



SSC8205BGSB

Common Drain N-Channel Enhancement Mode MOSFET

➤ Features

VDS	VGS	RDSON Typ.	ID
20V	±12V	13mR@4V5	7A
		18mR@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.

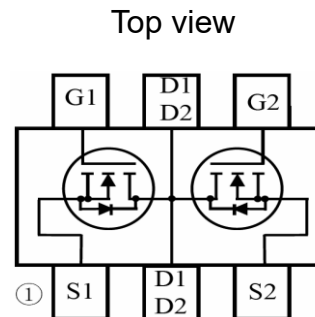
➤ Applications

- Li-ion battery protection
- Load switch
- DCDC conversion

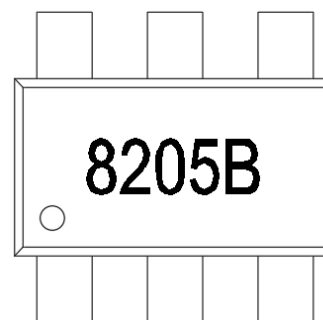
➤ Ordering Information

Device	Package	Shipping
SSC8205BGSB	SOT23-6L	3000/Reel

➤ Pin configuration



SOT23-6L



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	22	A
P_D	Power Dissipation ^c	1.3	W
P_{DSM}	Power Dissipation ^a	0.7	W
T_J	Operation junction temperature	-55 to 150	$^{\circ}\text{C}$
T_{STG}	Storage temperature range	-55 to 150	$^{\circ}\text{C}$

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

Symbol	Parameter	Typical	Maximum	Unit
$R_{\theta JA}$	Junction-to-Ambient Thermal Resistance ^a		190	$^{\circ}\text{C}/\text{W}$
$R_{\theta JC}$	Junction-to-Case Thermal Resistance		100	

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 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.



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

Symbol	Parameter	Test Conditions	Min	Typ.	Max	Unit
$V_{(BR)DSS}$	Drain-Source Breakdown Voltage	$V_{GS}=0V, I_D=250\mu A$	20			V
$V_{GS(th)}$	Gate Threshold Voltage	$V_{DS}=V_{GS}, I_D=250\mu A$	0.5	0.65	1	V
$R_{DS(on)}$	Drain-Source On- Resistance	$V_{GS}=4.5V, I_D=3A$		13	15	mR
		$V_{GS}=2.5V, I_D=2A$		18	20	
I_{DSS}	Zero Gate Voltage Drain Current	$V_{DS}=16V, V_{GS}=0V$			1	μA
I_{GSS}	Gate-Source leak current	$V_{GS}=\pm 12V, V_{DS}=0V$			± 100	nA
G_{FS}	Transconductance	$V_{DS}=5V, I_D=4.5A$		10		S
V_{SD}	Forward Voltage	$V_{GS}=0V, I_S=1.25A$		0.8	1.3	V
C_{iss}	Input Capacitance	$V_{DS}=8V, V_{GS}=0V, f=1MHz$		600		pF
C_{oss}	Output Capacitance			330		
C_{rss}	Reverse Transfer Capacitance			140		
$T_{D(ON)}$	Turn-on delay time	$V_{GEN}=4.5V,$ $V_{DS}=10V, R_G=6R, I_D=1A$		8		ns
T_r	Rise Time			10		
$T_{D(OFF)}$	Turn-off delay time			35		
T_f	Fall Time			30		
Q_g	Total Gate charge	$V_{GS}=4.5V, V_{DS}=10V, I_D=6A$		10		nC
Q_{gs}	Gate to Source charge			2.3		
Q_{gd}	Gate to Drain charge			2.9		



