# SSC8L660GN6

## Dual N-Channel Enhancement Mode MOSFET

### ➢ Features

| $V_{DS}$ | $V_{GS}$ | $R_{DS(ON)}$ Typ. | $I_D$ |
|---|---|---|---|
| 60V | ±20V | 8.5 mΩ@10V | 56A |
| | | 12.5 mΩ@4.5V | |

### ➢ Description

This device is N-Channel enhancement MOSFET. Uses SGT 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!***

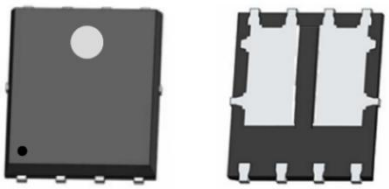
### ➢ Applications

- Motor Drive Control
- DCDC Conversion
- Power Supplies
- Synchronous Rectification

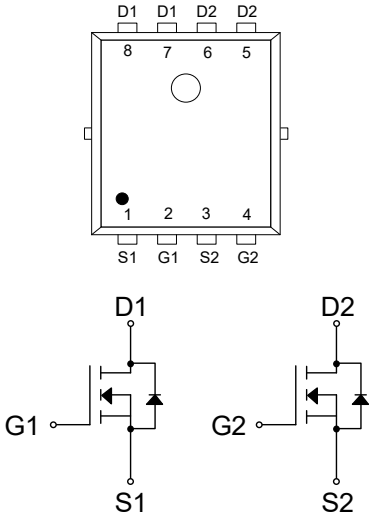
### ➢ Ordering Information

| Device | Package | Shipping |
|---|---|---|
| SSC8L660GN6 | PDFN5X6-8L | 5000/Reel |

### ➢ Pin Configuration



**PDFN5X6-8L**




**Pin Configuration (Top View)**


**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℃ | 56 | A |
| | | $T_C$=100℃ | 36 | |
| $I_{DSM}$ | Continuous Drain Current [a] | $T_A$=25℃ | 12 | A |
| | | $T_A$=70℃ | 10 | |
| $I_{DM}$ | Pulsed Drain Current [b] | | 225 | A |
| $P_D$ | Power Dissipation [c] | $T_C$=25℃ | 57 | W |
| | | $T_C$=100℃ | 23 | |
| $P_{DSM}$ | Power Dissipation [a] | $T_A$=25℃ | 2.7 | W |
| | | $T_A$=70℃ | 1.7 | |
| $I_{AS}$ | Avalanche Current [b] L=0.5mH Single Pulse | | 18 | A |
| $E_{AS}$ | Avalanche Energy [b] L=0.5mH Single Pulse | | 81 | 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 |
|---|---|---|---|
| $R_{\theta JA}$ | Junction-to-Ambient Thermal Resistance [a] | 47 | ℃/W |
| $R_{\theta JC}$ | Junction-to-Case Thermal Resistance | 2.2 | |

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.

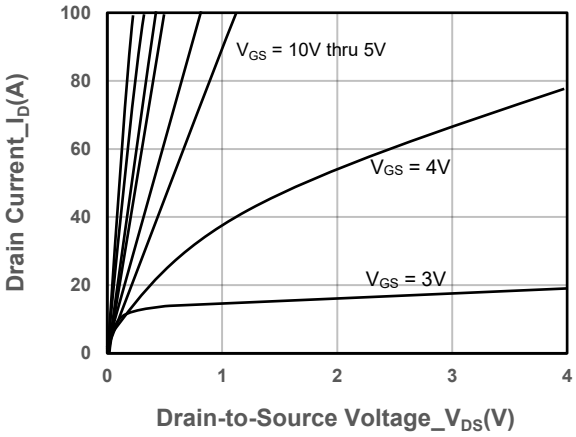
c. The power dissipation $P_D$ is based on $T_{J(MAX)}$=150°C, using junction-to-case thermal resistance, and is more useful in setting the upper dissipation limit for cases where additional heat sinking is used.

d. The maximum current rating is package limited.

