SSC8415GS6

P-Channel Enhancement Mode MOSFET

- **Features**

V$_{DS}$	V$_{GS}$	R$_{DSon}$ TYP	I$_D$
-20V	±12V	35mR@-4V5 44mR@-2V5 57mR@-1V8	-4A

- **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.
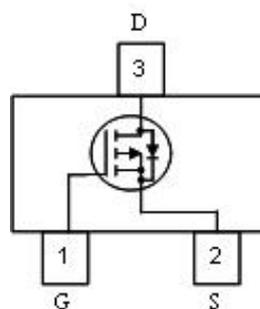
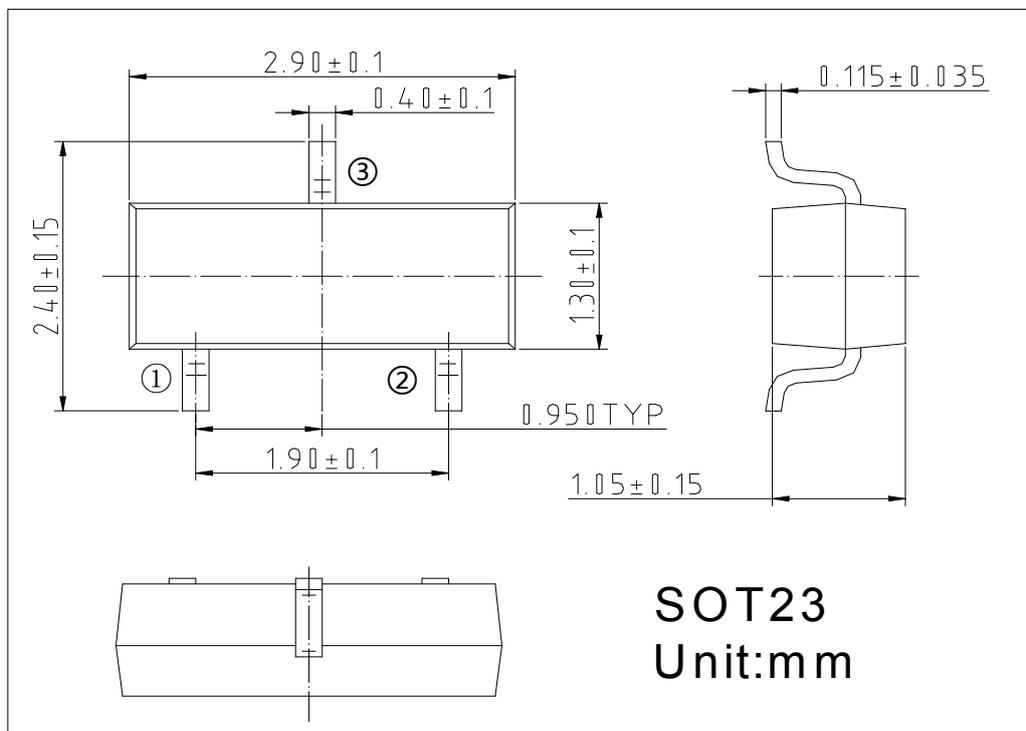- **Package Information**

- **Applications**
  - ➤ Load Switch
  - ➤ Portable Devices
  - ➤ DCDC conversion

- **Pin Configuration**

Top View

D: Drain; G: Gate; S: Source

SOT23
Unit:mm

- **Order information**

Device	Package	Marking	Shipping
SSC8415GS6	**SOT23**	3415	**3000/Tape&Reel**

- **Absolute Maximum Ratings @TA=25℃ unless otherwise noted**

Parameter	Symbol	Ratings	Unit
Drain-Source Voltage	V_{DSS}	-20	V
Gate-Source Voltage	V_{GSS}	±12	V
Continuous Drain Current [a] V_{GS}@4.5V TA = 25°C	I_D	-4	A
Continuous Drain Current [a] V_{GS}@4.5V TA = 70°C		3.2	A
Plused Drain Current [b]	I_{DM}	-22	A
Power Dissipation [a] T_C = 25°C	P_D	0.55	W
Power Dissipation [a] T_C = 70°C		0.35	W
Storage and Junction Temperature	T_J T_{STG}	-55~150	℃

