N-Channel 60V(D-S) MOSFET

GENERAL DESCRIPTION

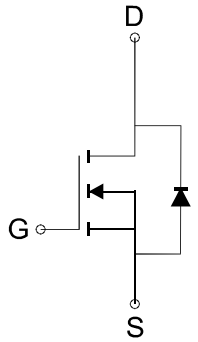
The SK10N06 is the N-Channel logic enhancement mode power field effect transistors are produced using high cell density, DMOS trench technology. This high density process is especially tailored to minimize on-state resistance.

FEATURES

- $R_{DS(ON)} \leq 10m\Omega$ @V_{GS}=10V
- $R_{DS(ON)} \leq 13m\Omega$ @V_{GS}=4.5V
- Super high density cell design for extremely low $R_{DS(ON)}$
- Exceptional on-resistance and maximum DC current capability

APPLICATIONS

- Power Management in Note book
- Portable Equipment
- Battery Powered System
- DC/DC Converter
- Load Switch
- DSC
- LCD Display inverter



N-Channel MOSFET

Absolute Maximum Ratings (Tc=25℃ Unless Otherwise Noted)

Parameter	Symbol	Maximum Ratings	Unit
Drain-Source Voltage	V_{DS}	60	V
Gate-Source Voltage	V_{GS}	±20	V
Drain Current - Continues	I_D	12.5	A

Electrical Characteristics (T_J =25℃ Unless Otherwise Specified)

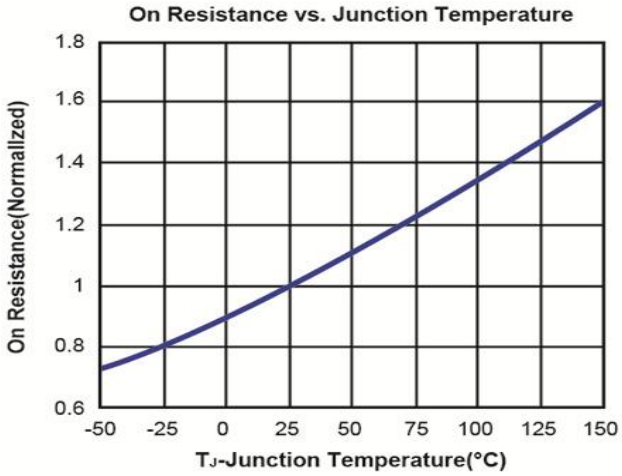
Symbol	Parameter	Limit	Min	Typ	Max	Unit
STATIC						
BV_{DSS}	Drain-Source Breakdown Voltage	V_{GS}=0V, I_D=250μA	60			V
$V_{GS(th)}$	Gate Threshold Voltage	V_{DS}=V_{GS}, I_D=250μA	1		3	V
I_{GSS}	Gate-Body Leakage	V_{DS}=0V, V_{GS}=±20V			±100	nA
I_{DSS}	Zero Gate Voltage Drain Current	V_{DS}=48 V_{GS}=0V			1	μA
$R_{DS(ON)}$	Drain-Source On-Resistance*	V_{GS}=10V, I_D=8A		8	10	mΩ
		V_{GS}=4.5V, I_D=6 A		10	13	
V_{SD}	Diode Forward Voltage *	Is=8A, V_{GS}=0V,			1.2	V
DYNAMIC						
Qg	Total Gate Charge	V_{DS}=48V, V_{GS}=4.5V, I_D=8A		46.3		nC
Qgs	Gate-Source Charge			13.9		
Qgd	Gate-Drain Charge			23.7		
Ciss	Input Capacitance	V_{DS}=15V, V_{GS}=0V, f=1.0MHz		1386		pF
Coss	Output Capacitance			268		
Crss	Reverse Transfer Capacitance			209		
$t_{d(on)}$	Turn-On Delay Time	V_{DD}=30V, R_L =15Ω I_D=2A, V_{GEN}=10V R_G=3.3Ω		26.2		ns
t_r	Turn-On Rise Time			19.4		
$t_{d(off)}$	Turn-Off Delay Time			89.9		
t_f	Turn-Off Fall Time			12.5		

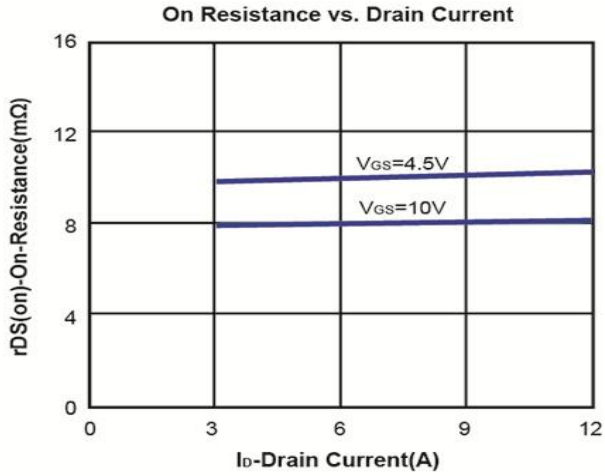
Notes: a. Based on epoxy or solder paste and bond wire Cu 2mil×14(S),2mil×1 (G) on each die of TO-252 package.

