SKD8205B

20V N-Channel MOSFET

■ FEATURES

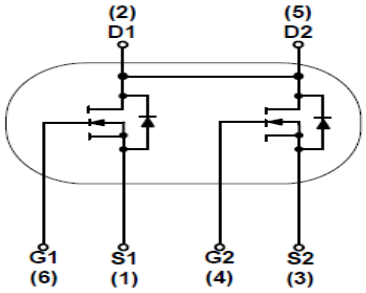
- 20V/6.5A
  RDS(ON)= 25mΩ@ VGS=4.5V
  RDS(ON)= 37mΩ@ VGS=2.5V
- High Cell Desity
- Lead free and Green Device Available

■ Application

- Battery pack protection

■ PIN DESCRIPTION

RoHS



TSSOP-8 Package

Absolute Maximum Ratings (T_A=25°C unless otherwise noted)

Symbol	Parameter		Maximum	Unit
V_{DSS}	Drain-to-Source Voltage		20	V
V_{GSS}	Gate-to-Source Voltage		±10	V
I_D	Continuous Drain Current	T_C=25°C	6	A
		T_C=70°C	4.8	A
I_{DP}	Pulsed Drain Current	T_C=25°C	20	A
PD	Maximum Power Dissipation	T_C=25°C	1.5	
		T_C=70°C	0.9	
T_J, T_{STG}	Junction & Storage Temperature Range		-55~150	°C

Thermal Characteristics

Symbol	Parameter	Typical	Unit
Rθja	Thermal Resistance-Junction to Ambient	84	℃/W

Electrical Characteristics (TA=25°C unless otherwise noted)

Symbol	Parameter	Test Conditions	Min.	Typ	Max.	Unit
Static Characteristics						
BV_{DSS}	Drain-Source Breakdown Voltage	V_{GS}=0V,I_D=250uA	20	—	—	V
I_{DSS}	Zero Gate Voltage Drain Current	V_{DS}=16V,V_{GS}=0V	—	—	1	uA
		T_J=85°C	—	—	10	
$V_{GS(th)}$	Gate Threshold Voltage	V_{DS}=V_{GS},I_D=250uA	0.5	0.7	1.2	V
I_{GSS}	Gate Leakage Current	V_{GS}=±10V, V_{DS}=0V	—	—	±30	uA
$R_{DS(on)}$[1]	Drain-Source On-Resistance	V_{GS}=4.5V, I_D=5A		22	25	mΩ
		V_{GS}=2.5V, I_D=3A	—	27	37	
Diode Characteristics						
V_{SD}[1]	Diode Forward Voltage	I_{SD}=5A,V_{GS}=0V	—	0.8	1.1	V
I_S	Diode Continuous Forward Current			5		A
Dynamic Characteristics[2]						
C_{iss}	Input Capacitance	V_{GS}=0V, V_{DS}=8V Frequency=1MHz	—	600		pF
C_{oss}	Output Capacitance		—	330		
C_{rss}	Reverse Transfer Capacitance		—	140		
$t_{d(on)}$	Turn-On Delay Time	V_{DD}=10V,I_D=1A, V_{GS}=4.5VR_G=6Ω	—	10		ns
t_r	Turn-On Rise Time		—	11		
$t_{d(off)}$	Turn-Off Delay Time		—	35		
t_f	Turn-Off Fall Time		—	30		
Gate Charge Characteristics[2]						
Q_g	Total Gate Charg	V_{DS}=10V,V_{GS}=4.5V I_D=5A	—	10		nC
Q_{gs}	Gate-to-Source Charge		—	2.3		
Q_{gd}	Gate-to-Drain Charge		—	1.5		

Note: 1: Pulse test; pulse width ≦ 300ns, duty cycle ≦ 2%.

2: Guaranteed by design, not subject to production testing.

