



SSC8123GS6A

P-Channel Enhancement Mode MOSFET

➤ Features

V_{DS}	V_{GS}	$R_{DS(ON)}$ Typ.	I_D
-20V	$\pm 12V$	20m Ω @-4V5	-7A
		25m Ω @-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.

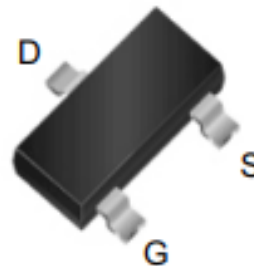
➤ Applications

- Load Switch
- Portable Devices
- DCDC Conversion

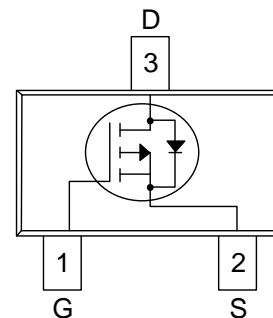
➤ Ordering Information

Device	Package	Shipping
SSC8123GS6A	SOT-23-3L	3000/Reel

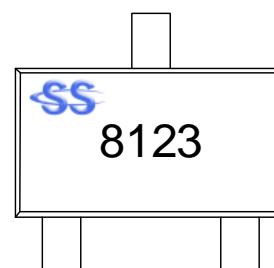
➤ Pin configuration



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_{DSS}	Drain-to-Source Voltage	-20	V
V_{GSS}	Gate-to-Source Voltage	± 12	V
I_D	Continuous Drain Current ^a	-7	A
I_{DM}	Pulsed Drain Current ^b	-21	A
P_D	Power Dissipation ^c	1.6	W
T_J	Operation junction temperature	-55~150	$^\circ\text{C}$
T_{STG}	Storage temperature range	-55~150	$^\circ\text{C}$

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

Symbol	Parameter	Ratings	Unit
$R_{\theta JA}$	Junction-to-Ambient Thermal Resistance ^a	78	$^\circ\text{C}/\text{W}$

Note:

- The value of $R_{\theta JA}$ is measured with the device mounted on 1 in² 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.

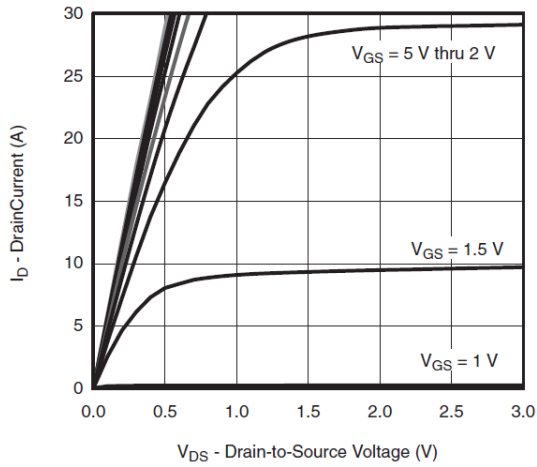


➤ **Electrical Characteristics (T_A=25°C unless otherwise noted)**

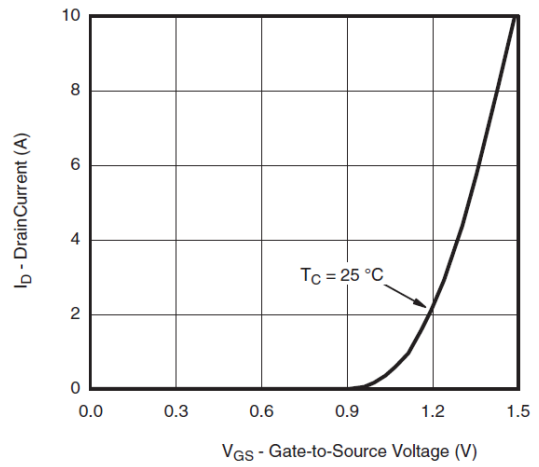
Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
Drain-Source Breakdown Voltage	V _{(BR)DSS}	V _{GS} = 0V, I _D = -250μA	-20			V
Gate Threshold Voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D = -250uA	-0.4	-0.7	-0.9	V
Drain-Source On-Resistance	R _{DS(on)}	V _{GS} = -4.5V, I _D = -5A		20	26	mΩ
		V _{GS} = -2.5V, I _D = -3A		25	36	
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} = -16V, V _{GS} = 0V			-1	μA
Gate-Source Leak Current	I _{GSS}	V _{GS} = ±12V, V _{DS} = 0V			±100	nA
Transconductance	G _{FS}	V _{DS} = -5V, I _D = -5A		10		s
Forward Voltage	V _{SD}	V _{GS} = 0V, I _S = -2A		-0.78	-1.2	V
Input Capacitance	C _{ISS}	V _{DS} = -10V, V _{GS} = 0V, f = 1MHz		1430		pF
Output Capacitance	C _{OSS}			182		
Reverse Transfer Capacitance	C _{RSS}			160		
Turn-on Delay Time	T _{D(ON)}	V _{GS} = -4.5V, V _{DS} = -10V, R _L = 1.43Ω, R _G = 3Ω		11		ns
Rise Time	T _r			18		
Turn-off Delay Time	T _{D(OFF)}			45		
Fall Time	T _f			23		
Total Gate Charge	Q _G	V _{GS} = -4.5V, V _{DS} = -10V, I _D = -7A		15		nC
Gate to Source Charge	Q _{GS}			3		
Gate to Drain Charge	Q _{GD}			4		



