



SSC8027GS6

P-Channel Enhancement Mode MOSFET

- **Features**

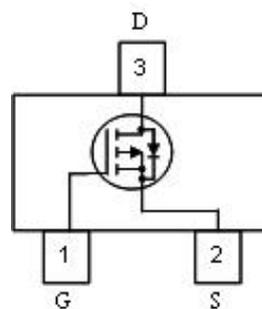
| VDS | VGS | RDSon TYP | ID |
|------|-----|------------|-----|
| -20V | ±8V | 100mR@-4V5 | -2A |
| | | 119mR@-2V5 | |

- **Applications**

- Load Switch
- Portable Devices
- DCDC conversion

- **Pin Configuration**

Top View

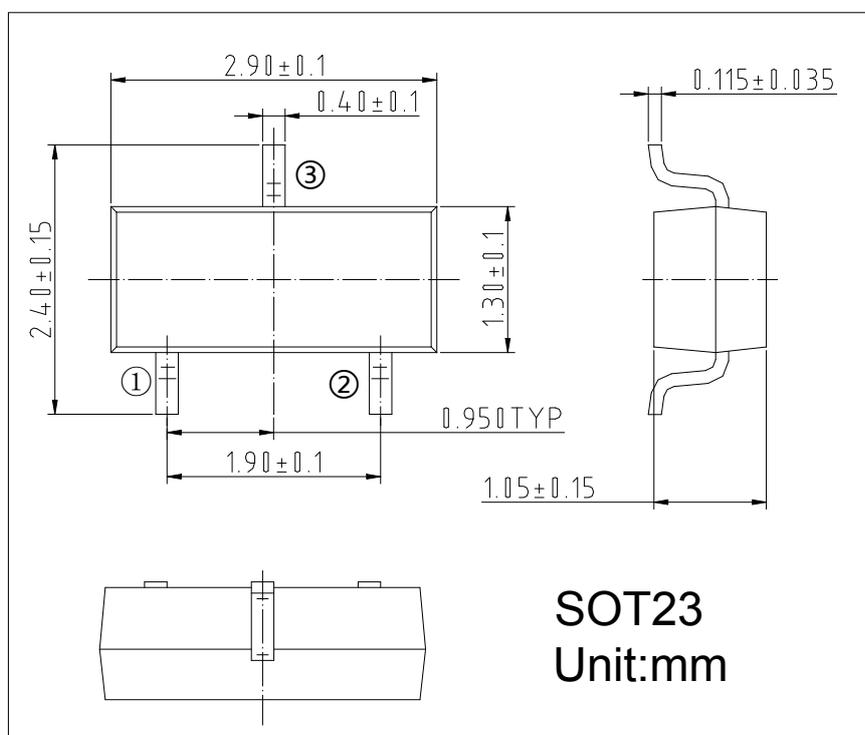


D: Drain; G: Gate; S: Source

- **General Description**

This device is produced with high cell density DMOS trench technology, which is especially used to minimize on-state resistance. This device particularly suits low voltage applications such as portable equipment, power management and other battery powered circuits, and low in-line power dissipation are needed in a very small outline surface mount package. Excellent thermal and electrical capabilities.

- **Package Information**





SSC8027GS6

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

| Parameter | | Symbol | Ratings | Unit |
|--|---------------------|---------------|---------|------------------|
| Drain-Source Voltage | | V_{DSS} | -20 | V |
| Gate-Source Voltage | | V_{GSS} | ± 8 | V |
| Drain Current (Continuous) | | I_D | -2 | A |
| Drain Current (Pulse) | | I_{DM} | -8 | A |
| Power Dissipation | 25 $^\circ\text{C}$ | P_{D25} | 550 | mW |
| | 70 $^\circ\text{C}$ | P_{D70} | 350 | |
| Operating Temperature/ Storage Temperature | | T_J/T_{STG} | -55~150 | $^\circ\text{C}$ |

