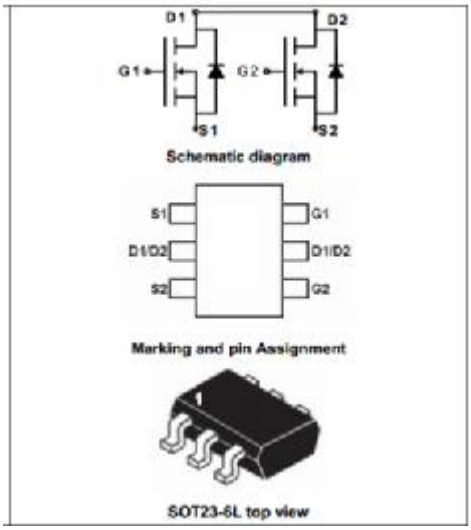
SOT-23-6 Plastic-Encapsulate MOSFETS

8205A MOSFET(N-Channel)



FEATURES

V_{DS}=19.5V,I_D=4A

$R_{DS(ON)}$<37mΩ @ V_{GS}=2.5V

$R_{DS(ON)}$<27mΩ @ V_{GS}=4.5V

High Power and current handing capability

Lead free product is acquired

Surface Mount Package

MAXIMUM RATINGS (TA=25℃ unless otherwise noted)

Symbol (符号)	Parameter (参数名称)	Value (额定值)	Units (单位)
V_{DS}	Drain-Source voltage	19.5	V
V_{GS}	Gate-Source voltage	±10	V
I_D	Drain current-Continuous	4	A
I_{DM}	Pulsed Drain Current(Note1)	25	A
P_D	Maximum Power Dissipation	1.25	W
T_J,Tstg	Operating Junction and Storage Temperature Range	-55-150	℃
$R_{\theta JA}$	Thermal Resistance,Junction-to-Case(Note2)	100	℃/W

ELECTRICAL CHARACTERISTICS (Tamb=25℃unless otherwise specified)

Parameter	Symbol	Test conditions	MIN	TYP	MAX	UNIT
Off Characteristics						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	V_{GS}=0V,I_D=250uA	19.5	21		V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=19V, V_{GS}=0V			1	uA
Gate-body Leakage	I_{GSS}	V_{DS}=0V, V_{GS}=±10V			±100	nA
On Characteristics(Note3)						
Gate-Threshold Voltage	$V_{th(GS)}$	V_{DS}= V_{GS}, I_D=250 uA	0.5	0.7	1.2	V
Drain-Source On-Resistance	$R_{DS(ON)}$	V_{GS}=4.5V, I_D=4.0A		20	27	mΩ
		V_{GS}=2.5V, I_D=3.0A		25	37	mΩ
Forward Trans conductance	gfs	V_{DS}=5V, I_D=4.0A	4	8		s
Dynamic Characteristics(Note4)						

Input Capacitance	Ciss	V_{DS}=8V, V_{GS}=0V, f=1MHz		605		pF
Output Capacitance	Coss			315		
Reverse Transfer Capacitance	Crss			132		
Switching Capacitance(Note4)						
Turn-on Delay Time	$t_{d(on)}$	V_{DD}=10V, I_D=1A, V_{GS}=4.5V R_{GEN}=6Ω		11		nS
Turn-on Rise Time	t_r			12		nS
Turn-off Delay Time	$t_{d(off)}$			36		nS
Turn-off Fall Time	t_f			32		nS
Total Gate Charge	Q_g	V_{DS}=10V, I_D=4A, V_{GS}=4.5V,		10		nC
Gate-Source Charge	Q_{gs}			2.8		nC
Gate-Drain Charge	Q_{gd}			1.8		nC
Drain-Source Diode Characteristics						
Diode Forward Voltage(Note3)	V_{SD}	V_{GS}=0V, I_D=1.7A		0.8	1.2	V
Diode Forward Current(Note2	Is				1.7	A

Notes:

