

## N-Channel Enhancement Mode MOSFET

- **Features**

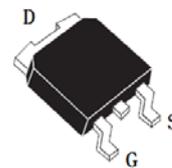
| VDS | VGS  | RDSon TYP | ID  |
|-----|------|-----------|-----|
| 25V | ±20V | 8mR@10V   | 35A |
|     |      | 11mR@4V5  |     |

- **Applications**

- Desktop Computer
- Notebook

- **Pin Configuration**

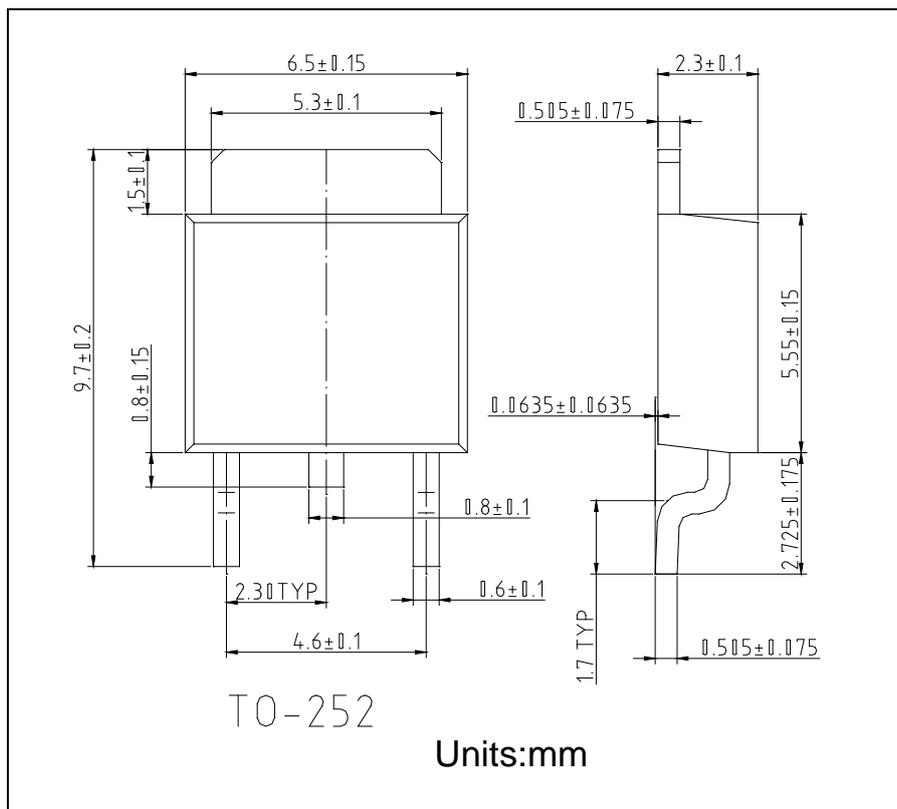
Top View



- **General Description**

This device uses advanced trench technology to provide excellent RDS(ON) and low gate charge. This device is suitable for use as a load switch or in PWM applications.

- **Package Information**



● **Absolute Maximum Ratings @  $T_A = 25^\circ\text{C}$  unless otherwise noted**

| Parameter  |   | Symbol         | Ratings     | Unit             |
|--|---|----------------|-------------|------------------|
| Drain-Source Voltage                             |   | $V_{DSS}$      | 25          | V                |
| Gate-Source Voltage                              |   | $V_{GSS}$      | $\pm 20$    | V                |
| Operating and Storage Junction Temperature Range |   | $T_J, T_{STG}$ | -55 to +150 | $^\circ\text{C}$ |
| Mounted on PCB of Minimum Footprint              | Pulsed Drain Current (Note 2)                   | $I_{DM}$       | 100         | A                |
|  | Continuous Drain Current (Note 1)               | $I_D$          | 14          | A                |
|  | Total Power Dissipation (Note 1)                | $P_D$          | 1.5         | W                |
| Mounted on PCB of $1\text{in}^2$ Pad Area        | Pulsed Drain Current (Note 2)                   | $I_{DM}$       | 100         | A                |
|  | Continuous Drain Current ( $25^\circ\text{C}$ ) | $I_D$          | 18          | A                |
|  | Total Power Dissipation ( $25^\circ\text{C}$ )  | $P_D$          | 4           | W                |
| Mounted on Large Heat Sink                       | Pulsed Drain Current (Note 2)                   | $I_{DM}$       | 100         | A                |
|  | Continuous Drain Current ( $25^\circ\text{C}$ ) | $I_D$          | 35 (Note 3) | A                |
|  | Total Power Dissipation ( $25^\circ\text{C}$ )  | $P_D$          | 50          | W                |

