

150V N-CHANNEL MOSFET

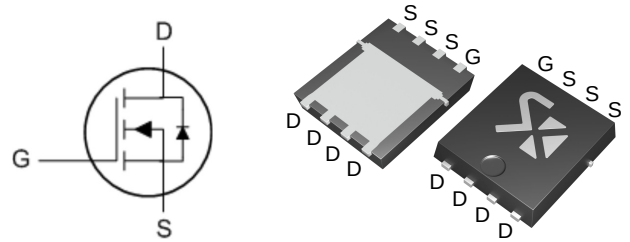
Features

- 150V N-Channel MOSFET
- $R_{DS(ON)} = 105m\Omega$ (typ.) @ $V_{GS} = 10V$
- Reliable and Rugged

BV_{DSS}	$R_{DS(ON),typ.}$	I_D
150V	105m Ω	14A

Applications

- DC/DC for Boost Converters
- Synchronous Rectifiers for SMPS
- LED Backlighting



PDFN5060

Package No to Scale

Ordering Information

Part Number	Package
SKQ14N15AD	PDFN5060

Absolute Maximum Ratings

$T_A = 25^\circ\text{C}$ unless otherwise specified

Symbol	Parameter		SKQ14N15AD	Unit
V_{DSS}	Drain-to-Source Voltage		150	V
V_{GSS}	Gate-to-Source Voltage		± 20	V
I_D	Continuous Drain Current		14	A
I_{DM}	Pulsed Drain Current ^[1]		34	A
P_D	Power Dissipation ^[2]	$T_C = 25^\circ\text{C}$	46	W
T_J & T_{STG}	Operating and Storage Temperature Range		-55 to +150	$^\circ\text{C}$

Caution: Stresses greater than those listed in the "Absolute Maximum Ratings" may cause permanent damage to the device.

Thermal Characteristics

Symbol	Parameter		SKQ14N15AD	Unit
$R_{\theta JC}$	Thermal Resistance, Junction-to-Case		2.7	$^\circ\text{C}/\text{W}$

Electrical Characteristics

OFF Characteristics $T_J = 25^\circ\text{C}$ unless otherwise specified

Symbol	Parameter	Min.	Typ.	Max.	Unit	Test Conditions
BV_{DSS}	Drain-to-Source Breakdown Voltage	150	--	--	V	$V_{GS}=0V, I_D=250\mu A$
I_{DSS}	Drain-to-Source Leakage Current	--	--	1	μA	$V_{DS}=120V, V_{GS}=0V$
		--	--	30	μA	$T_J=85^\circ\text{C}$
I_{GSS}	Gate-to-Source Leakage Current	--	--	+100	nA	$V_{GS}=+20V, V_{DS}=0V$
		--	--	-100		$V_{GS}=-20V, V_{DS}=0V$

ON Characteristics $T_J = 25^\circ\text{C}$ unless otherwise specified

Symbol	Parameter	Min.	Typ.	Max.	Unit	Test Conditions
$R_{DS(ON)}$	Static Drain-to-Source On-Resistance	--	105	130	m Ω	$V_{GS}=10V, I_D=1A$
$V_{GS(TH)}$	Gate Threshold Voltage	1.3	1.8	2.5	V	$V_{DS}=V_{GS}, I_D=250\mu A$
gfs	Forward Transconductance	--	14	--	S	$V_{DS}=15V, I_D=3A$

Dynamic Characteristics Essentially independent of operating temperature

Symbol	Parameter	Min.	Typ.	Max.	Unit	Test Conditions
Rg	Gate Resistance	--	1.7	--	Ω	
C_{iss}	Input Capacitance	--	1610	--	pF	$V_{GS}=0V, V_{DS}=80V, f=1MHz$
C_{rss}	Reverse Transfer Capacitance	--	17	--		
C_{oss}	Output Capacitance	--	35	--		
Q_g	Total Gate Charge	--	30	--	nC	$V_{DS}=75V, I_D=3.4A, V_{GS}=10V$
Q_{gs}	Gate-to-Source Charge	--	4.2	--		
Q_{gd}	Gate-to-Drain (Miller) Charge	--	4.0	--		

Source-Drain Body Diode Characteristics $T_J = 25^\circ\text{C}$ unless otherwise specified

Symbol	Parameter	Min	Typ.	Max.	Unit	Test Conditions
V_{SD}	Diode Forward Voltage	--	0.75	1.1	V	$I_S=1A, V_{GS}=0V$

Note: [1]Current maybe limit by junction temperature.
[2]The power dissipation is limited by 150°C junction temperature.