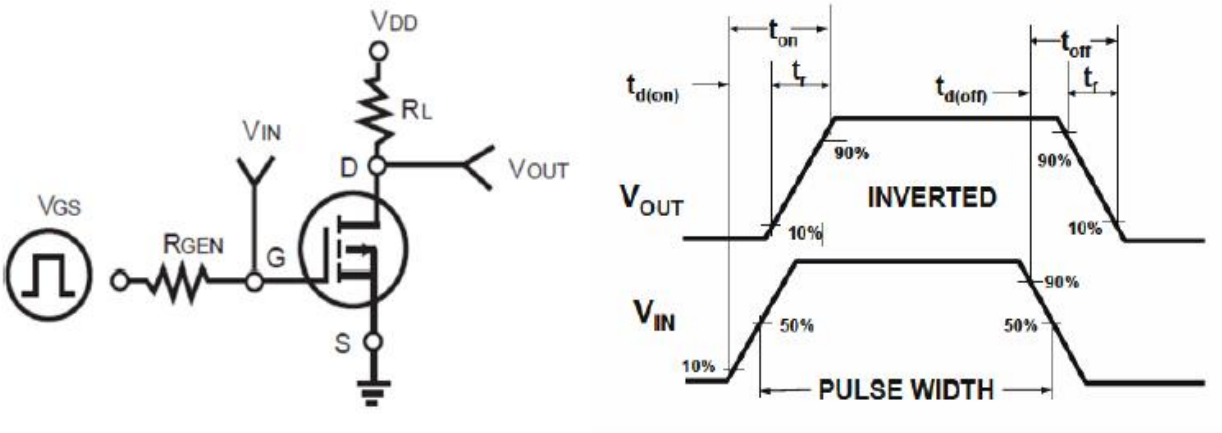
1.Repetitive Rating:Pulse width limited by maximum junction temperature

2.Surface Mounted on FR4 Board,t<10sec

3.Pulse Test :Pulse Width <300us,Duty Cycle <2%

4.Guaranteed by design,not subject to production

Switch Time Test Circuit and Switching Waveforms:



TYPICAL ELECTRICAL AND THERMAL CHARACTERISTICS (Curves)

