# SSC8068GT8

## N-Channel Enhancement Mode MOSFET

➢ **Features**

| $V_{DS}$ | $V_{GS}$ | $R_{DS(ON)}$ **Typ.** | $I_D$ |
|:---:|:---:|:---:|:---:|
| 60V | ±20V | 23mΩ@10V | 30A |
| | | 27mΩ@4V5 | |

➢ **Description**

This device is N-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.

*100% UIS + ΔVDS + Rg Tested!*

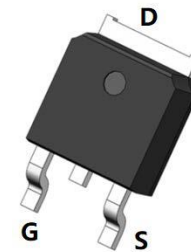➢ **Applications**

● Motor Drive Control

● Portable Devices

● DCDC Conversion

● Power Supplies
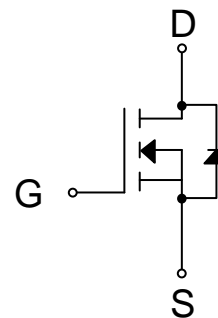
● Synchronous Rectification

➢ **Ordering Information**

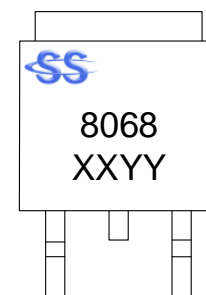| Device | Package | Shipping |
|:---:|:---:|:---:|
| SSC8068GT8 | TO-252-2L | 2500/Reel |

➢ **Pin Configuration**



**TO-252-2L (Top View)**



**Pin Configuration**



**Marking**

(XXYY: Internal Traceability Code)

➤ **Absolute Maximum Ratings (T$_A$=25℃ unless otherwise noted)**

| Symbol | Parameter | | Ratings | Unit |
|---|---|---|---|---|
| V$_{DSS}$ | Drain-to-Source Voltage | | 60 | V |
| V$_{GSS}$ | Gate-to-Source Voltage | | ±20 | V |
| I$_D$ | Continuous Drain Current [d] | T$_C$=25℃ | 30 | A |
| | | T$_C$=100℃ | 18 | |
| I$_{DSM}$ | Continuous Drain Current [a] | T$_A$=25℃ | 10 | A |
| | | T$_A$=70℃ | 7 | |
| I$_{DM}$ | Pulsed Drain Current [b] | | 120 | A |
| P$_D$ | Power Dissipation [c] | T$_C$=25℃ | 46 | W |
| | | T$_C$=100℃ | 18 | |
| P$_{DSM}$ | Power Dissipation [a] | T$_A$=25℃ | 4.2 | W |
| | | T$_A$=70℃ | 2.7 | |
| I$_{AS}$ | Avalanche Energy [b] L=0.5mH Single Pulse | | 13 | A |
| E$_{AS}$ | Avalanche Energy [b] L=0.5mH Single Pulse | | 42.25 | mJ |
| 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$_{θJA}$ | Junction-to-Ambient Thermal Resistance [a] | 30 | ℃/W |
| R$_{θJC}$ | Junction-to-Case Thermal Resistance | 2.7 | |

Note:

a. The value of R$_{θJA}$ 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.

