

## N-Channel 100V(D-S) MOSFET

### GENERAL DESCRIPTION

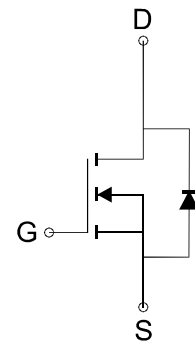
The SK15N10 is a N-Channel enhancement mode power field effect transistor, using Force-MOS patented Extended Trench Gate (ETG) technology. This advanced technology is especially tailored to minimize on state resistance and gate charge, and enhance avalanche capability. These devices are particularly suited for medium voltage application such as charger, adapter, notebook computer power management and other lighting dimming powered circuits, and low in-line power loss that are needed in a very small outline surface mount package.

### APPLICATIONS

- Power Management
- Synchronous Rectification
- Load Switch

### FEATURES

- $R_{DS(ON)} \leq 100m\Omega @ V_{GS}=10V$
- Super high density cell design for extremely low  $R_{DS(ON)}$
- Exceptional on-resistance and maximum DC current capability



N-Channel MOSFET

### Absolute Maximum Ratings (T<sub>c</sub>=25°C Unless Otherwise Noted)

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	V <sub>DS</sub>	100	V
Gate-Source Voltage	V <sub>GS</sub>	±20	V
Drain Current - Continues	I <sub>D</sub>	15.4	A

