



SSC83A0GS1

Dual N -Channel Enhancement MOSFET

➤ Features

V_{DS}	V_{GS}	$R_{DS(ON)}$ Typ.	I_D
100V	$\pm 20V$	85m Ω @10V	7A
		93m Ω @6V	

➤ Description

The SSC83A0GS1 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.

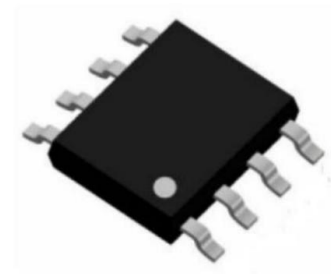
➤ Applications

- PWM Applications
- Load Switch
- DC-DC Converters
- Wireless Chargers

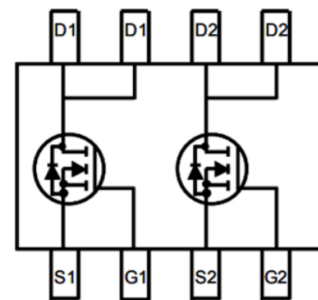
➤ Ordering Information

Device	Package	Shipping
SSC83A0GS1	SOP-8	4000/Reel

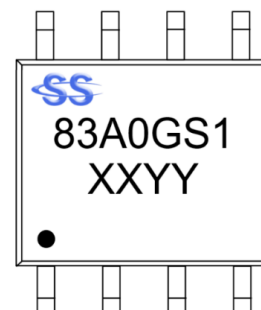
➤ Pin configuration



SOP8



Pin Configuration (Top View)



Marking

(XXYY: Internal Traceability Code)

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

Parameter		Symbol	Ratings	Unit
Drain-to-Source Voltage		V_{DSS}	100	V
Gate-to-Source Voltage		V_{GSS}	± 20	V
Continuous Drain Current ^d	$T_C = 25^{\circ}\text{C}$	I_{D}	7	A
	$T_C = 100^{\circ}\text{C}$		3.5	A
Continuous Drain Current ^a	$T_A = 25^{\circ}\text{C}$	I_{DSM}	4.5	A
	$T_A = 70^{\circ}\text{C}$		3.2	A
Pulsed Drain Current ^b		I_{DM}	28	A
Power Dissipation ^a	$T_A = 25^{\circ}\text{C}$	P_{DSM}	2.8	W
	$T_A = 70^{\circ}\text{C}$		1.8	W
Avalanche Energy ^b $L=0.5\text{mH}$ Single Pulse		E_{AS}	13	mJ
Power Dissipation ^c	$T_C = 25^{\circ}\text{C}$	P_{D}	5.7	W
	$T_C = 100^{\circ}\text{C}$		2.3	W
Operation junction temperature		T_{J}	-55 to 150	$^{\circ}\text{C}$
Storage temperature range		T_{STG}	-55 to 150	$^{\circ}\text{C}$

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

Symbol	Parameter	MAX	Unit
$R_{\theta\text{JA}}$	Junction-to-Ambient Thermal Resistance ^a	110	$^{\circ}\text{C/W}$
$R_{\theta\text{JC}}$	Junction-to-Case Thermal Resistance	70	

Note:

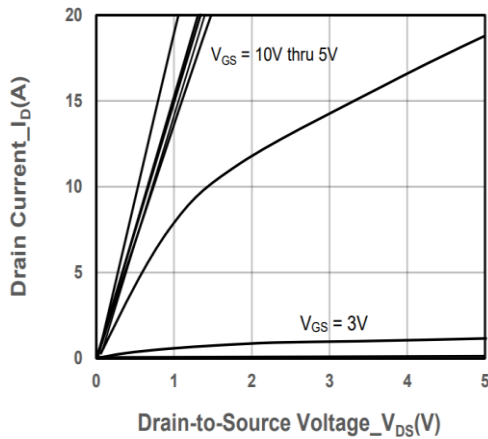
- The value of $R_{\theta\text{JA}}$ is measured with the device mounted on 1 in² FR-4 board with 2oz.copper, in a still air environment with $T_A=25^{\circ}\text{C}$. The value in any given application depends on the user's specific board design. The current rating is based on the $t \leq 10\text{s}$ thermal resistance rating.
- Repetitive rating, pulse width limited by junction temperature.
- The power dissipation P_{D} is based on $T_{\text{J(MAX)}}=150^{\circ}\text{C}$, 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)**