- **Thermal Characteristics**

Parameter		Symbol	Typ	Max	Units
Maximum Junction-to-Ambient [a]	t≤10S	$R_{\theta JA}$	--	183	°C/W
	Steady-State		--	225	°C/W
Maximum Junction-to-Case	Steady-State	$R_{\theta JC}$	--	109	°C/W

- **Electrical Characteristics @TA=25℃ 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=-10uA	-20	--	--	V
Drain Cut-off Current	I_{DSS}	V_{DS} = -20 V , V_{GS} = 0V	--	--	-1	uA
Gate-Source Leakage Current	I_{GSS}	V_{GS} =±12 V , V_{DS} = 0V	--	--	±100	nA
ON CHARACTERISTICS						
Gate Threshold Voltage	$V_{GS(th)}$	I_D = -250 uA , V_{DS} = V_{GS}	-0.4	-0.63	-0.9	V

Drain-Source On-state Resistance	$R_{DS(on)}$	$V_{GS} = -4.5V$, $I_D = -3.5$ A	--	35	45	mR
		$V_{GS} = -2.5V$, $I_D = -3A$	--	44	55	mR
		$V_{GS} = -1.8V$, $I_D = -2A$		57	80	mR
Forward Transconductance	g_{FS}	$V_{DS} = -5V$, $I_D = -3.5A$	--	9.2	--	S
DYNAMIC CHARACTERISTICS						
Input Capacitance	C_{iss}	$V_{DS} = -4V$, $V_{GS} = 0V$ f = 1 MHz	--	869	--	pF
Output Capacitance	C_{oss}		--	265	--	pF
Feedback Capacitance	C_{rss}		--	258	--	pF
SWITCHING CHARACTERISTICS						
Turn-on Delay Time	$t_{d(on)}$	$V_{DD} = -6V$, $R_L = 6R$,$I_D = -1.0A$, $V_{GEN} = -4.5V$, $R_G = 6R$	--	12	24	ns
Turn-off Delay Time	$t_{d(off)}$		--	45	73	ns
DRAIN-SOURCE DIODE CHARACTERISTICS AND MAXIMUM RATINGS						
Drain-Source Diode Forward Voltage	V_{SD}	Is = -1.6A, $V_{GS} = 0V$	-0.5	-0.75	-1.2	V

a: Surface mounted on FR-4 Board using 1 square inch pad size, 1oz copper

b: Pulse width<380μs, Duty Cycle<2%

c: Maximum junction temperature T_J=150°C.

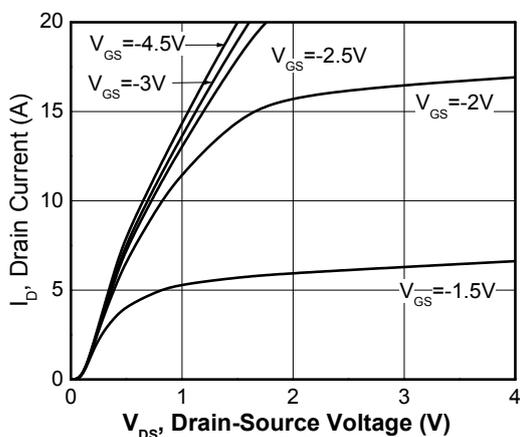**Typical Performance Characteristics**
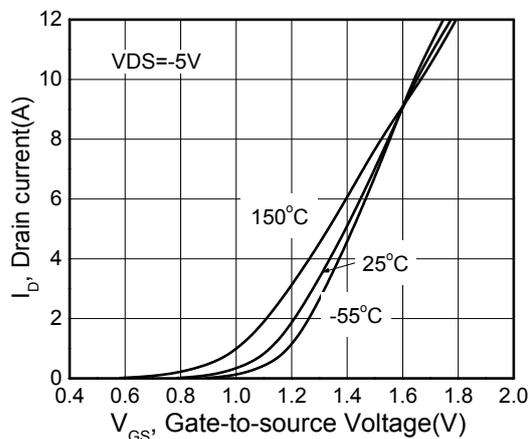

