



## SSC8161GS6A

### P-Channel Enhancement Mode MOSFET

#### ➤ Features

VDS	VGS	RDS(on) Typ.	ID
-60V	±20V	90mΩ@-10V	-4A
		100mΩ@-4V5	

#### ➤ Description

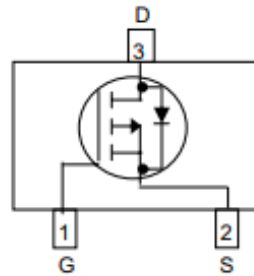
This P-Channel enhancement mode power FETs are produced with high cell density, DMOS trench technology, which is especially used to minimize on-state resistance. This device is particularly suited for low voltage application such as portable equipment, power management and other battery powered circuits and low in-line power loss are needed in a very small outline surface mount package.

#### ➤ Applications

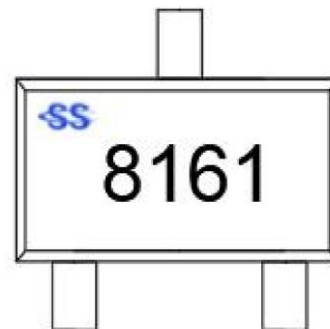
- TFT panel power switch
- High side DC/DC Converter
- High side driver for brushless DC motor
- Portable DVD, DPF

#### ➤ Pin configuration

Top view



SOT23-3L



Marking

#### ➤ Ordering Information

Device	Package	Shipping
SSC8161GS6A	SOT23-3L	3000/Reel

**➤ Absolute Maximum Ratings**( $T_A=25^\circ\text{C}$  unless otherwise noted)

Symbol	Parameter	Ratings	Unit	
$V_{DSS}$	Drain-to-Source Voltage	-60	V	
$V_{GSS}$	Gate-to-Source Voltage	$\pm 20$	V	
$I_D$	Continuous Drain Current	TC=25°C	-4	A
		TC=100°C	-3	
$I_{DSM}$	Continuous Drain Current <sup>a</sup>	TA=25°C	-2.8	A
		TA=70°C	-2	
$I_{DM}$	Pulsed Drain Current <sup>b</sup>	-16	A	
$P_D$	Power Dissipation <sup>c</sup>	TC=25°C	5	W
		TC=100°C	2	W
$P_{DSM}$	Power Dissipation <sup>a</sup>	TA=25°C	1.25	W
		TA=70°C	0.8	W
$T_J T_{STG}$	Storage and Operation junction temperature	-55 to 150	°C	

**➤ Thermal Resistance Ratings**( $T_A=25^\circ\text{C}$  unless otherwise noted)

Symbol	Parameter	Typical	Maximum	Unit
$R_{\theta JA}$	Junction-to-Ambient Thermal Resistance <sup>a</sup>		100	°C/W
$R_{\theta JC}$	Junction-to-Case Thermal Resistance		24	

Note:

- The value of  $R_{\theta JA}$  is measured with the device mounted on 1 in<sup>2</sup> FR-4 board with 2oz.copper,in a still air environment with  $T_A=25^\circ\text{C}$ .The value in any given application depends on the user is specific board design. The current rating is based on the  $t \leq 10\text{s}$  thermal resistance rating.
- Repetitive rating, pulse width limited by junction temperature.
- The power dissipation  $P_D$  is based on  $T_J(\text{MAX})=150^\circ\text{C}$ , using junction-to-case thermal resistance, and is more useful in setting the upper dissipation limit for cases where additional heat sinking is used.

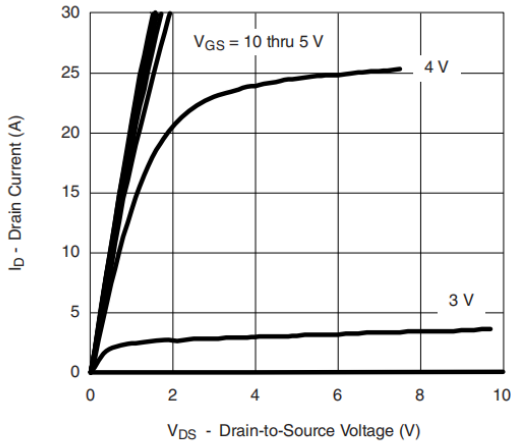


➤ **Electronics Characteristics**( $T_A=25^{\circ}\text{C}$  unless otherwise noted)

