



## SSC8021GS9

### P-Channel Enhancement Mode MOSFET with ESD Protection

#### ➤ Features

VDS	VGS	R <sub>DS(on)</sub> Typ.	ID	ESD
-20V	±12V	0.65R@-4V5	-0.8A	2kV
		0.9R@-2V5		

#### ➤ Description

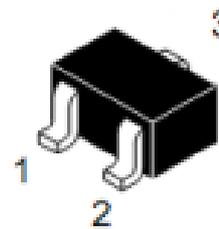
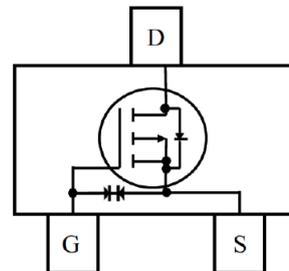
This device is produced with high cell density DMOS trench technology, which is especially used to minimize on-state resistance. This device particularly suits low voltage applications such as portable equipment, power management and other battery powered circuits, and low in-line power dissipation are needed in a very small outline surface mount package. The product does not contain Rohs substances such as lead and halogen.

#### ➤ Applications

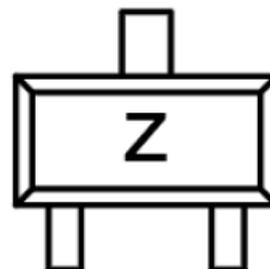
- Load Switch
- Portable Devices
- DCDC conversion

#### ➤ Pin configuration

Top view



SOT-723



Marking

#### ➤ Ordering Information

Device	Package	Shipping
SSC8021GS9	SOT-723	8000/Reel



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

Symbol	Parameter	Ratings	Unit
$V_{DSS}$	Drain-to-Source Voltage	-20	V
$V_{GSS}$	Gate-to-Source Voltage	$\pm 12$	V
$I_D$	Continuous Drain Current <sup>a</sup>	-0.8	A
$I_{DM}$	Pulsed Drain Current <sup>b</sup>	-2	A
$P_D$	Power Dissipation <sup>c</sup>	0.33	W
$P_{DSM}$	Power Dissipation <sup>a</sup>	0.19	W
$T_J$	Operation junction temperature	-55 to 150	$^{\circ}\text{C}$
$T_{STG}$	Storage temperature range	-55 to 150	$^{\circ}\text{C}$

➤ **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		657	$^{\circ}\text{C}/\text{W}$
$R_{\theta JC}$	Junction-to-Case Thermal Resistance		378	

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  $T_{J(MAX)}=150^{\circ}\text{C}$ , using junction-to-case thermal resistance, and is more useful in setting the upper dissipation limit for cases where additional heat sinking is used.

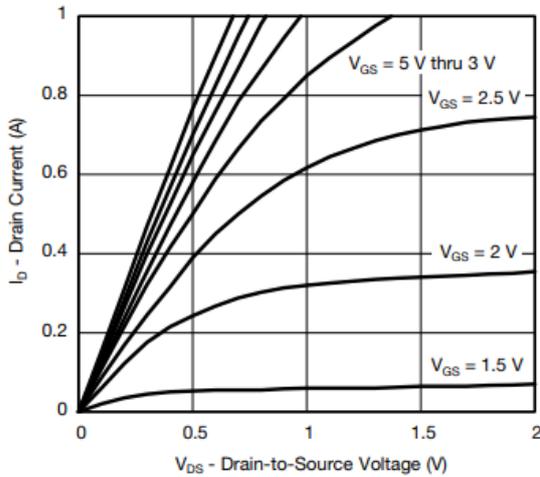


➤ **Electronics Characteristics**( $T_A=25^{\circ}\text{C}$  unless otherwise noted)