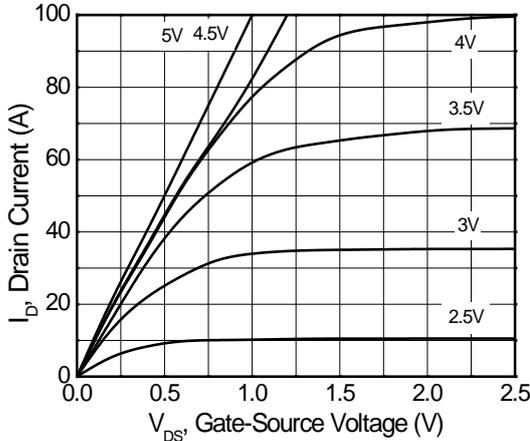
● **Electrical Characteristics @  $T_A = 25^\circ\text{C}$  unless otherwise noted**

| Parameter                        | Symbol        | Test Conditions  | Min | Typ  | Max       | Unit          |
|----------------------------------|---------------|--|-----|------|-----------|---------------|
| Drain-Source Breakdown Voltage   | $V_{(BR)DSS}$ | $V_{GS} = 0\text{ V}, I_D = 250\mu\text{A}$                          | 25  | --   | --        | V             |
| Gate Threshold Voltage           | $V_{GS(TH)}$  | $V_{DS} = V_{GS}, I_D = 250\mu\text{A}$                              | 1.5 | 2.0  | 2.5       | V             |
| Gate-Body Leakage Current        | $I_{GSS}$     | $V_{GS} = \pm 20\text{ V}, V_{DS} = 0\text{ V}$                      | --  | --   | $\pm 100$ | nA            |
| Zero Gate Voltage Drain Current  | $I_{DSS}$     | $V_{DS} = 24\text{ V}, V_{GS} = 0\text{ V}$                          | --  | --   | 1         | $\mu\text{A}$ |
| Drain-Source On-State Resistance | $R_{DS(ON)}$  | $V_{GS} = 10\text{ V}, I_D = 30\text{ A}$                            | --  | 7.5  | 9         | mR            |
|                                  |               | $V_{GS} = 4.5\text{ V}, I_D = 15\text{ A}$                           | --  | 11   | 15        |               |
| Forward Transconductance         | $G_{FS}$      | $V_{DS} = 5\text{ V}, I_D = 5\text{ A}$                              | --  | 7.3  | --        | S             |
| Diode Forward Voltage            | $V_{SD}$      | $V_{GS} = 0\text{ V}, I_S = 10\text{ A}$                             | --  | 0.84 | 1         | V             |
| Input Capacitance                | $C_{ISS}$     | $V_{DS} = 15\text{ V}, V_{GS} = 0\text{ V},$<br>$f = 1.0\text{ MHz}$ | --  | 1560 | --        | pF            |
| Output Capacitance               | $C_{OSS}$     |  | --  | 345  | --        |               |
| Reverse Transfer Capacitance     | $C_{RSS}$     |  | --  | 245  | --        |               |
| Turn-On Delay Time               | $T_{D(ON)}$   | $V_{DS} = 15\text{ V}, R_L = 15\text{ R},$                           | --  | 17   | --        | nS            |
| Turn-Off Delay Time              | $T_{D(OFF)}$  | $I_{DS} = 1\text{ A}, V_{GS} = 10\text{ V}, R_{GEN} = 6\text{ R}$    | --  | 41   | --        |               |

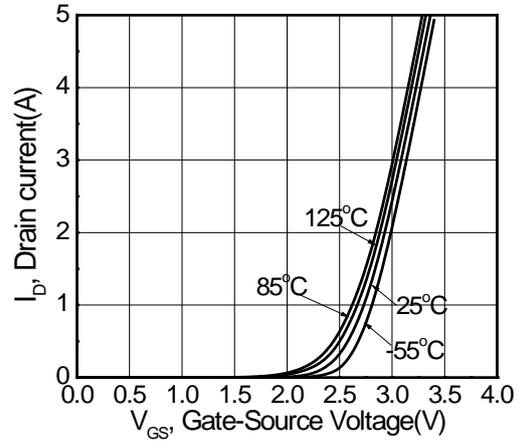
Notes:

