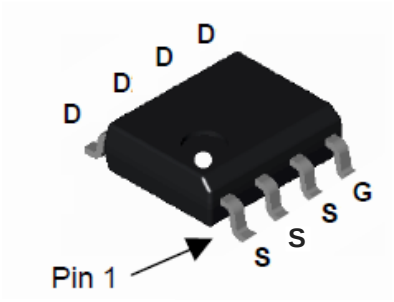
SKD407E

30V P-Channel MOSFET

■ FEATURES

- -30V/-12A
  RDS(ON)= 14mΩ@ VGS=10V
  RDS(ON)= 22mΩ@ VGS=4.5V
- Lead free and Green Device Available

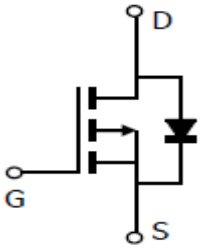
■ PIN DESCRIPTION



RoHS

■ Application

- Load Switch



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

Symbol	Parameter		Maximum	Unit
V_{DSS}	Drain-to-Source Voltage		-30	V
V_{GSS}	Gate-to-Source Voltage		±25	V
I_D	Continuous Drain Current	T_C=25°C	-12	A
		T_C=70°C	-7	A
I_{DM}	Pulsed Drain Current	T_C=25°C	-65	A
PD	Maximum Power Dissipation	T_C=25°C	3	W
		T_C=70°C	2	
T_J, T_{STG}	Junction & Storage Temperature Range		-55~150	°C

Thermal Characteristics

Symbol	Parameter	Typical	Unit
Rθjc	Thermal Resistance-Junction to Case	25	°C/W
Rθja	Thermal Resistance-Junction to Ambient	40	

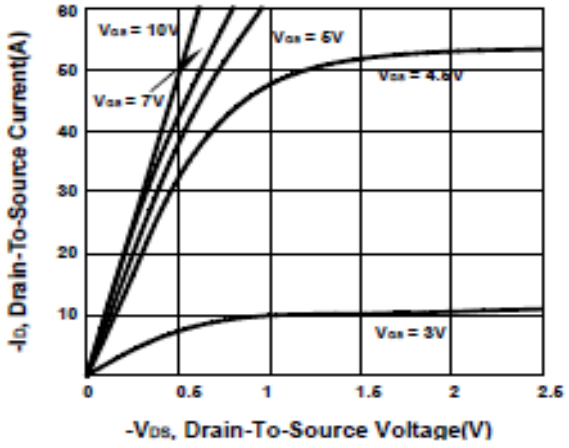
Electrical Characteristics (TA=25°C unless otherwise noted)

Symbol	Parameter	Test Conditions	Min.	Typ	Max.	Unit
Static Characteristics						
BV_{DSS}	Drain-Source Breakdown Voltage	V_{GS}=0V,I_D= -250uA	-30	—	—	V
$V_{GS(th)}$	Gate Threshold Voltage	V_{DS}=V_{GS},I_D= -250uA	-1	-1.6	-2.5	V
I_{DSS}	Zero Gate Voltage Drain Current	V_{DS}=-24V,V_{GS}=0V	—	—	-1	uA
		T_J=125°C	—	—	-10	
I_{GSS}	Gate Leakage Current	V_{GS}=±25V, V_{DS}=0V	—	—	±100	nA
$R_{DS(on)}$[1]	Drain-Source On-Resistance	V_{GS}=-10V, I_D=-12A		12	14	mΩ
		V_{GS}=-4.5V, I_D=-10A	—	16	22	
Diode Characteristics						
V_{SD}[1]	Diode Forward Voltage	I_{SD}=-1.7A,V_{GS}=0V	—	-0.86	-1.3	V
I_S	Diode Continuous Forward Current			-2		A
Dynamic Characteristics[2]						
R_G	Gate Resistance	V_{GS}=0V, V_{DS}=0V, Frequency=1MHz	—	4	—	Ω
C_{iss}	Input Capacitance	V_{GS}=0V, V_{DS}=-15V Frequency=1MHz	—	2300		pF
C_{oss}	Output Capacitance		—	410		
C_{rss}	Reverse Transfer Capacitance		—	205		
$t_{d(on)}$	Turn-On Delay Time	V_{DD}=-15V, R_L=15Ω I_D=-1A, V_{GS}=-10V R_G=6Ω	—	12		ns
t_r	Turn-On Rise Time		—	16		
$t_{d(off)}$	Turn-Off Delay Time		—	50		
t_f	Turn-Off Fall Time		—	100		
Gate Charge Characteristics[2]						
Q_g	Total Gate Charge	V_{DS}=-15V,V_{GS}=10V I_D=-12A	—	38		nC
Q_{gs}	Gate-to-Source Charge		—	7		
Q_{gd}	Gate-to-Drain Charge		—	6		