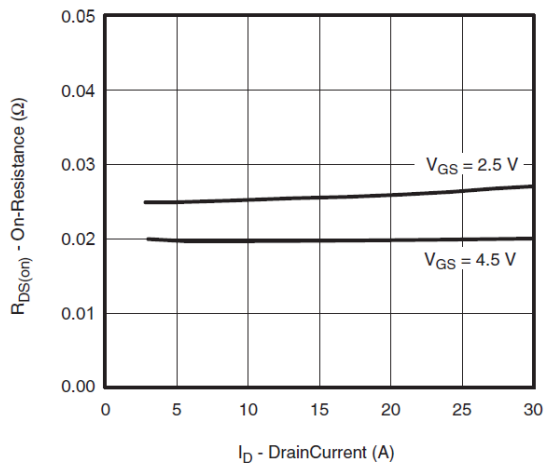
➤ **Typical Performance Characteristics ($T_A=25^\circ\text{C}$ unless otherwise noted)**



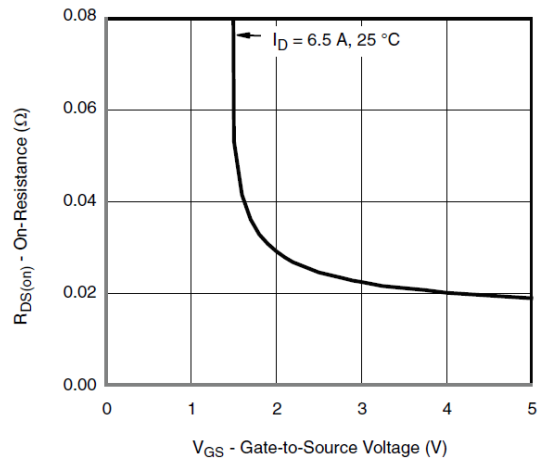
Output Characteristics



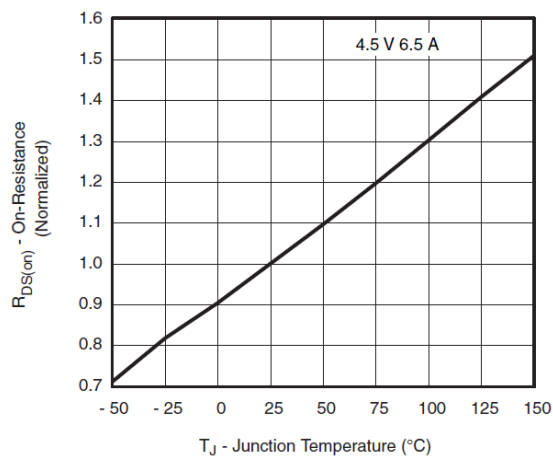
Transfer Characteristics



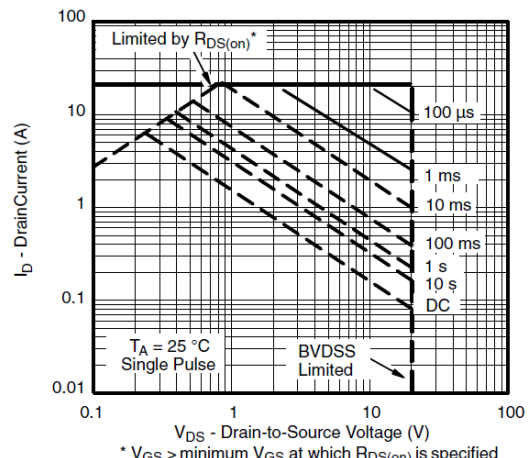
On-Resistance vs. Drain Current and Gate Voltage



