



# SPN8882

## N-Channel Enhancement Mode MOSFET

### DESCRIPTION

The SPN8882 is the N-Channel logic enhancement mode power field effect transistors are produced using high cell density , DMOS trench technology. The SPN8882 has been designed specifically to improve the overall efficiency of DC/DC converters using either synchronous or conventional switching PWM controllers. It has been optimized for low gate charge, low  $R_{DS(ON)}$  and fast switching speed.

### FEATURES

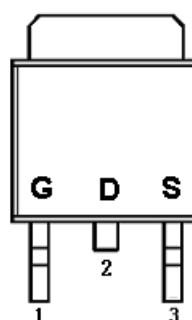
- ◆ 30V/40A,  $R_{DS(ON)}=10m\Omega@V_{GS}=10V$
- ◆ 30V/40A,  $R_{DS(ON)}=14m\Omega@V_{GS}=4.5V$
- ◆ Super high density cell design for extremely low  $R_{DS(ON)}$
- ◆ Exceptional on-resistance and maximum DC current capability
- ◆ TO-252-2L/TO-251S-3L package design

### APPLICATIONS

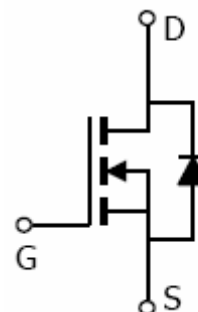
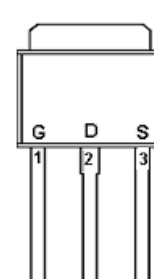
- Power Management in Note book
- Powered System
- DC/DC Converter
- Load Switch

### PIN CONFIGURATION

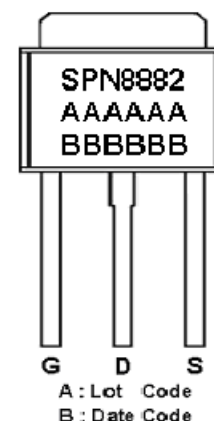
TO-252-2L



TO-251S-3L



### PART MARKING





# SPN8882

## N-Channel Enhancement Mode MOSFET

### PIN DESCRIPTION

Pin	Symbol	Description
1	G	Gate
2	D	Drain
3	S	Source

### ORDERING INFORMATION

Part Number	Package	Part Marking
SPN8882T252RGB	TO-252-2L	SPN8882
SPN8882T251TGB	TO-251S-3L	SPN8882

※ SPN8882T252RGB : Tape Reel ; Pb – Free ; Halogen – Free

※ SPN8882T251TGB : Tube ; Pb – Free ; Halogen – Free

### ABSOLUTE MAXIMUM RATINGS

(TA=25°C Unless otherwise noted)

Parameter			Symbol	Typical	Unit
Drain-Source Voltage			V <sub>DSS</sub>	30	V
Gate –Source Voltage			V <sub>GSS</sub>	±20	V
Continuous Drain Current	T <sub>A</sub> =25°C		I <sub>D</sub>	60	A
	T <sub>A</sub> =100°C			40	
Pulsed Drain Current			I <sub>DM</sub>	100	A
Continuous Drain Current			I <sub>S</sub>	50	A
Single Pulse Drain to Source Avalanche Energy – Starting (T <sub>J</sub> =25°C , V <sub>DD</sub> =27V , V <sub>GS</sub> =10V , I <sub>AS</sub> =28A , L=0.1mH )			E <sub>AS</sub>	41	mJ
Power Dissipation	T <sub>A</sub> =25°C	TO-252-2L	P <sub>D</sub>	40	W
		TO-251		55	
Operating Junction Temperature			T <sub>J</sub>	150	°C
Storage Temperature Range			T <sub>STG</sub>	-55/150	°C
Thermal Resistance-Junction to Ambient			R <sub>θJA</sub>	100	°C/W



# SPN8882

## N-Channel Enhancement Mode MOSFET

### ELECTRICAL CHARACTERISTICS

(TA=25°C Unless otherwise noted)

