

N-Channel 30V(D-S) MOSFET, ESD Protected

GENERAL DESCRIPTION

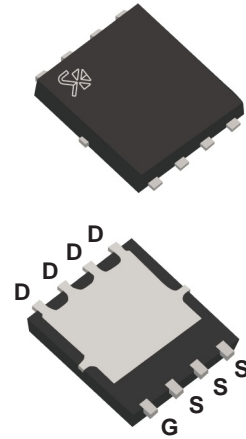
The SKQ90N03AD is the N-Channel logic enhancement mode power field effect transistors are produced using high cell density, DMOS trench technology. This high density process is especially tailored to minimize on-state resistance.

FEATURES

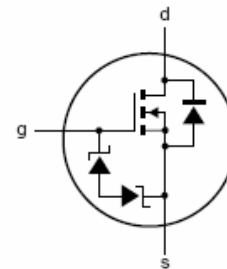
- $R_{DS(ON)} \leq 4.8m\Omega @ V_{GS}=10V$
- $R_{DS(ON)} \leq 9m\Omega @ V_{GS}=4.5V$
- Super high density cell design for extremely low $R_{DS(ON)}$
- Exceptional on-resistance and maximum DC current capability
- ESD protected : 2000V

APPLICATIONS

- Power Management in Note book
- Portable Equipment
- Battery Powered System
- Load Switch
- DSC



PDFN5060



Absolute Maximum Ratings (TA=25°C Unless Otherwise Noted)

Parameter	Symbol	Maximum Ratings	Unit
Drain-Source Voltage	V_{DS}	30	V
Gate-Source Voltage	V_{GS}	±20	V

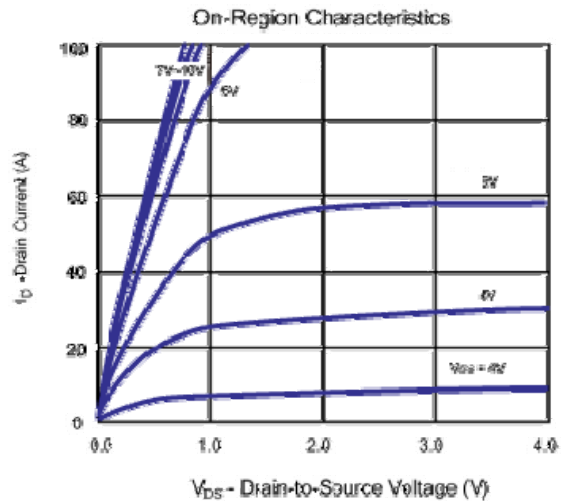
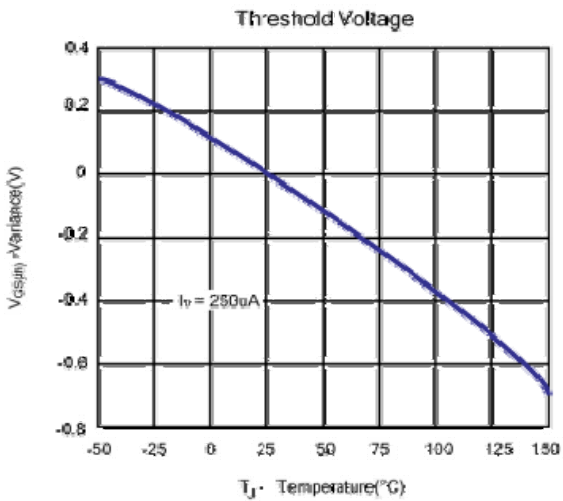
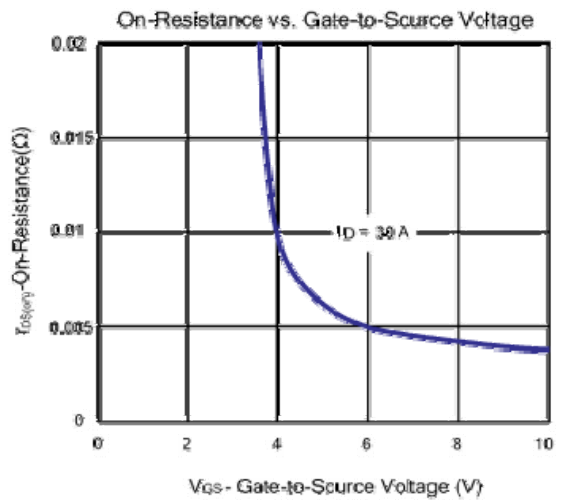
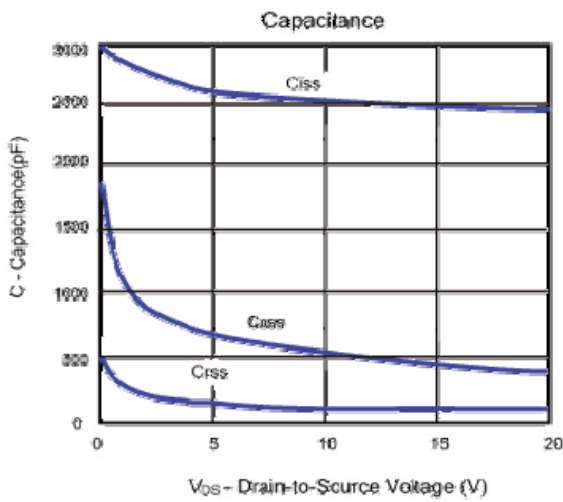
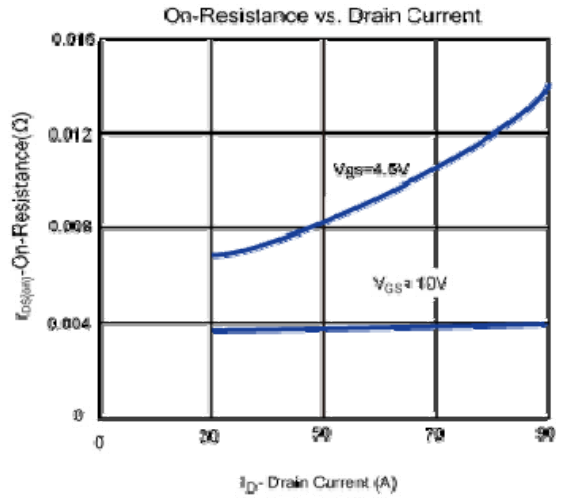
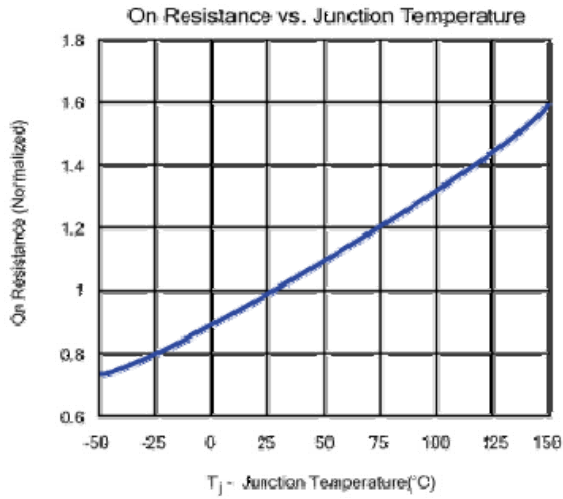
Electrical Characteristics ($T_j = 25^\circ\text{C}$ Unless Otherwise Specified)

