



SSC8130GS1

N-Channel Enhancement Mode MOSFET

➤ Features

V _{DS}	V _{GS}	R _{DS(ON)} Typ.	I _D
30V	±20V	4mΩ@10V	68A
		5.5mΩ@4V5	

➤ Description

This SSC8130GS1 uses advanced trench technology to provide excellent R_{DS(ON)} and low gate charge. The complementary MOSFETS may be used to form a level shifted high side switch, and for a host of other applications.

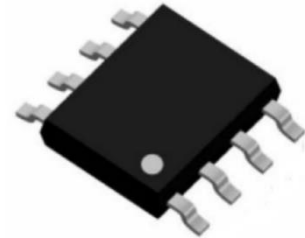
➤ Applications

- Load Switch
- PWM Application
- Power Management

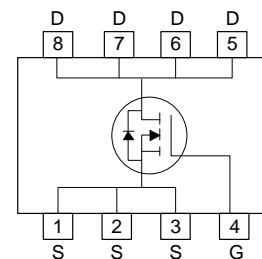
➤ Ordering Information

Device	Package	Shipping
SSC8130GS1	SOP-8	4000/Reel

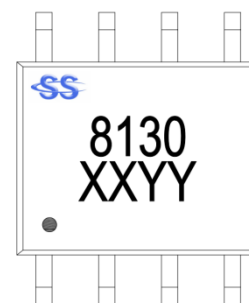
➤ Pin configuration



SOP-8



Pin Configuration (Top View)



Marking

(XXYY: Internal Traceability Code)



➤ **Absolute Maximum Ratings ($T_A=25^\circ\text{C}$ 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 ^d	$T_C=25^\circ\text{C}$	68	A
		$T_C=100^\circ\text{C}$	37	
I_{DSM}	Continuous Drain Current ^a	$T_A=25^\circ\text{C}$	21	A
		$T_A=70^\circ\text{C}$	15	
I_{DM}	Pulsed Drain Current ^b	272	A	
P_D	Power Dissipation ^c	$T_C=25^\circ\text{C}$	30	W
		$T_C=100^\circ\text{C}$	12	
P_{DSM}	Power Dissipation ^a	$T_A=25^\circ\text{C}$	2.8	W
		$T_A=70^\circ\text{C}$	1.8	
I_{AS}	Avalanche Current ^b $L=0.5\text{mH}$ Single Pulse	25	A	
E_{AS}	Avalanche Energy ^b $L=0.5\text{mH}$ Single Pulse	156	mJ	
T_J	Operation junction temperature	-55~150	$^\circ\text{C}$	
T_{STG}	Storage temperature range	-55~150		

➤ **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	45	$^\circ\text{C}/\text{W}$
$R_{\theta JC}$	Junction-to-Case Thermal Resistance	4.2	$^\circ\text{C}/\text{W}$

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.
- The maximum current rating is package limited.

