 | 3000/Reel |

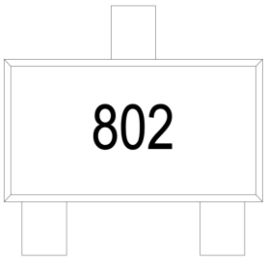
### ➢ Pin configuration




**SOT-523**




**Pin Configuration (Top View)**




**Marking**

## ➢ Absolute Maximum Ratings ($T_A$=25℃ unless otherwise noted)

| Symbol | Parameter | Ratings | Unit |
|---|---|---|---|
| $V_{DSS}$ | Drain-to-Source Voltage | 20 | V |
| $V_{GSS}$ | Gate-to-Source Voltage | ±12 | V |
| $I_D$ | Continuous Drain Current [a] | 3.2 | A |
| $I_{DM}$ | Pulsed Drain Current [b] | 12.8 | A |
| $P_D$ | Power Dissipation [c] | 0.95 | W |
| $T_J$ | Operation junction temperature | -55~150 | ℃ |
| $T_{STG}$ | Storage temperature range | -55~150 | ℃ |

## ➢ Thermal Resistance Ratings ($T_A$=25℃ unless otherwise noted)

| Symbol | Parameter | Maximum | Unit |
|---|---|---|---|
| $R_{\theta JA}$ | Junction-to-Ambient Thermal Resistance [a] | 172 | ℃/W |

Note:

a. The value of $R_{\theta JA}$ is measured with the device mounted on 1 $in^2$ FR-4 board with 2oz.copper, in a still air environment with $T_A$=25℃.The value in any given application depends on the user is specific board design. The power dissipation is based on the t≤10s thermal resistance rating.

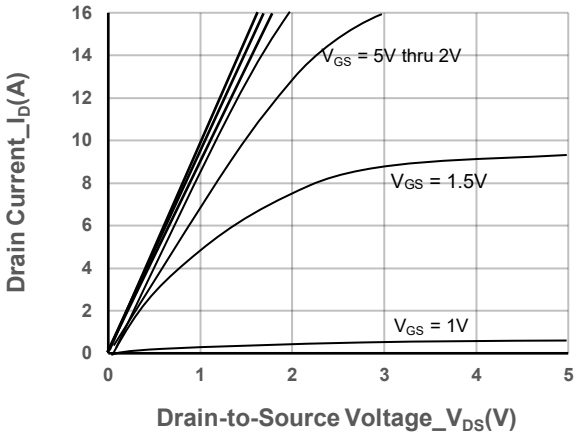
b. Repetitive rating, pulse width limited by junction temperature.

c. The power dissipation $P_D$ is based on $T_{J(MAX)}$=150°C, using junction-to-case thermal resistance, and is more useful in setting the upper dissipation limit for cases where additional heat sinking is used.

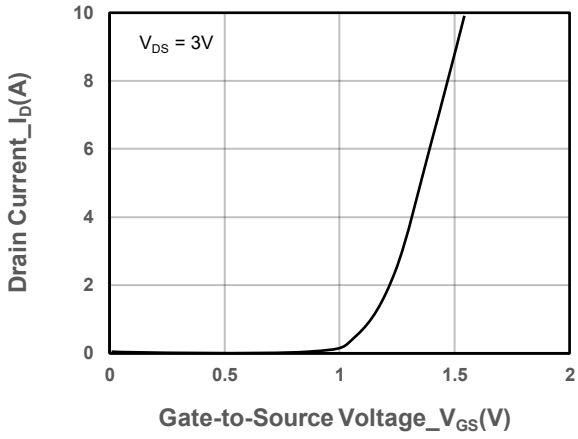
## ➢ Electrical Characteristics ($T_A$=25℃ unless otherwise noted)

