SSC8415GS6

P-Channel Enhancement Mode MOSFET

- **Features**

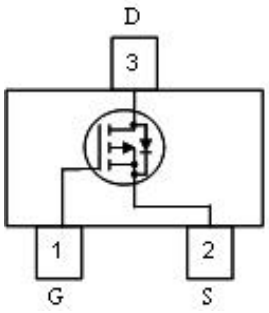
V_{DS}	V_{GS}	R_{DSon} TYP	I_D
-20V	±12V	35mR@-4V5 44mR@-2V5 57mR@-1V8	-4A

- **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.

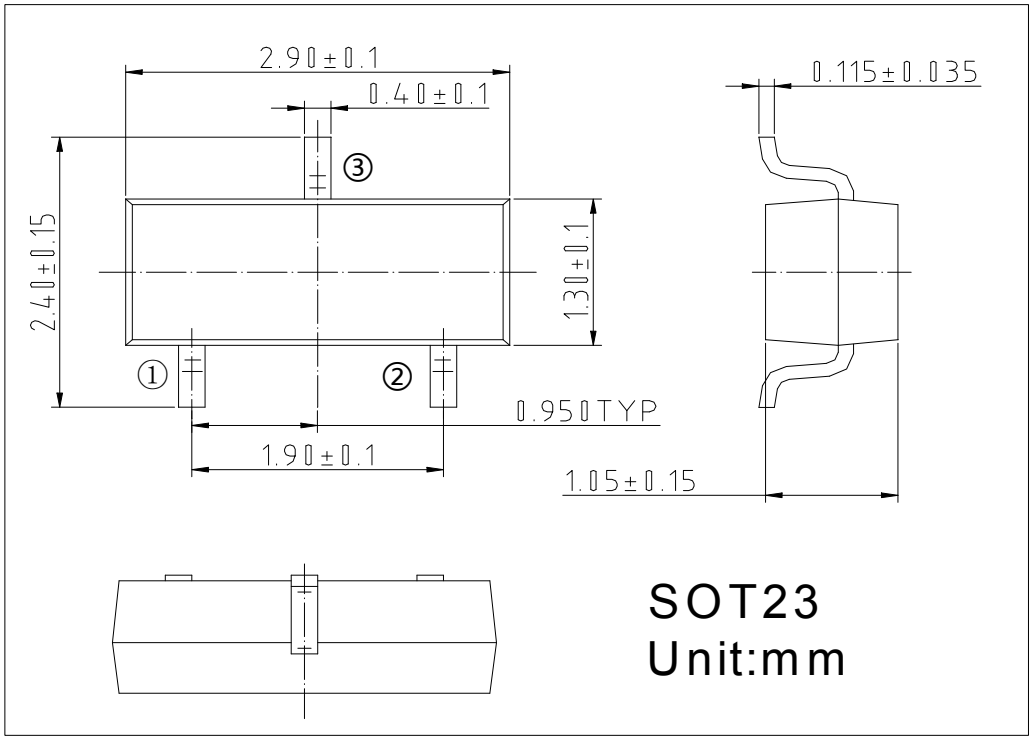
- **Applications**
  - Load Switch
  - Portable Devices
  - DCDC conversion
- **Pin Configuration**

Top View

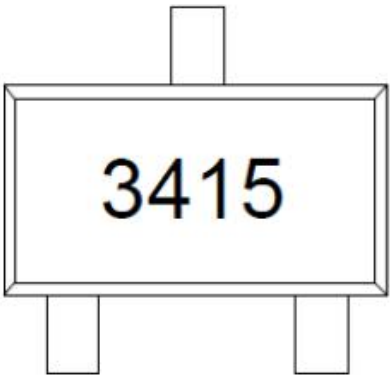


D: Drain; G: Gate; S: Source

- **Package Information**



- **Order information**

Device	Package	Marking	Shipping
SSC8415GS6	SOT23		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