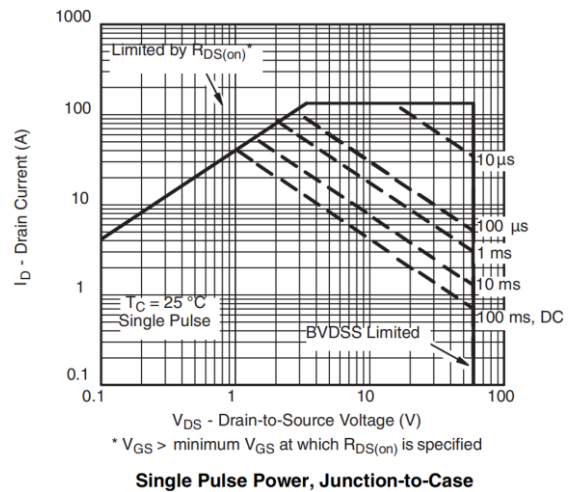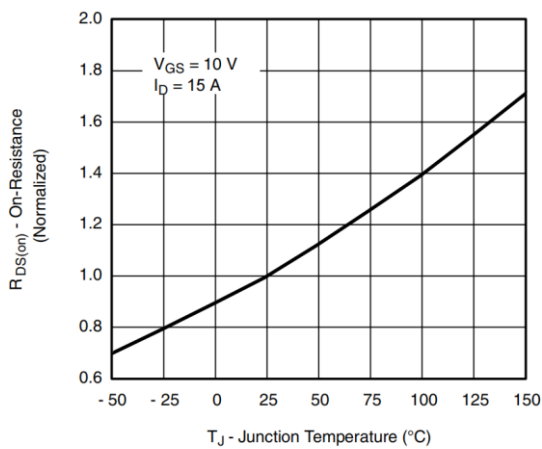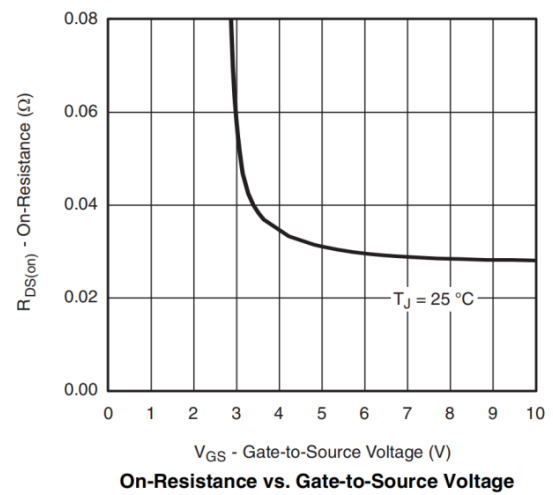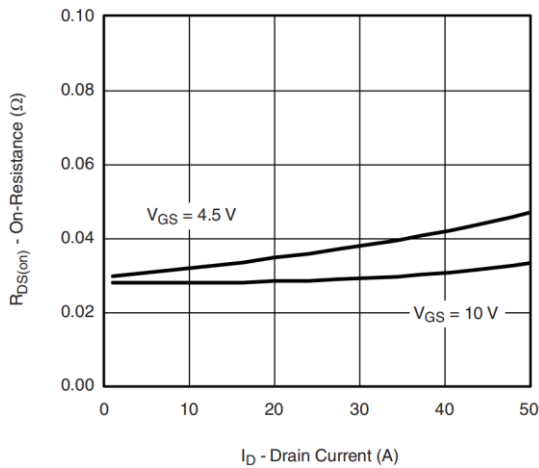d. The maximum current rating is package limited.
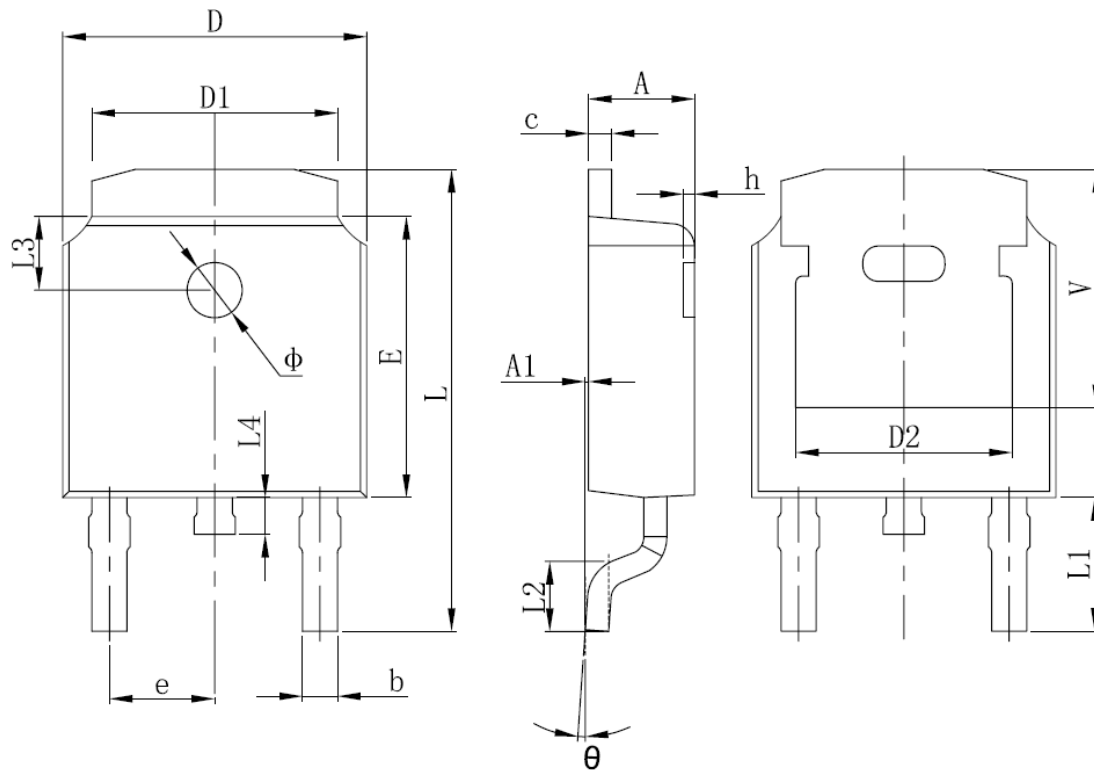
➤ **Electrical Characteristics (T$_A$=25℃ unless otherwise noted)**