Figure1. Power Dissipation

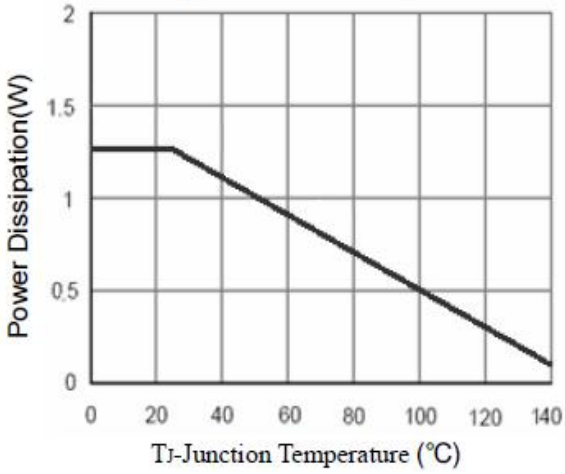


Figure2. Drain Current

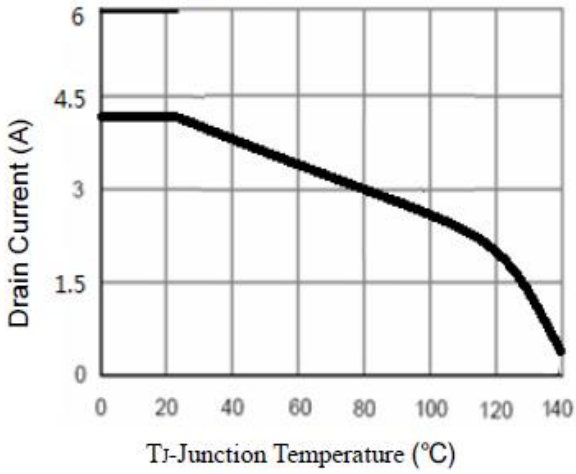


Figure3. Output Characteristics

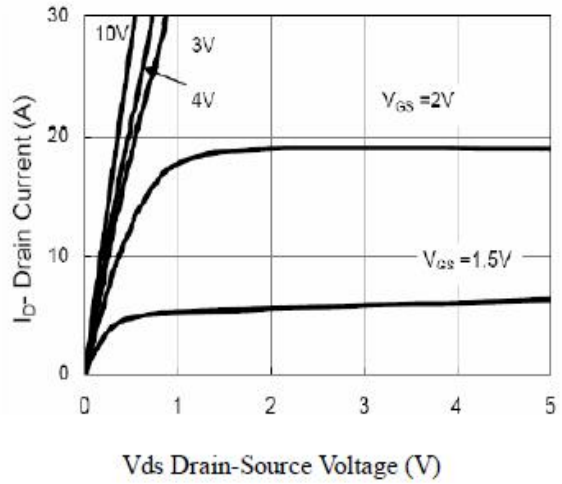


Figure4. Transfer Characteristics

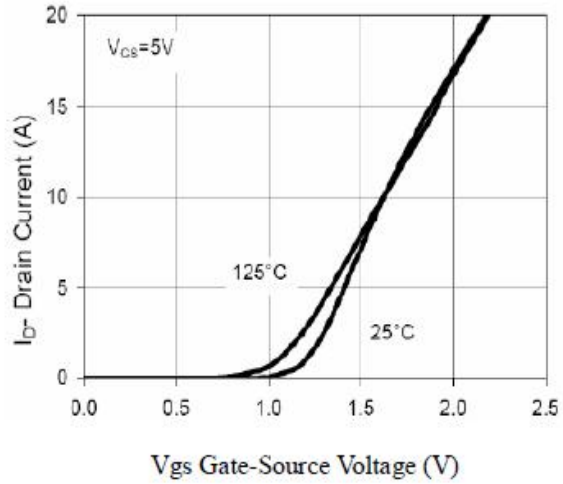


Figure5. Capacitance

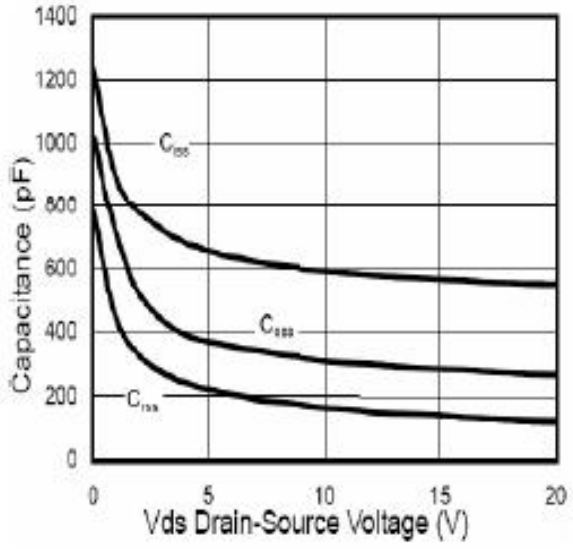