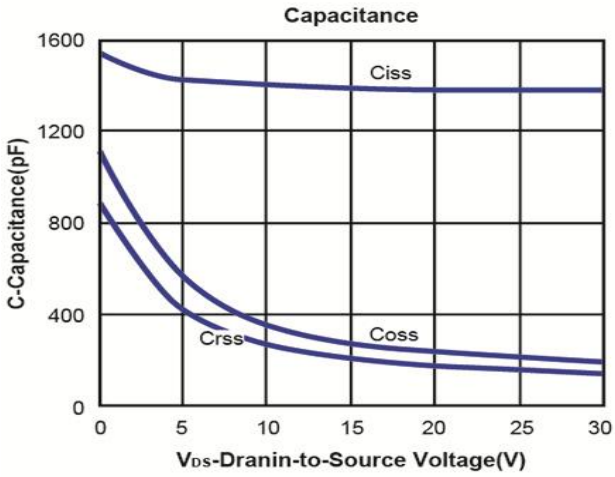
b. Pulse test; pulse width ≦ 300us, duty cycle≦ 2%.

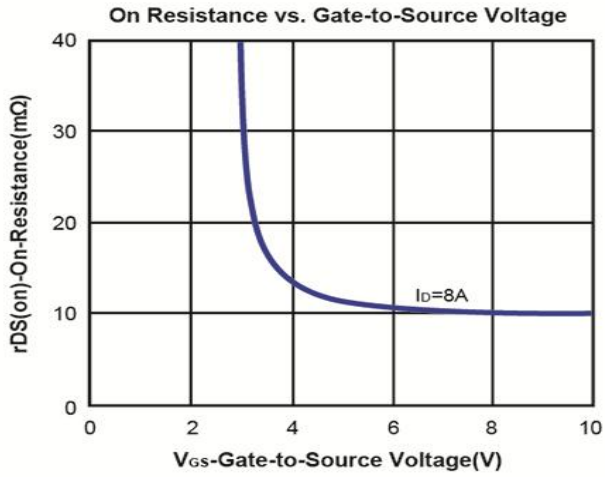
c. Force mos reserves the right to improve product design, functions and reliability without notice.

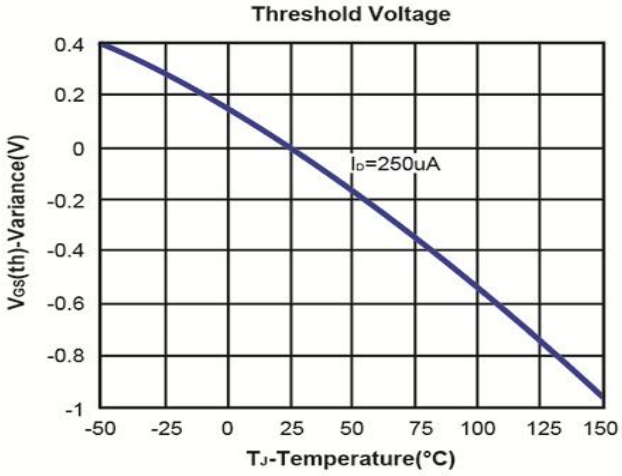
Typical Characteristics (T_J =25℃ Noted)

