SKD8810R

20V N-Channel MOSFET

■ FEATURES

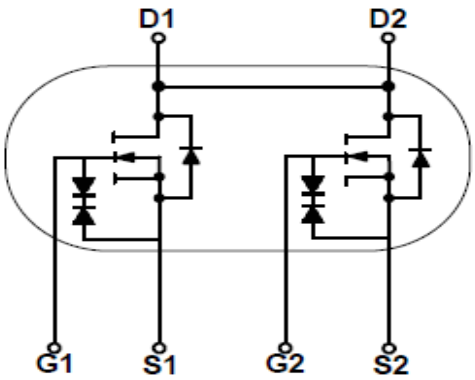
- 20V/7A
  RDS(ON) < 20mΩ@ VGS=4.5V
  RDS(ON) < 24mΩ@ VGS=2.5V
  RDS(ON) < 32mΩ@ VGS=1.8V
  ESD Rating: 2000V HBM
- High Cell Desity
- Lead free and Green Device Available

■ 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		±12	V
I_D	Continuous Drain Current	T_C=25°C	7	A
		T_C=70°C	5.5	A
I_{DP}	Pulsed Drain Current	T_C=25°C	25	A
PD	Maximum Power Dissipation	T_C=25°C	1.5	
		T_C=70°C	1	
T_J, T_{STG}	Junction & Storage Temperature Range		-55~150	°C

Thermal Characteristics

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

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

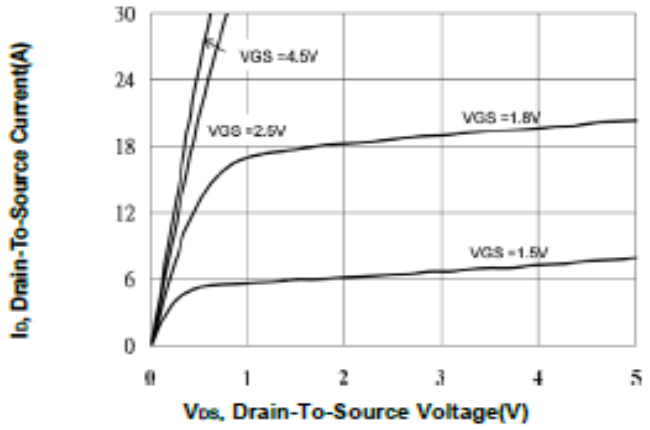
Symbol	Parameter	Test Conditions	Min.	Typ	Max.	Unit
Static Characteristics						
BV_{DSS}	Drain-Source Breakdown Voltage	V_{GS}=0V,I_D=250uA	20	—	—	V
I_{DSS}	Zero Gate Voltage Drain Current	V_{DS}=16V,V_{GS}=0V	—	—	1	uA
		T_J=55°C	—	—	5	
$V_{GS(th)}$	Gate Threshold Voltage	V_{DS}=V_{GS},I_D=250uA	0.4	0.6	1	V
I_{GSS}	Gate Leakage Current	V_{GS}=±8V, V_{DS}=0V	—	—	±10	uA
$R_{DS(on)}$[1]	Drain-Source On-Resistance	V_{GS}=4.5V, I_D=7A		16	20	mΩ
		V_{GS}=2.5V, I_D=5.5A	—	18	24	
		V_{GS}=1.8V, I_D=5A		24	32	
Diode Characteristics						
V_{SD}[1]	Diode Forward Voltage	I_{SD}=1A,V_{GS}=0V	—	0.74	1.1	V
I_S	Diode Continuous Forward Current				2	A
Dynamic Characteristics[2]						
C_{iss}	Input Capacitance	V_{GS}=0V, V_{DS}=10V Frequency=1MHz	—	1030		pF
C_{oss}	Output Capacitance		—	175		
C_{rss}	Reverse Transfer Capacitance		—	126		
$t_{d(on)}$	Turn-On Delay Time	V_{DD}=10V,I_D=6A, V_{GS}=4.5VR_G=6Ω	—	7		ns
t_r	Turn-On Rise Time		—	13		
$t_{d(off)}$	Turn-Off Delay Time		—	53		
t_f	Turn-Off Fall Time		—	15		
Gate Charge Characteristics[2]						
Q_g	Total Gate Charg	V_{DS}=10V,V_{GS}=4.5V I_D=6A	—	14		nC
Q_{gs}	Gate-to-Source Charge		—	3		
Q_{gd}	Gate-to-Drain Charge		—	4		

