



SSC8041GS1

P-Channel Enhancement Mode MOSFET

➤ Features

V _{DS}	V _{GS}	R _{DS(ON)} Typ.	I _D
-40V	±20V	11mΩ@-10V	-20A
		18mΩ@-4V5	

➤ Description

This SSC8041GS1 uses advanced trench technology to provide excellent RDSON 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.

100% UIS + ΔVDS + Rg Tested!

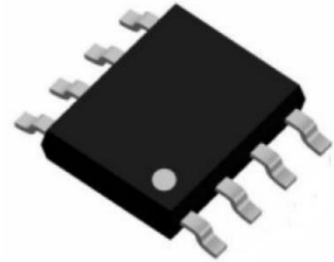
➤ Applications

- Load Switch
- PWM Application
- Power Management

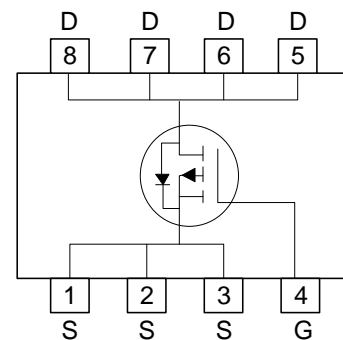
➤ Ordering Information

Device	Package	Shipping
SSC8041GS1	SOP-8	4000/Reel

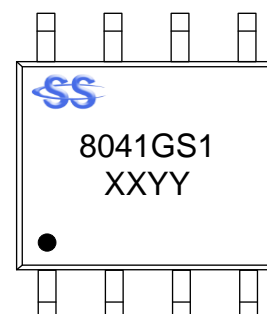
➤ Pin configuration



SOP-8 (Top View)



Pin Configuration



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	-40	V
V_{GSS}	Gate-to-Source Voltage	± 20	V
I_D	Continuous Drain Current ^d	$T_C=25^\circ\text{C}$	-20
		$T_C=100^\circ\text{C}$	-10
I_{DSM}	Continuous Drain Current ^a	$T_A=25^\circ\text{C}$	-13
		$T_A=70^\circ\text{C}$	-9.8
I_{DM}	Pulsed Drain Current ^b	-70	A
P_D	Power Dissipation ^c	$T_C=25^\circ\text{C}$	5.7
		$T_C=100^\circ\text{C}$	2.3
P_{DSM}	Power Dissipation ^a	$T_A=25^\circ\text{C}$	3.1
		$T_A=70^\circ\text{C}$	2
I_{AS}	Avalanche Current ^b $L=0.5\text{mH}$ Single Pulse	-15	A
E_{AS}	Avalanche Energy ^b $L=0.5\text{mH}$ Single Pulse	56.25	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	40	$^\circ\text{C}/\text{W}$

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 $T_{J(MAX)}=150^\circ\text{C}$, 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.