Symbol	Parameter	Limit	Min	Typ	Max	Unit
STATIC						
BV_{DSS}	Drain-Source Breakdown Voltage	$V_{GS}=0V, I_D=250\mu A$	30			V
$V_{GS(th)}$	Gate Threshold Voltage	$V_{DS}=V_{GS}, I_D=250\mu A$	1.2		3	V
I_{GSS}	Gate Leakage Current	$V_{DS}=0V, V_{GS}=\pm 16V$			± 10	μA
I_{DSS}	Zero Gate Voltage Drain Current	$V_{DS}=30V, V_{GS}=0V$			1	μA
$R_{DS(ON)}$	Drain-Source On-State Resistance ^a	$V_{GS}=10V, I_D=30A$		4	4.8	m Ω
		$V_{GS}=4.5V, I_D=15A$		7	9	
V_{SD}	Diode Forward Voltage	$I_S=2.7A, V_{GS}=0V$		0.8	1.2	V
DYNAMIC						
Q_g	Total Gate Charge(10V)	$V_{DS}=15V, V_{GS}=10V, I_D=17A$		53		nC
Q_g	Total Gate Charge(4.5V)	$V_{DS}=15V, V_{GS}=4.5V, I_D=17A$		27		
Q_{gs}	Gate-Source Charge			11		
Q_{gd}	Gate-Drain Charge			14		
C_{iss}	Input capacitance	$V_{DS}=15V, V_{GS}=0V, f=1.0MHz$		2400		pF
C_{oss}	Output Capacitance			350		
C_{rss}	Reverse Transfer Capacitance			110		
$t_{d(on)}$	Turn-On Delay Time	$V_{DD}=15V, R_L=15\Omega$ $I_D=1A, V_{GEN}=10V$ $R_G=6\Omega$		23		ns
t_r	Turn-On Rise Time			17		
$t_{d(off)}$	Turn-Off Delay Time			76		
t_f	Turn-Off Fall Time			15		

