# SSC80318GT8

## N-Channel Enhancement Mode MOSFET

### ➢ Features

| $V_{DS}$ | $V_{GS}$ | $R_{DS(ON)}$ Typ. | $I_D$ |
|---|---|---|---|
| 30V | ±20V | 17mΩ@10V | 42A |
| | | 24mΩ@4.5V | |

### ➢ Description

This device is N-Channel enhancement MOSFET. Uses advanced trench technology to provide excellent RDSON and low gate charge. This device is suitable for use as a load switch or in PWM applications.

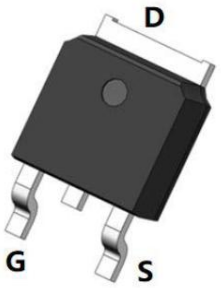
### ➢ Applications

- Intelligent Lighting
- Load Switch
- Portable Devices
- DCDC Conversion

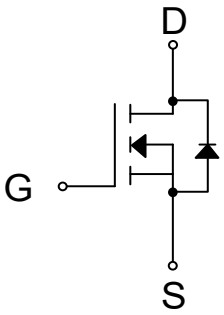
### ➢ Ordering Information

| Device | Package | Shipping |
|---|---|---|
| SSC80318GT8 | 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 | | 30 | V |
| $V_{GSS}$ | Gate-to-Source Voltage | | ±20 | V |
| $I_D$ | Continuous Drain Current [d] | $T_C$=25℃ | 42 | A |
| | | $T_C$=100℃ | 26 | |
| $I_{DSM}$ | Continuous Drain Current [a] | $T_A$=25℃ | 11 | A |
| | | $T_A$=70℃ | 9 | |
| $I_{DM}$ | Pulsed Drain Current [b] | | 164 | A |
| $P_D$ | Power Dissipation [c] | $T_C$=25℃ | 62.5 | W |
| | | $T_C$=100℃ | 25 | |
| $P_{DSM}$ | Power Dissipation [a] | $T_A$=25℃ | 4.2 | W |
| | | $T_A$=70℃ | 2.7 | |
| $E_{AS}$ | Avalanche Energy [b] L=0.5mH Single Pulse | | 16 | 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] | 30 | ℃/W |
| $R_{\theta JC}$ | Junction-to-Case Thermal Resistance | 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.

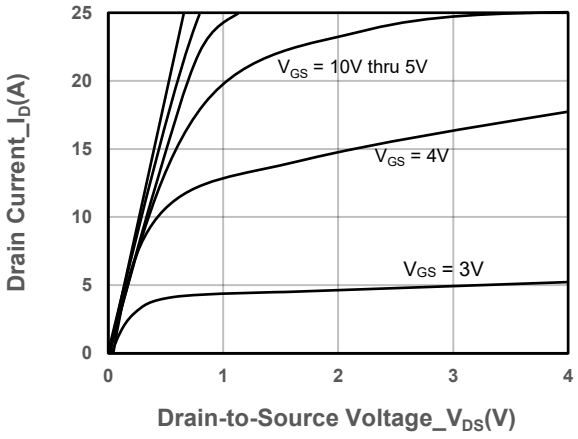
c. The power dissipation $P_D$ is based on $T_{J(MAX)}$=150°C, using junction-to-case thermal resistance, and is more useful in setting the upper dissipation limit for cases where additional heat sinking is used.

d. The maximum current rating is package limited.