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

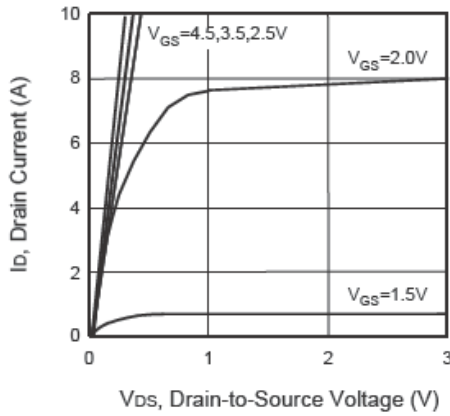


Figure 1. Output Characteristics

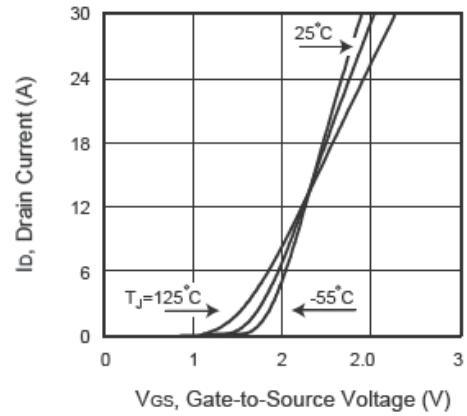


Figure 2. Transfer Characteristics

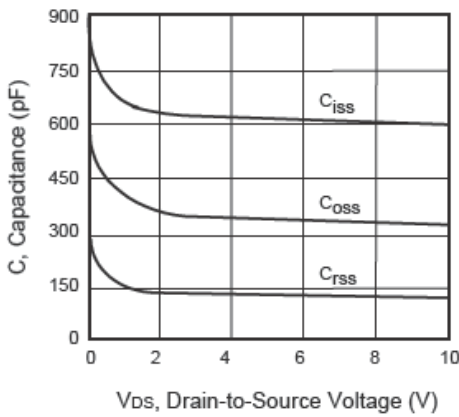


Figure 3. Capacitance

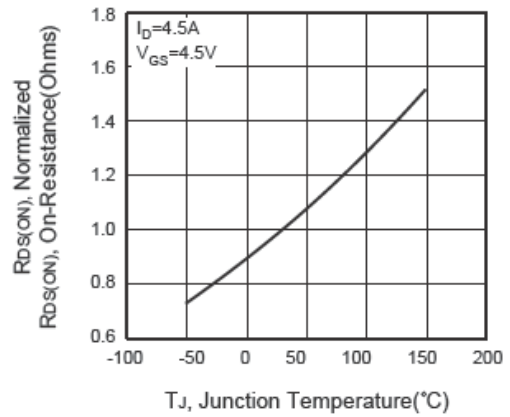


Figure 4. On-Resistance Variation with Temperature

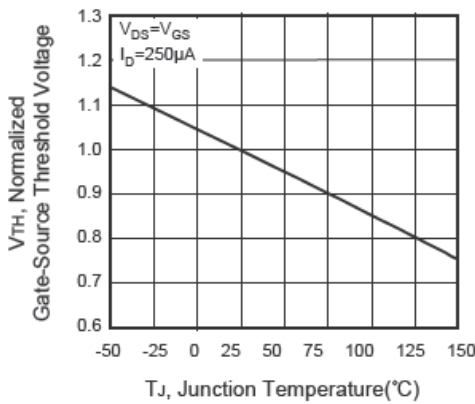


Figure 5. Gate Threshold Variation with Temperature

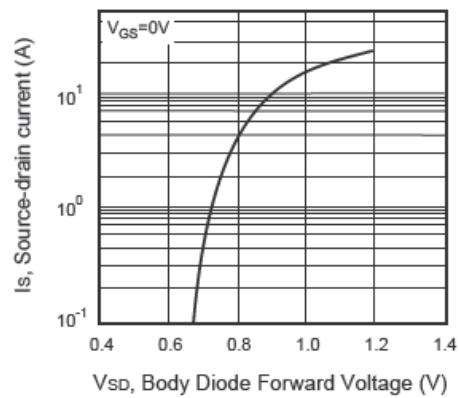


Figure 6. Body Diode Forward Voltage Variation with Source Current