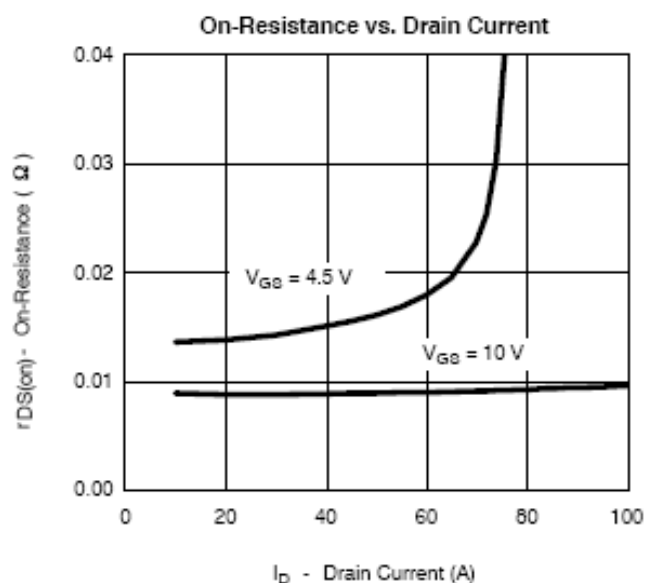
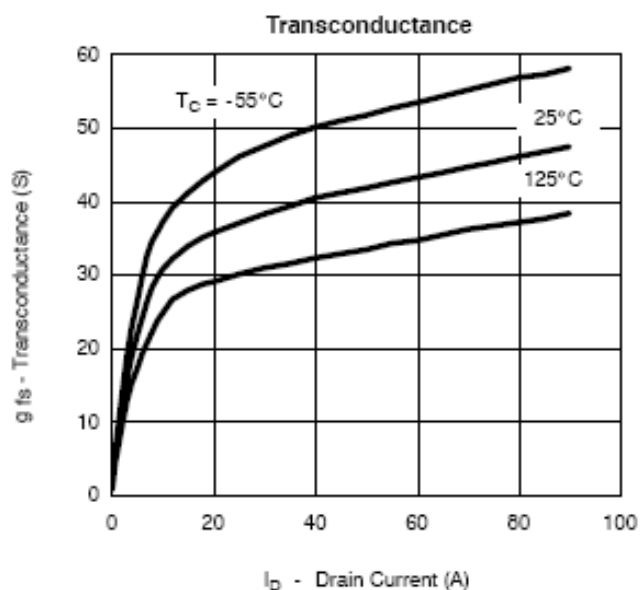
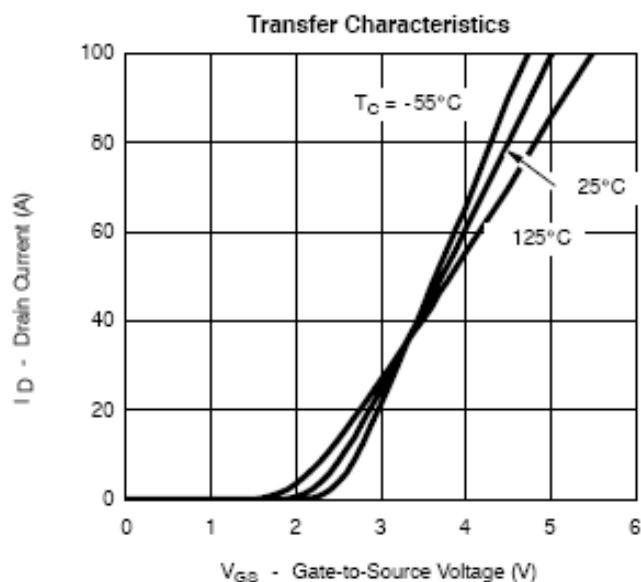
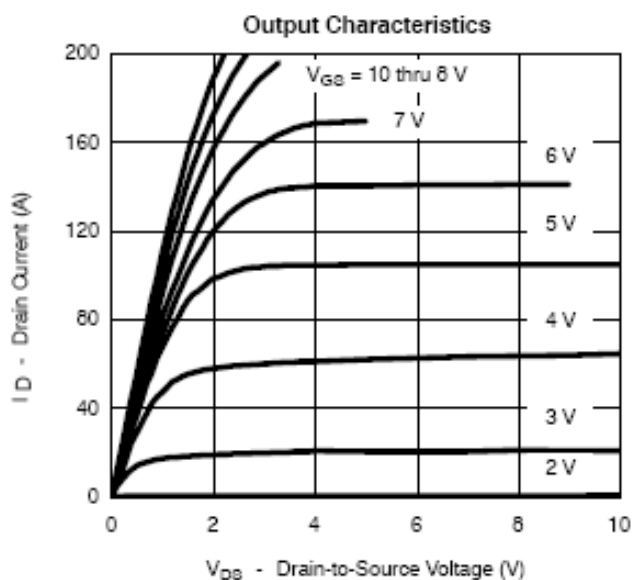
Parameter	Symbol	Conditions	Min.	Typ	Max.	Unit
<b>Static</b>						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS} = 0V, I_D = 250\mu A$	30			V
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_{DS} = 250\mu A$	0.8		2.4	
Gate Leakage Current	$I_{GSS}$	$V_{DS} = 0V, V_{GS} = \pm 20V$			$\pm 100$	nA
Zero Gate Voltage Drain Current	$I_{DSS}$	$V_{DS} = 24V, V_{GS} = 0V$			1	uA
		$V_{DS} = 24V, V_{GS} = 0V, T_J = 125^\circ C$			100	
Drain-Source On-Resistance	$R_{DS(on)}$	$V_{GS} = 10V, I_D = 35A$		0.008	0.010	$\Omega$
		$V_{GS} = 4.5V, I_D = 35A$		0.012	0.014	
Forward Transconductance	$g_{fs}$	$V_{DS} = 15V, I_D = 20A$	10			S
Diode Forward Voltage	$V_{SD}$	$I_F = 40A, V_{GS} = 0V$		1.0	1.5	V
<b>Dynamic</b>						
Total Gate Charge	$Q_g$	$V_{DS} = 15V, V_{GS} = 5V, I_D = 50A$		12	20	nC
Gate-Source Charge	$Q_{gs}$			4		
Gate-Drain Charge	$Q_{gd}$			5		
Input Capacitance	$C_{iss}$	$V_{GS} = 0V, V_{DS} = 25V, F = 1MHz$		1500		pF
Output Capacitance	$C_{oss}$			320		
Reverse Transfer Capacitance	$C_{rss}$			200		
Turn-On Time	$t_{d(on)}$	$(V_{DD} = 15V, I_D = 50A, V_{GS} = 10V, R_G = 2.5\Omega)$		8	12	nS
	$t_r$			10	15	
Turn-Off Time	$t_{d(off)}$			18	30	
	$t_f$			6	9	



