



## SSC8025GS6A

### P-Channel Enhancement Mode MOSFET

#### ➤ Features

V <sub>DS</sub>	V <sub>GS</sub>	R <sub>DS(ON)</sub> Typ.	I <sub>D</sub>
-20V	±12V	24mΩ@-4V5	-7.5A
		38mΩ@-2V5	

#### ➤ 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.

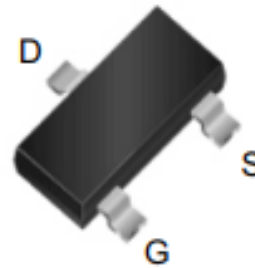
#### ➤ Applications

- Load Switch
- Portable Devices
- DCDC Conversion

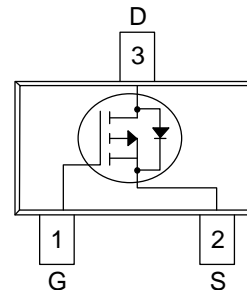
#### ➤ Ordering Information

Device	Package	Shipping
SSC8025GS6A	SOT-23-3L	3000/Reel

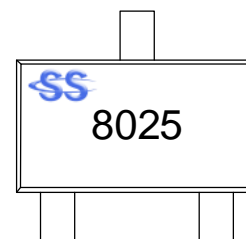
#### ➤ Pin Configuration



**SOT-23-3L**



**Pin Configuration (Top View)**



**Marking**



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

Symbol	Parameter	Ratings	Unit
$V_{DS}$	Drain-to-Source Voltage	-20	V
$V_{GS}$	Gate-to-Source Voltage	$\pm 12$	V
$I_D$	Continuous Drain Current <sup>d</sup>	$T_C=25^\circ\text{C}$	-7.5
		$T_C=100^\circ\text{C}$	-4.1
$I_{DM}$	Pulsed Drain Current <sup>b</sup>	-29	A
$P_D$	Power Dissipation <sup>c</sup>	$T_C=25^\circ\text{C}$	2.12
		$T_C=100^\circ\text{C}$	0.86
$T_J$	Operation junction temperature	-55~150	°C
$T_{STG}$	Storage temperature range	-55~150	

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

Symbol	Parameter	Maximum	Unit
$R_{\theta JA}$	Junction-to-Ambient Thermal Resistance <sup>a</sup>	58	°C/W

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 power dissipation 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.
- The maximum current rating is package limited.

