

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

GENERAL DESCRIPTION

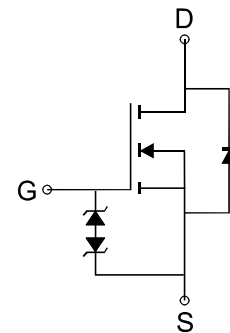
The SK90N03 is the N-Channel logic enhancement mode power field effect transistors are produced using high cell density, DMOS trench technology. This high density process is especially tailored to minimize on-state resistance.

APPLICATIONS

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

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
- Capable doing Cu wire bonding



Absolute Maximum Ratings ($T_A=25^\circ C$ Unless Otherwise Noted)

Parameter	Symbol	Maximum Ratings	Unit
Drain-Source Voltage	V_{DS}	30	V
Gate-Source Voltage	V_{GS}	± 20	V
Drain Current - Continues	I_D	74	A

Electrical Characteristics (T_j = 25°C Unless Otherwise Specified)

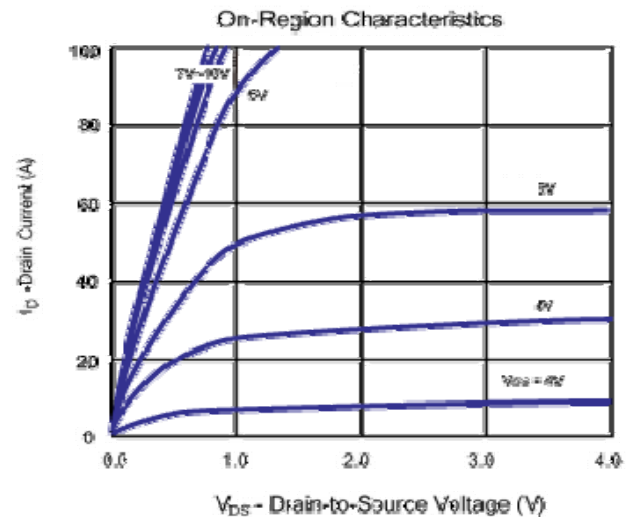
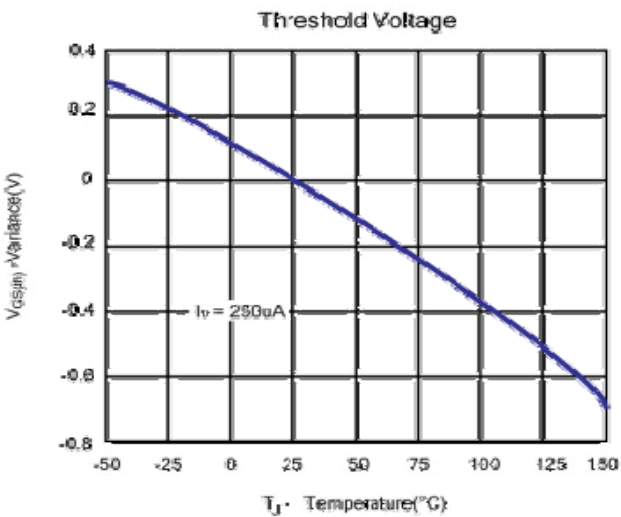
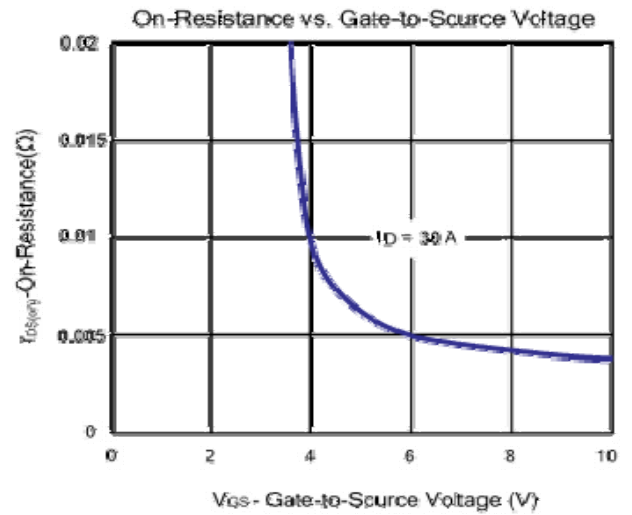
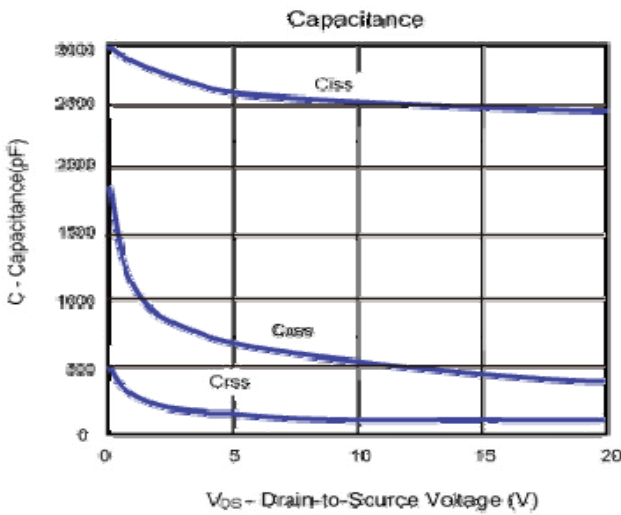
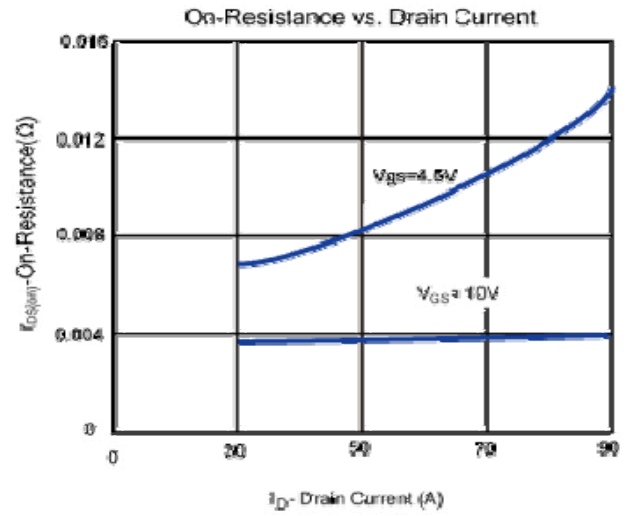
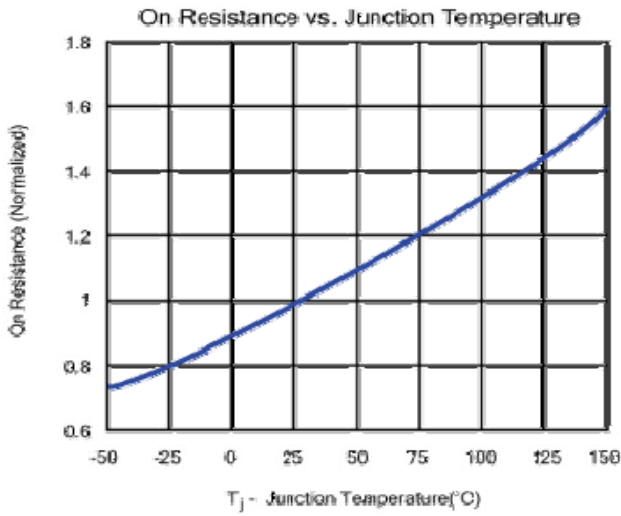
Symbol	Parameter	Limit	Min	Typ	Max	Unit
STATIC						
BV _{DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V, I _D =250 μA	30			V
V _{GS(th)}	Gate Threshold Voltage	V _{DS} =V _{GS} , I _D =250 μA	1.2		3	V
I _{GSS}	Gate Leakage Current	V _{DS} =0V, V _{GS} =±16V			±10	μA
I _{DSS}	Zero Gate Voltage Drain 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	mΩ
		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 =15Ω I _D =1A, V _{GEN} =10V R _G =6Ω		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) on each die of TO-252 package.