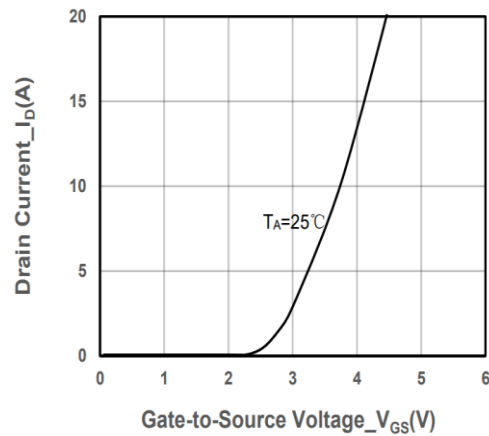
Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
Drain-Source Breakdown Voltage	V _{(BR)DSS}	V _{GS} = 0V, I _D = 250μA	100			V
Gate Threshold Voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D = 250uA	1	2	3	V
Drain-Source On-Resistance	R _{DS(on)}	V _{GS} = 10V, I _D = 6A		85	115	mΩ
		V _{GS} = 6V, I _D = 3A		93	130	
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} = 100V, 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		0.8	1.3	V
Input Capacitance	C _{ISS}	V _{DS} = 50V, V _{GS} = 0V, f = 1MHz		1132		pF
Output Capacitance	C _{OSS}			80		
Reverse Transfer Capacitance	C _{RSS}			18		
Total Gate Charge	Q _G	V _{GS} = 10V, V _{DS} = 50V, I _D = 5A		6		nC
Gate to Source Charge	Q _{GS}			1		
Gate to Drain Charge	Q _{GD}			1.4		
Turn-on Delay Time	T _{D(ON)}	V _{GS} = 10V, V _{DS} = 50V, I _D = 5A, R _{GEN} = 2Ω		15		ns
Rise Time	T _r			2.9		
Turn-off Delay Time	T _{D(OFF)}			11		
Fall Time	T _f			2.2		



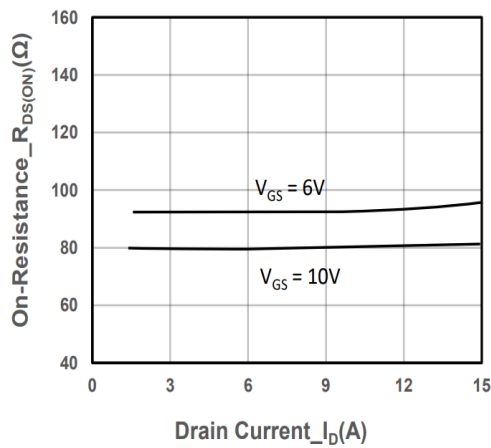
➤ Typical Performance Characteristics ($T_A=25^\circ\text{C}$ unless otherwise noted)