Typical Characteristics

Figure 1. On-Region Characteristics

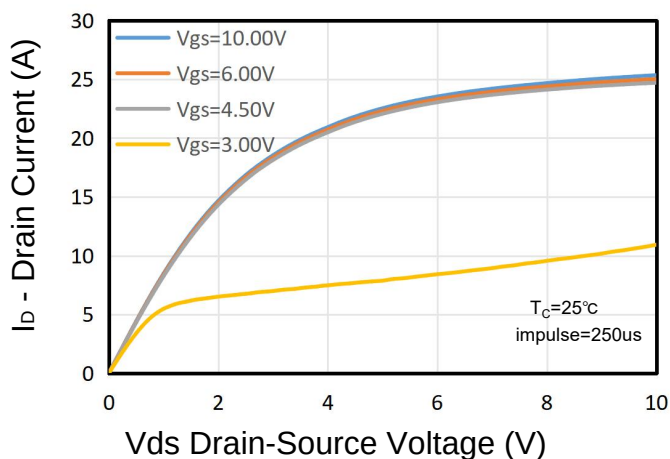


Figure 2. Transfer Characteristics

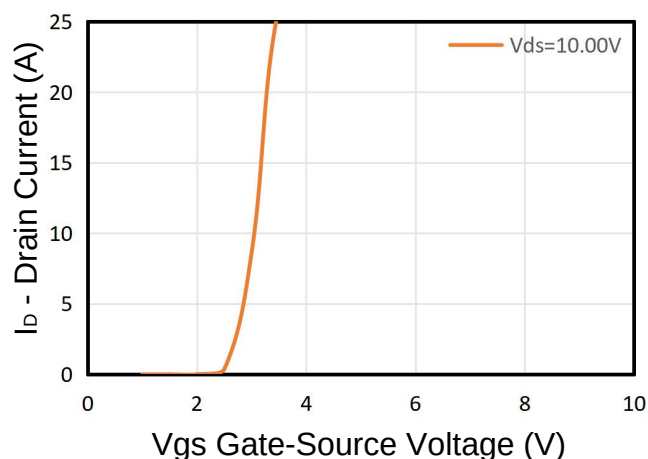


Figure 3. On-Resistance Variation vs Drain Current and Gate Voltage

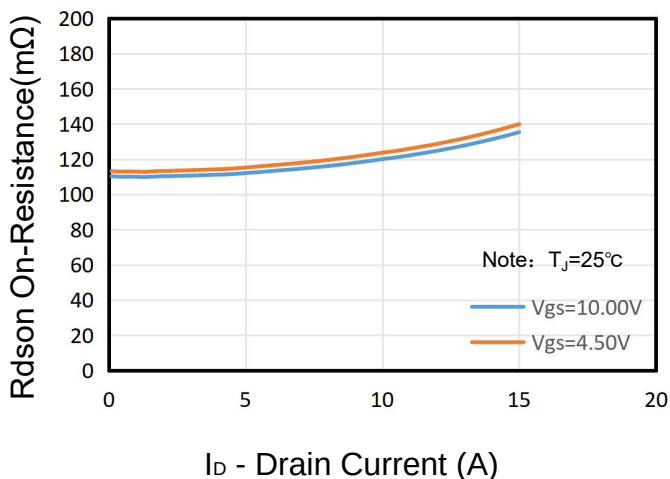


Figure 4. Body Diode Forward Voltage Variation with Source Current

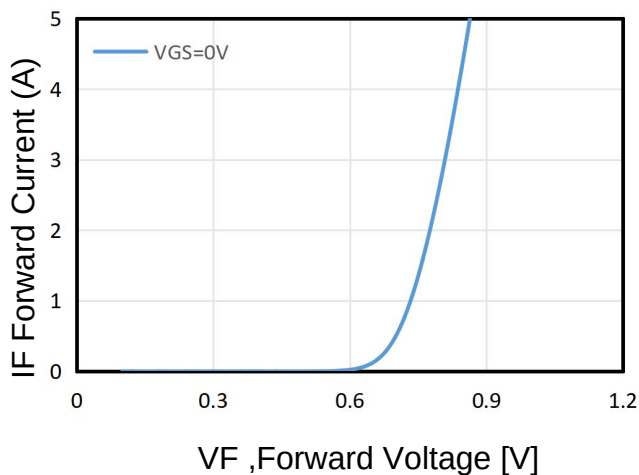