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

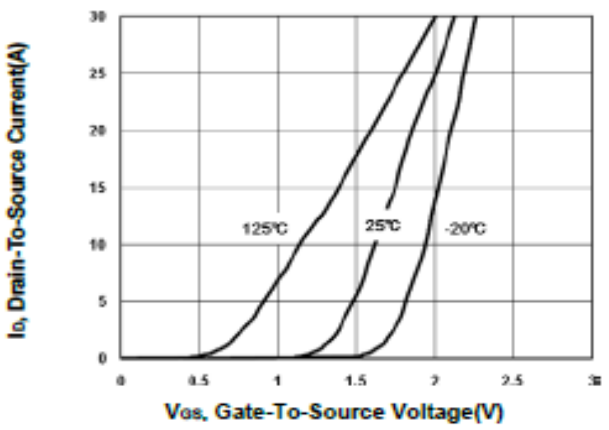
2: Guaranteed by design, not subject to production testing.

Typical Operating Characteristics

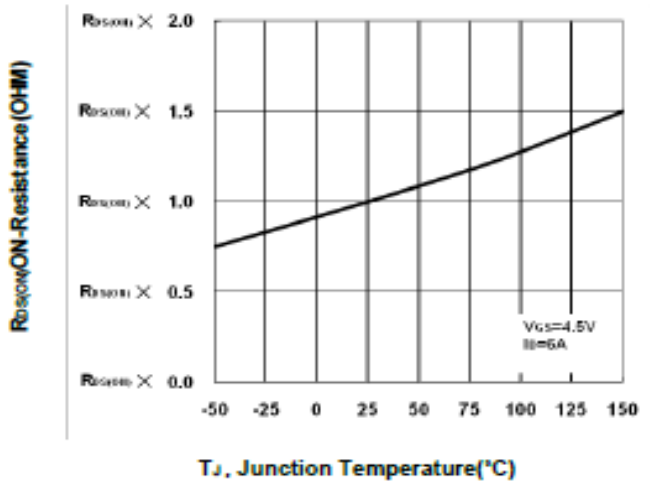
Output Characteristics



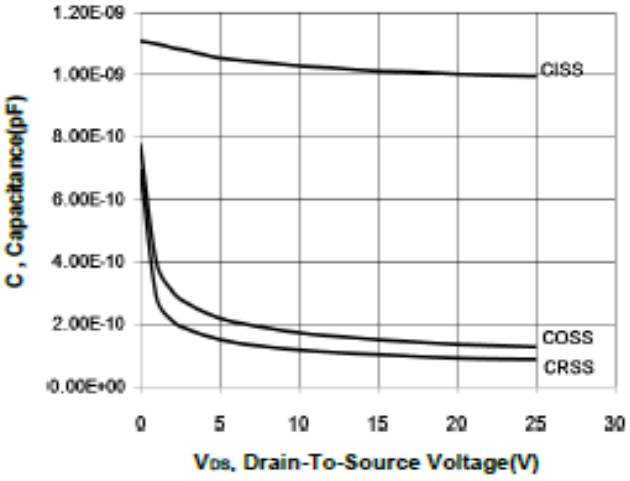
Transfer Characteristics



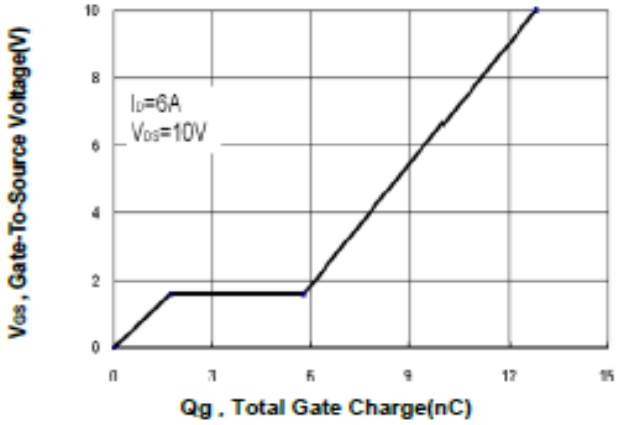
