



SSC8205AGSB

Common Drain N-Channel Enhancement Mode MOSFET

➤ Features

V _{DS}	V _{GS}	R _{DS(ON)} Typ.	I _D
20V	±12V	19mΩ@4V5	6A
		24mΩ@2V5	

➤ Description

Advanced trench process technology. High density cell design for ultra-low on-resistance. High power and current handling capability. Fully characterized avalanche voltage and current.

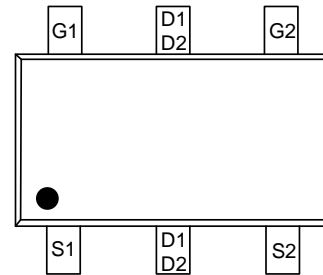
➤ Applications

- Li-ion Battery Protection
- Load Switch
- DC-DC Converters
- Wireless Chargers

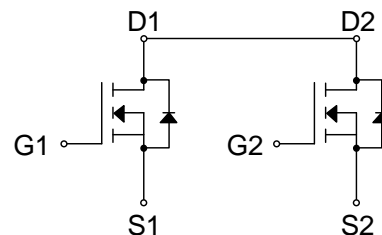
➤ Ordering Information

Device	Package	Shipping
SSC8205AGSB	SOT-23-6L	3000/Reel

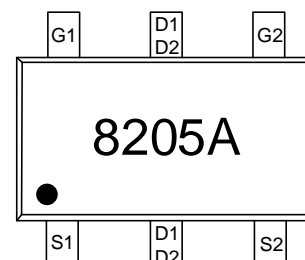
➤ Pin configuration



SOT-23-6L



Pin Configuration



Marking (Top View)



➤ **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	6	A
I_{DM}	Pulsed Drain Current ^b	24	A
P_D	Power Dissipation ^c	1.25	W
P_{DSM}	Power Dissipation ^a	0.7	W
T_J	Operation junction temperature	-55~150	°C
T_{STG}	Storage temperature range	-55~150	

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

Symbol	Parameter	Maximum	Unit
$R_{\theta JA}$	Junction-to-Ambient Thermal Resistance ^a	190	°C/W
$R_{\theta JC}$	Junction-to-Case Thermal Resistance	105	

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



➤ **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	0.5	0.7	1	V
Drain-Source On-Resistance	R _{DS(on)}	V _{GS} = 4.5V, I _D = 3A		19	23	mΩ
		V _{GS} = 2.5V, I _D = 2A		24	28	
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 = 4.5A		10		s
Forward Voltage	V _{SD}	V _{GS} = 0V, I _S = 1.25A		0.8	1.3	V
Input Capacitance	C _{ISS}	V _{DS} = 8V, V _{GS} = 0V, f = 1MHz		600		pF
Output Capacitance	C _{OSS}			330		
Reverse Transfer Capacitance	C _{RSS}			140		
Total Gate Charge	Q _G	V _{GS} = 4.5V, V _{DS} = 10V, I _D = 6A		10		nC
Gate to Source Charge	Q _{GS}			2.3		
Gate to Drain Charge	Q _{GD}			2.9		
Turn-on Delay Time	T _{D(ON)}	V _{GS} = 4.5V, V _{DS} = 10V, I _D = 1A, R _{GEN} = 6Ω		8		ns
Rise Time	T _r			10		
Turn-off Delay Time	T _{D(OFF)}			35		
Fall Time	T _f			30		