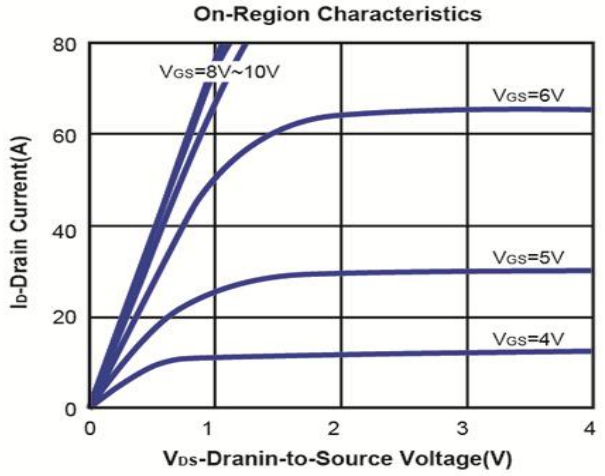












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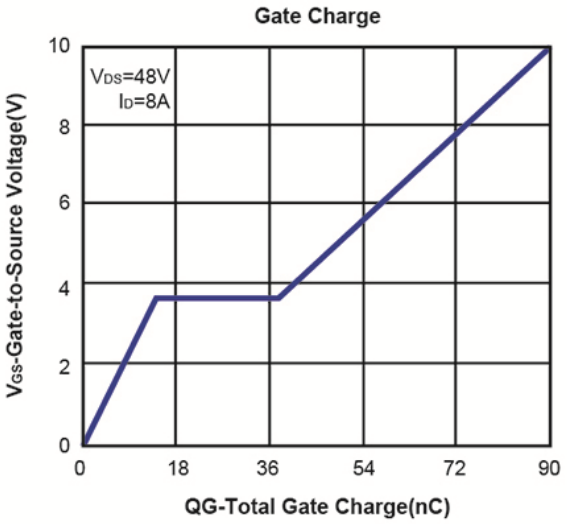
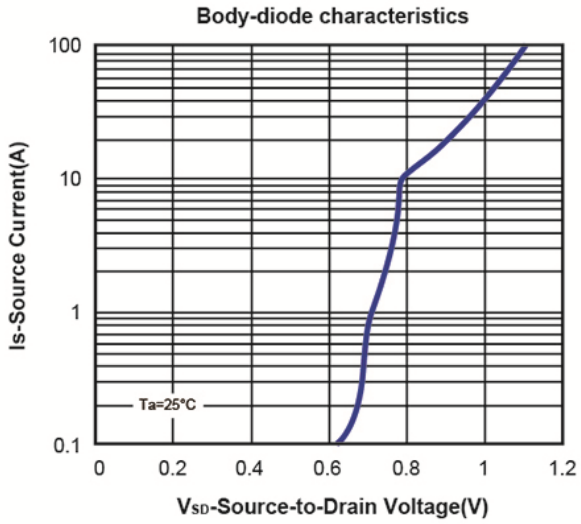
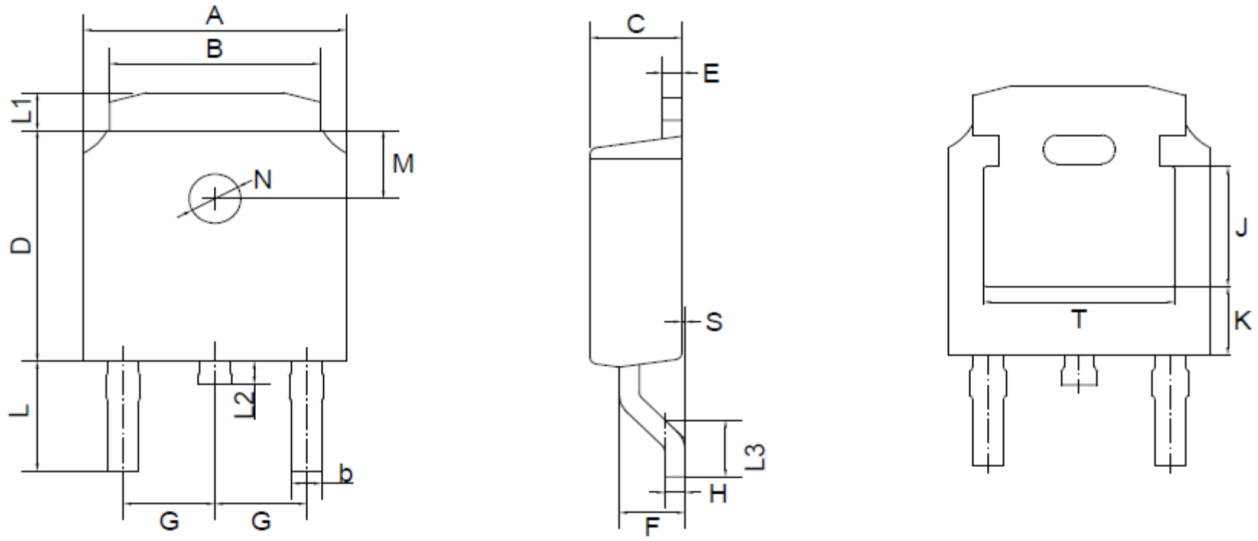




PACKAGE OUTLINE

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 TYPICAL	0.55	3.1	1.2	1.0	1.75	0.1	1.8 TYPICAL	1.3 TYPICAL	3.16 ref.	1.80 ref.	4.83 ref.
	min	6.3	5.1	0.3	2.1	5.9	0.4	1.3		0.45	2.7	0.8	0.6	1.40	0.0					
mil	max	264	217	31	98	248	24	71	90 TYPICAL	22	122	47	39	69	4	71 TYPICAL	51 TYPICAL	124 ref.	71 ref.	190 ref.
	min	248	201	12	83	232	16	51		18	106	31	24	55	0					