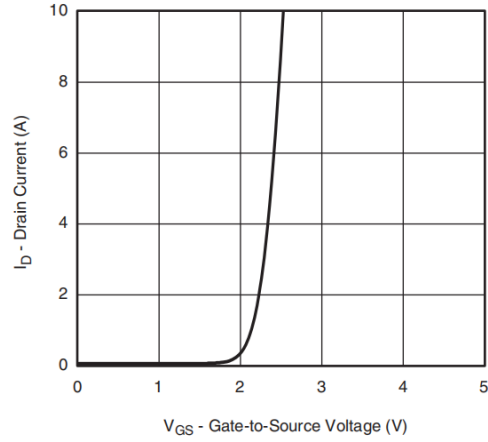
Symbol	Parameter	Test Conditions	Min	Typ.	Max	Unit
$V_{(BR)DSS}$	Drain-Source Breakdown Voltage	$V_{GS}=0V, I_D=-250\mu A$	-60			V
$V_{GS(th)}$	Gate Threshold Voltage	$V_{DS}=V_{GS}, I_D=-250\mu A$	-1.0	-1.6	-2.5	V
$R_{DS(on)}$	Drain-Source On-Resistance	$V_{GS}=-10V, I_D=-1A$		90	105	m $\Omega$
		$V_{GS}=-4.5V, I_D=-0.5A$		100	120	
$I_{DSS}$	Zero Gate Voltage Drain Current	$V_{DS}=-60V, V_{GS}=0V$			-1	$\mu A$
$I_{GSS}$	Gate-Source leak current	$V_{GS}=\pm 20V, V_{DS}=0V$			$\pm 100$	nA
$V_{SD}$	Forward Voltage	$V_{GS}=0V, I_S=-1A$		-0.8	-1.3	V
$C_{iss}$	Input Capacitance	$V_{DS}=-30V, V_{GS}=0V, F=1\text{MHz}$		1127		pF
$C_{oss}$	Output Capacitance			50		
$C_{rss}$	Reverse Transfer Capacitance			35		
$T_{D(ON)}$	Turn-on delay time	$V_{GS}=-10V, V_{DS}=-30V, R_L=7.5\Omega, R_G=3\Omega$		6.0		ns
$T_r$	Rise time			8.3		
$T_{D(OFF)}$	Turn-off delay time			70		
$T_f$	Fall time			32		
$Q_G$	Total Gate Charge	$V_{GS}=-10V, V_{DS}=-30V, I_D=-4A$		20		nC
$Q_{GS}$	Gate to Source Charge			2.7		
$Q_{GD}$	Gate to Drain Charge			2.8		
$T_{rr}$	Diode Recovery Time	$I_F=-4A, di/dt=100A/\mu s$		23		ns
$Q_{rr}$	Diode Recovery Charge	$I_F=-4A, di/dt=100A/\mu s$		13		nC



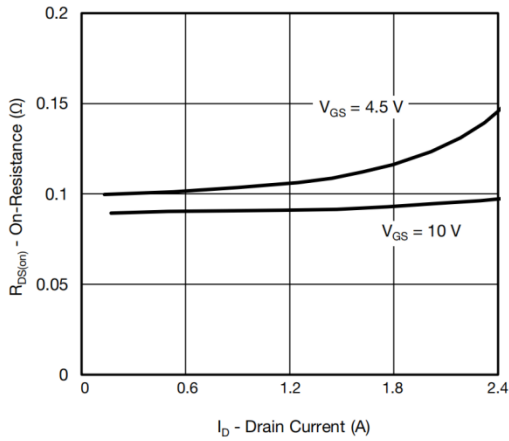
➤ **Typical Characteristics**( $T_A=25^\circ\text{C}$  unless otherwise noted)



