HUASHUO SEMICONDUCTOR

HSO8205

Dual N-ch 20V Fast Switching MOSFETs

Description

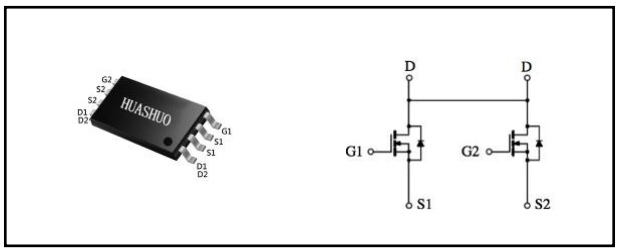
The HSO8205 is the low RDSON trenched N-CH MOSFETs. This product is suitable for Lithium-ion battery pack applications.
The HSO8205 meet the RoHS and Green Product requirement with full function reliability approved.

Product Summary

V_{DS}	20	V
$R_{DS(ON),max}$	27	mΩ
I_D	6	A

- Green Device Available
- Super Low Gate Charge
- Excellent Cdv/dt effect decline
- Advanced high cell density Trench technology

TSSOP8 Pin Configuration



Absolute Maximum Ratings

Symbol	Parameter	Rating	Units
V_{DS}	Drain-Source Voltage	20	V
V_{GS}	Gate-Source Voltage	±12	V
I_D@T_A=25℃	Continuous Drain Current[1]	6	A
I_D@T_A=70℃	Continuous Drain Current[1]	5.4	A
I_{DM}	Pulsed Drain Current[2]	24	A
P_D@T_A=25℃	Total Power Dissipation[3]	1.5	W
T_{STG}	Storage Temperature Range	-55 to 150	℃
T_J	Operating Junction Temperature Range	-55 to 150	℃

Thermal Data

Symbol	Parameter	Typ.	Max.	Unit
$R_{\theta JA}$	Thermal Resistance Junction-ambient [1]	---	83	℃/W

Electrical Characteristics (T_J=25 ℃, unless otherwise noted)

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
BV_{DSS}	Drain-Source Breakdown Voltage	V_{GS}=0V , I_D=250uA	20	---	---	V
$R_{DS(ON)}$	Static Drain-Source On-Resistance[2]	V_{GS}=4.5V , I_D=6A	---	23	27	mΩ
		V_{GS}=2.5V , I_D=5.2A	---	30	38	
$V_{GS(th)}$	Gate Threshold Voltage	V_{GS}=V_{DS} , I_D =250uA	0.5	0.9	1.5	V
I_{DSS}	Drain-Source Leakage Current	V_{DS}=20V , V_{GS}=0V , T_J=25℃	---	---	1	uA
I_{GSS}	Gate-Source Leakage Current	V_{GS}=±12V , V_{DS}=0V	---	---	±100	nA
gfs	Forward Transconductance	V_{DS}=5V , I_D=3.5A	---	21	---	S
Q_g	Total Gate Charge (4.5V)	V_{DS}=10V , V_{GS}=4.5V , I_D=3A	---	6.1	---	nC
Q_{gs}	Gate-Source Charge		---	1.7	---	
Q_{gd}	Gate-Drain Charge		---	1.4	---	
$T_{d(on)}$	Turn-On Delay Time	V_{DD}=10V , V_{GS}=4.5V , R_G=3Ω I_D=1A	---	10	---	ns
T_r	Rise Time		---	8.2	---	
$T_{d(off)}$	Turn-Off Delay Time		---	2.5	---	
T_f	Fall Time		---	6	---	
C_{iss}	Input Capacitance	V_{DS}=8V , V_{GS}=0V , f=1MHz	---	522	---	pF
C_{oss}	Output Capacitance		---	124	---	
C_{rss}	Reverse Transfer Capacitance		---	148	---	

Diode Characteristics

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
I_S	Continuous Source Current[1,4]	V_G=V_D=0V , Force Current	---	---	6	A
V_{SD}	Diode Forward Voltage[2]	V_{GS}=0V , I_S=1A , T_J=25℃	---	---	1.2	V

Note :
1.The data tested by surface mounted on a 1 inch^2 FR-4 board with 2OZ copper.
2.The data tested by pulsed , pulse width ≦ 300us , duty cycle ≦ 2%
3.The power dissipation is limited by 150℃ junction temperature
4.The data is theoretically the same as I_D and I_{DM} , in real applications , should be limited by total power dissipation.