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

| Parameter | Symbol | Test Conditions | Min | Typ | Max | Unit |
|---|---------------|--|-------|-------|-----------|---------------|
| OFF CHARACTERISTICS | | | | | | |
| Drain-Source Breakdown Voltage | $V_{(BR)DSS}$ | $V_{GS} = 0V, I_D = -250\mu\text{A}$ | -20 | -- | -- | V |
| Drain Cut-off Current | I_{DSS} | $V_{DS} = -20V, V_{GS} = 0V$ | -- | -- | -1 | μA |
| Gate-Source Leakage Current | I_{GSS} | $V_{GS} = \pm 8V, V_{DS} = 0V$ | -- | -- | ± 100 | nA |
| ON CHARACTERISTICS | | | | | | |
| Gate Threshold Voltage | $V_{GS(th)}$ | $I_D = -250\mu\text{A}, V_{DS} = V_{GS}$ | -0.45 | -0.75 | -1.5 | V |
| Drain-Source On-state Resistance | $R_{DS(on)}$ | $V_{GS} = -4.5V, I_D = -2A$ | -- | 100 | 135 | mR |
| | | $V_{GS} = -2.5V, I_D = -2A$ | -- | 119 | 170 | mR |
| Forward Transconductance | g_{FS} | $V_{DS} = -5V, I_D = -1.4A$ | -- | 6.5 | -- | S |
| DYNAMIC CHARACTERISTICS | | | | | | |
| Input Capacitance | C_{iss} | $V_{DS} = -6V, V_{GS} = 0V$ $f = 1\text{MHz}$ | -- | 376 | -- | pF |
| Output Capacitance | C_{oss} | | -- | 187 | -- | pF |
| Feedback Capacitance | C_{riss} | | -- | 78 | -- | pF |
| SWITCHING CHARACTERISTICS | | | | | | |
| Turn-on Delay Time | $t_{d(on)}$ | $V_{DD} = -6V, R_L = 6R, I_D = -1.0A,$ | -- | 13 | 25 | ns |
| Turn-off Delay Time | $t_{d(off)}$ | $V_{GEN} = -4.5V, R_G = 6R$ | -- | 42 | 70 | ns |
| DRAIN-SOURCE DIODE CHARACTERISTICS AND MAXIMUM RATINGS | | | | | | |
| Drain-Source Diode Forward Voltage | V_{SD} | $I_S = -1A, V_{GS} = 0V$ | -0.5 | -- | -1.2 | V |

Notes:

1. Pulse width limited by maximum junction temperature.
2. Pulse test: $PW \leq 300\mu\text{s}$, duty cycle $\leq 2\%$.
3. For design AID only, not subject to production testing.
4. Switching time is essentially independent of operating temperature.