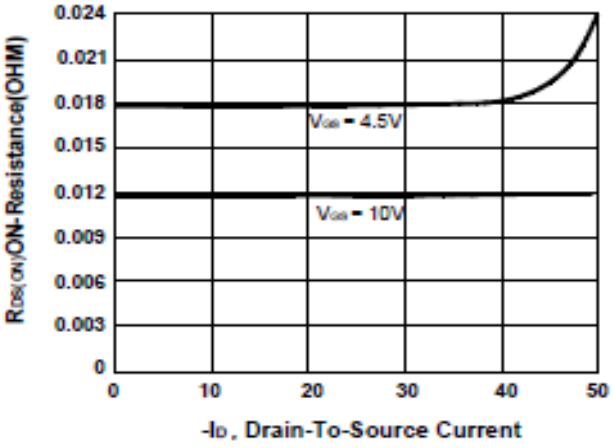
Note: 1: Pulse test; pulse width ≦ 300ns, duty cycle ≦ 2%.
2: Guaranteed by design, not subject to production testing.

Typical Operating Characteristics

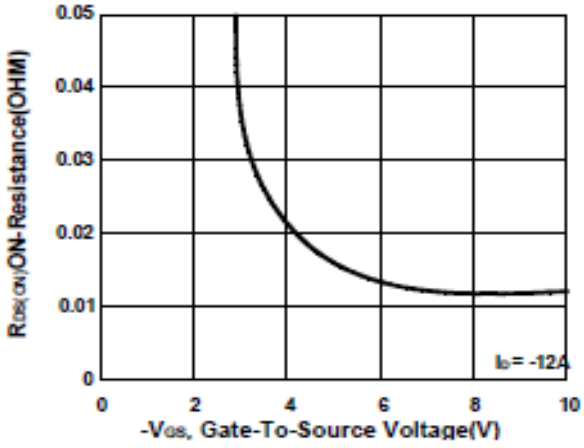
Output Characteristics



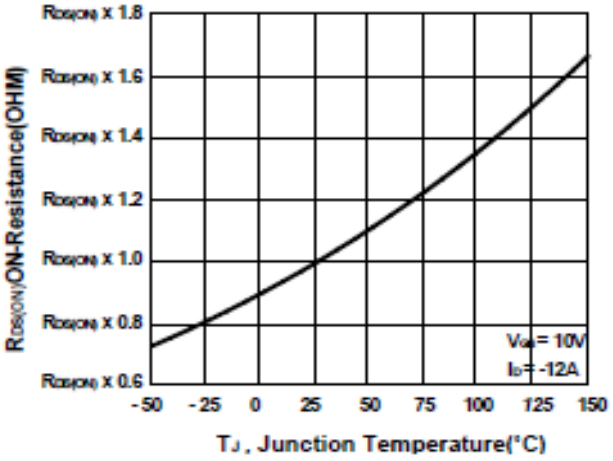
On-Resistance VS Drain Current



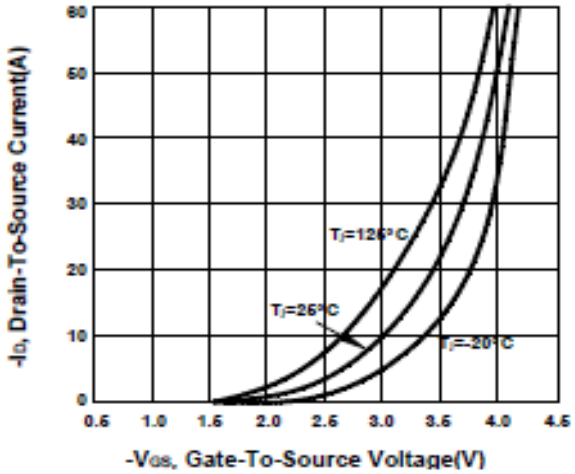
On-Resistance VS Gate-To-Source



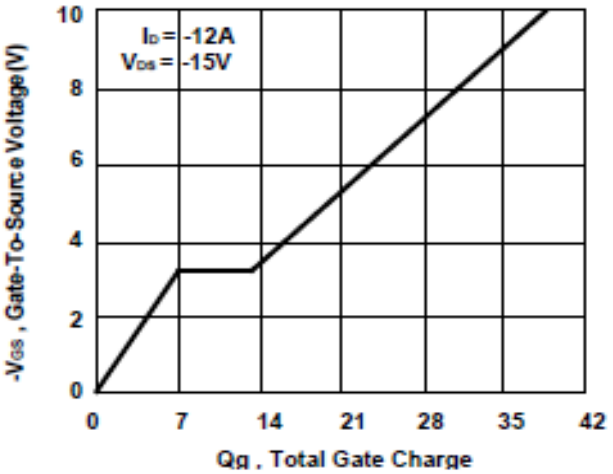