Figure6. $R_{DS(ON)}$ vs Junction Temperature

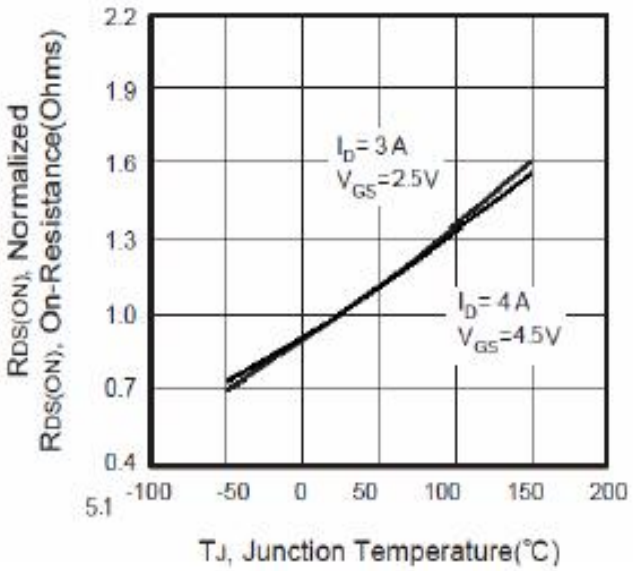


Figure7. Max BV_{DSS} vs Junction Temperature

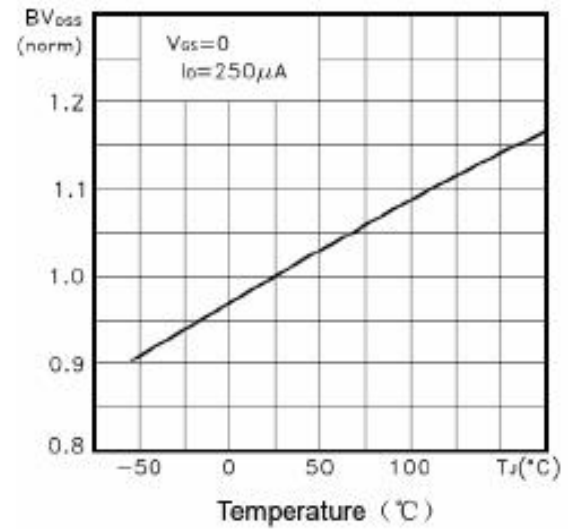


Figure8. $V_{GS(th)}$ vs Junction Temperature

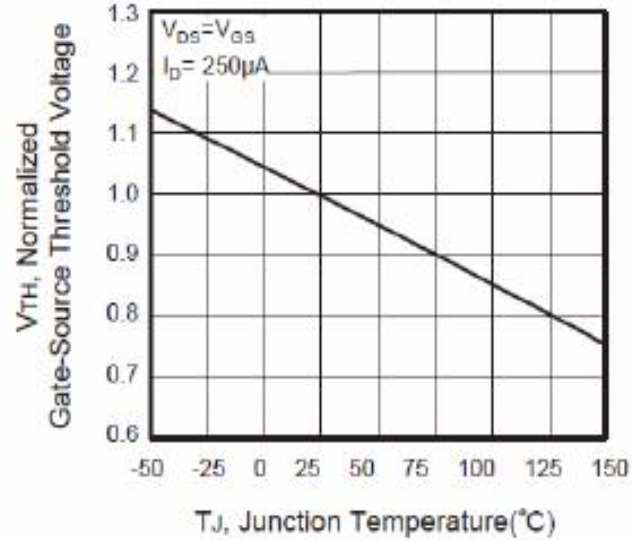


Figure9. Gate Charge Waveforms

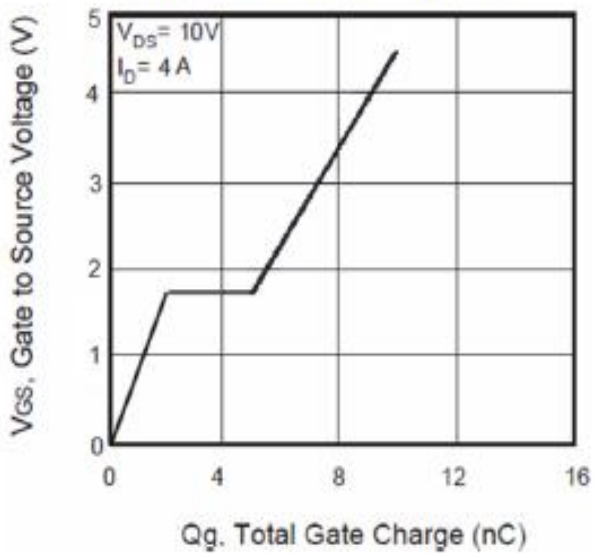


Figure10. Maximum Safe Operating Area