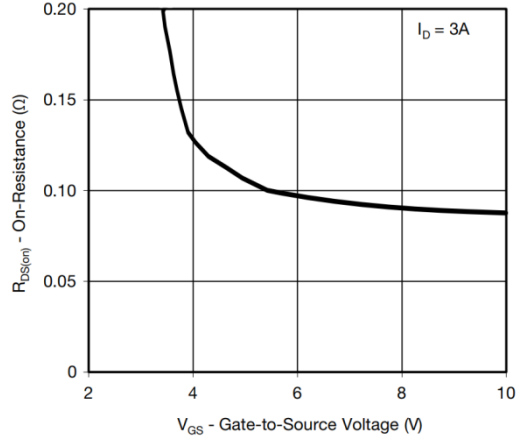
**Output Characteristics**



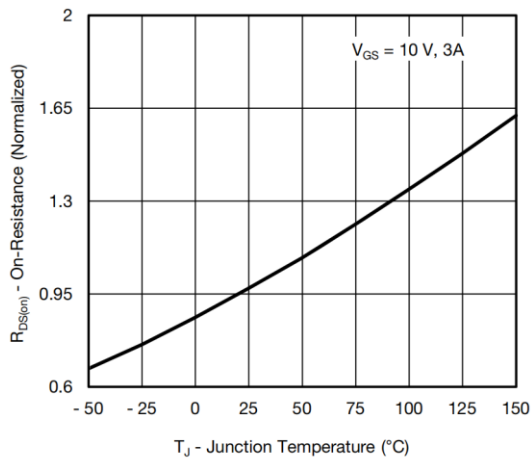
**Transfer Characteristics**



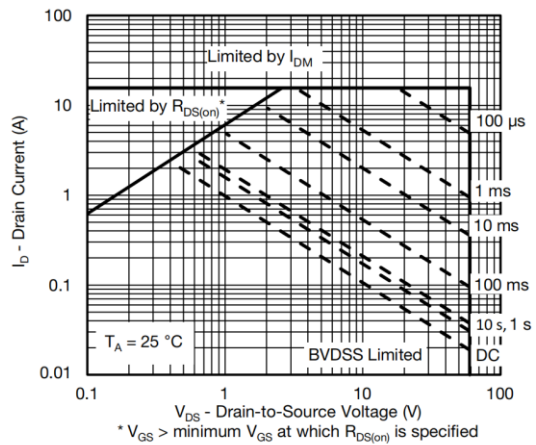
**On-Resistance vs. Drain Current**



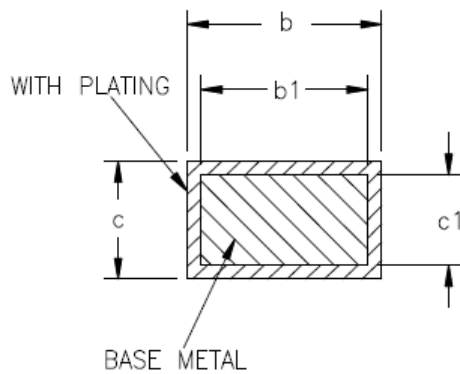
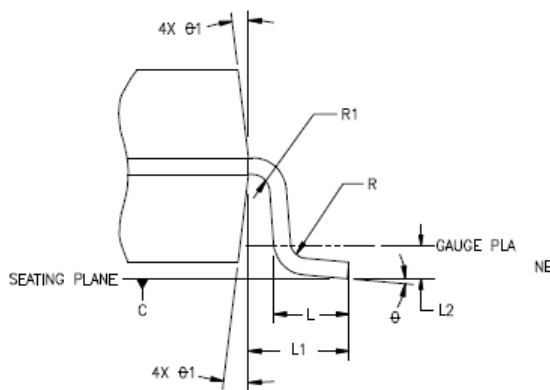
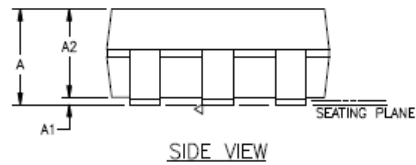
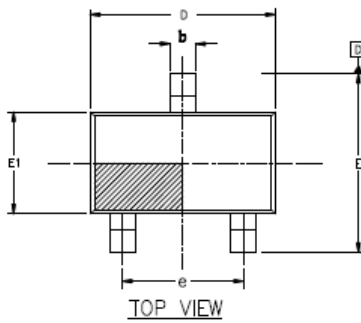
**On-Resistance vs. Gate-to-Source Voltage**



**On-Resistance vs. Junction Temperature**



**Safe Operating Area**

**➤ Package Information**


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 DOES NOT INCLUDE MOLD FLASH
4. FLASH OR PROTRUSION SHALL NOT EXCEED 0.25mm PER SIDE.

**SOT23-3L**



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