SSC8139GS6A

P-Channel Enhanced MOSFET

➢ Features

VDS	VGS	RDSON Typ.	ID
-30V	±20V	19mR@-10V	-6.2A
		23mR@-4V5	

➢ Description

This device is P-Channel enhancement MOSFET. Uses advanced trench technology and design to provide excellent RDSON with low gate charge. This device is suitable for use in DC-DC conversion, power switch and charging circuit.

➢ Applications

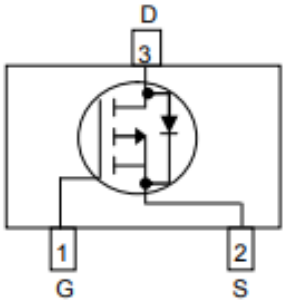
- DC/DC conversion
- Power management in portable
- Load/Power Switching for portable device

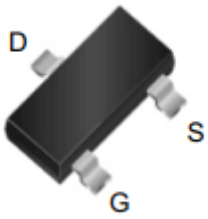
➢ Ordering Information

Device	Package	Shipping
SSC8139GS6A	SOT-23-3L	3000/Reel

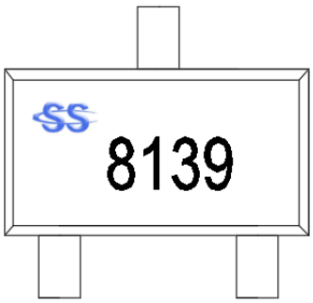
➢ Pin configuration

Top view





SOT-23-3L



Marking

➢ Absolute Maximum Ratings(T_A=25℃ unless otherwise noted)

Symbol	Parameter	Ratings	Unit
V_{DSS}	Drain-to-Source Voltage	-30	V
V_{GSS}	Gate-to-Source Voltage	±20	V
I_D	Continuous Drain Current [a]	-6.2	A
I_{DM}	Pulsed Drain Current [b]	-25	A
P_D	Power Dissipation [c]	2.5	W
P_{DSM}	Power Dissipation [a]	1.25	W
T_J	Operation junction temperature	-55 to 150	℃
T_{STG}	Storage temperature range	-55 to 150	℃

➢ Thermal Resistance Ratings(T_A=25℃ unless otherwise noted)

Symbol	Parameter	Typical	Maximum	Unit
$R_{\theta JA}$	Junction-to-Ambient Thermal Resistance [a]		100	℃/W
$R_{\theta JC}$	Junction-to-Case Thermal Resistance		50	

Note:

a. The value of $R_{\theta JA}$ is measured with the device mounted on 1 in^2 FR-4 board with 2oz.copper,in a still air environment with T_A=25℃.The value in any given application depends on the user is specific board design. The current rating is based on the t≤ 10s thermal resistance rating.

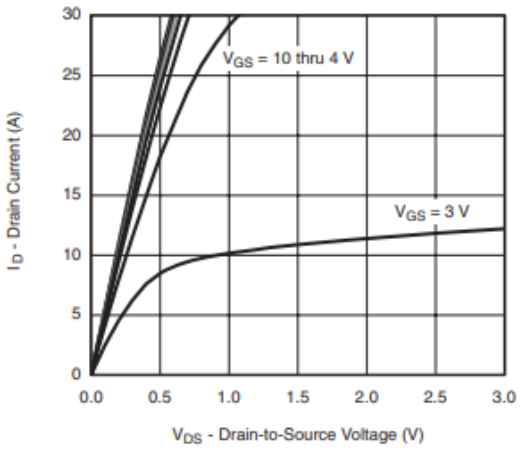
b. Repetitive rating, pulse width limited by junction temperature.

c. The power dissipation P_D is based on $T_{J(MAX)}$=150°C, using junction-to-case thermal resistance, and is more useful in setting the upper dissipation limit for cases where additional heat sinking is used.