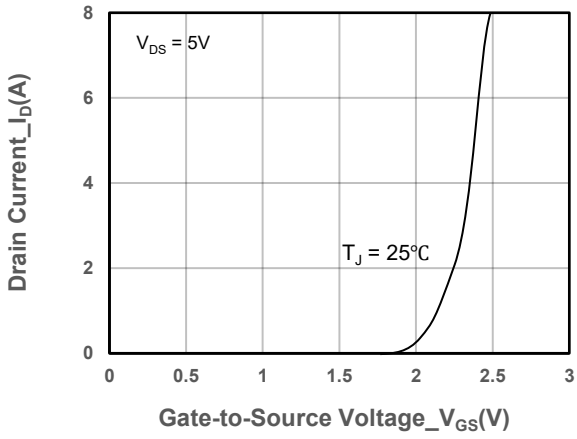
## ➢ Electrical Characteristics ($T_A$=25℃ unless otherwise noted)

| Parameter | Symbol | Test Conditions | Min. | Typ. | Max. | Unit |
|---|---|---|---|---|---|---|
| Drain-Source Breakdown Voltage | $V_{(BR)DSS}$ | $V_{GS}$ = 0V, $I_D$ = 250μA | 30 | | | V |
| Gate Threshold Voltage | $V_{GS(th)}$ | $V_{DS}$ = $V_{GS}$, $I_D$ = 250μA | 1.0 | 1.8 | 2.5 | V |
| Drain-Source On-Resistance | $R_{DS(on)}$ | $V_{GS}$ = 10V, $I_D$ = 10A | | 17 | 23 | mΩ |
| | | $V_{GS}$ = 4.5V, $I_D$ = 7A | | 24 | 36 | |
| Zero Gate Voltage Drain Current | $I_{DSS}$ | $V_{DS}$ = 30V, $V_{GS}$ = 0V | | | 1 | μA |
| Gate-Source Leak Current | $I_{GSS}$ | $V_{GS}$ = ±20V, $V_{DS}$ = 0V | | | ±100 | nA |
| Transconductance | $G_{FS}$ | $V_{DS}$ = 5V, $I_D$ = 2A | | 6 | | S |
| Forward Voltage | $V_{SD}$ | $V_{GS}$ = 0V, $I_S$ = 2A | | 0.8 | 1.3 | V |
| Gate Resistance | $R_G$ | $V_{DS}$ = 0V, f = 1MHz | | 2.8 | | Ω |
| Input Capacitance | $C_{ISS}$ | $V_{DS}$ = 15V, $V_{GS}$ = 0V, f = 1MHz | | 680 | | pF |
| Output Capacitance | $C_{OSS}$ | | | 54 | | |
| Reverse Transfer Capacitance | $C_{RSS}$ | | | 48 | | |
| Turn-on Delay Time | $T_{D(ON)}$ | $V_{GS}$ = 10V, $I_D$=3A, $V_{DS}$ = 15V, $R_G$ = 3Ω | | 7.6 | | ns |
| Rise Time | $T_r$ | | | 3 | | |
| Turn-off Delay Time | $T_{D(OFF)}$ | | | 20 | | |
| Fall Time | $T_f$ | | | 3 | | |
| Total Gate Charge | $Q_G$ | $V_{GS}$ = 10V, $V_{DS}$ = 15V, $I_D$ = 3A | | 12 | | nC |
| Gate to Source Charge | $Q_{GS}$ | | | 2.3 | | |
| Gate to Drain Charge | $Q_{GD}$ | | | 1.4 | | |
| Diode Recovery Time | $T_{rr}$ | $I_F$=10A, di/dt=100A/us | | 10 | | ns |
| Diode Recovery Charge | $Q_{rr}$ | $I_F$=10A, di/dt=100A/us | | 4 | | nC |

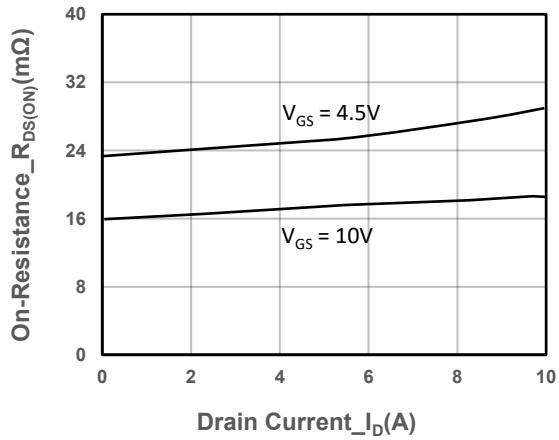
## ➢ Typical Performance Characteristics ($T_A$=25℃ unless otherwise noted)