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

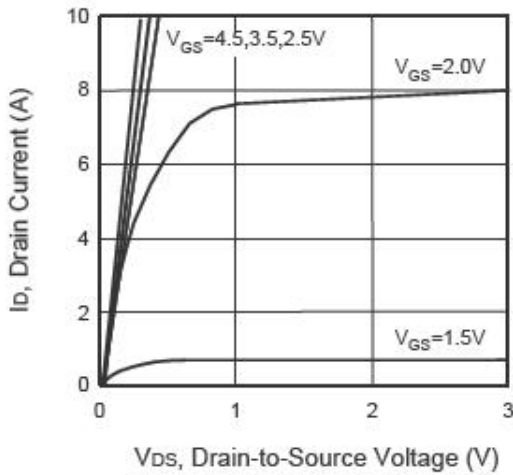


Figure 1. Output Characteristics

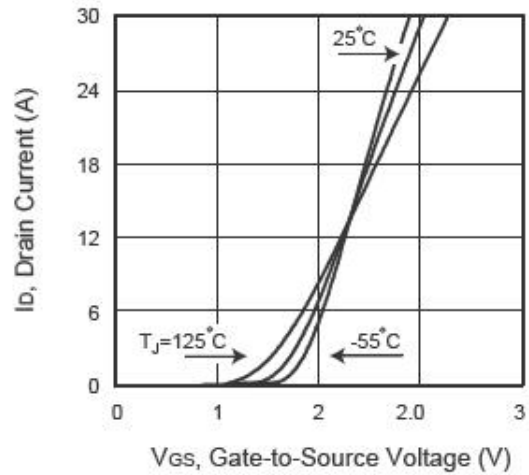


Figure 2. Transfer Characteristics

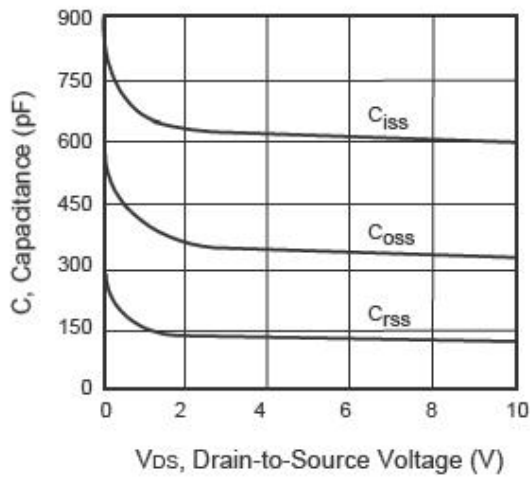


Figure 3. Capacitance

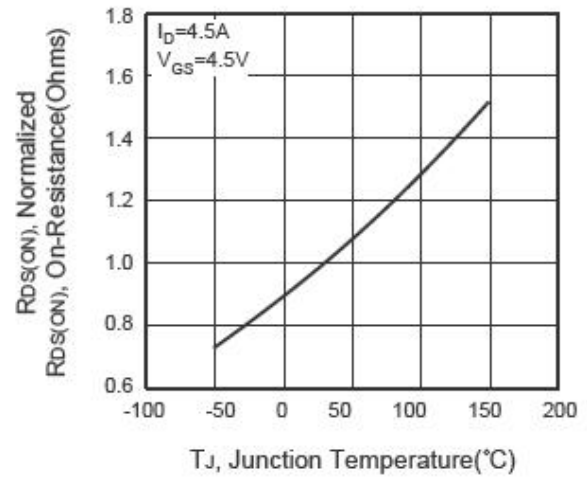


Figure 4. On-Resistance Variation with Temperature

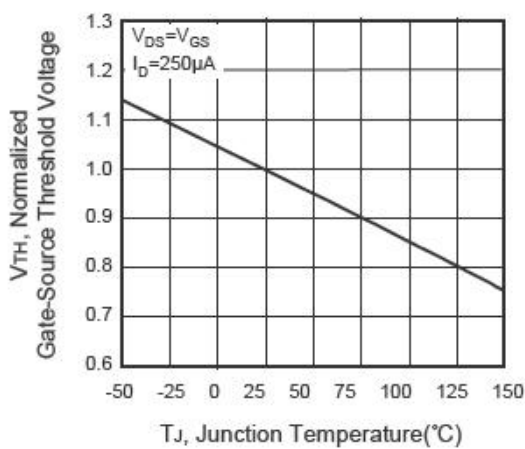


Figure 5. Gate Threshold Variation with Temperature

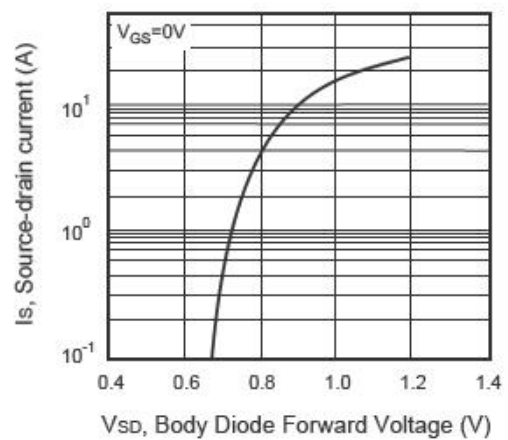