## Electrical Characteristics (T<sub>j</sub>=25°C Unless Otherwise Specified)

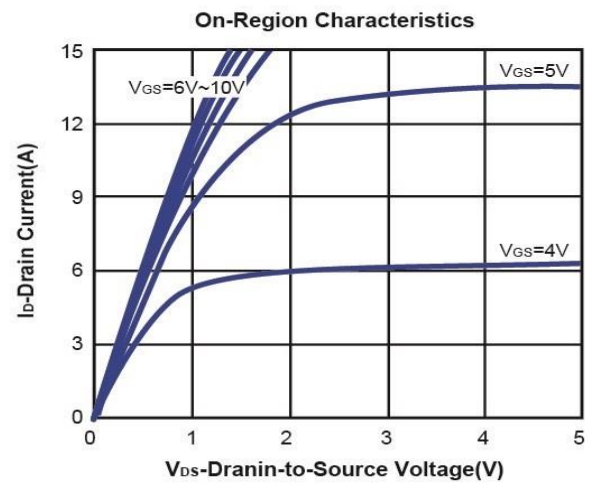
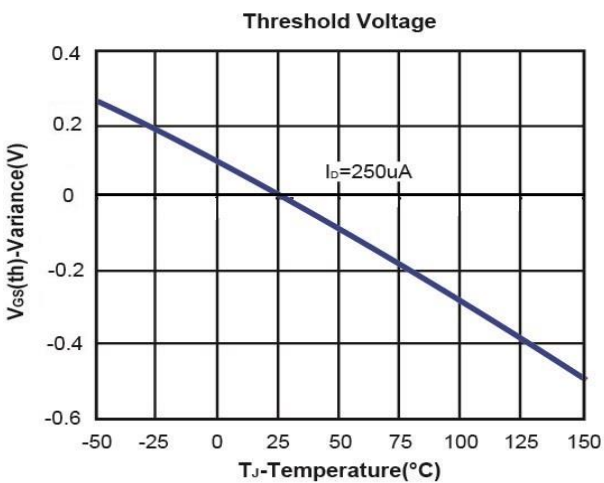
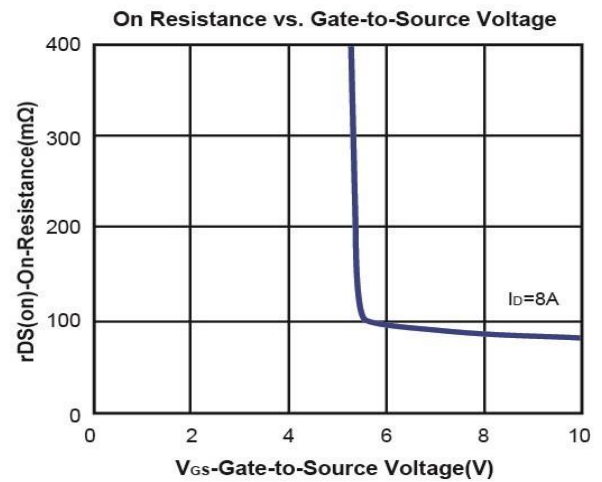
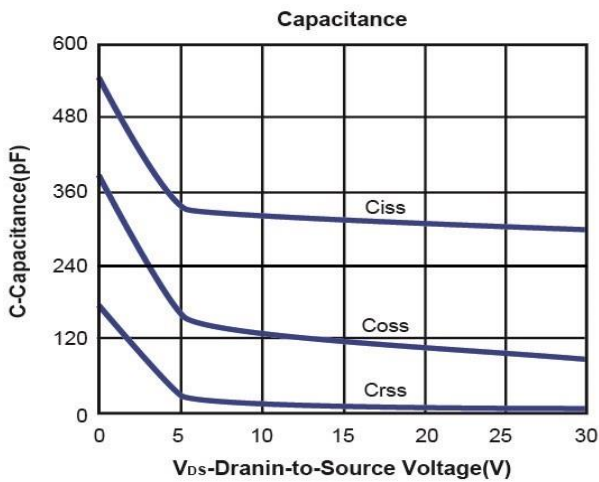
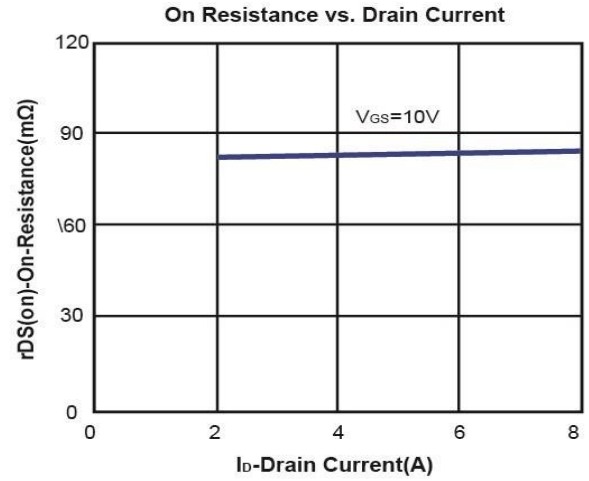
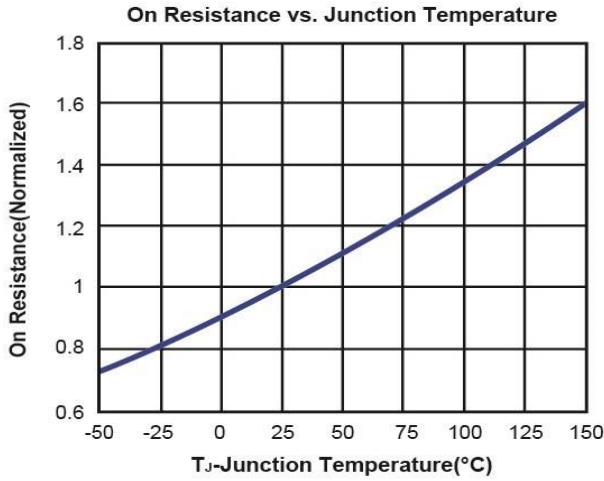
Symbol	Parameter	Conditions	Min	Typ	Max	Unit
<b>STATIC</b>						
BV <sub>DSS</sub>	Drain-Source Breakdown Voltage	V <sub>GS</sub> =0V, I <sub>D</sub> =250 μA	100			V
V <sub>GS(th)</sub>	Gate Threshold Voltage	V <sub>DS</sub> =V <sub>GS</sub> , I <sub>D</sub> =250 μA	1		3	V
I <sub>GSS</sub>	Gate Leakage Current	V <sub>DS</sub> =0V, V <sub>GS</sub> =±20V			±100	nA
I <sub>DSS</sub>	Zero Gate Voltage Drain Current	V <sub>DS</sub> =100V, V <sub>GS</sub> =0V			1	μA
R <sub>DS(ON)</sub>	Drain-Source On-Resistance <sup>a</sup>	V <sub>GS</sub> =10V, I <sub>D</sub> =8A		80	100	mΩ
V <sub>SD</sub>	Diode Forward Voltage	I <sub>S</sub> =8A, V <sub>GS</sub> =0V		0.9	1.1	V
<b>DYNAMIC</b>						
Q <sub>g</sub>	Total Gate Charge	V <sub>DS</sub> =50V, V <sub>GS</sub> =10V, I <sub>D</sub> =8A		15.5		nC
Q <sub>gs</sub>	Gate-Source Charge			2.6		
Q <sub>gd</sub>	Gate-Drain Charge			3.6		
C <sub>iss</sub>	Input Capacitance	V <sub>DS</sub> =15V, V <sub>GS</sub> =0V, f=1MHz		314		pF
C <sub>oss</sub>	Output Capacitance			119		
C <sub>rss</sub>	Reverse Transfer Capacitance			15		
t <sub>d(on)</sub>	Turn-On Delay Time	V <sub>DS</sub> =50V, R <sub>L</sub> =50Ω, V <sub>GS</sub> =10V, R <sub>G</sub> =1Ω I <sub>D</sub> =1A		8.4		Ns
t <sub>r</sub>	Turn-On Rise Time			24.8		
t <sub>d(off)</sub>	Turn-Off Delay Time			30.7		
t <sub>f</sub>	Turn-Off Fall Time			2.5		
T <sub>rr</sub>	Reverse Recovery Time	I <sub>D</sub> =7A, V <sub>GS</sub> =0V, di/dt=100A/us		25		ns
Q <sub>rr</sub>	Reverse Recovery Charge			24		nC

Notes: a. Based on epoxy or solder paste and bond wire Cu 1.5mil x1 (G), Al 8mil x2 (S) on each die of TO-252 package.