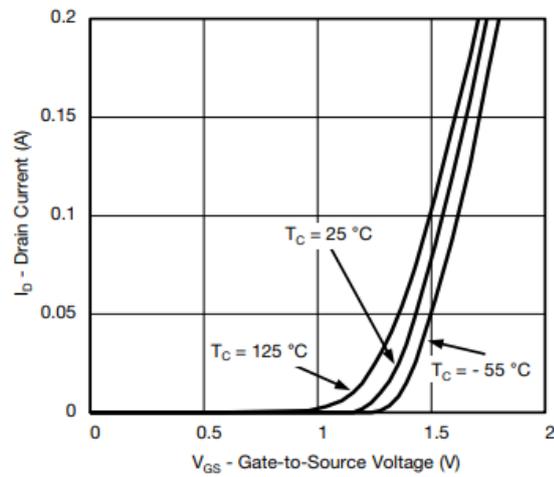
Symbol	Parameter	Test Conditions	Min	Typ.	Max	Unit
$V_{(BR)DSS}$	Drain-Source Breakdown Voltage	$V_{GS}=0V, I_D=-250\mu A$	-20			V
$V_{GS(th)}$	Gate Threshold Voltage	$V_{DS}=V_{GS}, I_D=-250\mu A$	-0.5	-0.7	-1	V
$R_{DS(on)}$	Drain-Source On- Resistance	$V_{GS}=-4.5V, I_D=-0.5A$		650	800	mR
		$V_{GS}=-2.5V, I_D=-0.5A$		900	1100	
$I_{DSS}$	Zero Gate Voltage Drain Current	$V_{DS}=-16V, V_{GS}=0V$			-1	$\mu A$
$I_{GSS}$	Gate-Source leak current	$V_{GS}=\pm 12V, V_{DS}=0V$			$\pm 10$	$\mu A$
$G_{FS}$	Transconductance	$V_{DS}=-5V, I_D=-0.45A$		1.5		S
$V_{SD}$	Forward Voltage	$V_{GS}=0V, I_S=-0.15A$			-1.2	V
$C_{iss}$	Input Capacitance	$V_{DS}=10V, V_{GS}=0V,$ $F=200KHZ$		105		pF
$C_{oss}$	Output Capacitance			22		
$C_{rss}$	Reverse Transfer Capacitance			18		
$T_{D(ON)}$	Turn-on delay time	$V_{GS}=6V,$ $V_{GEN}=4.5V, R_L=6R,$ $R_G=6R, I_D=0.5A$		54		ns
$T_r$	Rise time			85		
$T_{D(OFF)}$	Turn-off delay time			890		
$T_f$	Fall time			176		



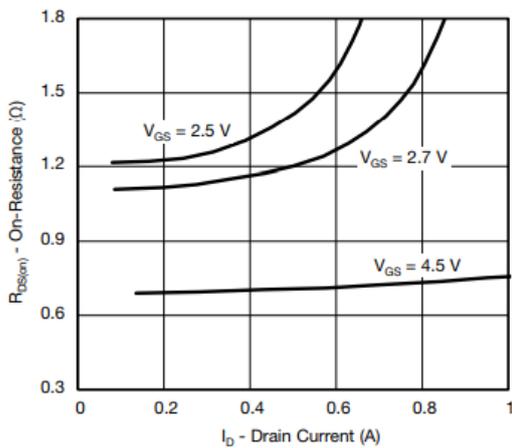
➤ **Typical Characteristics** ( $T_A=25^\circ\text{C}$  unless otherwise noted)