| Parameter | Symbol | Test Conditions | Min. | Typ. | Max. | Unit |
|---|---|---|---|---|---|---|
| Drain-Source Breakdown Voltage | V$_{(BR)DSS}$ | V$_{GS}$ = 0V, I$_D$ = 250µA | 60 | | | V |
| Gate Threshold Voltage | V$_{GS(th)}$ | V$_{DS}$ = V$_{GS}$, I$_D$ = 250uA | 1 | 1.5 | 2.5 | V |
| Drain-Source On-Resistance | R$_{DS(on)}$ | V$_{GS}$ = 10V, I$_D$ = 6A | | 23 | 31 | mΩ |
| | | V$_{GS}$ = 4.5V, I$_D$ = 3A | | 27 | 40 | mΩ |
| Zero Gate Voltage Drain Current | I$_{DSS}$ | V$_{DS}$ = 60V, V$_{GS}$ = 0V | | | 1 | µA |
| Gate-Source Leak Current | I$_{GSS}$ | V$_{GS}$ = ±20V, V$_{DS}$ = 0V | | | ±100 | nA |
| Forward Voltage | V$_{SD}$ | V$_{GS}$ = 0V, I$_S$ = 5A | | 0.8 | 1.3 | V |
| Gate Resistance | R$_G$ | V$_{DS}$ = 0V, f = 1MHz | | 1.5 | | Ω |
| Input Capacitance | C$_{ISS}$ | V$_{DS}$ = 25V, V$_{GS}$ = 0V, f = 1MHz | | 1320 | | pF |
| Output Capacitance | C$_{OSS}$ | | | 68 | | |
| Reverse Transfer Capacitance | C$_{RSS}$ | | | 59 | | |
| Total Gate Charge | Q$_G$ | V$_{GS}$ = 10V, V$_{DS}$ = 30V, I$_D$ = 15A | | 24 | | nC |
| Gate to Source Charge | Q$_{GS}$ | | | 4.4 | | |
| Gate to Drain Charge | Q$_{GD}$ | | | 6.3 | | |
| Turn-on Delay Time | T$_{D(ON)}$ | V$_{GS}$ = 10V, V$_{DS}$ = 30V, I$_D$ = 15A, R$_G$ = 1.8Ω | | 7.3 | | ns |
| Rise Time | T$_r$ | | | 20 | | |
| Turn-off Delay Time | T$_{D(OFF)}$ | | | 15 | | |
| Fall Time | T$_f$ | | | 22 | | |
| Diode Recovery Time | T$_{rr}$ | I$_F$=30A, di/dt=100A/us | | 28 | | ns |
| Diode Recovery Charge | Q$_{rr}$ | I$_F$=30A, di/dt=100A/us | | 45 | | nC |

## 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**



**Single Pulse Power, Junction-to-Case**

➤ **Package Information**



| Symbol | Dimensions In Millimeters | | Dimensions In Inches | |
|---|---|---|---|---|
| | Min. | Max. | Min. | Max. |
| A | 2.200 | 2.400 | 0.087 | 0.094 |
| A1 | 0.000 | 0.127 | 0.000 | 0.005 |
| b | 0.635 | 0.770 | 0.025 | 0.030 |
| c | 0.460 | 0.580 | 0.018 | 0.023 |
| D | 6.500 | 6.700 | 0.256 | 0.264 |
| D1 | 5.100 | 5.460 | 0.201 | 0.215 |
| D2 | 4.830 REF. | | 0.190 REF. | |
| E | 6.000 | 6.200 | 0.236 | 0.244 |
| e | 2.186 | 2.386 | 0.086 | 0.094 |
| L | 9.712 | 10.312 | 0.382 | 0.406 |
| L1 | 2.900 REF. | | 0.114 REF. | |
| L2 | 1.400 | 1.700 | 0.055 | 0.067 |
| L3 | 1.600 REF. | | 0.063 REF. | |
| L4 | 0.600 | 1.000 | 0.024 | 0.039 |
| Φ | 1.100 | 1.300 | 0.043 | 0.051 |
| θ | 0° | 8° | 0° | 8° |
| h | 0.000 | 0.300 | 0.000 | 0.012 |
| V | 5.250 REF. | | 0.207 REF. | |

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