| Parameter | Symbol | Test Conditions | Min. | Typ. | Max. | Unit |
|---|---|---|---|---|---|---|
| Drain-Source Breakdown Voltage | $V_{(BR)DSS}$ | $V_{GS}$ = 0V, $I_D$ = 250uA | 20 | | | V |
| Gate Threshold Voltage | $V_{GS(th)}$ | $V_{DS}$ = $V_{GS}$, $I_D$ = 250uA | 0.4 | 0.7 | 1 | V |
| Drain-Source On-Resistance | $R_{DS(on)}$ | $V_{GS}$ = 4.5V, $I_D$ = 0.5A | | 62 | 93 | mΩ |
| | | $V_{GS}$ = 2.5V, $I_D$ = 0.5A | | 75 | 110 | |
| Zero Gate Voltage Drain Current | $I_{DSS}$ | $V_{DS}$ =20V, $V_{GS}$ = 0V | | | 1 | μA |
| Gate-Source Leak Current | $I_{GSS}$ | $V_{GS}$ = ±12V, $V_{DS}$ = 0V | | | ±100 | nA |
| Forward Voltage | $V_{SD}$ | $V_{GS}$ = 0V, $I_S$ = 1.1A | | 0.8 | 1.15 | V |
| Input Capacitance | $C_{ISS}$ | $V_{DS}$ = 10V, $V_{GS}$ = 0V, f = 1MHz | | 156.8 | | pF |
| Output Capacitance | $C_{OSS}$ | | | 29.4 | | |
| Reverse Transfer Capacitance | $C_{RSS}$ | | | 25 | | |
| Turn-on Delay Time | $T_{D(ON)}$ | $V_{GS}$ = 4.5V, $I_D$ = 1A $V_{DS}$ = 10V, $R_G$ = 3Ω | | 6 | | ns |
| Rise Time | $T_r$ | | | 11 | | |
| Turn-off Delay Time | $T_{D(OFF)}$ | | | 22 | | |
| Fall Time | $T_f$ | | | 9 | | |
| Total Gate Charge | $Q_G$ | $V_{GS}$ = 4.5V, $V_{DS}$ = 10V, $I_D$ =1A | | 3 | | nC |
| Gate to Source Charge | $Q_{GS}$ | | | 0.35 | | |
| Gate to Drain Charge | $Q_{GD}$ | | | 0.45 | | |

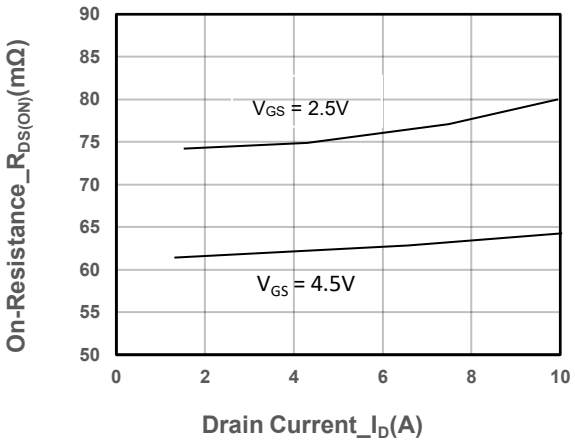
## ➢ Typical Performance Characteristics ($T_A$=25℃ unless otherwise noted)



