

SI8205A

20V N-Channel Enhancement-Mode MOSFET

VDS= 20V

RDS(ON), Vgs@2.5V, Ids@5.2A = 38mΩ

RDS(ON), Vgs@4.5V, Ids@6A = 28mΩ

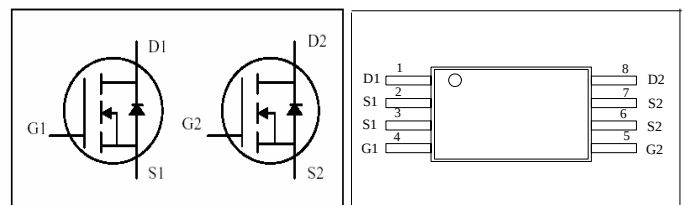
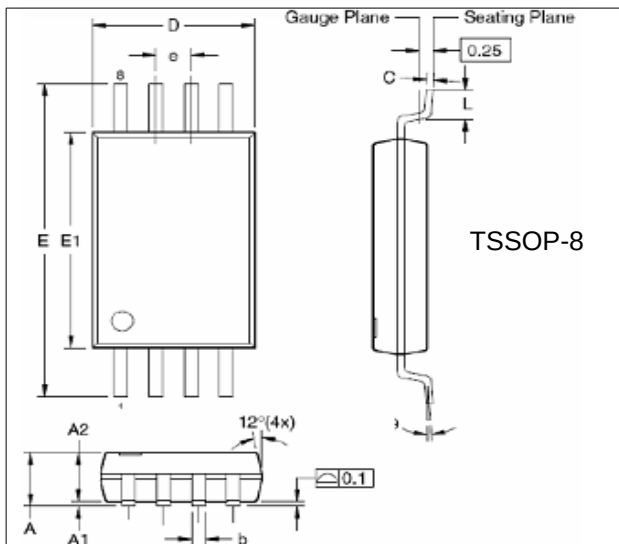
Features

Advanced trench process technology

High Density Cell Design For Ultra Low On-Resistance

High Power and Current handling capability

Ideal for Li ion battery pack applications



REF.	Millimeter		REF.	Millimeter	
	Min.	Max.		Min.	Max.
A	1.20 MAX.		E1	4.30	4.50
A1	0.05	0.15	e	0.65BSC	
A2	0.80	1.05	L	0.45	0.75
b	0.19	0.30	θ	0°	10°
C	0.90	0.20			
D	2.90	3.00			
E	6.40BSC				

Maximum Ratings and Thermal Characteristics (TA = 25°C unless otherwise noted)

Parameter		Symbol	Limit	Unit
Drain-Source Voltage		V _{DS}	20	V
Gate-Source Voltage		V _{GS}	± 12	
Continuous Drain Current		I _D	6	A
Pulsed Drain Current ¹⁾		I _{DM}	20	
Maximum Power Dissipation	TA = 25°C	P _D	1.6	W
	TA = 75°C		1	
Operating Junction and Storage Temperature Range		T _J , T _{stg}	-55 to 150	°C
Junction-to-Ambient Thermal Resistance (PCB mounted) ²⁾		R _{θJA}	78	°C/W

Notes

¹⁾ Pulse width limited by maximum junction temperature.

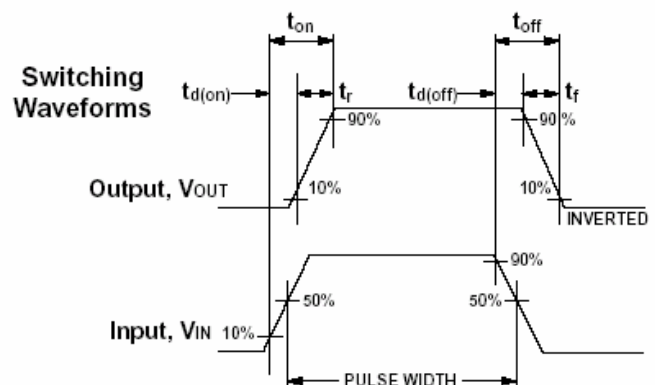
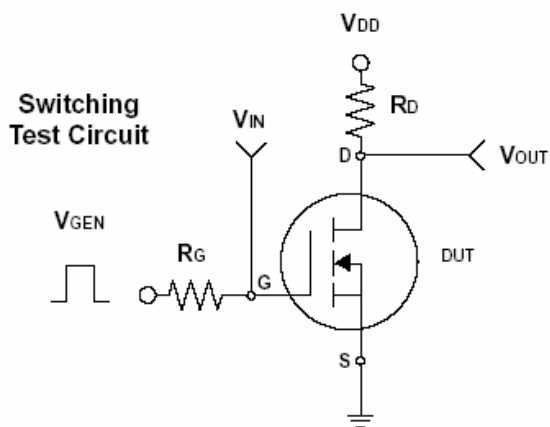
²⁾ Surface Mounted on FR4 Board, t ≤ 5 sec.

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ELECTRICAL CHARACTERISTICS

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Static						
Drain-Source Breakdown Voltage	BV _{DSS}	V _{GS} = 0V, I _D = 250uA	20	-	-	V
Drain-Source On-State Resistance	R _{DS(on)}	V _{GS} = 2.5V, I _D = 5.2A		30.0	38	mΩ
Drain-Source On-State Resistance	R _{DS(on)}	V _{GS} = 4.5V, I _D = 6A		21.0	28	
Gate Threshold Voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D = 250uA	0.6		1.2	V
Zero Gate Voltage Drain Current 0	I _{DSS}	V _{DS} = 20V, V _{GS} = 0V			1	uA
Gate Body Leakage	I _{GSS}	V _{GS} = ± 10V, V _{DS} = 0V			±100	nA
Forward Transconductance	g _{fs}	V _{DS} = 5V, I _D =6A		22	—	S
Dynamic ¹⁾						
Total Gate Charge	Q _g	V _{DS} = 10V, I _D = 6A V _{GS} = 4.5V		5		nC
Gate-Source Charge	Q _{gs}			1.1		
Gate-Drain Charge	Q _{gd}			2.1		
Turn-On Delay Time	t _{d(on)}	V _{DD} = 10V, R _G = 6Ω I _D = 1A, V _{GS} = 4.5V		10	20	ns
Turn-On Rise Time	t _r			11	25	
Turn-Off Delay Time	t _{d(off)}			35	70	
Turn-Off Fall Time	t _f			30	60	
Input Capacitance	C _{iss}	V _{DS} = 8V, V _{GS} = 0V f = 1.0 MHz		600		pF
Output Capacitance	C _{oss}			330		
Reverse Transfer Capacitance	C _{rss}			140		
Source-Drain Diode						
Max. Diode Forward Current	I _S				1.7	A
Diode Forward Voltage	V _{SD}	I _S = 1.7A, V _{GS} = 0V		0.72	1.2	V

¹⁾ Pulse test: pulse width $\leq 300\mu s$, duty cycle $\leq 2\%$



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Typical Characteristics (T_J = 25°C Noted)