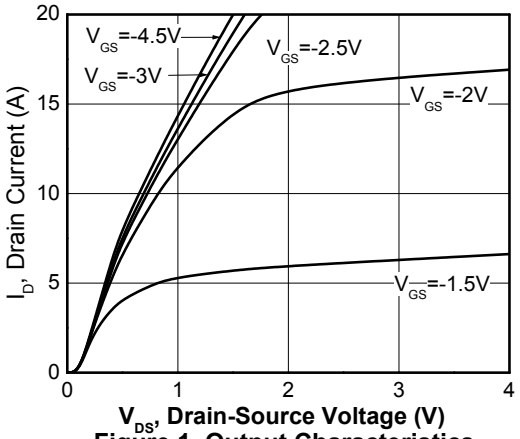


Figure 1. Output Characteristics

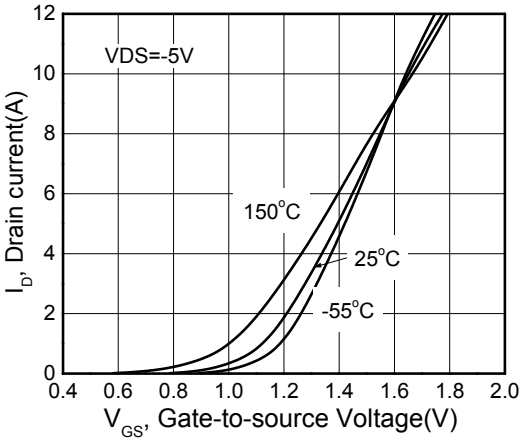


Figure 2. Transfer Characteristics

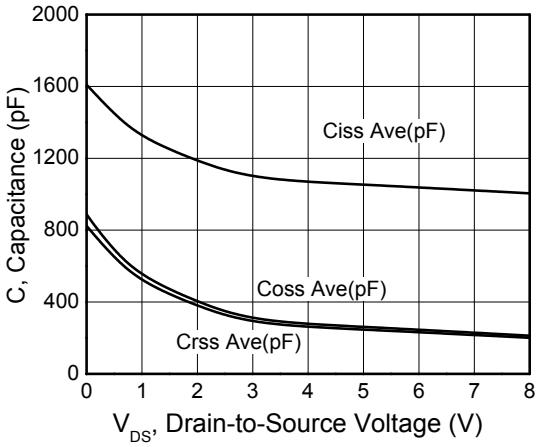


Figure 3. Capacitance

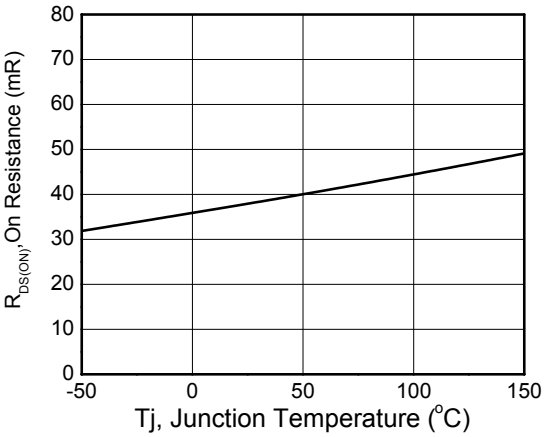


Figure 4. On Resistance vs. Temperature

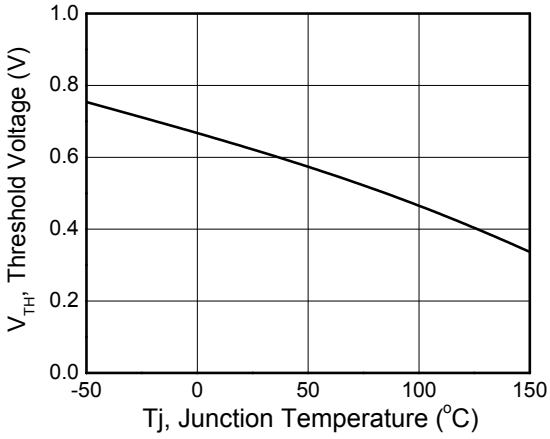


Figure 5. Gate Threshold vs. Temperature

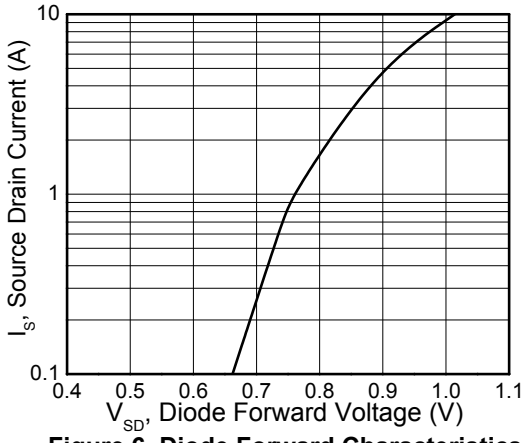


Figure 6. Diode Forward Characteristics

DISCLAIMER

AFSEMI RESERVES THE RIGHT TO MAKE CHANGES WITHOUT FURTHER NOTICE TO ANY RODUCTS 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.