On-Resistance VS Drain Current



Transfer Characteristics

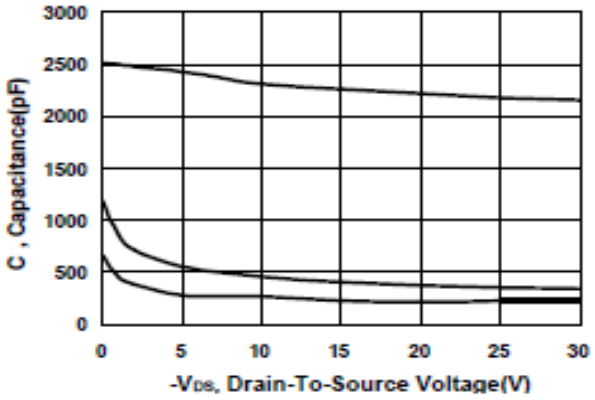


Gate Charge

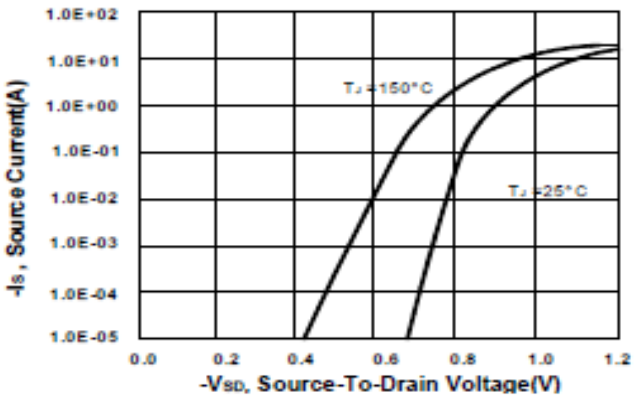


Typical Operating Characteristics

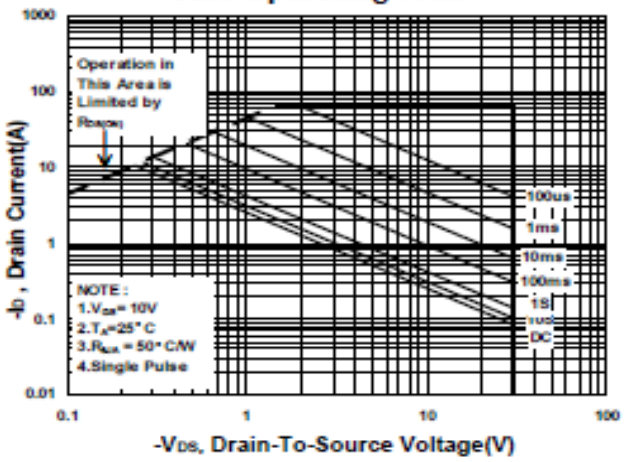
Capacitance Characteristic



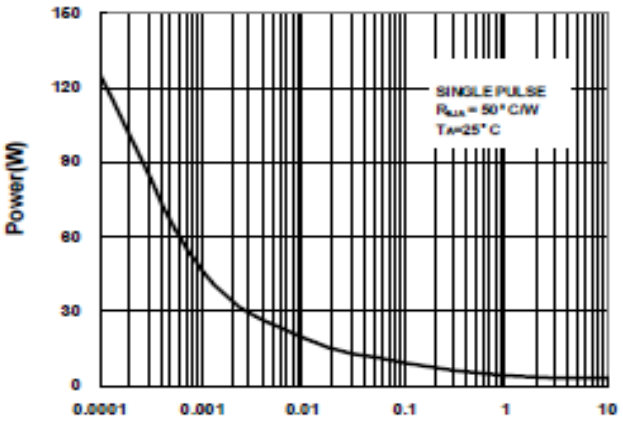
Source-Drain Diode Forward Voltage



Safe Operating Area



Single Pulse Maximum Power Dissipation



Transient Thermal Response Curve