# SSC8029GS6A

## P-Channel Enhancement Mode MOSFET

### ➢ Features

| $V_{DS}$ | $V_{GS}$ | $R_{DS(ON)}$ Typ. | $I_D$ |
|---|---|---|---|
| -20V | ±12V | 18mΩ@-4.5V | -7A |
| | | 22mΩ@-2.5V | |
| | | 37mΩ@-1.8V | |

### ➢ Description

This device is P-Channel enhancement MOSFET. Uses advanced trench technology and design to provide excellent RDSON with low gate charge. This device is suitable for use in DC-DC conversion, power switch and charging circuit.

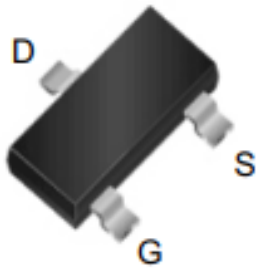
### ➢ Applications

- DC/DC conversion
- Power management in portable
- Load/Power Switching for portable device

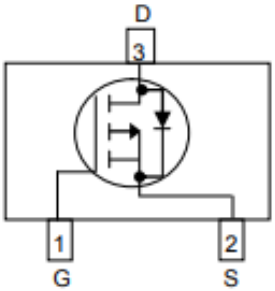
### ➢ Ordering Information

| Device | Package | Shipping |
|---|---|---|
| SSC8029GS6A | SOT-23-3L | 3000/Reel |

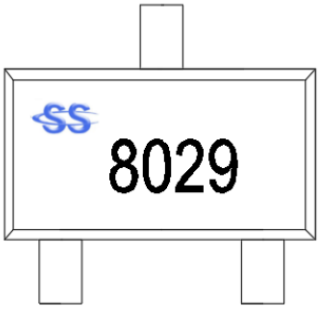
### ➢ Pin configuration




SOT-23-3L




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] | -7 | A |
| $I_{DM}$ | Pulsed Drain Current [b] | -29 | A |
| $P_D$ | Power Dissipation [c] | 2.7 | 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 | Ratings | Unit |
|---|---|---|---|
| $R_{\theta JA}$ | Junction-to-Ambient Thermal Resistance [a] | 76 | ℃/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.

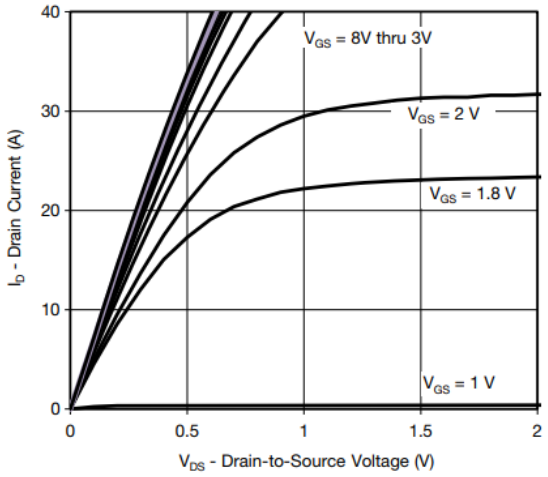
b. Repetitive rating, pulse width limited by junction temperature.

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.

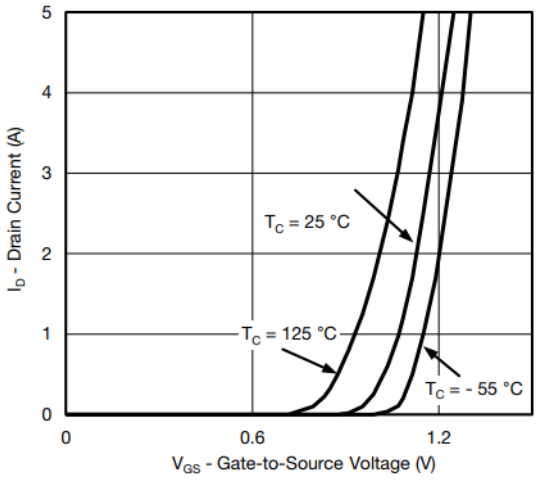
## ➢ Electrical Characteristics ($T_A$=25℃ unless otherwise noted)