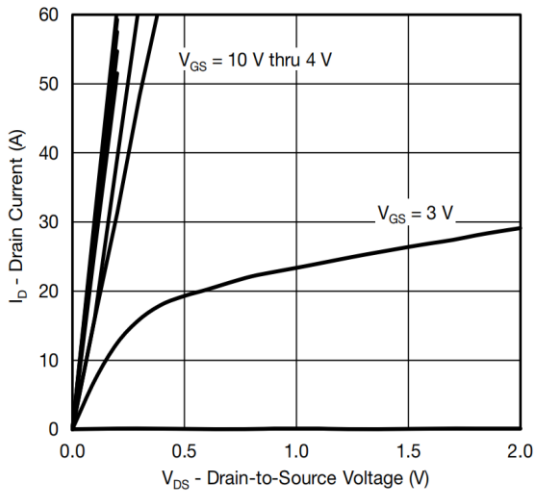


➤ **Electrical Characteristics (T_A=25°C unless otherwise noted)**

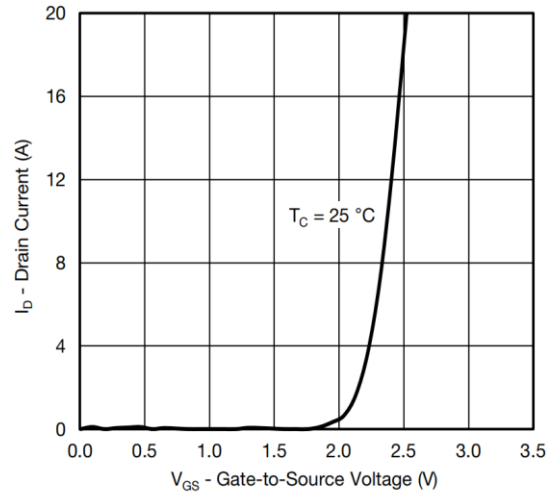
Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
Drain-Source Breakdown Voltage	V _{(BR)DSS}	V _{GS} = 0V, I _D = 250uA	30			V
Gate Threshold Voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D = 250uA	1	1.5	3	V
Drain-Source On-Resistance	R _{DS(on)}	V _{GS} = 10V, I _D = 15A		4	5.5	mΩ
		V _{GS} = 4.5V, I _D = 12A		5.5	8	
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} = 24V, V _{GS} = 0V			1	uA
Gate-Source Leak Current	I _{GSS}	V _{GS} = ±20V, V _{DS} = 0V			±100	nA
Transconductance	G _{FS}	V _{DS} = 5V, I _D = 5A		21		s
Forward Voltage	V _{SD}	V _{GS} = 0V, I _S = 10A		0.8	1.3	V
Gate Resistance	R _G	V _{DS} = 0V, f = 1MHz		1.4		Ω
Input Capacitance	C _{ISS}	V _{DS} = 15V, V _{GS} = 0V, f = 1MHz		2320		pF
Output Capacitance	C _{OSS}			267		
Reverse Transfer Capacitance	C _{RSS}			223		
Total Gate Charge	Q _G	V _{GS} = 10V, V _{DS} = 15V, I _D = 20A		32		nC
Gate to Source Charge	Q _{GS}			7.4		
Gate to Drain Charge	Q _{GD}			8.4		
Turn-on Delay Time	T _{D(ON)}	V _{GS} = 10V, V _{DS} = 15V, R _L = 1.5Ω, R _G = 3Ω		9.2		ns
Rise Time	T _r			64		
Turn-off Delay Time	T _{D(OFF)}			81		
Fall Time	T _f			46		
Diode Recovery Time	T _{rr}	I _F =20A, di/dt=500A/us		14		ns
Diode Recovery Charge	Q _{rr}	I _F =20A, di/dt=500A/us		5.8		nC



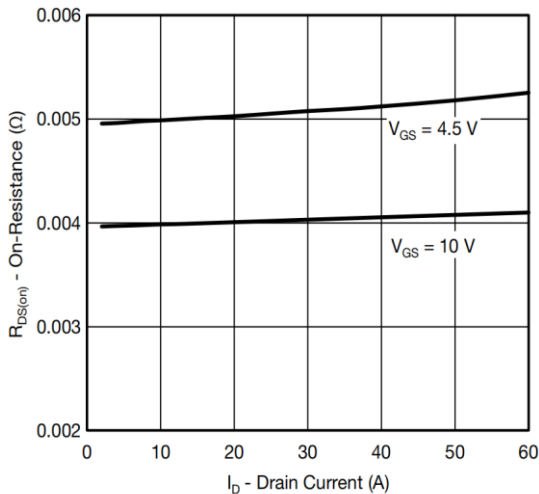
➤ **Typical Performance Characteristics (T_A=25°C unless otherwise noted)**