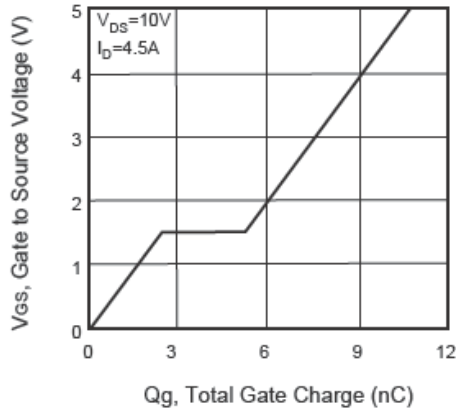


Figure 7. Gate Charge

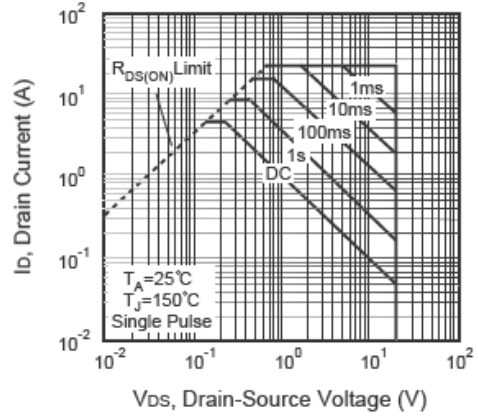


Figure 8. Maximum Safe Operating Area

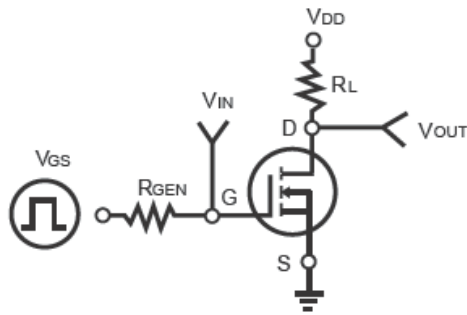


Figure 9. Switching Test Circuit

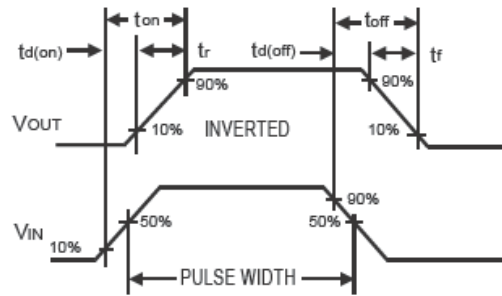


Figure 10. Switching Waveforms

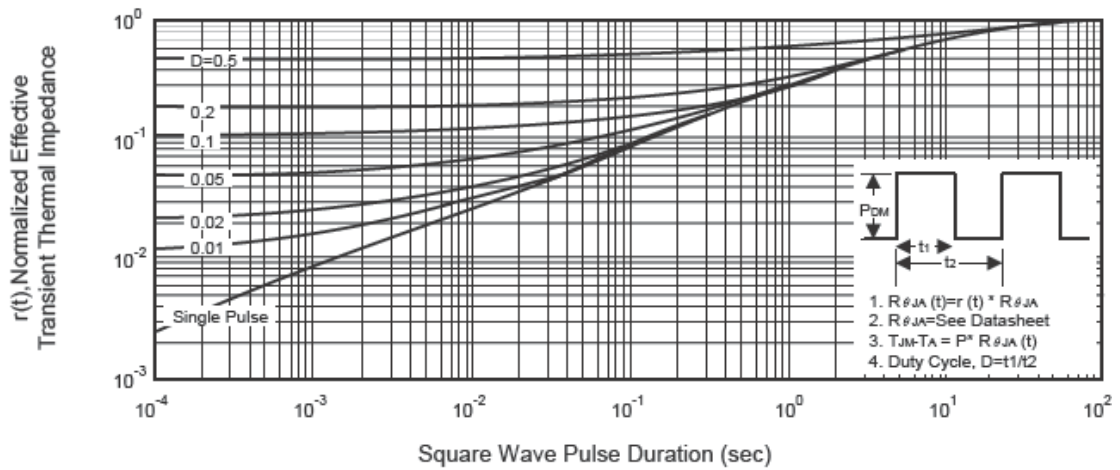
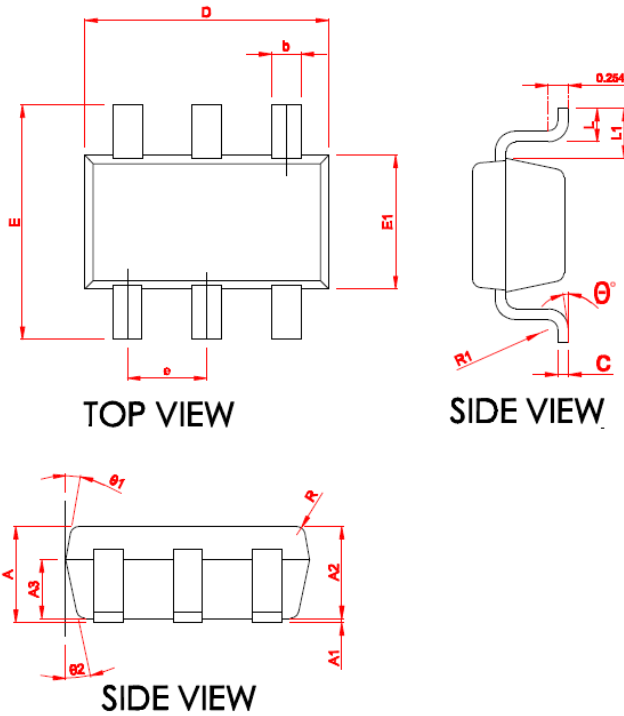


Figure 11. Normalized Thermal Transient Impedance Curve



➤ Package Information



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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