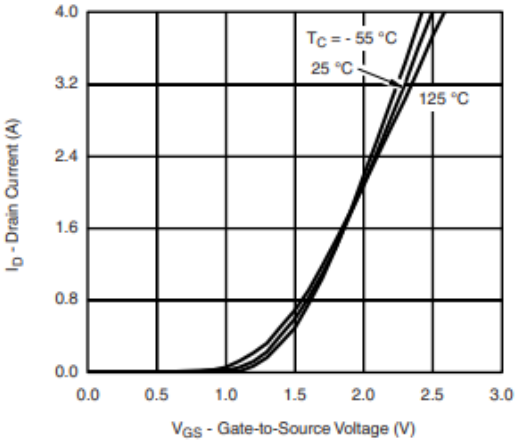
➢ **Electronics Characteristics**(T_A=25℃ unless otherwise noted)

Symbol	Parameter	Test Conditions	Min	Typ.	Max	Unit
$V_{(BR)DSS}$	Drain-Source Breakdown Voltage	VGS=0V , ID=-250uA	-30			V
$V_{GS\ (th)}$	Gate Threshold Voltage	VDS=VGS , ID=-250uA	-0.5	-0.9	-1.2	V
$R_{DS(on)}$	Drain-Source On-Resistance	VGS=-10V , ID=-5A		19	23	mR
		VGS=-4.5V , ID=-4A		23	27	
I_{DSS}	Zero Gate Voltage Drain Current	VDS=-30V , VGS=0V			-1	uA
I_{GSS}	Gate-Source leak current	VGS=±20V , VDS=0V			±100	nA
G_{FS}	Transconductance	VDS=-10V , ID=-5A		14		S
V_{SD}	Forward Voltage	VGS=0V , IS=-2A			1.3	V
Ciss	Input Capacitance	VDS=-15V , VGS=0V, f=1MHz		1380		pF
Coss	Output Capacitance			187		
Crss	Reverse Transfer Capacitance			139		
$T_{D(ON)}$	Turn-on delay time	VGS=-4.5V, RL=15R VDS=-15V , RG=6R, ID=-2A		8		ns
Tr	Rise time			3.3		
$T_{D(OFF)}$	Turn-off delay time			33		
Tf	Fall time			11		
Q_G	Total Gate Charge	VGS=-10V, VDS=-15V ID=-2A		30		nC
Q_{GS}	Gate to Source Charge			5		
Q_{GD}	Gate to Drain Charge			4		

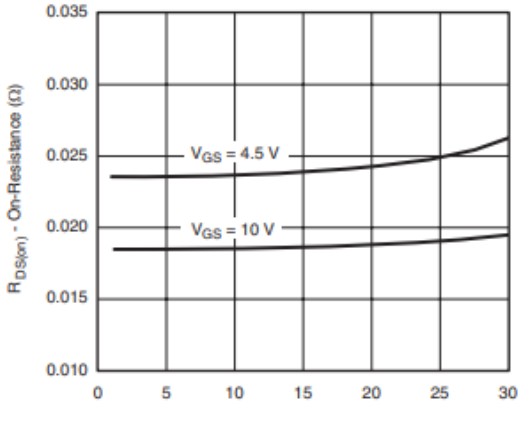
➢ Typical Characteristics(T_A=25℃ unless otherwise noted)