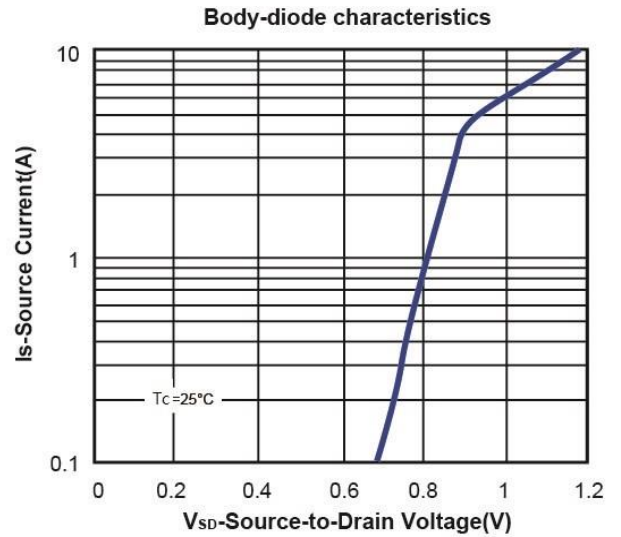
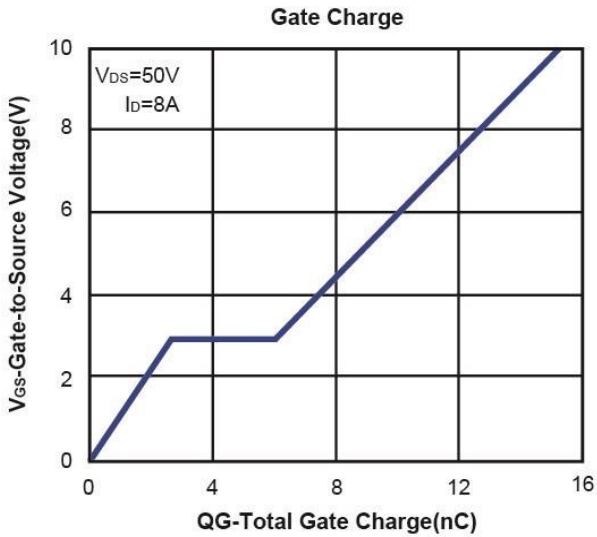
b. Pulse test; pulse width ≤ 300us, duty cycle ≤ 2%.

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

## Typical Characteristics (T<sub>J</sub> =25°C Noted)

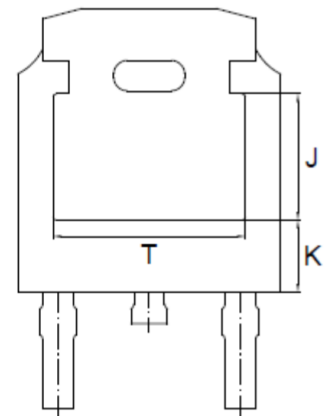
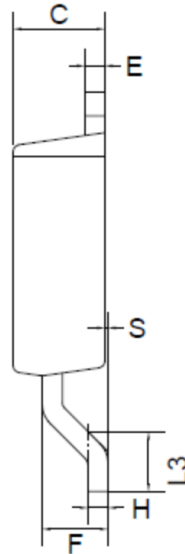
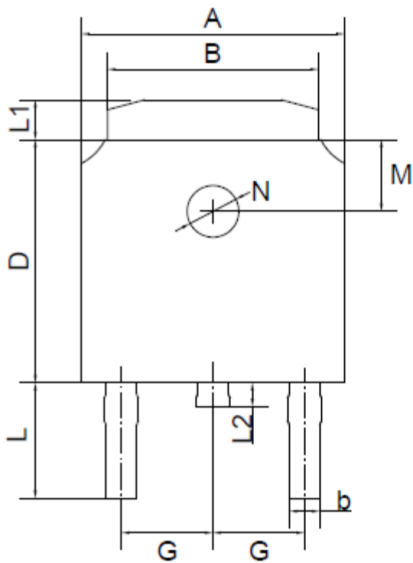


## Typical Characteristics (T<sub>J</sub> =25°C Noted)



## 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.