| Parameter | Symbol | Test Conditions | Min. | Typ. | Max. | Unit |
|---|---|---|---|---|---|---|
| Drain-Source Breakdown Voltage | $V_{(BR)DSS}$ | $V_{GS}$ = 0V, $I_D$ = -250μA | -20 | | | V |
| Gate Threshold Voltage | $V_{GS(th)}$ | $V_{DS}$ = $V_{GS}$, $I_D$ = -250uA | -0.4 | -0.6 | -1 | V |
| Drain-Source On-Resistance | $R_{DS(on)}$ | $V_{GS}$ = -4.5V, $I_D$ = -5A | | 18 | 24 | mΩ |
| | | $V_{GS}$ = -2.5V, $I_D$ = -3A | | 22 | 29 | |
| | | $V_{GS}$ = -1.8V, $I_D$ = -2A | | 37 | 50 | |
| Zero Gate Voltage Drain Current | $I_{DSS}$ | $V_{DS}$ = -16V, $V_{GS}$ = 0V | | | -1 | μA |
| Gate-Source Leak Current | $I_{GSS}$ | $V_{GS}$ = ±12V, $V_{DS}$ = 0V | | | ±100 | nA |
| Transconductance | $G_{FS}$ | $V_{DS}$ = -5V, $I_D$ = -6A | | 25 | | s |
| Forward Voltage | $V_{SD}$ | $V_{GS}$ = 0V, $I_S$ = -2A | | | -1.3 | V |
| Input Capacitance | $C_{ISS}$ | $V_{DS}$ = -10V, $V_{GS}$ = 0V, f = 1MHz | | 1980 | | pF |
| Output Capacitance | $C_{OSS}$ | | | 210 | | |
| Reverse Transfer Capacitance | $C_{RSS}$ | | | 189 | | |
| Turn-on Delay Time | $T_{D(ON)}$ | $V_{GS}$ = -4.5V, $V_{DS}$ = -10V, $R_L$ = 3Ω, $R_G$ = 6Ω, | | 35 | | ns |
| Rise Time | $T_r$ | | | 30 | | |
| Turn-off Delay Time | $T_{D(OFF)}$ | | | 133 | | |
| Fall Time | $T_f$ | | | 87 | | |
| Total Gate Charge | $Q_G$ | $V_{GS}$ = -4.5V, $V_{DS}$ = -10V, $I_D$ = -6.6A | | 22 | | nC |
| Gate to Source Charge | $Q_{GS}$ | | | 4 | | |
| Gate to Drain Charge | $Q_{GD}$ | | | 5 | | |

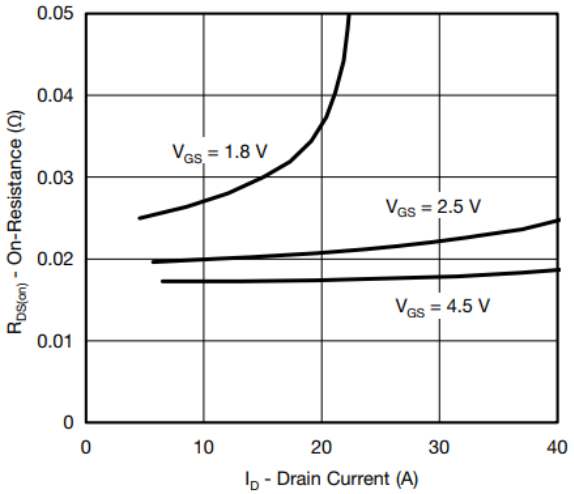
## ➢ Typical Performance Characteristics ($T_A$=25℃ unless otherwise noted)