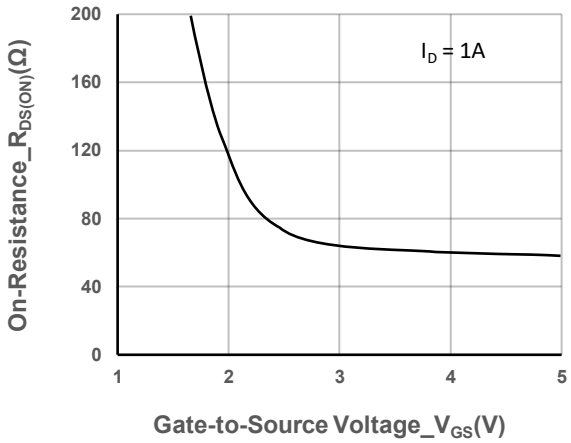

**Output Characteristics**



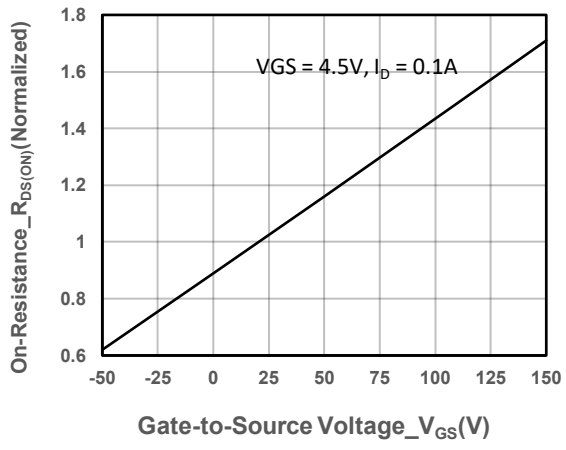

**Transfer Characteristics**



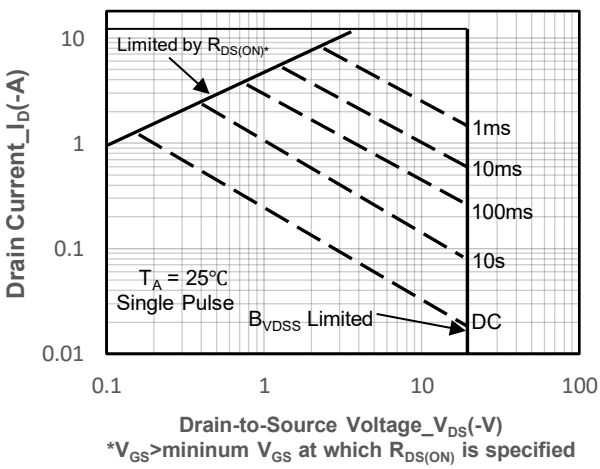

**On-Resistance vs. Drain Current and Gate Voltag**




**On-Resistance vs. Gate-to-Source Voltage**



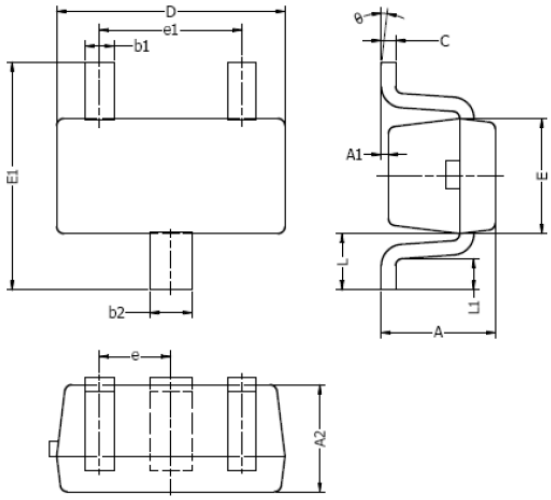

**On-Resistance vs. Junction Temperature**




**Safe Operating Area vs. Junction-to-Ambient**

## ➢ Package Information

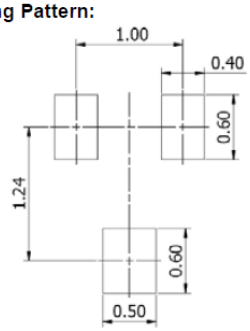
### SOT-523




| DIM | MILLIMETERS | | INCHES | |
|---|---|---|---|---|
| | MIN | MAX | MIN | MAX |
| A | 0.70 | 0.90 | 0.028 | 0.035 |
| A1 | 0.00 | 0.10 | 0.000 | 0.004 |
| A2 | 0.70 | 0.80 | 0.028 | 0.031 |
| b1 | 0.15 | 0.25 | 0.006 | 0.010 |
| b2 | 0.25 | 0.35 | 0.010 | 0.014 |
| c | 0.10 | 0.20 | 0.004 | 0.008 |
| D | 1.50 | 1.70 | 0.059 | 0.067 |
| E | 0.70 | 0.90 | 0.028 | 0.035 |
| E1 | 1.45 | 1.75 | 0.057 | 0.069 |
| e | 0.50 TYP. | | 0.020 TYP. | |
| e1 | 0.90 | 1.10 | 0.035 | 0.043 |
| L | 0.40 REF. | | 0.016 REF. | |
| L1 | 0.10 | 0.30 | 0.004 | 0.012 |
| θ | 0° | 8° | 0° | 8° |

NOTES:
1. Above package outline conforms to JEITA EAIJ ED-7500A SC-75A.
2. Dimensions are exclusive of Burrs, Mold Flash & Tie Bar extrusions.

**Typical Soldering Pattern:**



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