1. DUT is mounted on a  $1\text{in}^2$  FR-4 board with 2oz. Copper in a still air environment at  $25^\circ\text{C}$ , the current rating is based on the DC ( $<10\text{s}$ ) test conditions.
2. Repetitive rating, pulse width limited by junction temperature. 300us Pulse Drain Current Tested.
3. Current limited by bond wire.

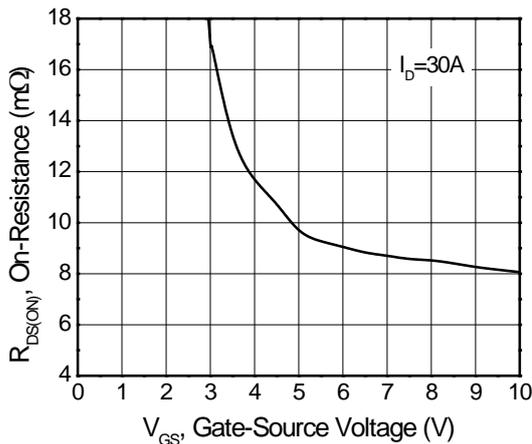
● Typical Performance Characteristics



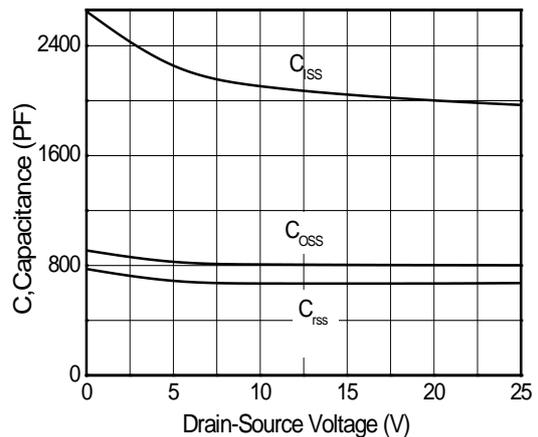
**Fig1. Drain Current vs Drain-Source Voltage**



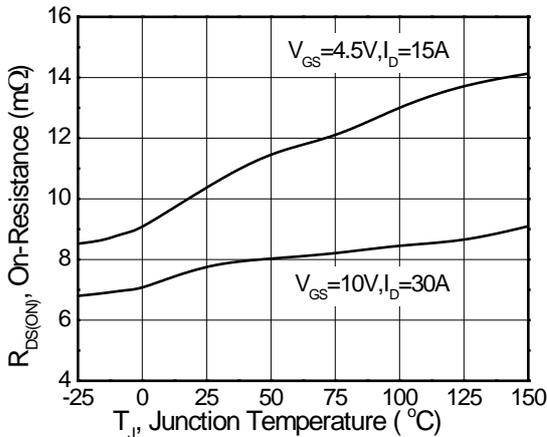
**Fig2. Transfer Characteristics**



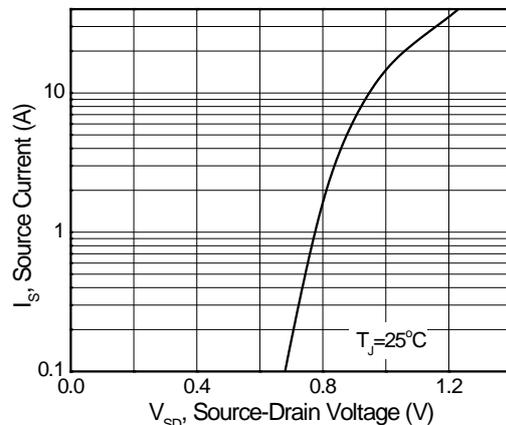
**Fig3. On-Resistance vs. Gate-Source Voltage**



**Fig4. Drain-Source Voltage vs. Capacitance**



**Fig5. On-Resistance vs. Junction Temperature**



**Fig6. Body Diode Forward Characteristics**



# SSC8038GT8

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