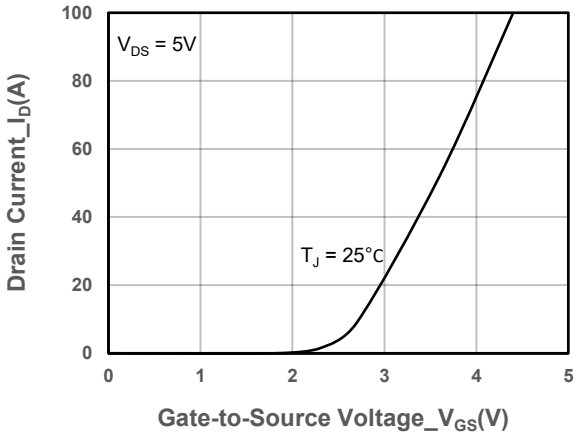
## ➢ Electrical Characteristics ($T_A$=25℃ unless otherwise noted)

| 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 | 1.0 | 1.8 | 2.5 | V |
| Drain-Source On-Resistance | $R_{DS(on)}$ | $V_{GS}$ = 10V, $I_D$ = 20A | | 8.5 | 12.5 | mΩ |
| Drain-Source On-Resistance | $R_{DS(on)}$ | $V_{GS}$ = 4.5V, $I_D$ = 10A | | 12.5 | 18 | 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 |
| Transconductance | $G_{FS}$ | $V_{DS}$ = 5V, $I_D$ = 10A | | 20 | | S |
| Forward Voltage | $V_{SD}$ | $V_{GS}$ = 0V, $I_S$ = 10A | | 0.8 | 1.3 | V |
| Gate Resistance | $R_G$ | $V_{DS}$ = 0V, f = 1MHz | | 1.4 | | Ω |
| Input Capacitance | $C_{ISS}$ | $V_{DS}$ = 30V, $V_{GS}$ = 0V, f = 1MHz | | 980 | | pF |
| Output Capacitance | $C_{OSS}$ | | | 435 | | |
| Reverse Transfer Capacitance | $C_{RSS}$ | | | 36 | | |
| Total Gate Charge | $Q_G$ | $V_{GS}$ = 10V, $V_{DS}$ = 30V, $I_D$ = 20A | | 17 | | nC |
| Gate to Source Charge | $Q_{GS}$ | | | 2.8 | | |
| Gate to Drain Charge | $Q_{GD}$ | | | 3.7 | | |
| Turn-on Delay Time | $T_{D(ON)}$ | $V_{GS}$ = 10V, $V_{DS}$ = 30V, $I_D$ = 20A, $R_G$ = 3Ω | | 4.9 | | ns |
| Rise Time | $T_r$ | | | 3.9 | | |
| Turn-off Delay Time | $T_{D(OFF)}$ | | | 18 | | |
| Fall Time | $T_f$ | | | 7.5 | | |
| Diode Recovery Time | $T_{rr}$ | $I_F$=20A, di/dt=500A/us | | 23 | | ns |
| Diode Recovery Charge | $Q_{rr}$ | $I_F$=20A, di/dt=500A/us | | 53 | | nC |

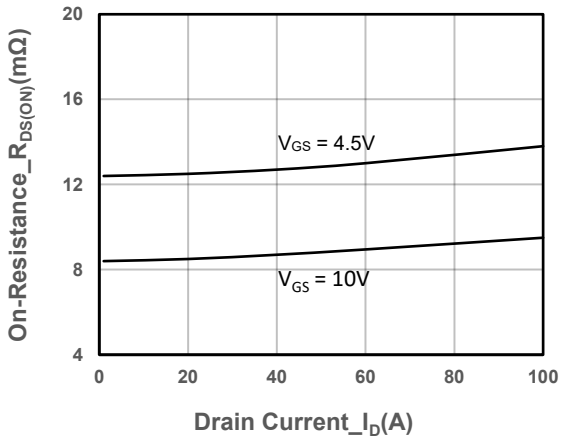
## ➢ Typical Performance Characteristics ($T_A$=25℃ unless otherwise noted)