Typical Operating Characteristics

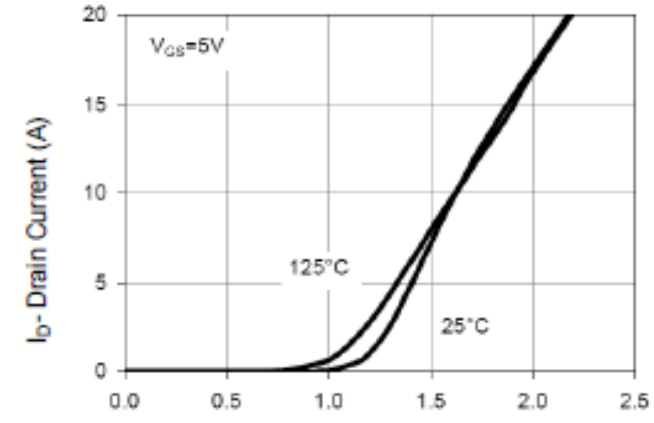


Figure 7 Transfer Characteristics

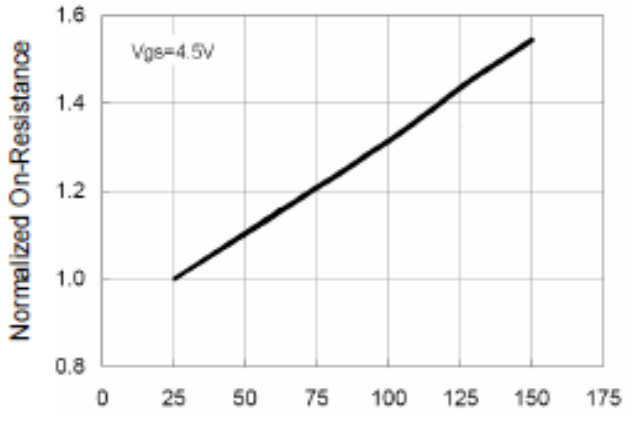


Figure 8 Drain-Source On-Resistance

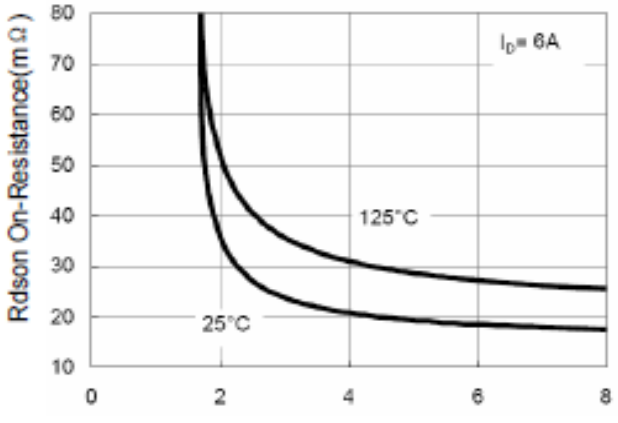


Figure 9 Rdson vs Vgs

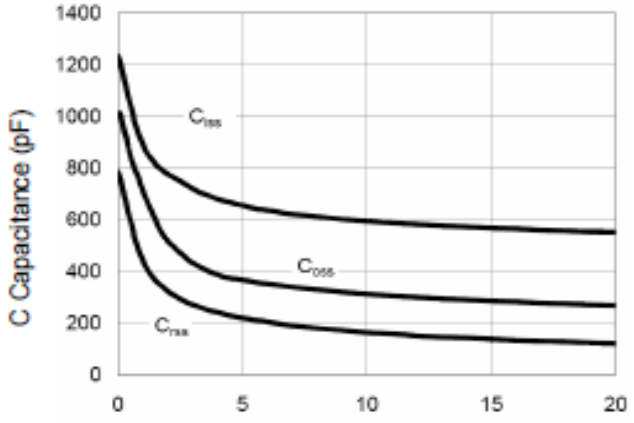


Figure 10 Capacitance vs Vds

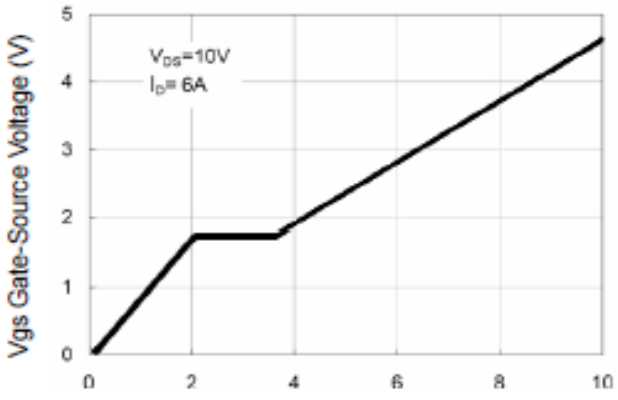


Figure 11 Gate Charge

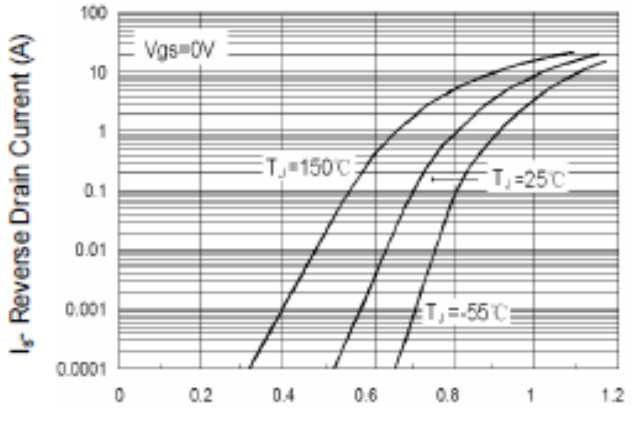


Figure 12 Source- Drain Diode Forward

Typical Operating Characteristics