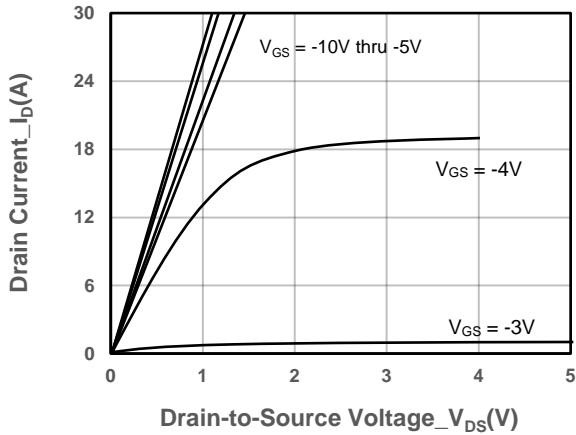


➤ **Electrical Characteristics (T_A=25°C unless otherwise noted)**

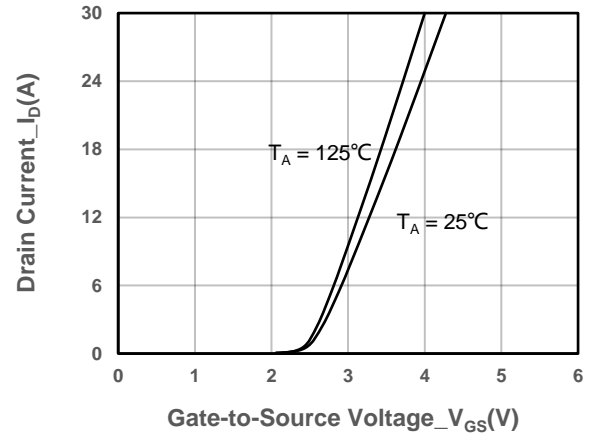
Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
Drain-Source Breakdown Voltage	V _{(BR)DSS}	V _{GS} = 0V, I _D = -250μA	-40			V
Gate Threshold Voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D = -250μA	-1.2	-2.2	-3	V
Drain-Source On-Resistance	R _{DS(on)}	V _{GS} = -10V, I _D = -15A		11	14	mΩ
		V _{GS} = -4.5V, I _D = -10A		18	23	
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} = -40V, V _{GS} = 0V			1	μA
Gate-Source Leak Current	I _{GSS}	V _{GS} = ±20V, V _{DS} = 0V			±100	nA
Forward Voltage	V _{SD}	V _{GS} = 0V, I _S = -5A		-0.7	-1.3	V
Gate Resistance	R _G	V _{DS} = 0V, f = 1MHz		8		Ω
Input Capacitance	C _{ISS}	V _{DS} = -20V, V _{GS} = 0V, f = 1MHz		2650		pF
Output Capacitance	C _{OSS}			240		
Reverse Transfer Capacitance	C _{RSS}			220		
Total Gate Charge	Q _G	V _{GS} = -10V, V _{DS} = -20V, I _D = -10A		35		nC
Gate to Source Charge	Q _{GS}			6		
Gate to Drain Charge	Q _{GD}			12		
Turn-on Delay Time	T _{D(ON)}	V _{GS} = -20V, V _{DS} = -10V, R _L = 2Ω, R _G = 6Ω		12		ns
Rise Time	T _r			40		
Turn-off Delay Time	T _{D(OFF)}			50		
Fall Time	T _f			20		
Diode Recovery Time	T _{rr}	I _F = -20A, di/dt = 500A/us		20		ns
Diode Recovery Charge	Q _{rr}	I _F = -20A, di/dt = 500A/us		18		nC



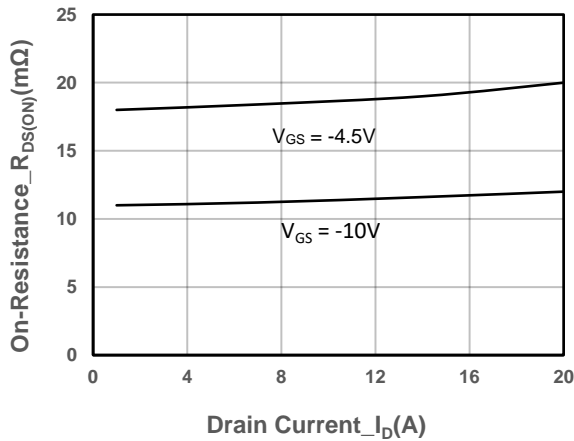
Typical Performance Characteristics ($T_A=25^\circ\text{C}$ unless otherwise noted)



