



SSC8013GS6

P-Channel Enhancement Mode MOSFET

- **Features**

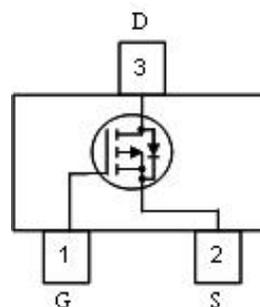
VDS	VGS	RDSon TYP	ID
-12V	±8V	38mR@-4V5 47mR@-2V5 61mR@-1V8	-3.8A

- **Applications**

- Load Switch
- Portable Devices
- DCDC conversion

- **Pin Configuration**

Top View

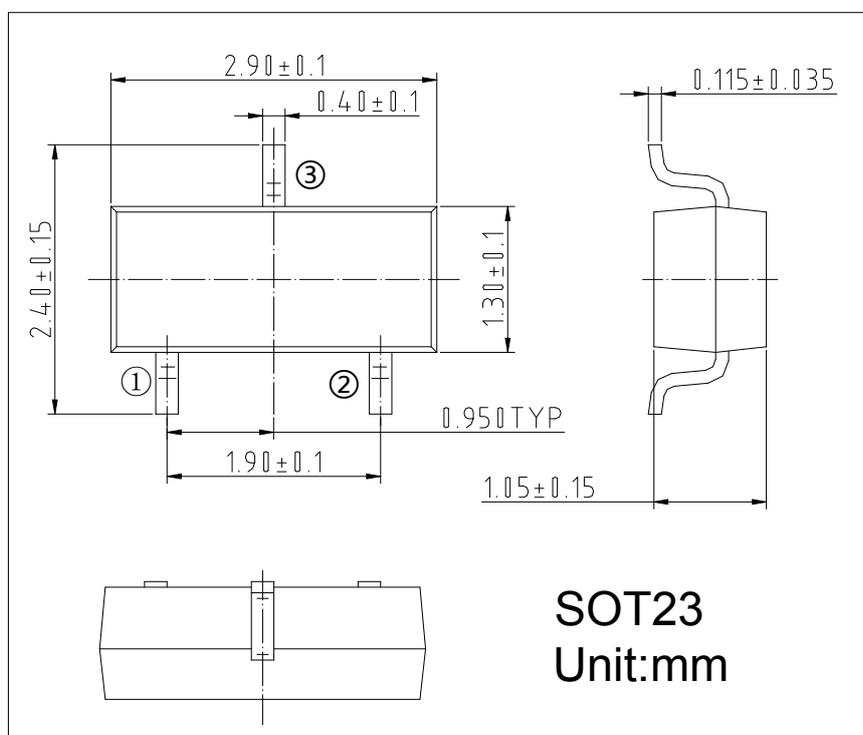


D: Drain; G: Gate; S: Source

- **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**



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



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Parameter	Symbol	Ratings	Unit
Drain-Source Voltage	V_{DSS}	-12	V
Gate-Source Voltage	V_{GSS}	± 8	V
Drain Current (Continuous)	I_D	-3.8	A
Drain Current (Pulse)	I_{DM}	-20	A
Power Dissipation	25°C	P_{D25}	550
	70°C	P_{D70}	350
Operating Temperature/ Storage Temperature	T_J/T_{STG}	-55~150	°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	$V_{(BR)DSS}$	$V_{GS} = 0V, I_D = -10\mu A$	-12	--	--	V
Drain Cut-off Current	I_{DSS}	$V_{DS} = -12V, V_{GS} = 0V$	--	--	-1	μA
Gate-Source Leakage Current	I_{GSS}	$V_{GS} = \pm 8V, V_{DS} = 0V$	--	--	± 100	nA
ON CHARACTERISTICS						
Gate Threshold Voltage	$V_{GS(th)}$	$I_D = -250\mu A, V_{DS} = V_{GS}$	-0.45	-0.62	-1.2	V
Drain-Source On-state Resistance	$R_{DS(on)}$	$V_{GS} = -4.5V, I_D = -3.5A$	--	38	60	mR
		$V_{GS} = -2.5V, I_D = -3A$	--	47	90	mR
		$V_{GS} = -1.8V, I_D = -2A$	--	61	100	mR
Forward Transconductance	g_{FS}	$V_{DS} = -5V, I_D = -3.5A$	--	9.5	--	S
DYNAMIC CHARACTERISTICS						
Input Capacitance	C_{iss}	$V_{DS} = -4V, V_{GS} = 0V$ $f = 1\text{ MHz}$	--	1060	--	pF
Output Capacitance	C_{oss}		--	273	--	pF
Feedback Capacitance	C_{rss}		--	252	--	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}	$I_S = -1.6A, V_{GS} = 0V$	-0.5	-0.75	-1.2	V

Notes:

1. Pulse width limited by maximum junction temperature.
2. Pulse test: $PW \leq 300\mu s$, 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