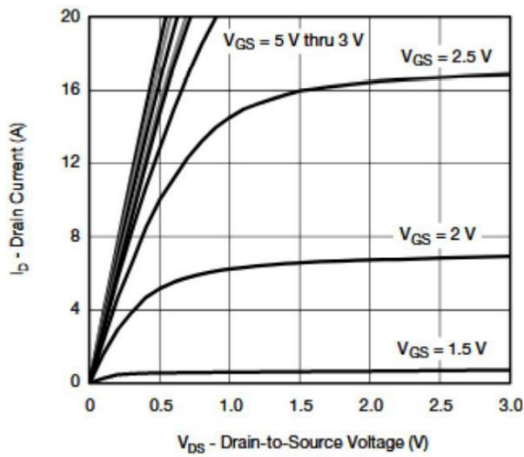


➤ **Electrical Characteristics (T<sub>A</sub>=25°C unless otherwise noted)**

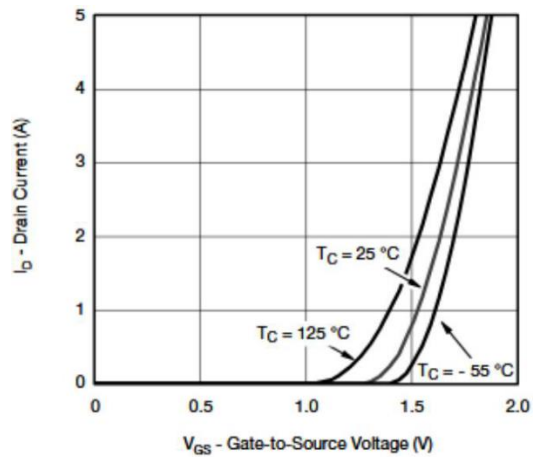
Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
Drain-Source Breakdown Voltage	V <sub>(BR)DSS</sub>	V <sub>GS</sub> = 0V, I <sub>D</sub> = -250μA	-20			V
Gate Threshold Voltage	V <sub>GS(th)</sub>	V <sub>DS</sub> = V <sub>GS</sub> , I <sub>D</sub> = -250μA	-0.4	-0.7	-1	V
Drain-Source On-Resistance	R <sub>DS(on)</sub>	V <sub>GS</sub> = -4.5V, I <sub>D</sub> = -4A		24	36	mΩ
		V <sub>GS</sub> = -2.5V, I <sub>D</sub> = -3A		38	60	
Zero Gate Voltage Drain Current	I <sub>DSS</sub>	V <sub>DS</sub> = -16V, V <sub>GS</sub> = 0V			-1	μA
Gate-Source Leak Current	I <sub>GSS</sub>	V <sub>GS</sub> = ±12V, V <sub>DS</sub> = 0V			±100	nA
Transconductance	G <sub>FS</sub>	V <sub>DS</sub> = -5V, I <sub>D</sub> = -3.5A		9		s
Forward Voltage	V <sub>SD</sub>	V <sub>GS</sub> = 0V, I <sub>S</sub> = -1.6A		-0.68	-1.2	V
Input Capacitance	C <sub>ISS</sub>	V <sub>DS</sub> = -10V, V <sub>GS</sub> = 0V, f = 1MHz		740		pF
Output Capacitance	C <sub>OSS</sub>			150		
Reverse Transfer Capacitance	C <sub>RSS</sub>			126		
Total Gate Charge	Q <sub>G</sub>	V <sub>GS</sub> = -4.5V, V <sub>DS</sub> = -10V, I <sub>D</sub> = -4A		15		nC
Gate to Source Charge	Q <sub>GS</sub>			2.3		
Gate to Drain Charge	Q <sub>GD</sub>			2.2		
Turn-on Delay Time	T <sub>D(ON)</sub>	V <sub>GS</sub> = -4.5V, V <sub>DS</sub> = -10V, R <sub>L</sub> = 4Ω, R <sub>G</sub> = 1Ω I <sub>D</sub> = -2.5A		10		ns
Rise Time	T <sub>r</sub>			30		
Turn-off Delay Time	T <sub>D(OFF)</sub>			20		
Fall Time	T <sub>f</sub>			11		



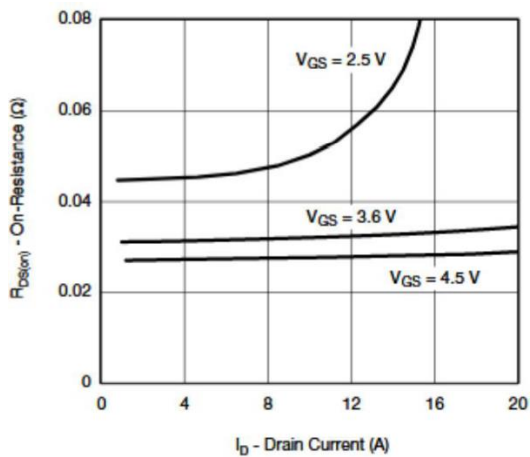
➤ Typical Performance Characteristics ( $T_A=25^\circ\text{C}$  unless otherwise noted)