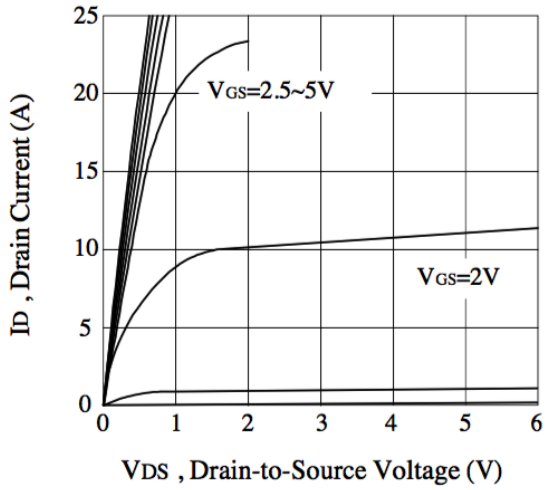


Figure 1. Output Characteristics

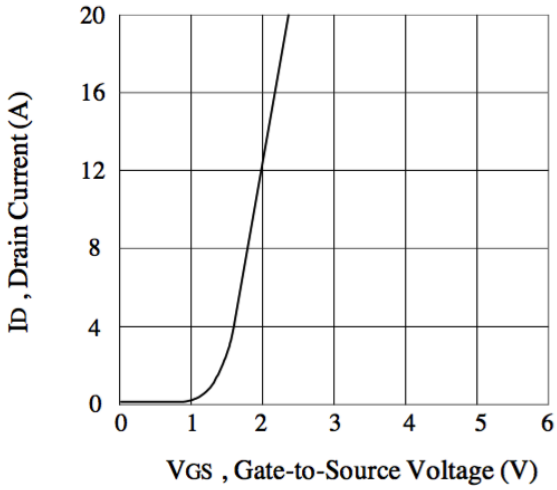


Figure 2. Transfer Characteristics

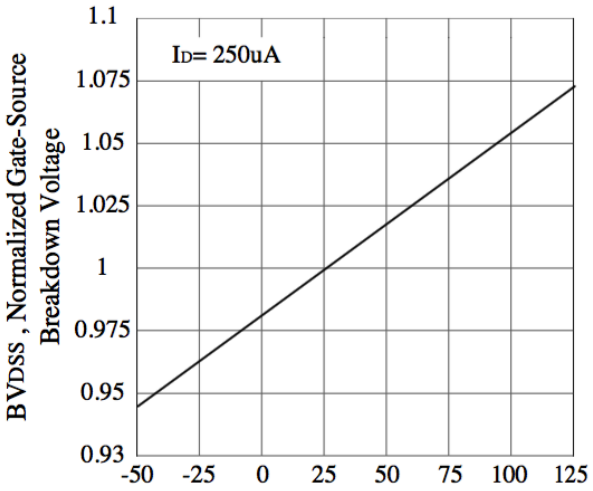


Figure 3. Breakdown Voltage Variation with Temperature

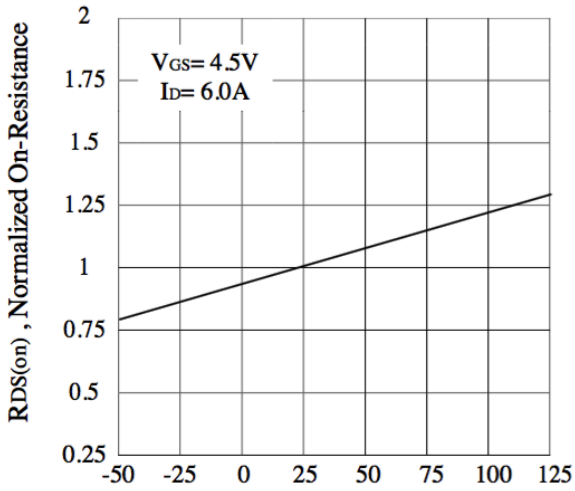


Figure 4. On-Resistance Variation with Temperature

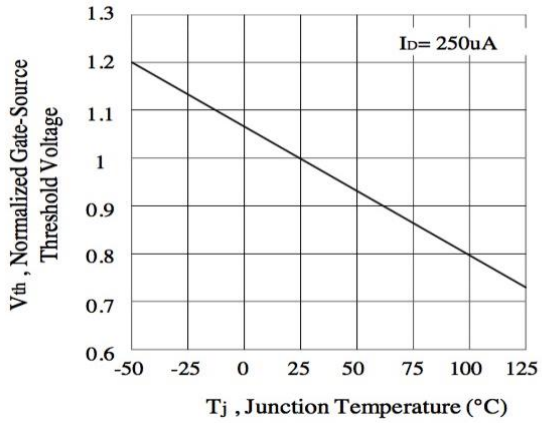


Figure 5. Gate Threshold Variation with Temperature

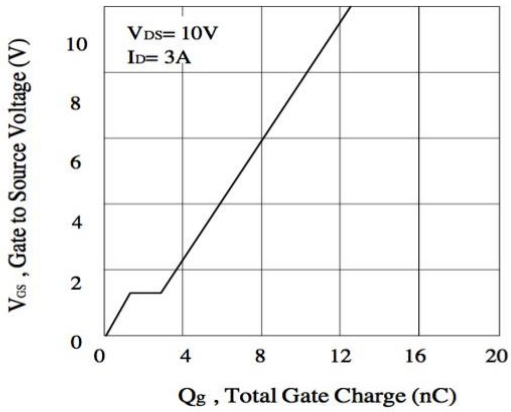