● Typical Performance Characteristics

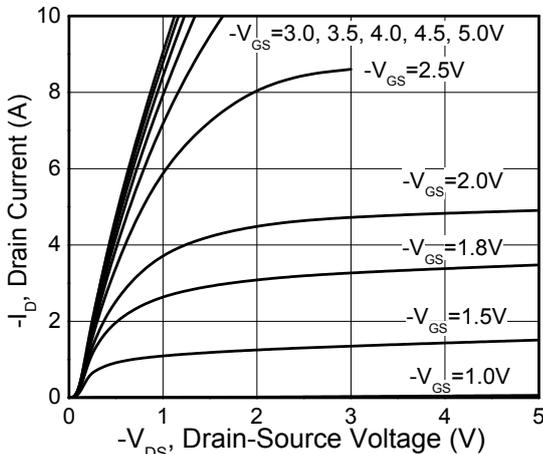


Figure 1. Output Characteristics

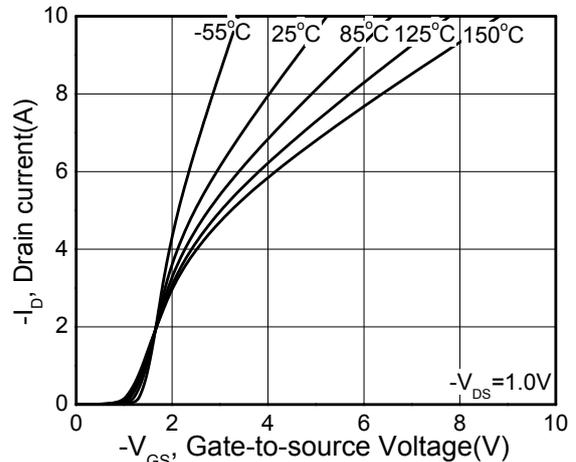


Figure 2. Transfer Characteristics

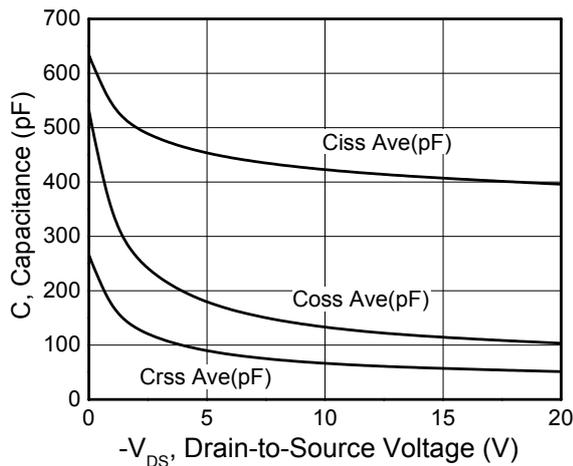


Figure 3. Capacitance

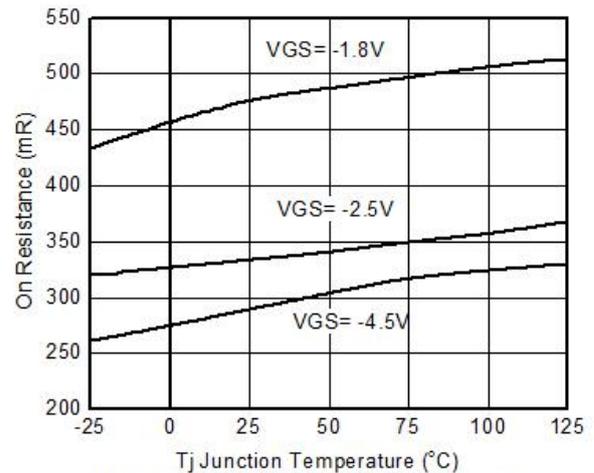


Figure 5. On-resistance vs. Temperature

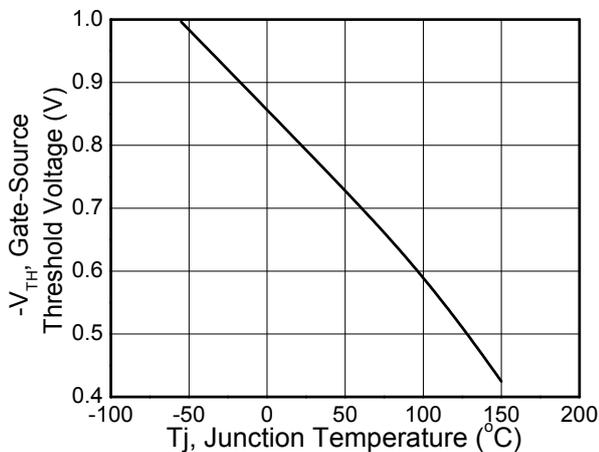


Figure 5. Gate Threshold Vs. Temperature

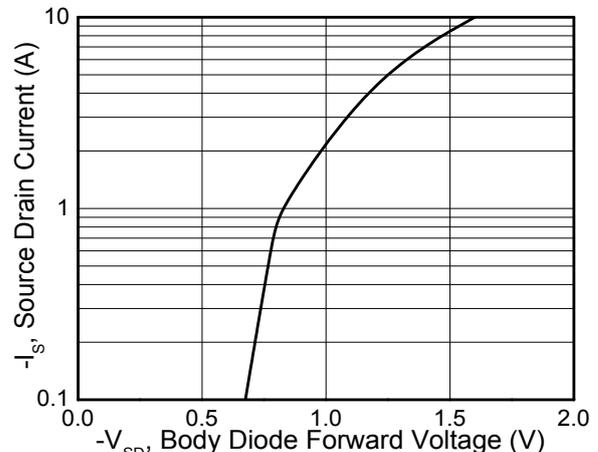


Figure 6. Body Diode Forward Voltage Vs. Source Current



SSC8027GS6

DISCLAIMER

AFSEMI RESERVES THE RIGHT TO MAKE CHANGES WITHOUT FURTHER NOTICE TO ANY PRODUCTS HEREIN TO IMPROVE RELIABILITY, FUNCTION OR DESIGN. AFSEMI DOES NOT ASSUME ANY LIABILITY ARISING OUT OF THE APPLICATION OR USE OF ANY PRODUCT OR CIRCUIT DESCRIBED HEREIN; NEITHER DOES IT CONVEY ANY LICIENCE UNDER ITS PATENT RIGHTS, NOR THE RIGHTS OF OTHERS.

THE GRAPHS PROVIDED IN THIS DOCUMENT ARE STATISTICAL SUMMARIES BASED ON A LIMITED NUMBER OF SAMPLES AND ARE PROVIDED FOR INFORMATIONAL PURPOSE ONLY. THE PERFORMANCE CHARACTERISTICS LISTED IN THEM ARE NOT TESTED OR GUARANTEED. IN SOME GRAPHS, THE DATA PRESENTED MAY BE OUTSIDE THE SPECIFIED OPERATING RANGE (E.G., OUTSIDE SPECIFIED POWER SUPPLY RANGE) AND THEREFORE OUTSIDE THE WARRANTED RANGE.