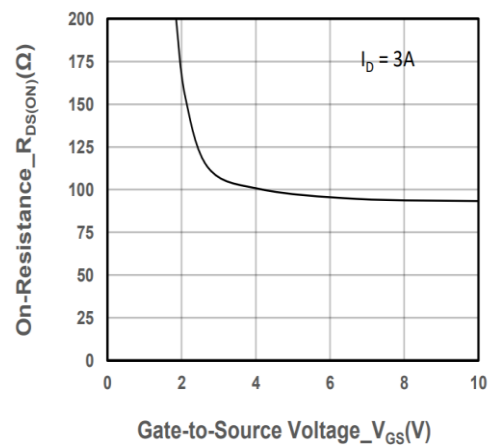
Output Characteristics



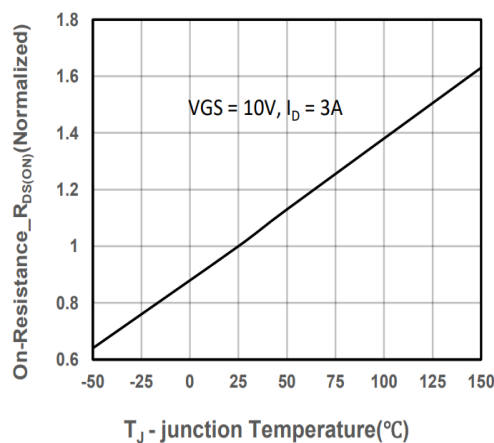
Transfer Characteristics



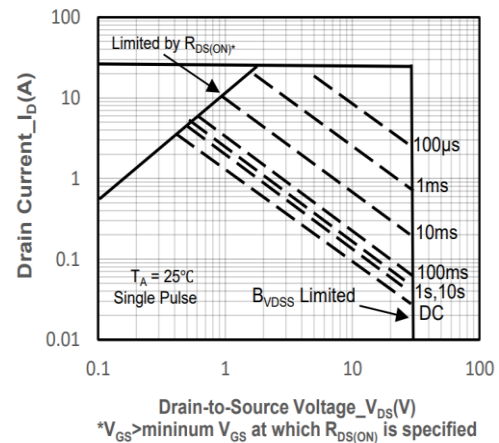
On-Resistance vs. Drain Current and Gate Voltage



On-Resistance vs. Gate-to-Source Voltage



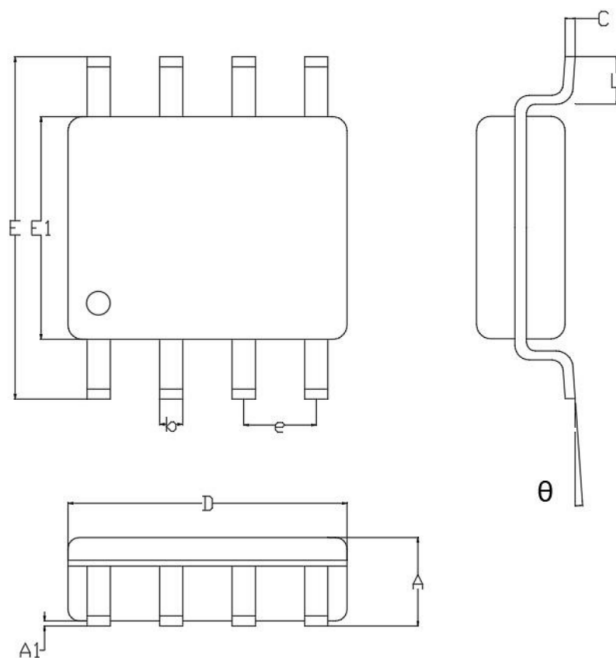
On-Resistance vs. Junction Temperature



Safe Operating Area vs. Junction-to-Ambient

➤ Package Information

SOP-8



Symbol	MILL IMETER		
	Min	Nom	Max
A	1.35	1.50	1.75
A1	0.05	0.10	0.25
b	0.33	-	0.51
c	0.15	-	0.30
D	4.70	4.90	5.10
E	5.80	6.00	6.20
E1	3.70	3.90	4.10
e	1.27 (BSC)		
L	0.40	-	1.30
θ	0°	-	8°



DISCLAIMER

SSCSEMI RESERVES THE RIGHT TO MAKE CHANGES WITHOUT FURTHER NOTICE TO ANY PRODUCTS HEREIN TO IMPROVE RELIABILITY, FUNCTION OR DESIGN. SSCSEMI DOES NOT ASSUME ANY LIABILITY ARISING OUT OF THE APPLICATION OR USE OF ANY PRODUCT OR CIRCUIT DESCRIBED HEREIN; NEITHER DOES IT CONVEY ANY LICENCE UNDER ITS PATENT RIGHTS, NOR THE RIGHTS OF OTHERS.

THE GRAPHS PROVIDED IN THIS DOCUMENT ARE STATISTICAL SUMMARIES BASED ON A LIMITED NUMBER OF SAMPLES AND ARE PROVIDED FOR INFORMATIONAL PURPOSE ONLY. THE PERFORMANCE CHARACTERISTICS LISTED IN THEM ARE NOT TESTED OR GUARANTEED. IN SOME GRAPHS, THE DATA PRESENTED MAY BE OUTSIDE THE SPECIFIED OPERATING RANGE (E.G. OUTSIDE SPECIFIED POWER SUPPLY RANGE) AND THEREFORE OUTSIDE THE WARRANTED RANGE.

OUR PRODUCT SPECIFICATIONS ARE ONLY VALID IF OBTAINED THROUGH THE COMPANY'S OFFICIAL WEBSITE, CRM SYSTEM, OR OUR SALES PERSONNEL CHANNELS. IF CHANGES OR SPECIAL VERSIONS ARE INVOLVED, THEY MUST BE STAMPED WITH A QUALITY SEAL AND MARKED WITH A SPECIAL VERSION NUMBER TO BE VALID.