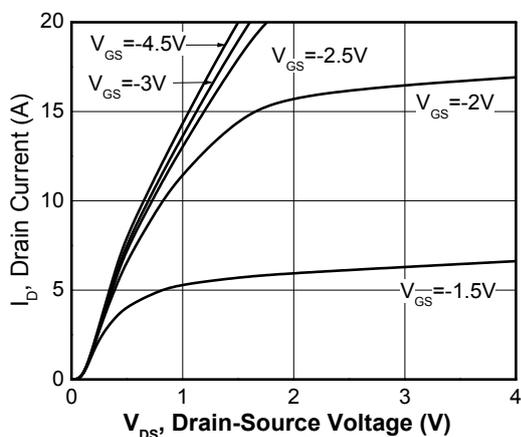


Figure 1. Output Characteristics

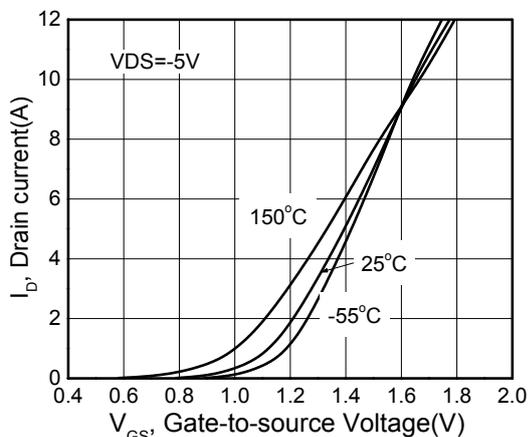


Figure 2. Transfer Characteristics

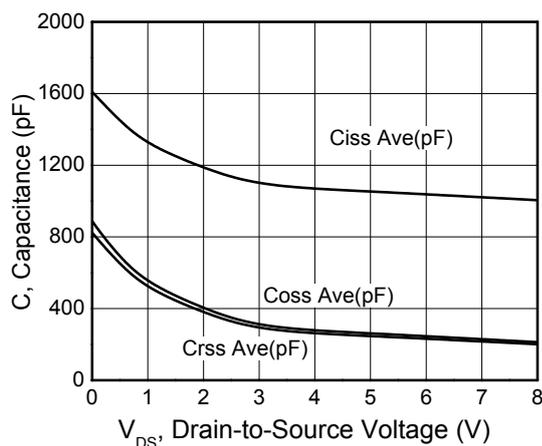


Figure 3. Capacitance

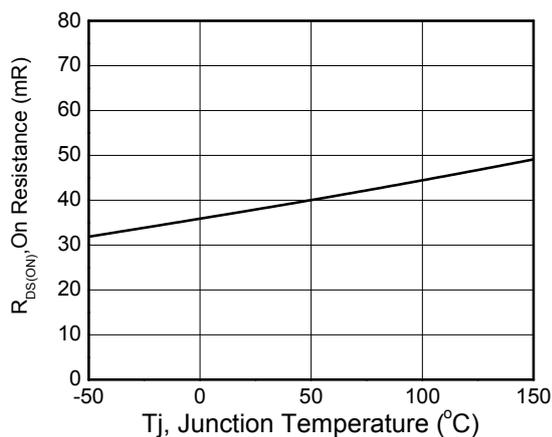


Figure 4. On Resistance vs. Temperature

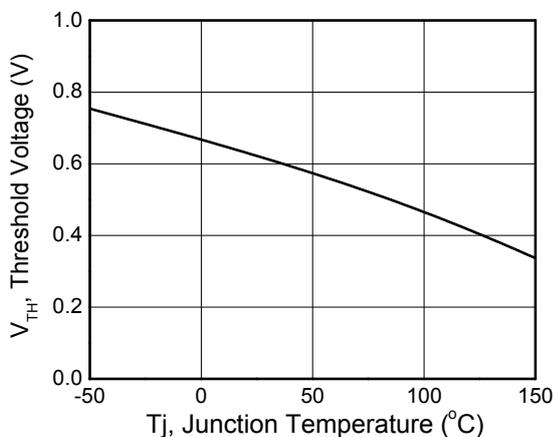


Figure 5. Gate Threshold vs. Temperature

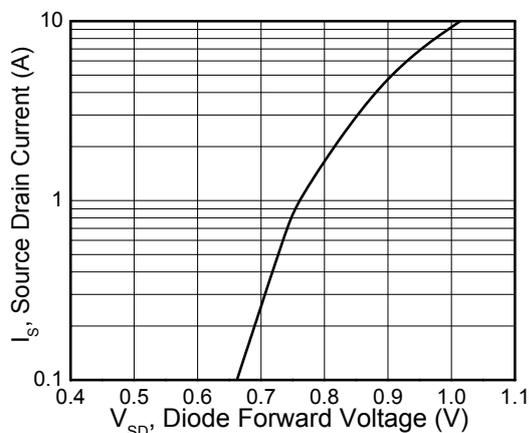


Figure 6. Diode Forward Characteristics



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