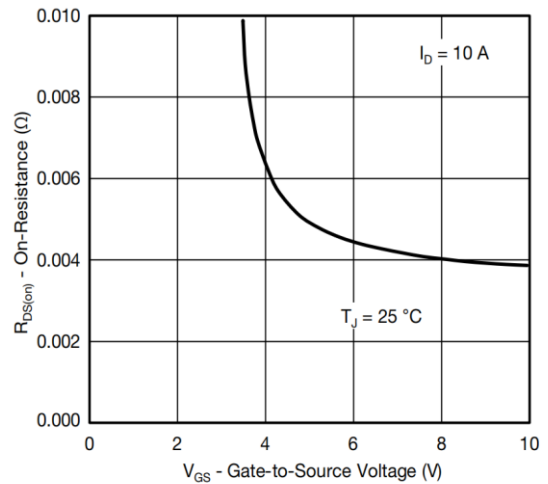
Output Characteristics



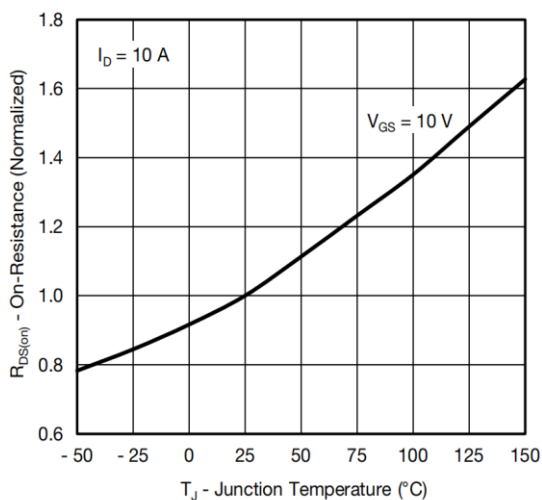
Transfer Characteristics



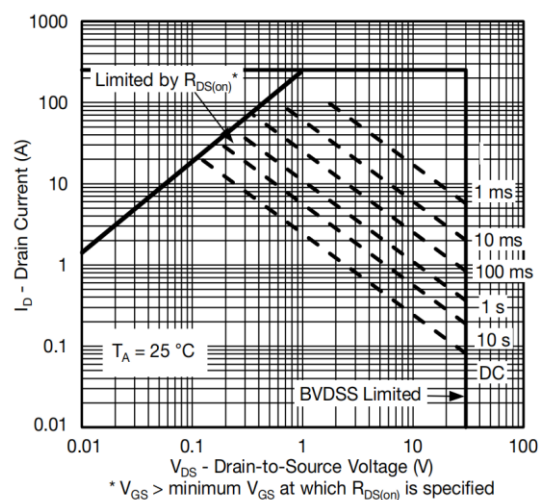
On-Resistance vs. Drain Current



On-Resistance vs. Gate-to-Source Voltage

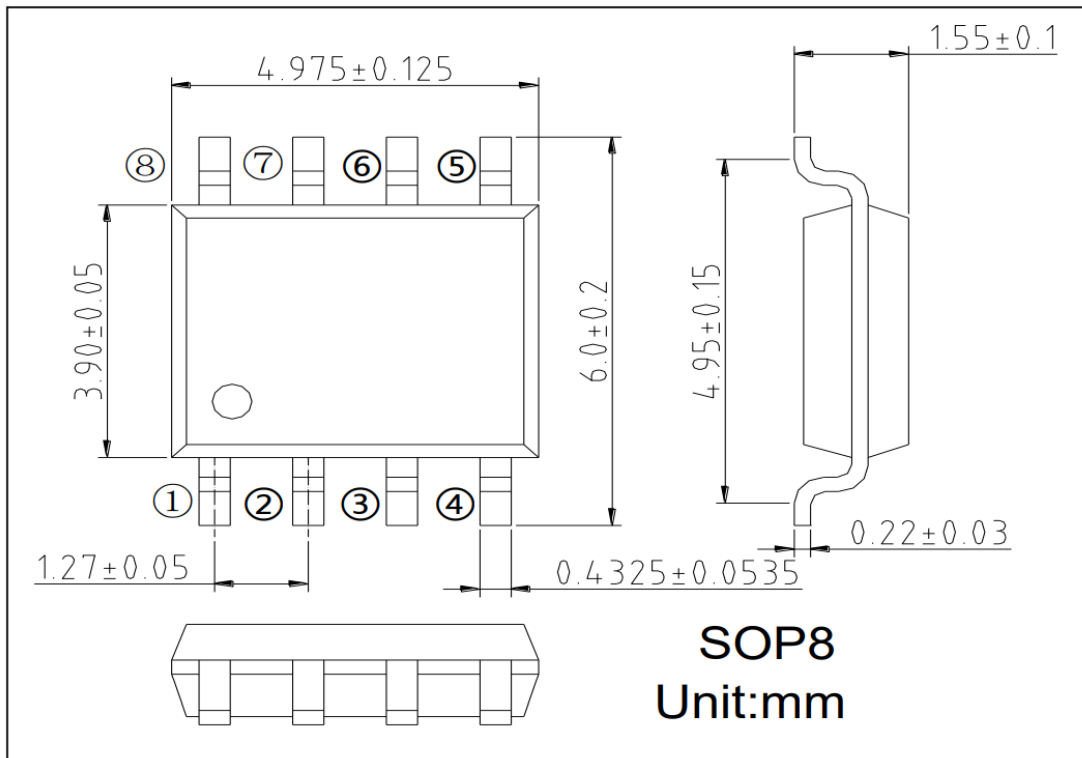


On-Resistance vs. Junction Temperature



Safe Operating Area

➤ Package Information



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