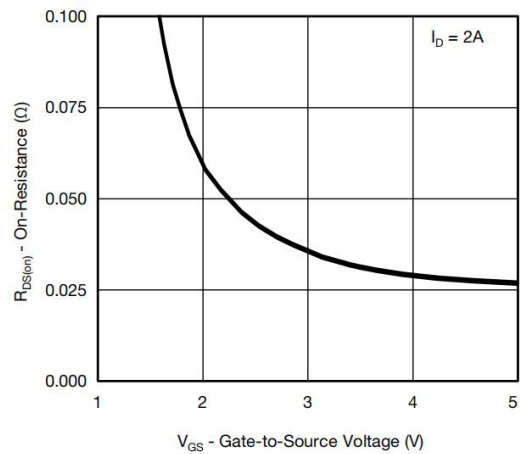
**Output Characteristics**



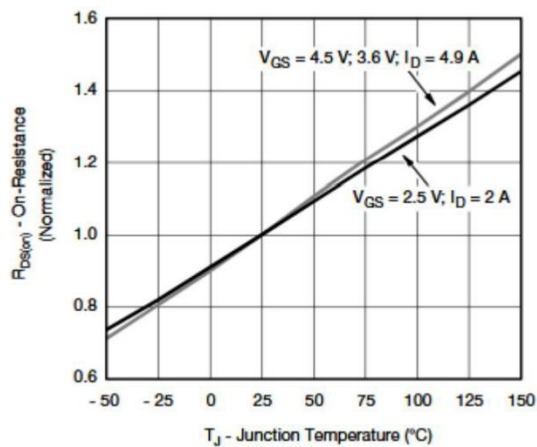
**Transfer Characteristics**



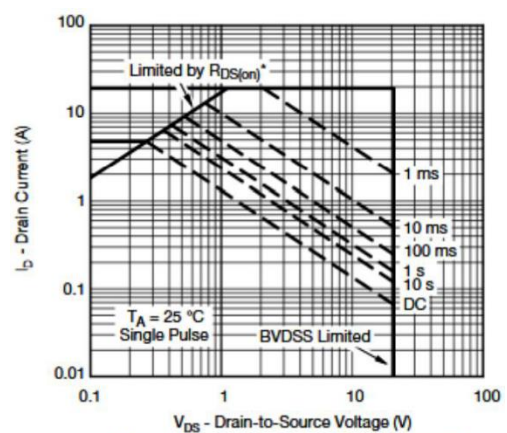
**On Resistance vs. Drain Current**



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



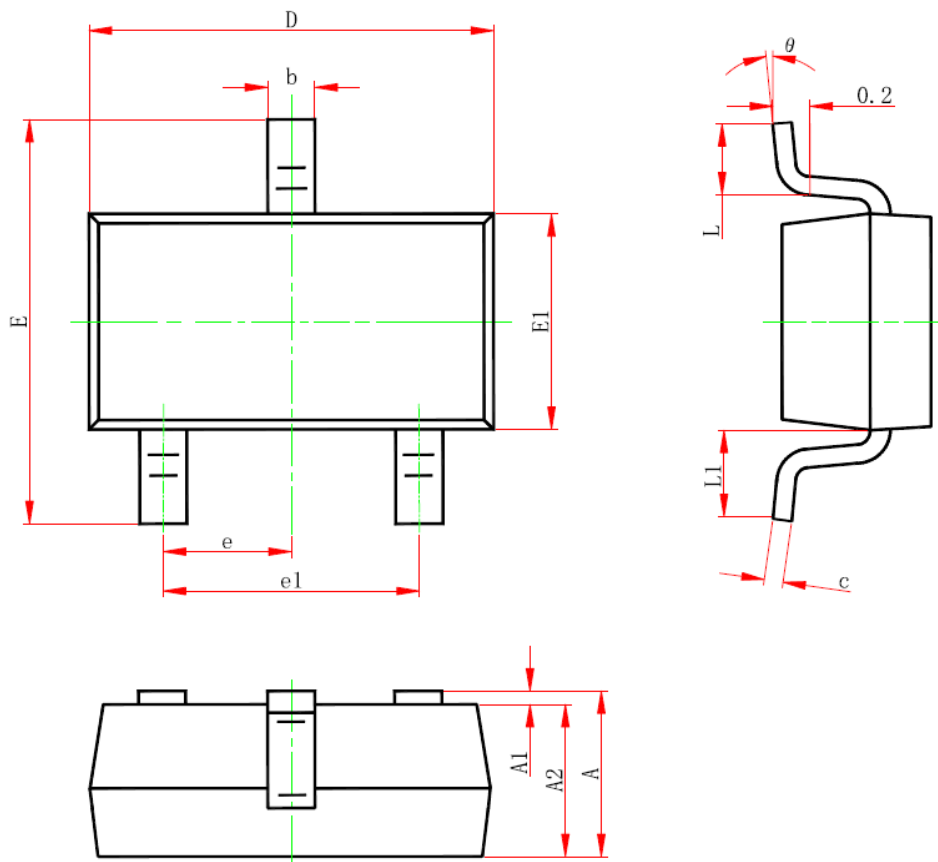
**On-Resistance vs. Junction Temperature**



\*  $V_{GS} >$  minimum  $V_{GS}$  at which  $R_{DS(on)}$  is specified

**Safe Operating Area, Junction-to-Ambient**

## ➤ Package Information



**Package: SOT-23-3L**

Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	1.050	1.250	0.041	0.049
A1	0.000	0.100	0.000	0.004
A2	1.050	1.150	0.041	0.045
b	0.300	0.500	0.012	0.020
c	0.100	0.200	0.004	0.008
D	2.820	3.020	0.111	0.119
E1	1.500	1.700	0.059	0.067
E	2.650	2.950	0.104	0.116
e	0.950(BSC)		0.037(BSC)	
e1	1.800	2.000	0.071	0.079
L	0.300	0.600	0.012	0.024
L1	0.600REF.		0.024REF.	
θ	0°	8°	0°	8°



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