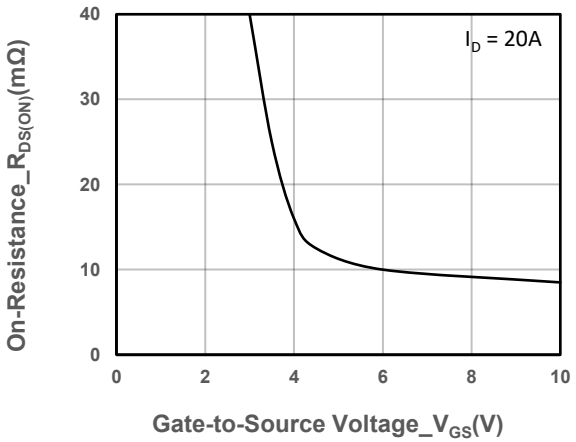

**Output Characteristics**



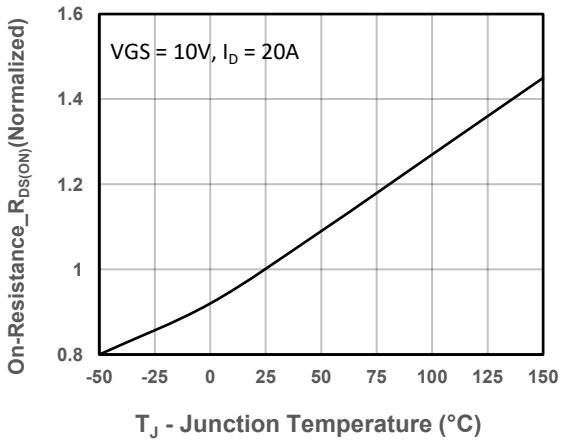

**Transfer Characteristics**



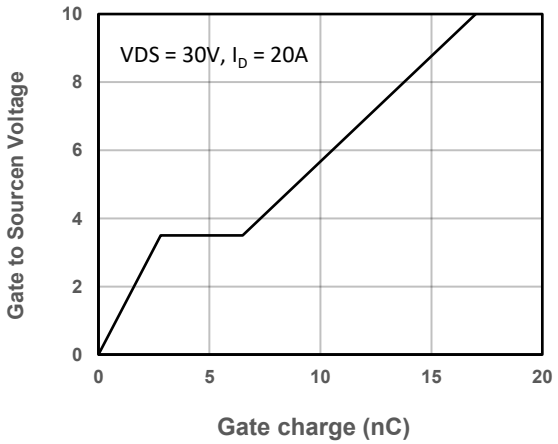

**On-Resistance vs. Drain Current and Gate Voltag**



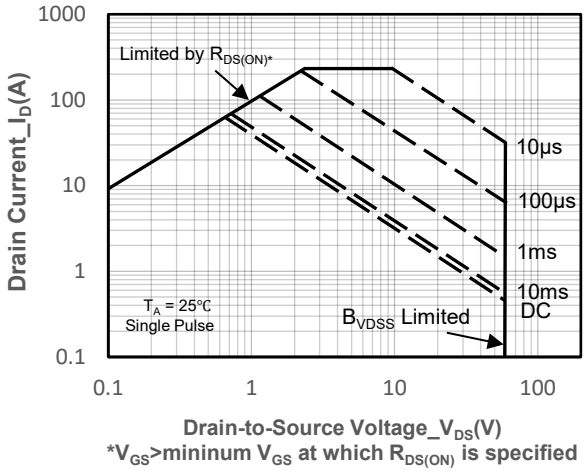

**On-Resistance vs. Gate-to-Source Voltage**




**On-Resistance vs. Junction Temperature**

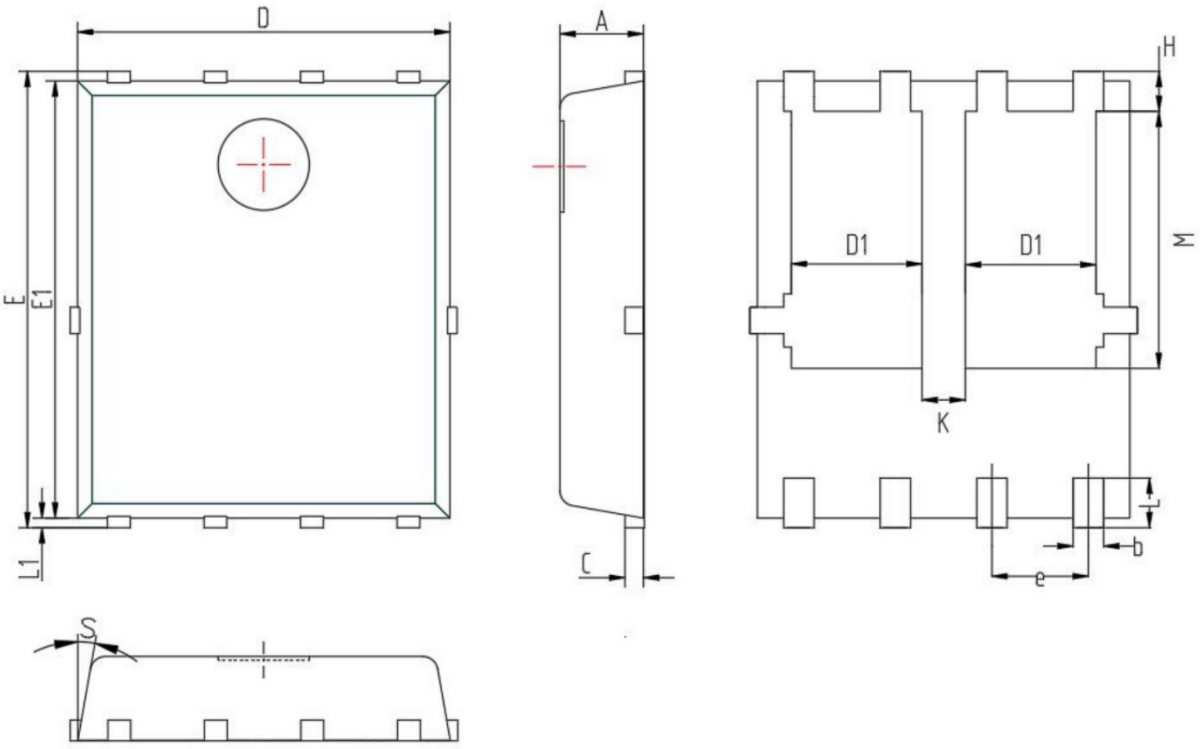



**Gate-Source Voltage vs. Gate charge**




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

## ➢ Package Information




| Symbol | MILL IMETER | | |
|---|---|---|---|
| | Min | Nom | Max |
| A | 0.9 | 1.10 | 1.20 |
| b | 0.25 | 0.30 | 0.5 |
| C | 0.20 | 0.25 | 0.35 |
| D | 4.80 | 5.00 | 5.20 |
| D1 | 1.50 | 1.70 | 1.80 |
| E | 5.90 | 6.00 | 6.30 |
| E1 | 5.60 | 5.75 | 5.90 |
| e | 1.27BSC | | |
| H | 0.48 | 0.58 | 0.80 |
| K | 0.50 | 0.60 | 0.70 |
| L | 0.50 | 0.60 | 0.84 |
| L1 | 0.10 | 0.15 | 0.30 |
| M | 3.30 | 3.48 | 3.67 |
| S | 12° BSC | | |

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