# SPN8882

## N-Channel Enhancement Mode MOSFET

### TYPICAL CHARACTERISTICS

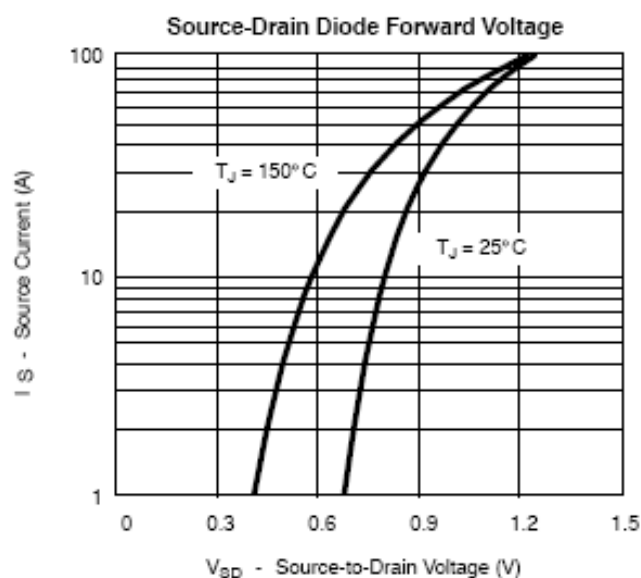
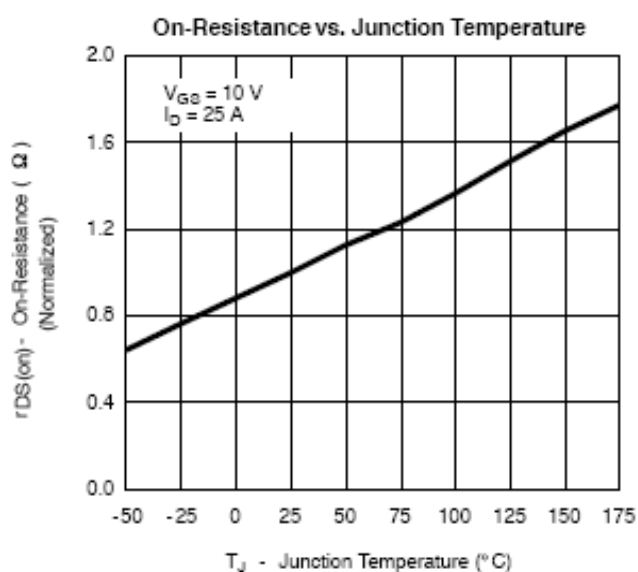
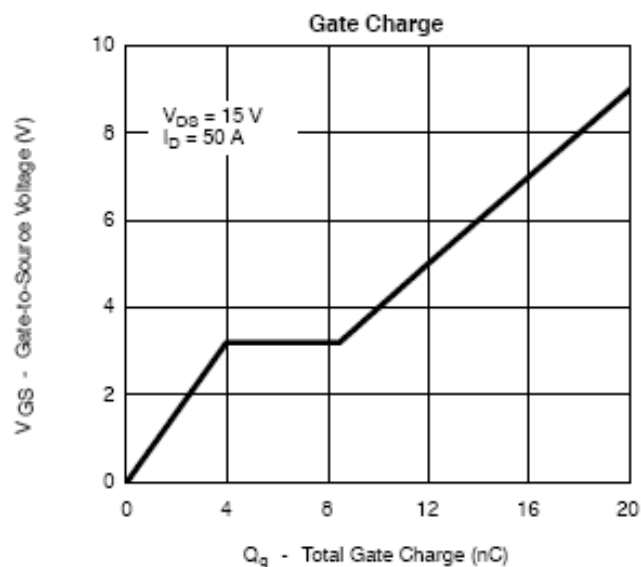
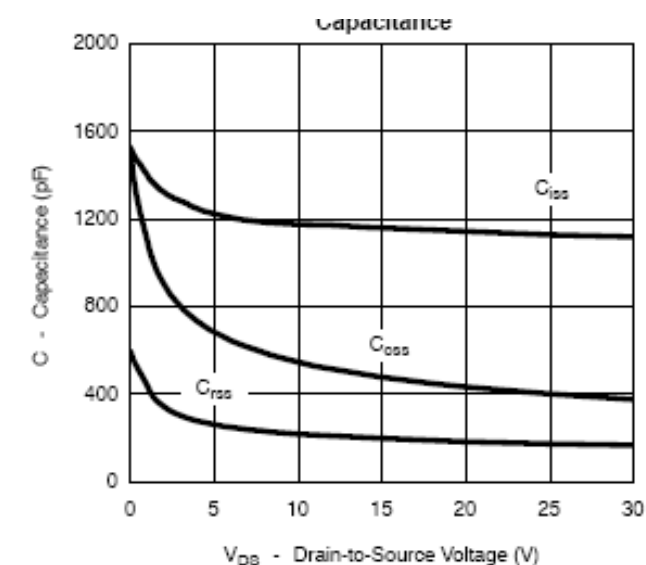