Figure 6. Gate Charge

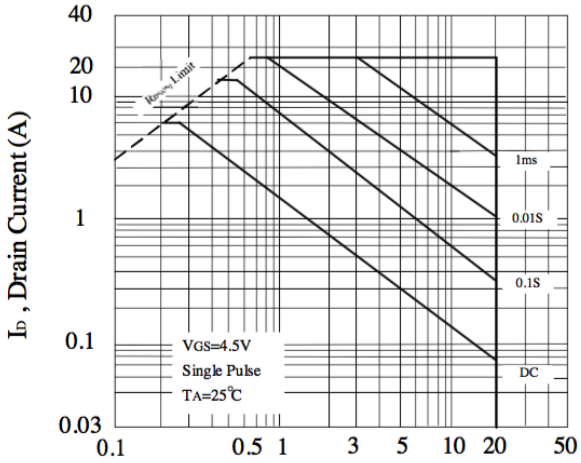


Figure 7. Maximum Safe Operating Area

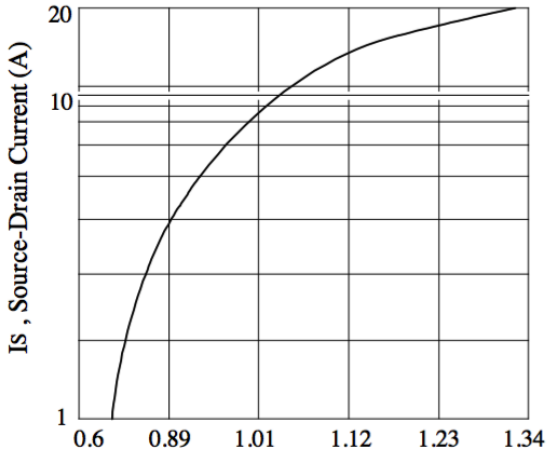


Figure 8. Body Diode Forward Voltage Variation with Source Current

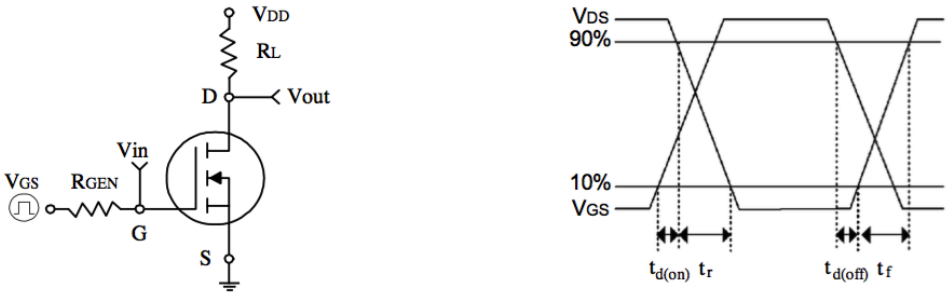


Figure 9. Switching Test Circuit and Switching Waveforms

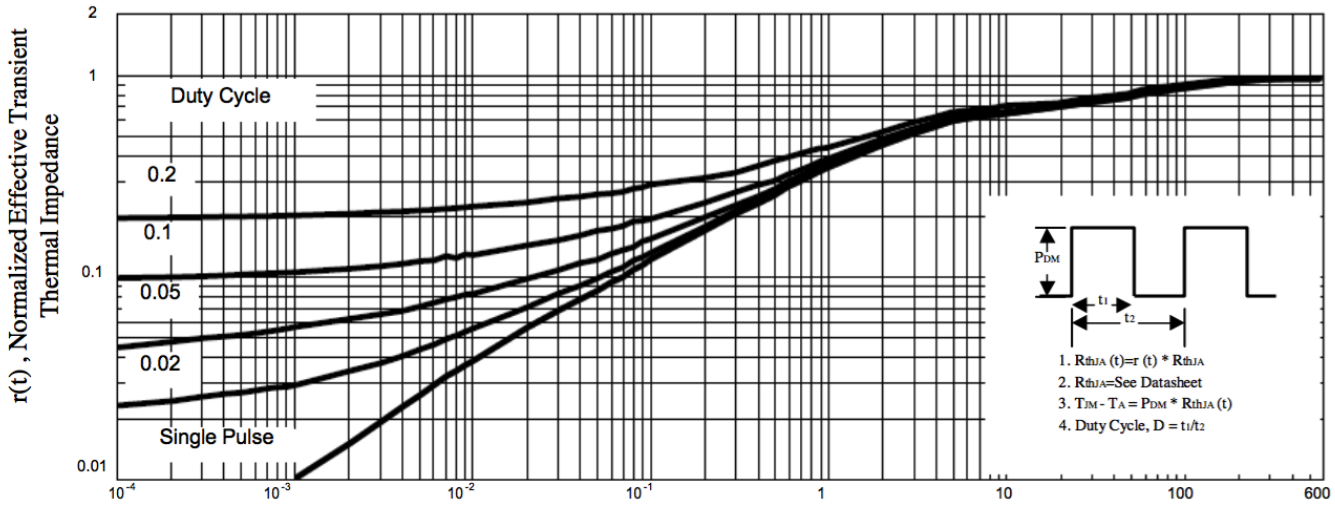
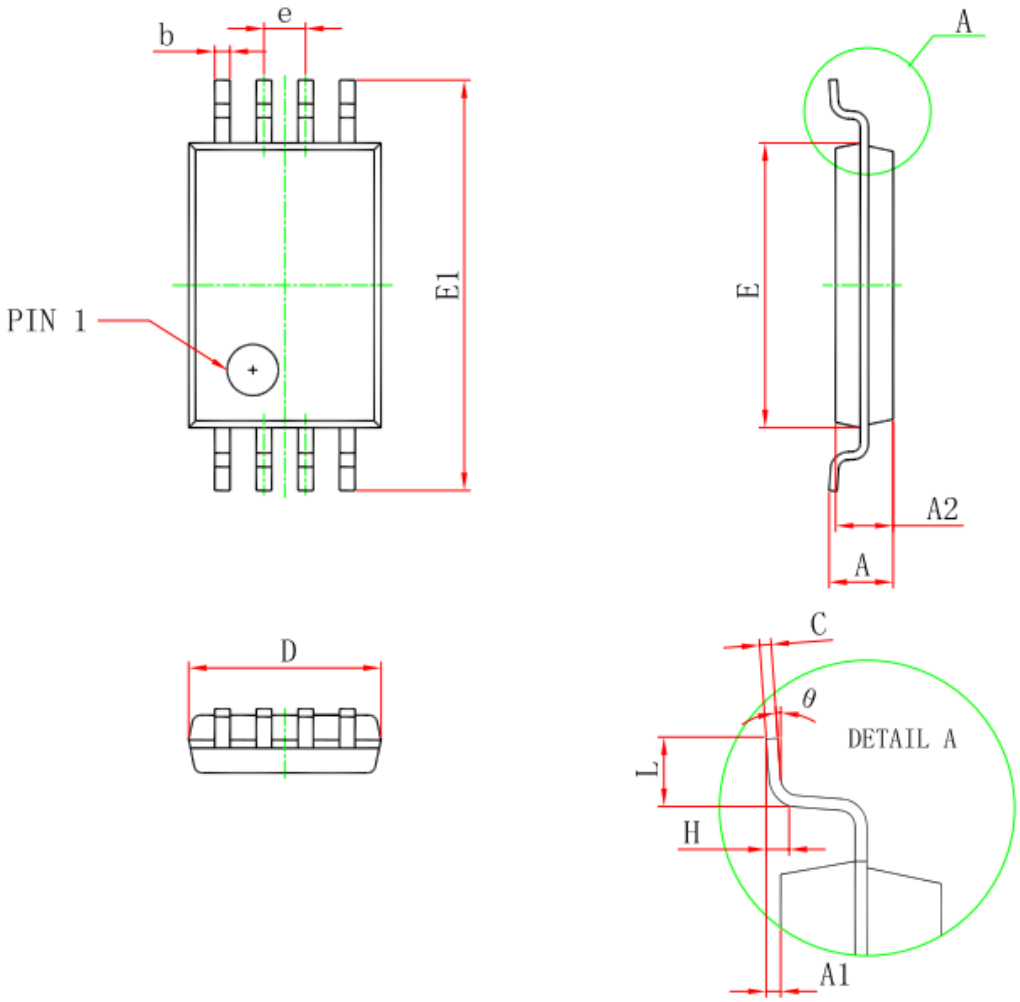


Figure 10. Normalized Thermal Transient Impedance Curve

TSSOP8 Package Outline Dimensions



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	**Max**	**Min**	**Max**
D	2.900	3.100	0.114	0.122
E	4.300	4.500	0.169	0.177
b	0.190	0.300	0.007	0.012
c	0.090	0.200	0.004	0.008
E1	6.250	6.550	0.246	0.258
A		1.200		0.047
A2	0.800	1.000	0.031	0.039
A1	0.050	0.150	0.002	0.006
e	0.65 (BSC)		0.026 (BSC)	
L	0.500	0.700	0.020	0.028
H	0.25(TYP)		0.01(TYP)	
θ	1°	7°	1°	7°

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