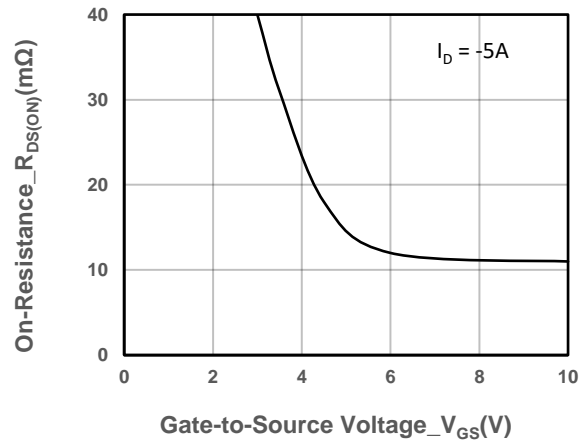
Output Characteristics



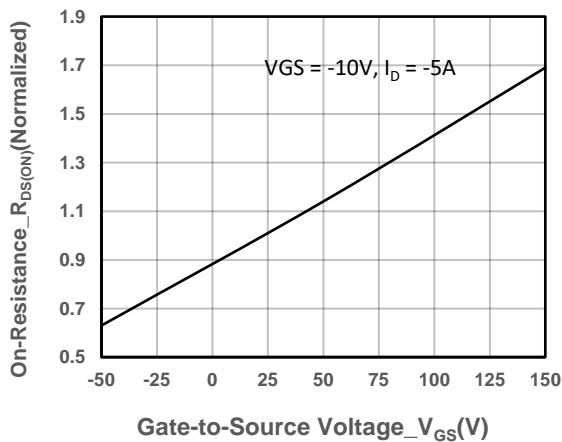
Transfer Characteristics



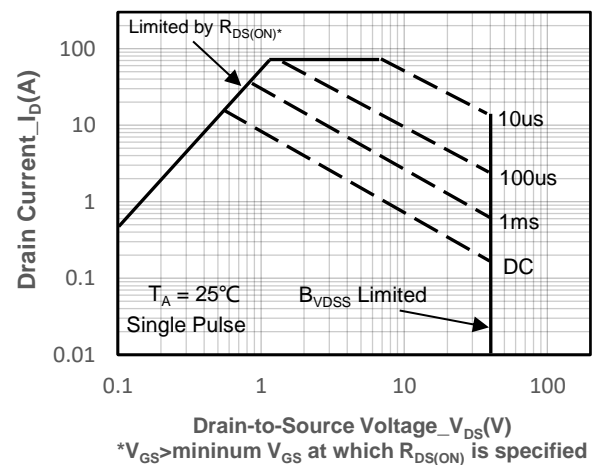
On-Resistance vs. Drain Current and Gate Voltage



On-Resistance vs. Gate-to-Source Voltage

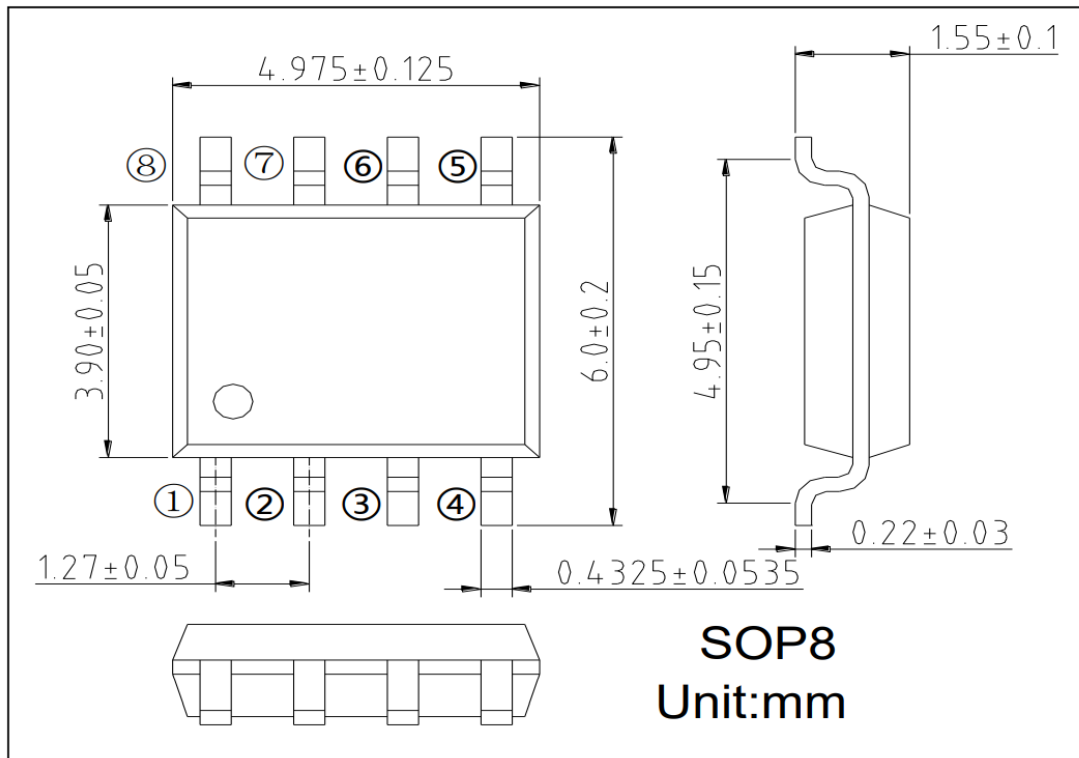


On-Resistance vs. Junction Temperature



Safe Operating Area vs. Junction-to-Ambient

➤ Package Information



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