Figure 6. Body Diode Forward Voltage Variation with Source Current

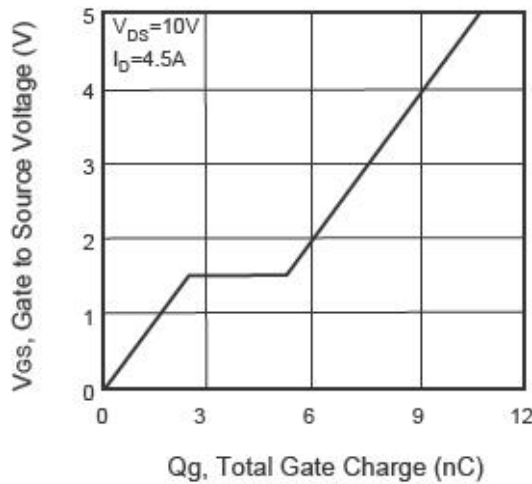


Figure 7. Gate Charge

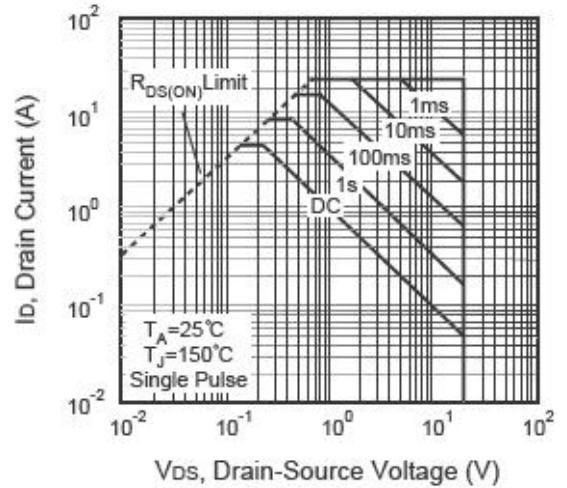


Figure 8. Maximum Safe Operating Area

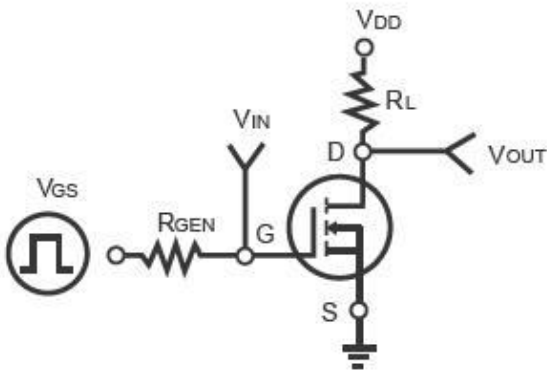


Figure 9. Switching Test Circuit

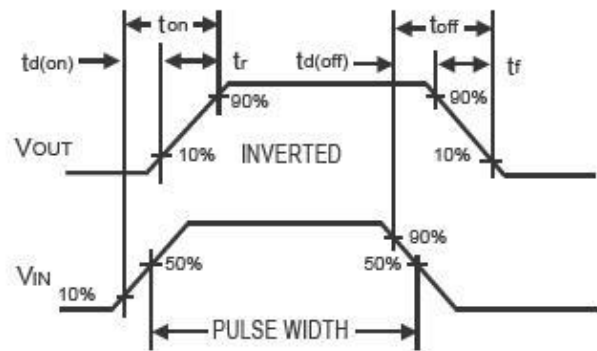


Figure 10. Switching Waveforms

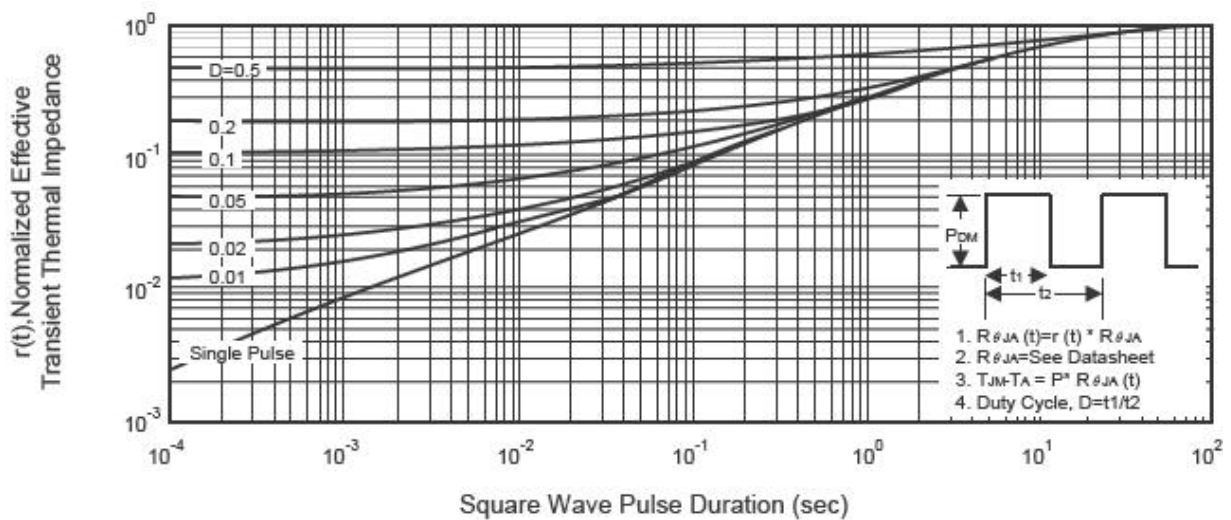
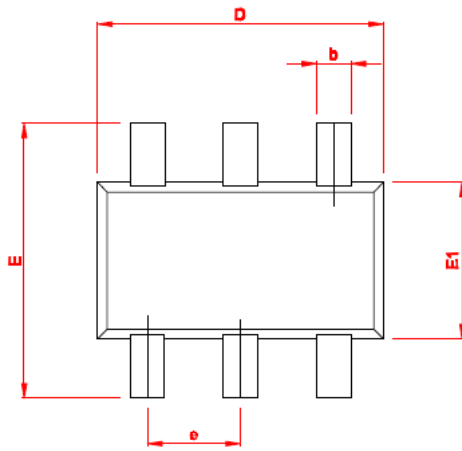


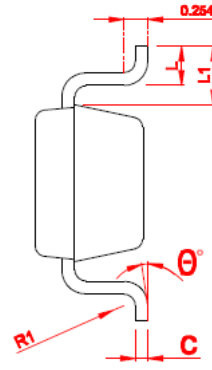
Figure 11. Normalized Thermal Transient Impedance Curve



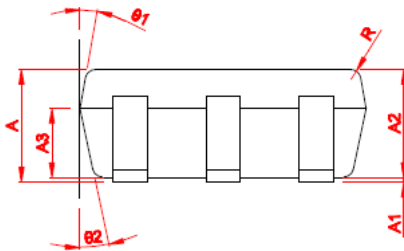
➤ Package Information



TOP VIEW



SIDE VIEW



SIDE VIEW

SYMBOL	MILLIMETER		
	MIN	NOM	MAX
A	1.06	1.15	1.24
* A1	0.01	0.05	0.09
* A2	1.05	1.10	1.15
A3	0.65	0.70	0.75
* b	0.30	0.35	0.45
* c	0.117	0.127	0.157
* D	2.87	2.92	2.97
* E	2.72	2.80	2.88
* E1	1.55	1.60	1.65
* e	0.90	0.95	1.00
* L	0.32	0.40	0.48
* L1	0.55	0.60	0.65
R	0.10 REF		
R1	0.12 REF		
* θ	0	--	8°
θ_1	8°	10°	12°
θ_2	10°	12°	14°



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