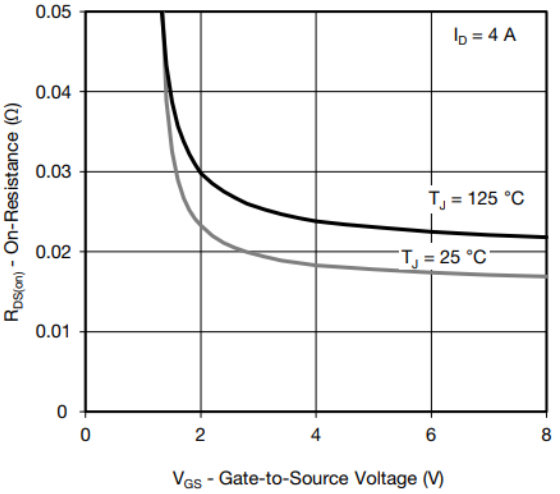

**Output Characteristics**



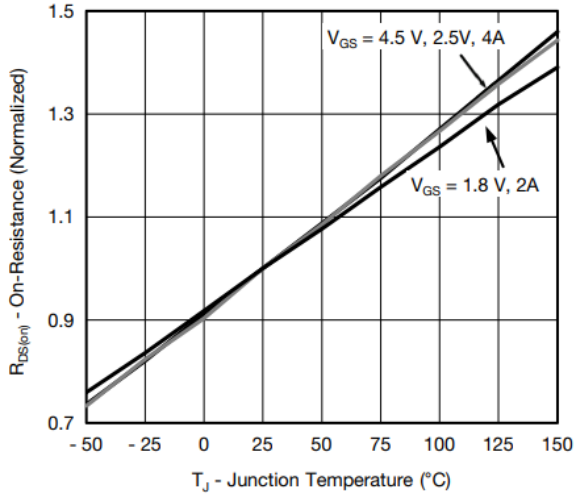

**Transfer Characteristics**



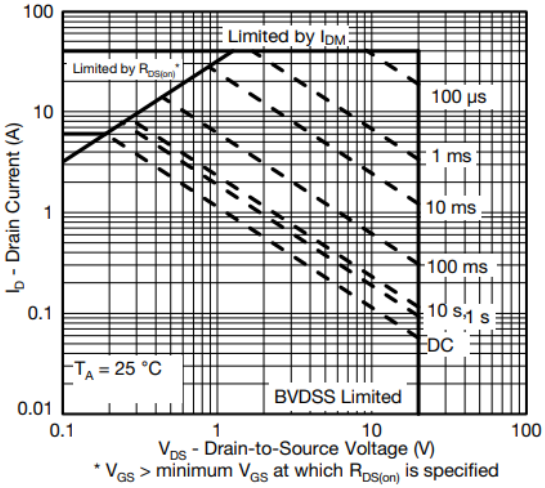

**On-Resistance vs. Drain Current**




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

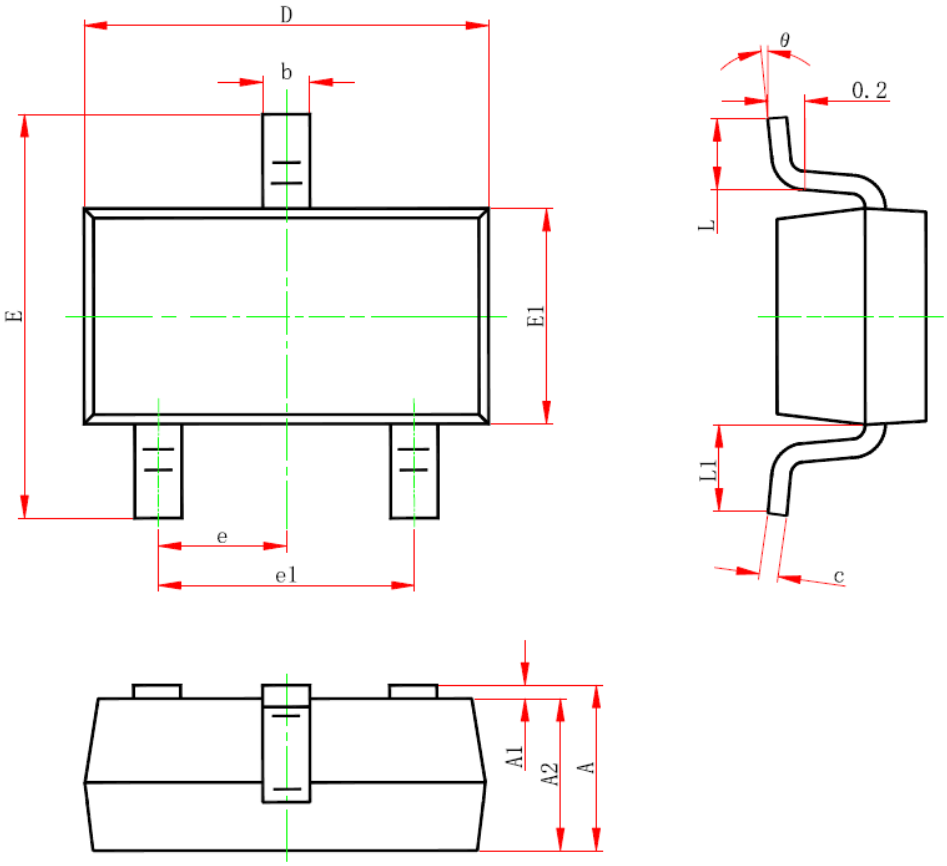



**On-Resistance vs. Junction Temperature**




**Safe Operating Area, Junction-to-Ambient**

## ➢ Package Information




**Package：SOT-23-3L**

| Symbol | Dimensions In Millimeters | | Dimensions In Inches | |
|---|---|---|---|---|
| | Min. | Max. | Min. | Max. |
| A | 1.050 | 1.250 | 0.041 | 0.049 |
| A1 | 0.000 | 0.100 | 0.000 | 0.004 |
| A2 | 1.050 | 1.150 | 0.041 | 0.045 |
| b | 0.300 | 0.500 | 0.012 | 0.020 |
| c | 0.100 | 0.200 | 0.004 | 0.008 |
| D | 2.820 | 3.020 | 0.111 | 0.119 |
| E1 | 1.500 | 1.700 | 0.059 | 0.067 |
| E | 2.650 | 2.950 | 0.104 | 0.116 |
| e | 0.950(BSC) | | 0.037(BSC) | |
| e1 | 1.800 | 2.000 | 0.071 | 0.079 |
| L | 0.300 | 0.600 | 0.012 | 0.024 |
| L1 | 0.600REF. | | 0.024REF. | |
| θ | 0° | 8° | 0° | 8° |

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