On-Resistance VS Temperature



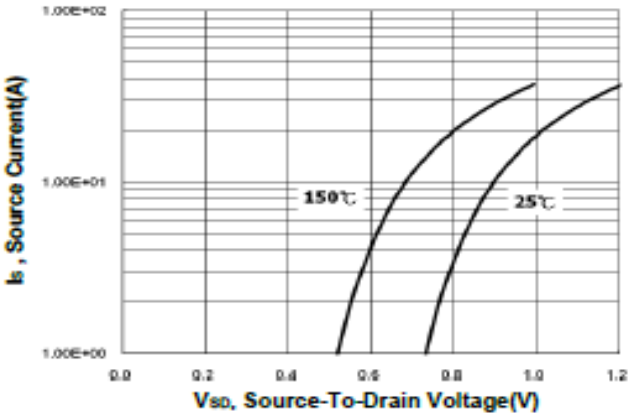
Capacitance Characteristic



Gate charge Characteristics

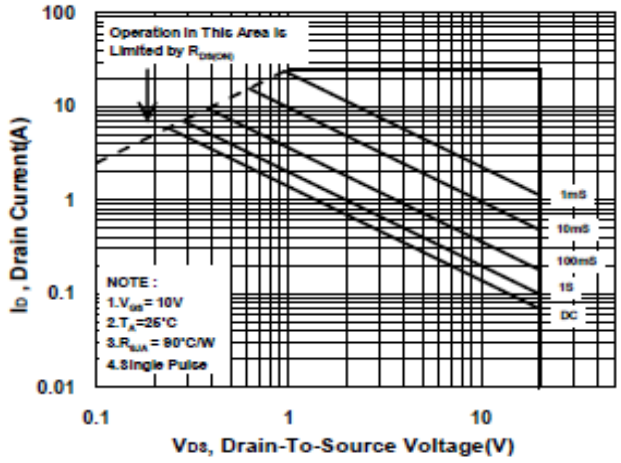


Source-Drain Diode Forward Voltage

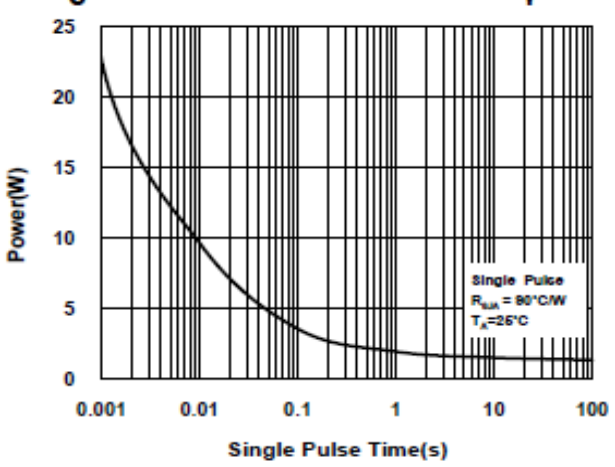


Typical Operating Characteristics

Safe Operating Area



Single Pulse Maximum Power Dissipation



Transient Thermal Response Curve