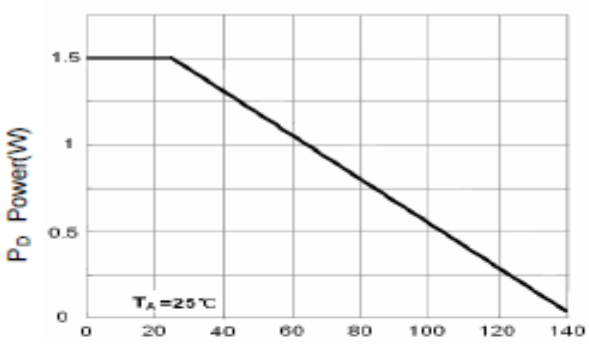


Figure 3 Power Dissipation

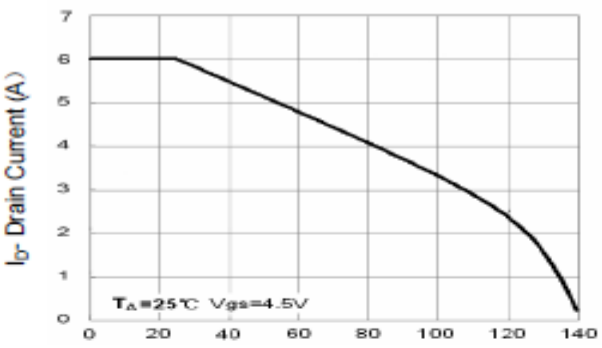


Figure 4 Drain Current

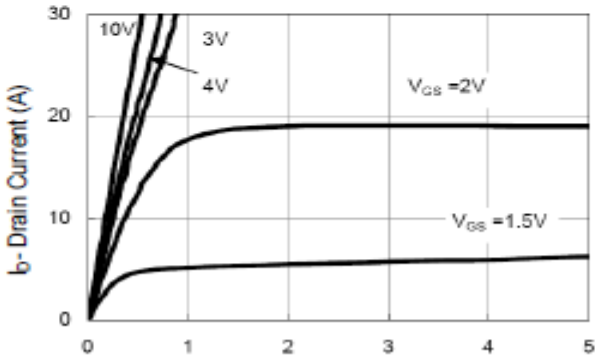


Figure 5 Output CHARACTERISTICS

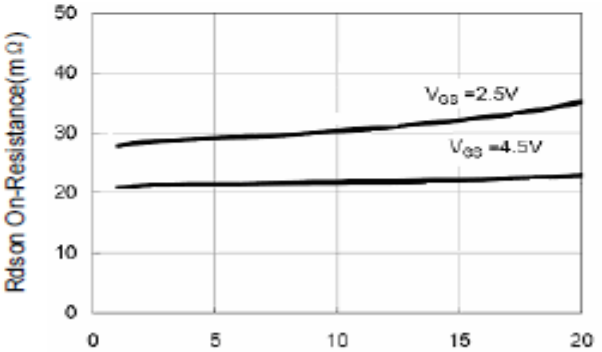


Figure 6 Drain-Source On-Resistance

Typical Operating Characteristics

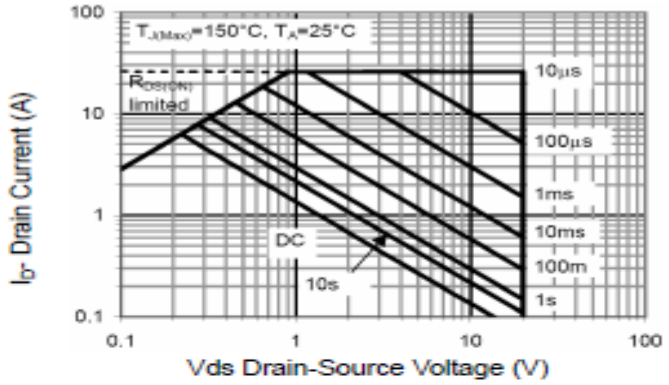


Figure 13 Safe Operation Area

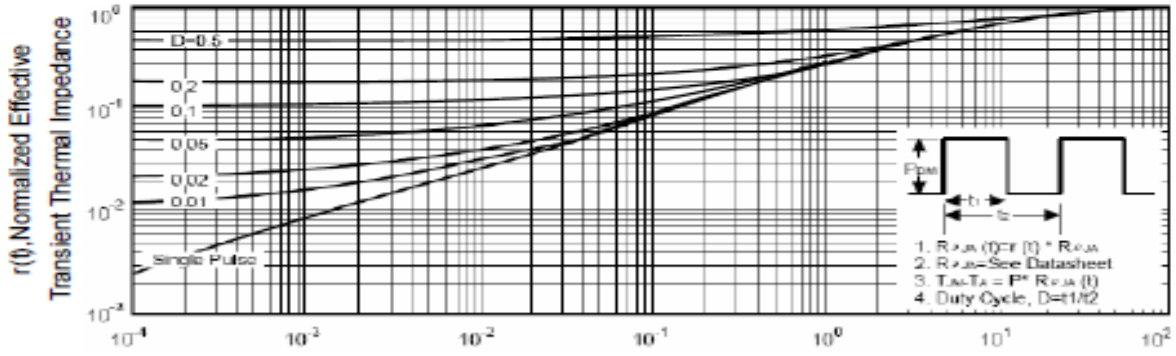


Figure 14 Normalized Maximum Transient Thermal Impedance