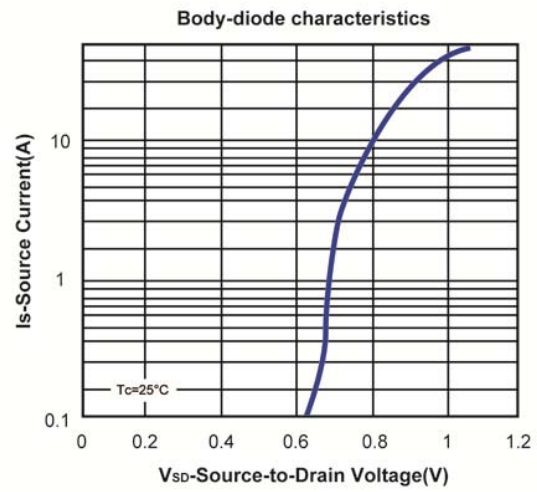
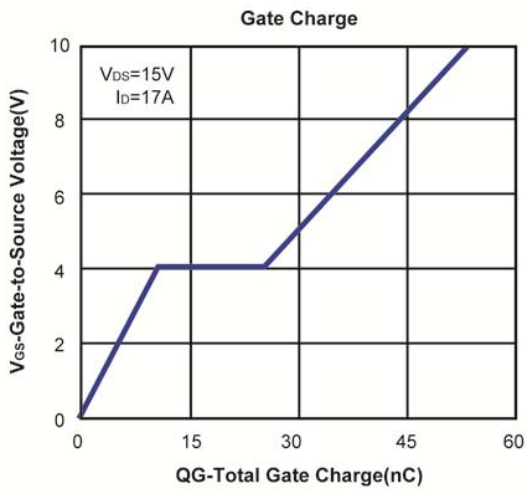
Notes: a. Based on epoxy or solder paste and bond wire Al 12mil×2(S), Au or Cu 1.5mil×1(G)

b. Pulse test; pulse width $\leq 300\mu s$, duty cycle $\leq 2\%$.

Typical Characteristics (T_J = 25°C Noted)

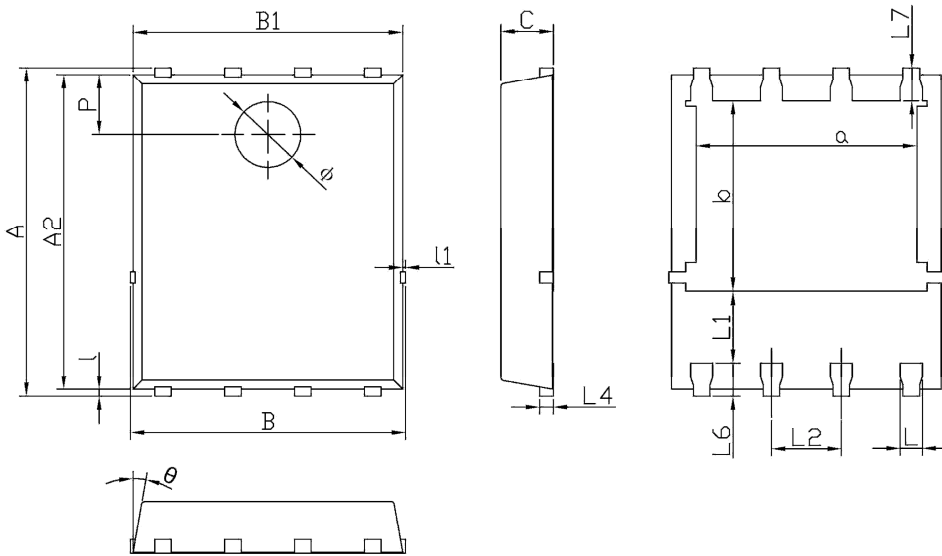


Typical Characteristics (T_J =25°C Noted)



PDFN5060

Unit:mm



Dimensions In Millimeterer			
Symbol	MIN	TYP	MAX
A	5.90	6.00	6.10
α	3.91	4.01	4.11
A2	5.70	5.75	5.80
B	4.90	5.00	5.10
b	3.37	3.47	3.57
B1	4.80	4.90	5.00
C	0.90	0.95	1.00
L	0.35	0.40	0.45
l	0.06	0.13	0.20
L1	1.10	-	-
l1	-	-	0.10
L2	1.17	1.27	1.37
L4	0.21	0.26	0.34
L6	0.51	0.61	0.71
L7	0.51	0.61	0.71
P	1.00	1.10	1.20
θ	8°	10°	12°
φ	1.10	1.20	1.30