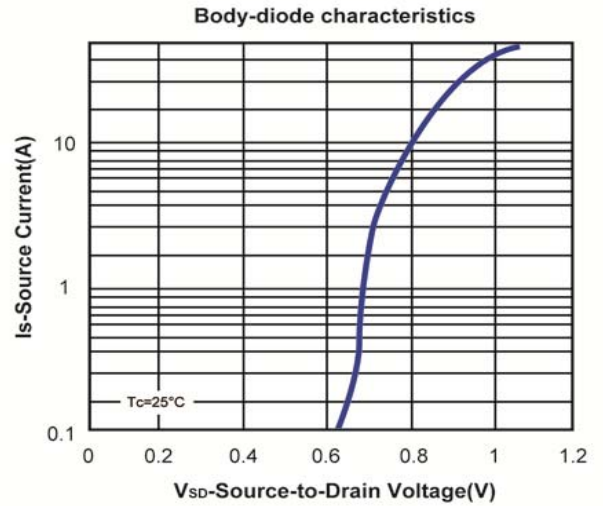
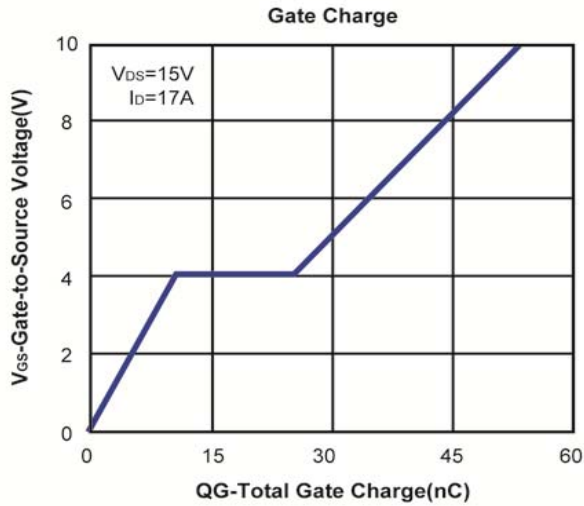
b. Pulse test; pulse width ≤ 300us, duty cycle ≤ 2%.

c. Force mos reserves the right to improve product design, functions and reliability without notice.

Typical Characteristics (T_J = 25°C Noted)

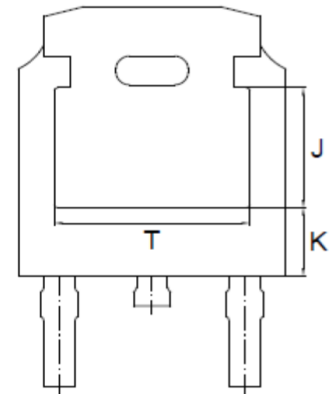
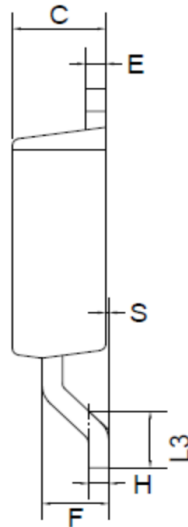
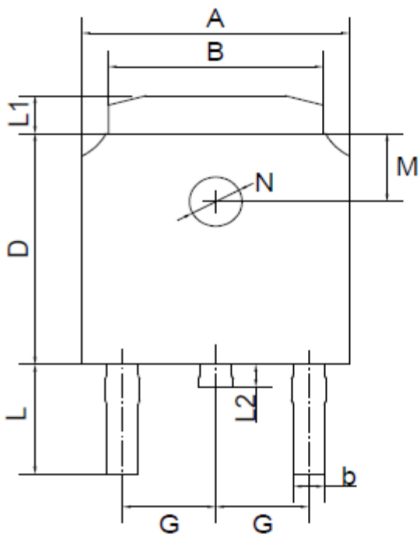


Typical Characteristics (T_J =25°C Noted)



PACKAGE OUTLINE

TO-252(D-PAK)



TO-252(D-PAK) mechanical data

UNIT	A	B	b	C	D	E	F	G	H	L	L1	L2	L3	S	M	N	J	K	T	
mm	max	6.7	5.5	0.8	2.5	6.3	0.6	1.8	2.29	0.55	3.1	1.2	1.0	1.75	0.1	1.8	1.3	3.16	1.80	4.83
	min	6.3	5.1	0.3	2.1	5.9	0.4	1.3	TYPICAL	0.45	2.7	0.8	0.6	1.40	0.0	TYPICAL	TYPICAL	ref.	ref.	ref.
mil	max	264	217	31	98	248	24	71	90	22	122	47	39	69	4	71	51	124	71	190
	min	248	201	12	83	232	16	51	TYPICAL	18	106	31	24	55	0	TYPICAL	TYPICAL	ref.	ref.	ref.