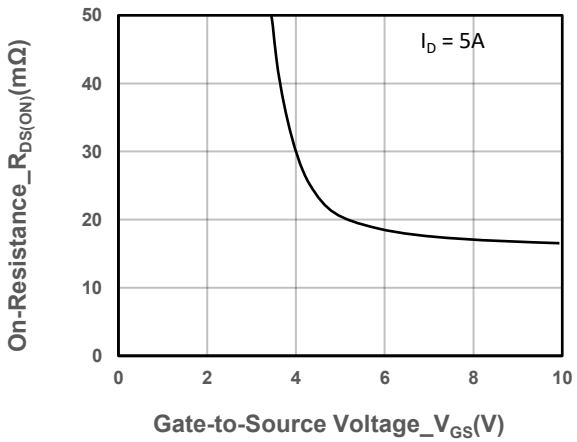

**Output Characteristics**



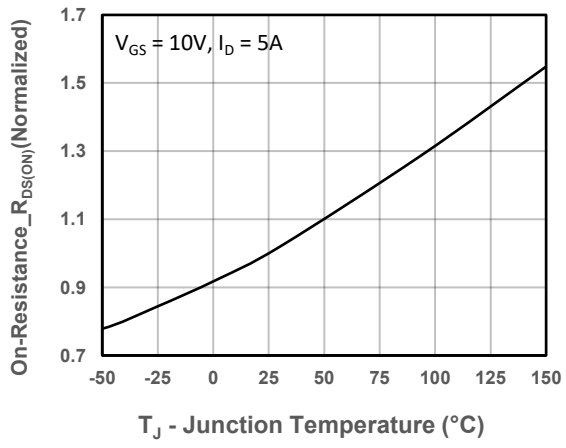

**Transfer Characteristics**



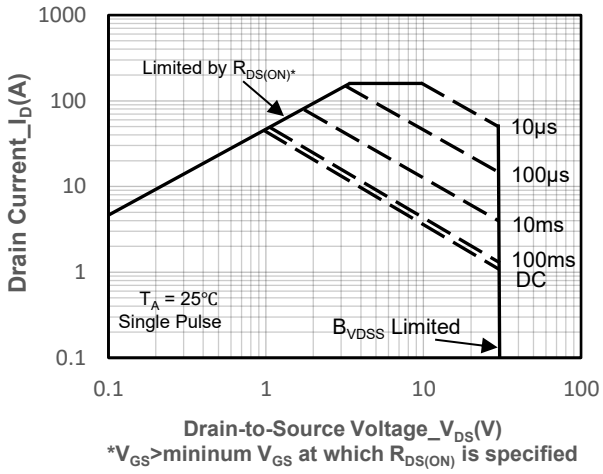

**On-Resistance vs. Drain Current and Gate Voltage**




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

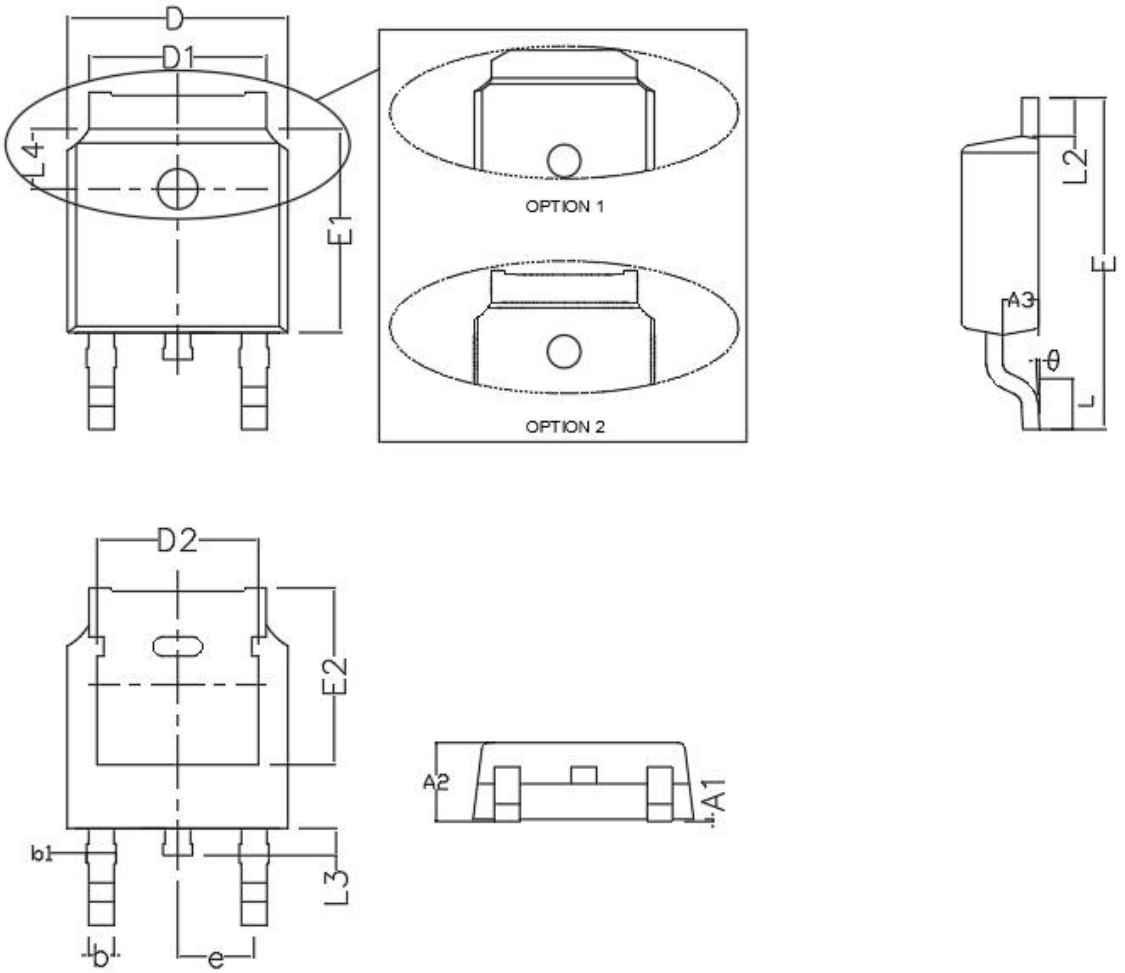



**On-Resistance vs. Junction Temperature**




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

## ➢ Package Information




| Symbol | MILL IMETER | | | Symbol | MILL IMETER | | |
|---|---|---|---|---|---|---|---|
| | Min | Nom | Max | | Min | Nom | Max |
| A1 | 0.000 | / | 0.200 | E1 | 5.800 | 6.100 | 6.400 |
| A2 | 2.100 | 2.300 | 2.500 | E2 | 5.100 | 5.450 | 5.600 |
| A3 | 0.900 | 1.040 | 1.170 | e | 2.286TYP | | |
| b | 0.600 | 0.762 | 0.910 | L | 1.270 | 1.500 | 2.032 |
| b1 | 0.680 | 0.840 | 1.145 | L2 | 0.900 | 1.100 | 1.270 |
| D | 6.300 | 6.600 | 6.900 | L3 | 0.600 | 0.800 | 1.000 |
| D1 | 4.950 | 5.330 | 5.700 | L4 | 1.600 | 1.800 | 2.000 |
| D2 | 4.315 | 4.830 | 5.230 | θ | 0° | / | 10° |
| E | 9.395 | 10.100 | 10.700 | | | | |

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