Figure 5. Capacitance Characteristics

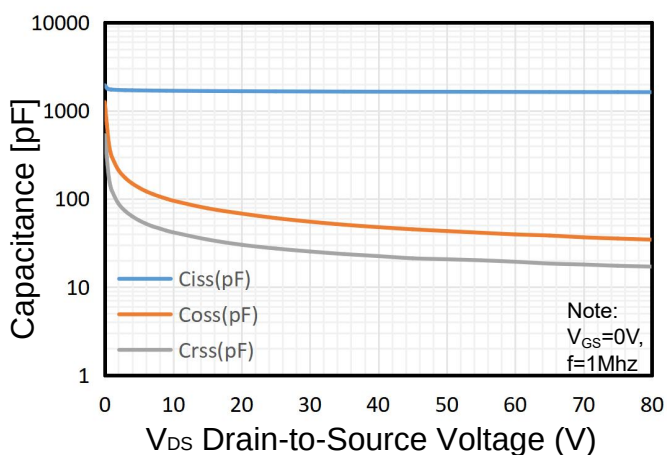
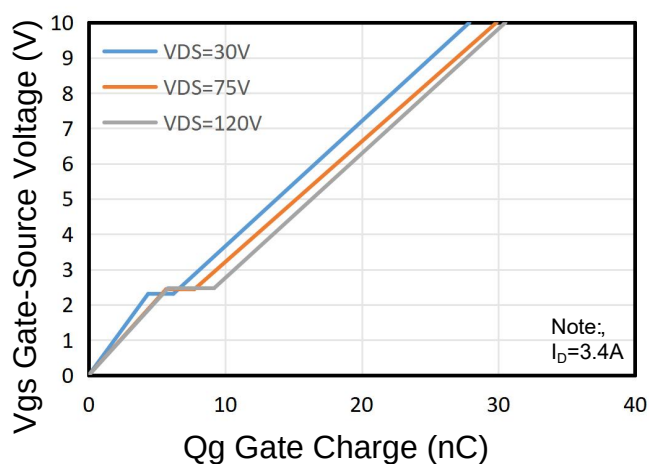


Figure 6. Gate Charge Characteristics



Typical Characteristics

Figure 7. Vds Drain-Source Voltage vs Gate Voltage

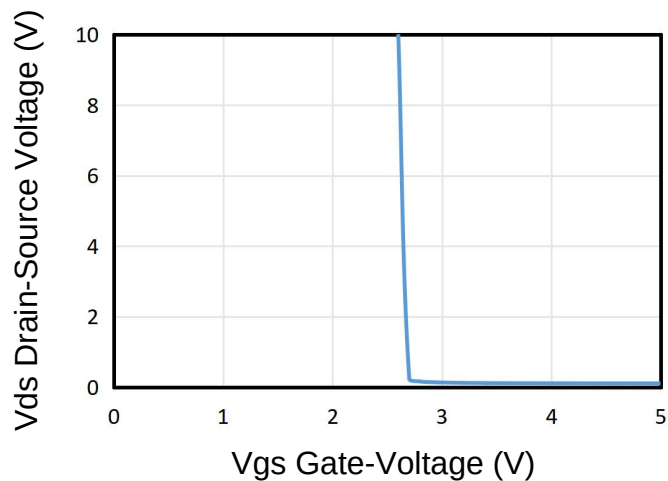
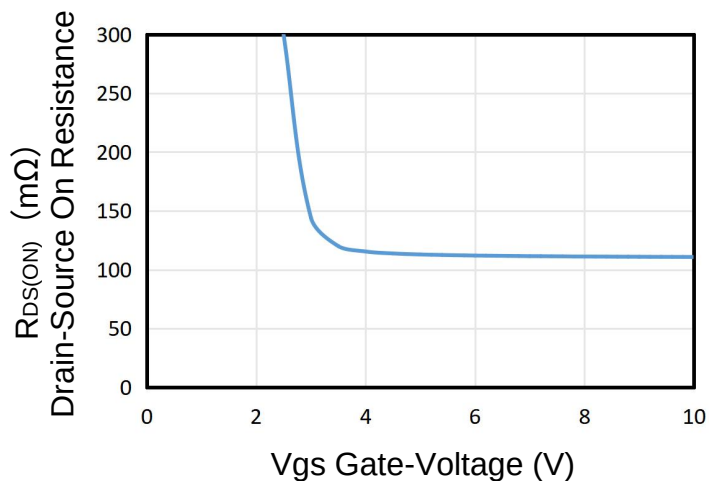


Figure 8. On-Resistance vs Gate Voltage



Package Outline

PDFN5060

Unit:mm