Figure 1. Output Characteristics
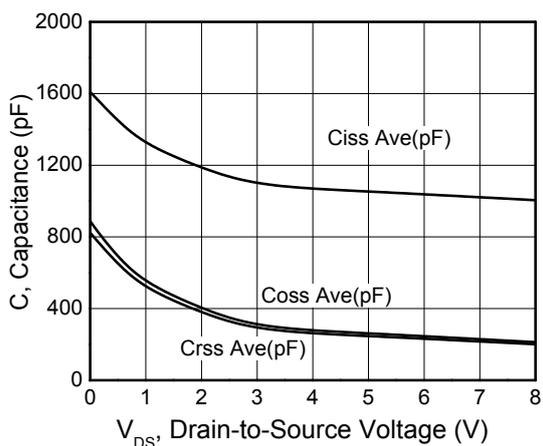

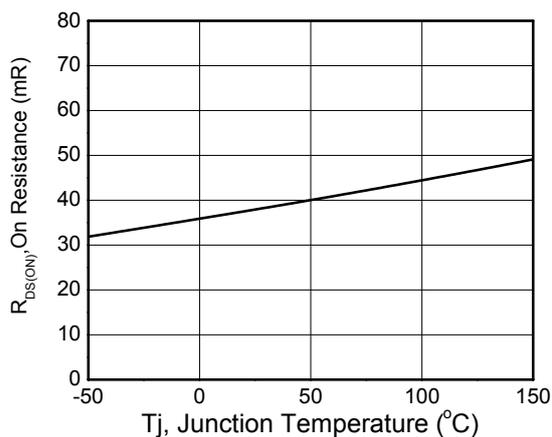Figure 2. Transfer Characteristics

Figure 3. Capacitance

Figure 4. On Resistance vs. Temperature
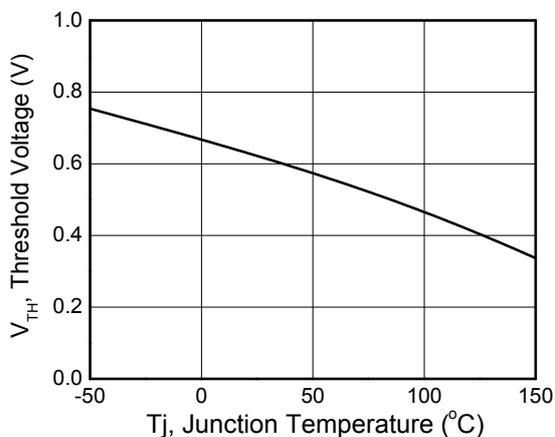

Figure 5. Gate Threshold vs. Temperature
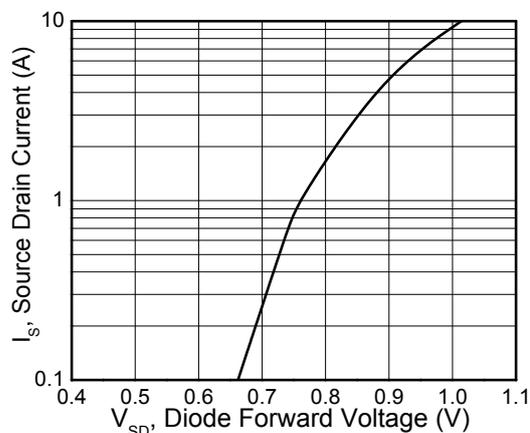

Figure 6. Diode Forward Characteristics

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