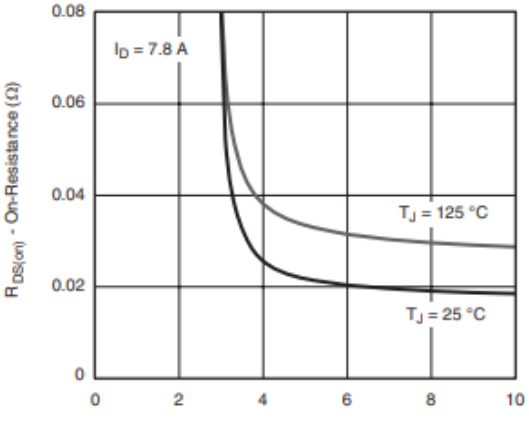
Output Characteristics



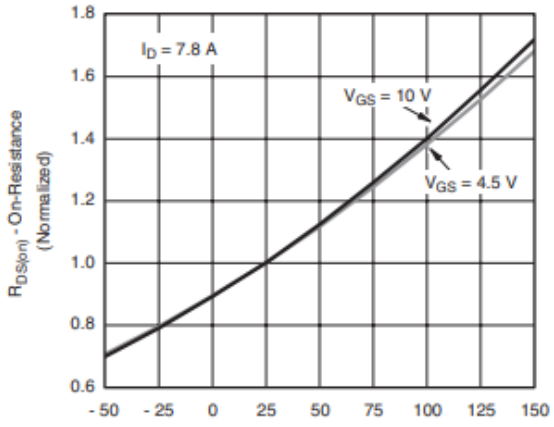
Transfer Characteristics



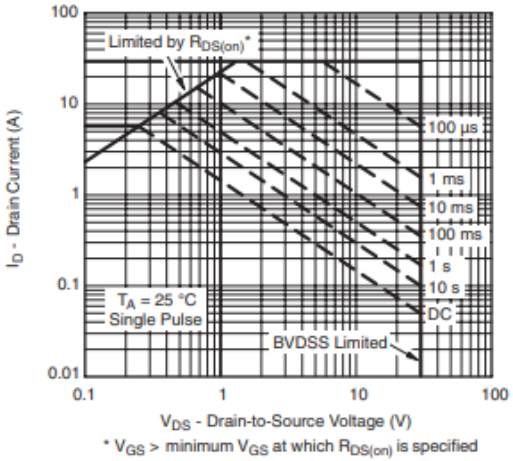
On-Resistance vs. Drain Current



On-Resistance vs. Gate-to-Source Voltage



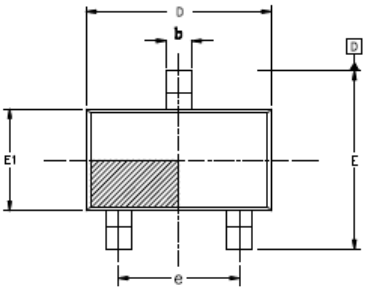
On-Resistance vs. Junction Temperature



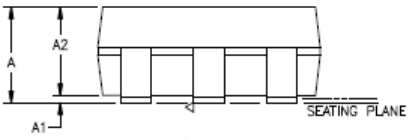
* VGS > minimum VGS at which RDS(on) is specified

Safe Operating Area, Junction-to-Ambient

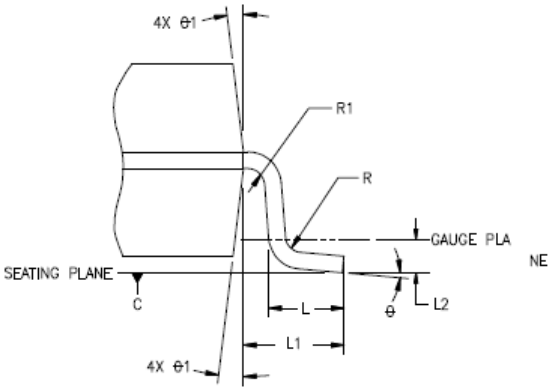
➢ Package Information

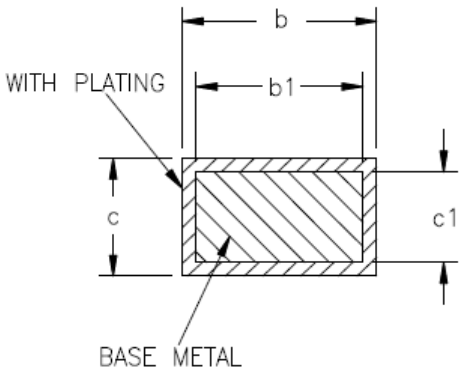


TOP VIEW



SIDE VIEW





SYMBOL	MIN	NOM	MAX
A	--	--	1.35
A1	0	--	0.15
A2	1.0	1.1	1.2
b	0.35	--	0.45
b1	0.32	--	0.38
c	0.14	--	0.20
c1	0.14	0.15	0.16
D	2.82	2.92	3.02
E	2.60	2.80	3.00
E1	1.526	1.626	1.726
e	1.8	1.9	2.0
L	0.35	0.45	0.6
L1	0.6REF		
L2	0.25REF		
R	0.1	--	--
R1	0.1	--	--
θ	0°	4°	8°
θ1	5°	10°	15°

NOTES:
1.All DIMENSIONS REFER TO JEDEC STANDARD MO-178
2.DIMENSION D DOES NOT INCLUDE MOLD FLASH
3.DIMENSION E1 DOSE NOT INCLUDE MOLD FLASH
4.FLASH OR PROTRUSION SHALL NOT EXCEED 0.25mm PER SIDE.

SOT23-3L

➢ History Version

V1.0	Product datasheet	2019-12-3
V2.1	Update POD	2020-08-28