On-Resistance vs. Gate-to-Source Voltage

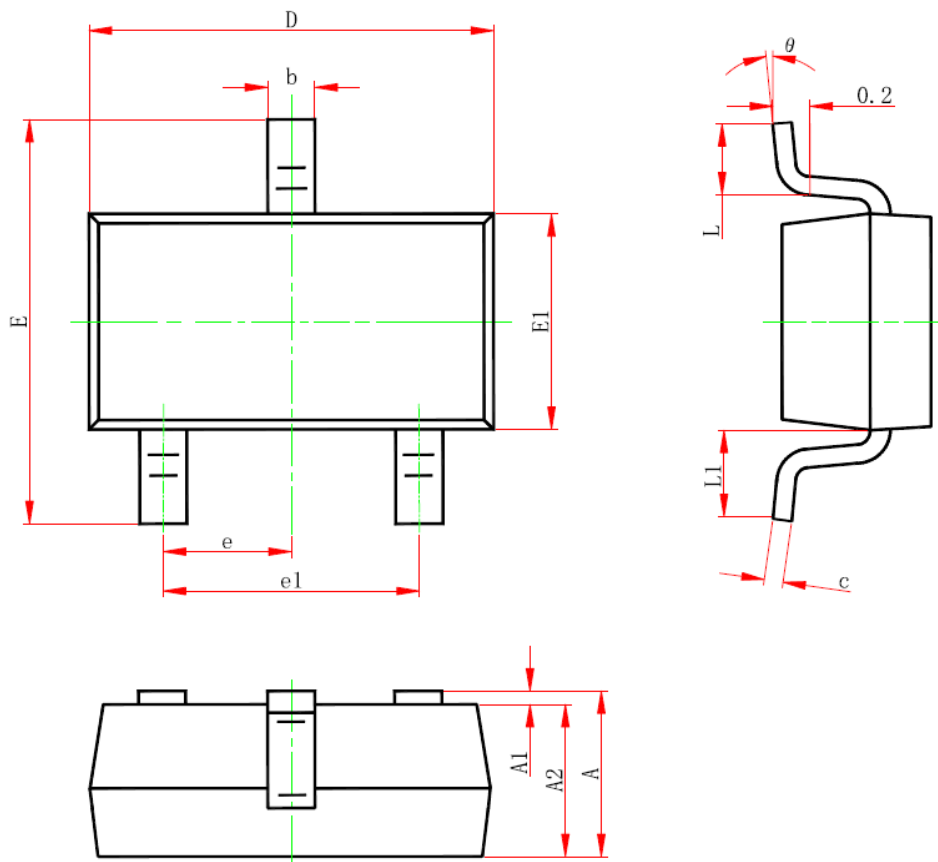


On-Resistance vs. Junction Temperature



Safe Operating Area, Junction-to-Ambient

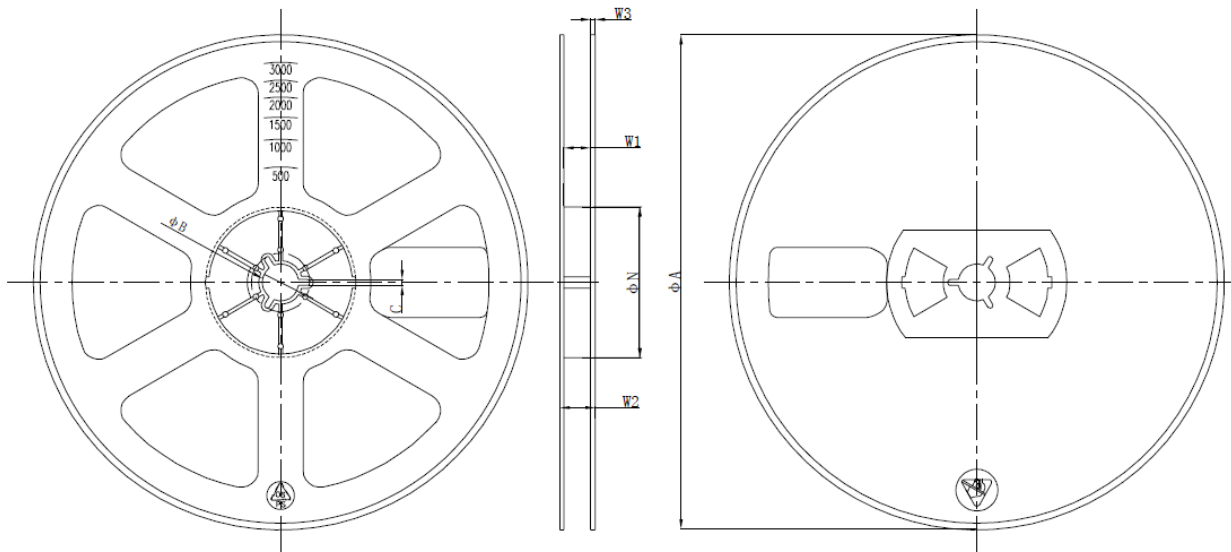
➤ Package Information



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°

➤ **Tape and Reel**



ϕA	ϕN	ϕB	C	W1	W2	W3
178 ± 2	54 ± 2	13.2 ± 0.3	2.2 ± 0.3	9.5 ± 1	13_{max}	1.4 ± 0.4

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