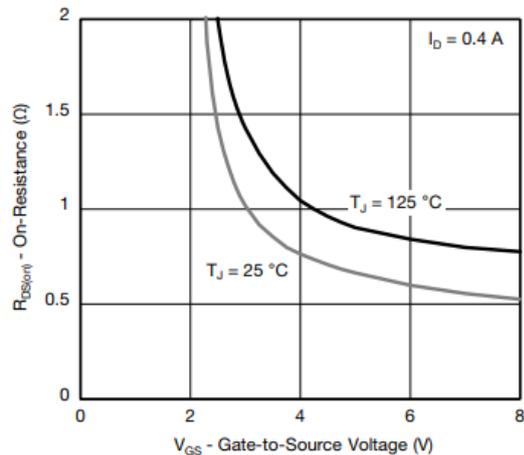
**Output Characteristics**



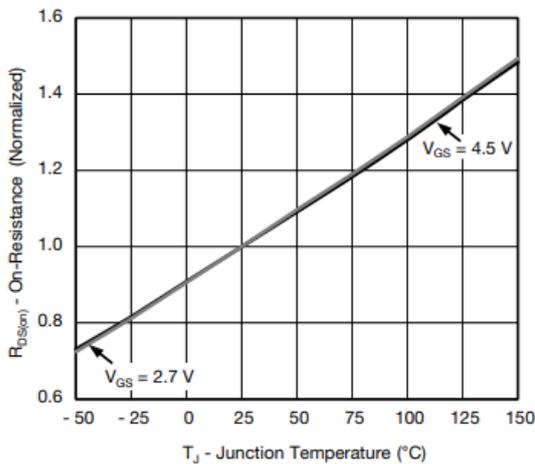
**Transfer Characteristics**



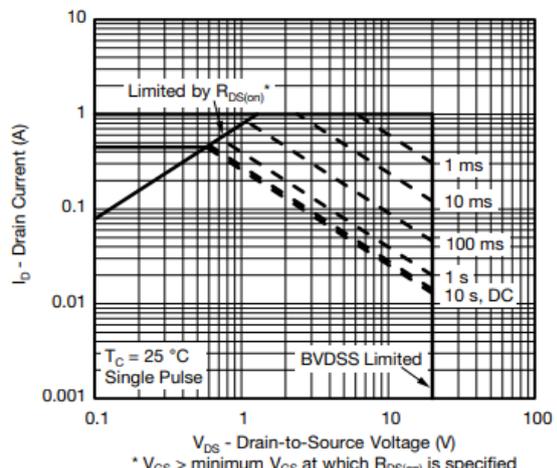
**On-Resistance vs. Drain Current and Gate Voltage**



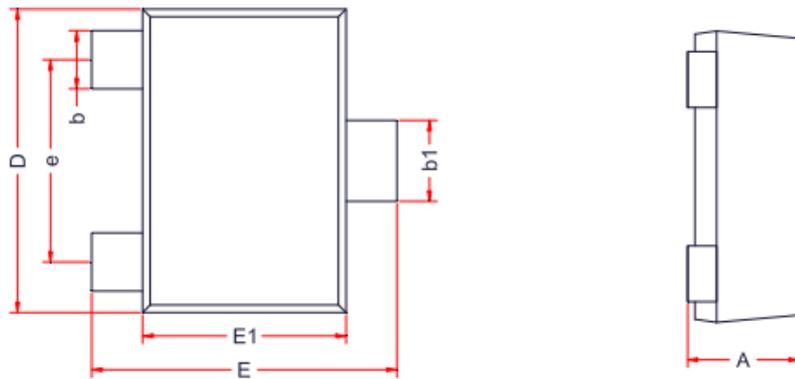
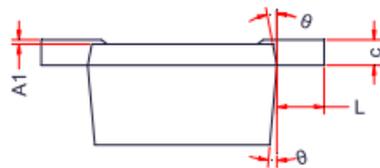
**On-Resistance vs. Gate-to-Source Voltage**



**On-Resistance vs. Junction Temperature**



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

**➤ Package Information**
**SOT-723**

**TOP VIEW**
**SIDE VIEW**

**SIDE VIEW**

Symbol	Dimensions in Millimeters		
	Min.	Typ.	Max.
A	0.43	-	0.55
A1	0.00	-	0.05
c	0.08	0.13	0.18
b1	0.27	-	0.37
b	0.17	-	0.27
L1	0.15	0.20	0.25
D	1.15	1.20	1.25
E	1.15	1.20	1.25
E1	0.75	0.80	0.85
e	0.80 Ref.		
θ	7 ° Ref.		



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