# SPN8882

## N-Channel Enhancement Mode MOSFET

### TYPICAL CHARACTERISTICS

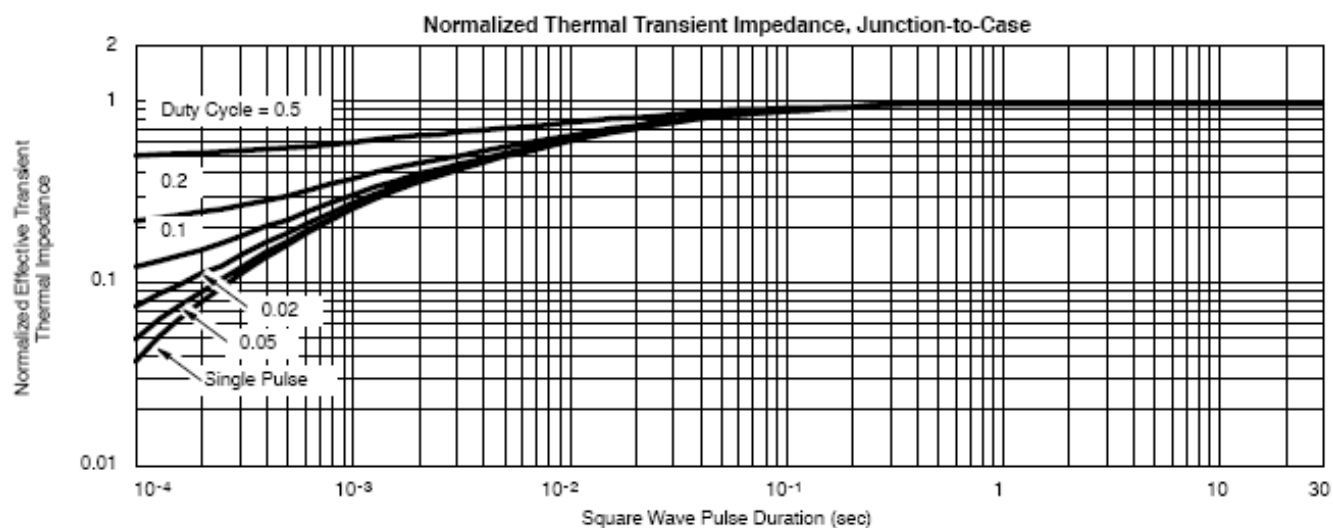
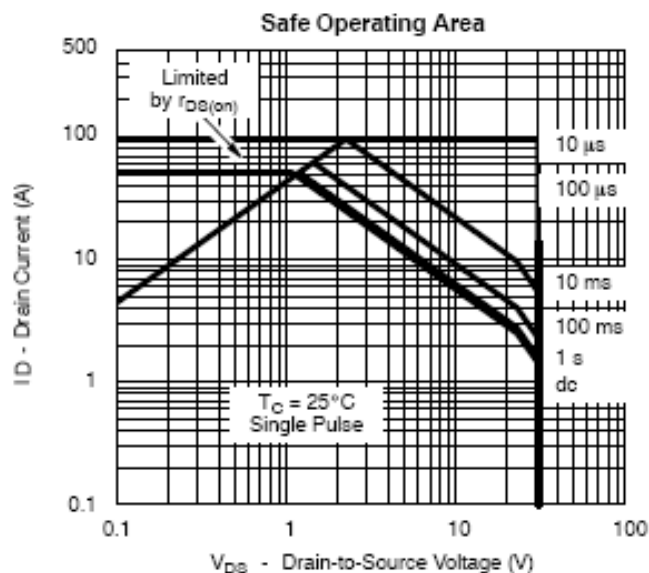
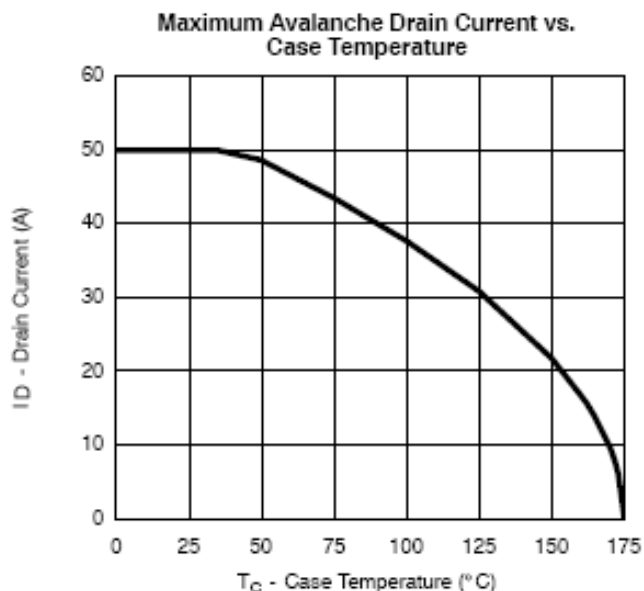




# SPN8882

## N-Channel Enhancement Mode MOSFET

### TYPICAL CHARACTERISTICS





# SPN8882

## N-Channel Enhancement Mode MOSFET

---

Information provided is alleged to be exact and consistent. SYNC Power Corporation presumes no responsibility for the penalties of use of such information or for any violation of patents or other rights of third parties which may result from its use. No license is granted by allegation or otherwise under any patent or patent rights of SYNC Power Corporation. Conditions mentioned in this publication are subject to change without notice. This publication surpasses and replaces all information previously supplied. SYNC Power Corporation products are not authorized for use as critical components in life support devices or systems without express written approval of SYNC Power Corporation.

© The SYNC Power logo is a registered trademark of SYNC Power Corporation

© 2020 SYNC Power Corporation – Printed in Taiwan – All Rights Reserved

SYNC Power Corporation

7F-2, No.3-1, Park Street

NanKang District (NKSP), Taipei, Taiwan 115

Phone: 886-2-2655-8178

Fax: 886-2-2655-8468

© <http://www.syncpower.com>