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.

APPLICATIONS

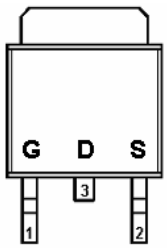
- Power Management in Note book
- Powered System
- DC/DC Converter
- Load Switch

FEATURES

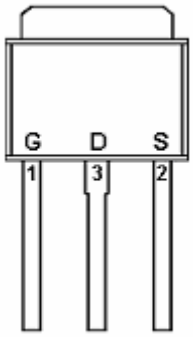
- 30V/40A,$R_{DS(ON)}$= 10mΩ@V_{GS}=10V
- 30V/40A,$R_{DS(ON)}$= 14mΩ@V_{GS}=4.5V
- Super high density cell design for extremely low RDS (ON)
- Exceptional on-resistance and maximum DC current capability
- TO-252,TO-251 package design

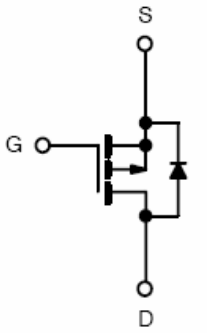
PIN CONFIGURATION

TO-252

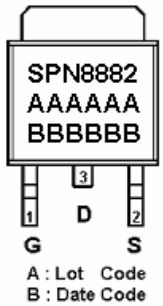


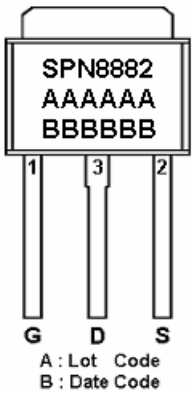
TO-251





PART MARKING





SPN8882
N-Channel Enhancement Mode MOSFET

PIN DESCRIPTION

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

ORDERING INFORMATION

Part Number	Package	Part Marking
SPN8882T252R	TO-252	SPN8882
SPN8882T251T	TO-251	SPN8882

※ SPN8882T252RG : Tape Reel ; Pb – Free
※ SPN8882T251RG : Tube ; Pb – Free

ABSOULTE MAXIMUM RATINGS

(T_A=25℃ Unless otherwise noted)

Parameter			Symbol	Typical	Unit
Drain-Source Voltage			V_{DSS}	30	V
Gate –Source Voltage			V_{GSS}	±20	V
Continuous Drain Current	T_A=25℃		I_D	60	A
	T_A=100℃			40	
Pulsed Drain Current			I_{DM}	100	A
Continuous Drain Current			I_S	50	A
Single Pulse Drain to Source Avalanche Energy – Starting (T_J=25°C , V_{DD}=27V , V_{GS}=10V , I_{AS}=28A , L=0.1mH)			E_{AS}	41	mJ
Power Dissipation	T_A=25℃	TO-252-2L	P_D	40	W
		TO-251		55	
Operating Junction Temperature			T_J	150	℃
Storage Temperature Range			T_{STG}	-55/150	℃
Thermal Resistance-Junction to Ambient			$R_{\theta JA}$	100	℃/W

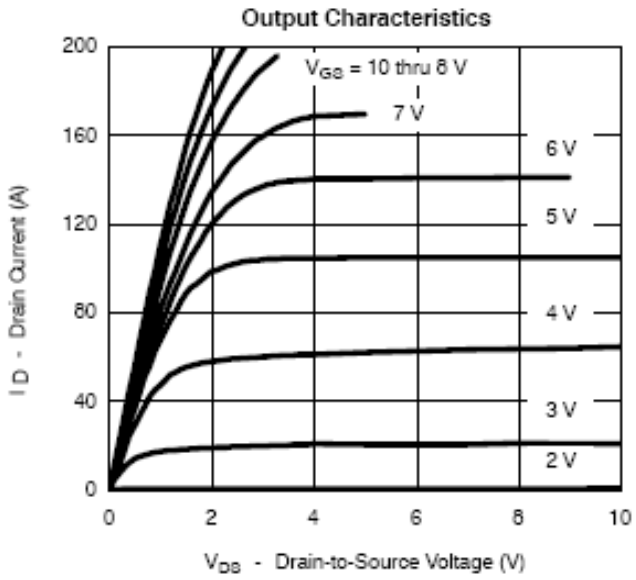
SPN8882
N-Channel Enhancement Mode MOSFET

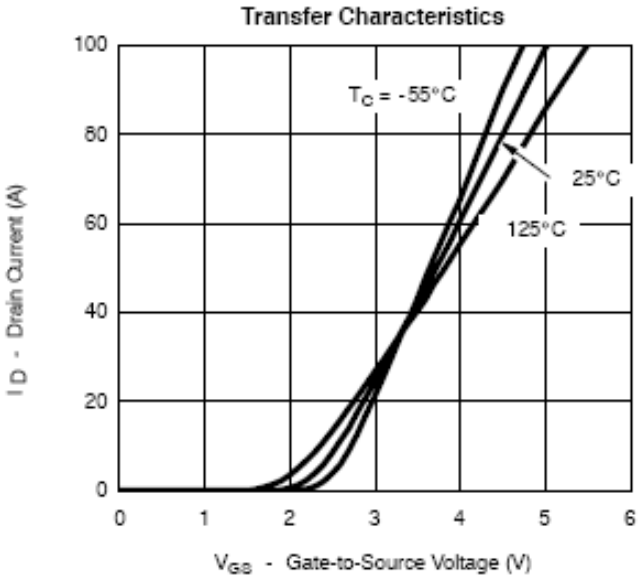
ELECTRICAL CHARACTERISTICS

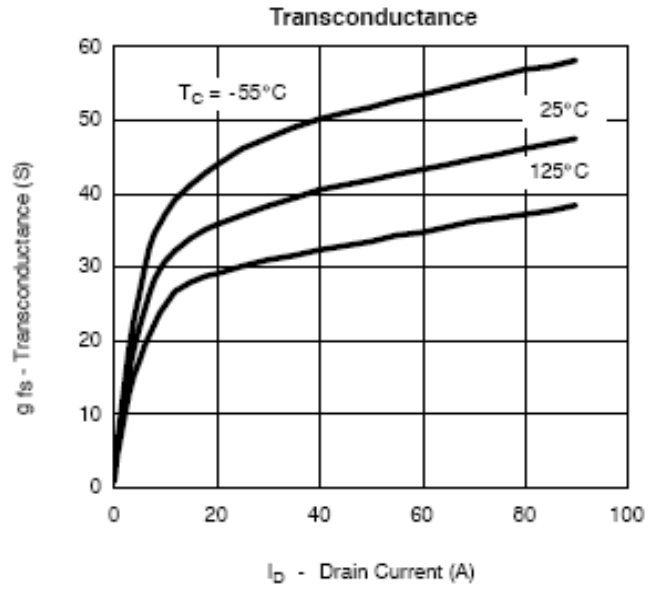
(TA=25℃ Unless otherwise noted)

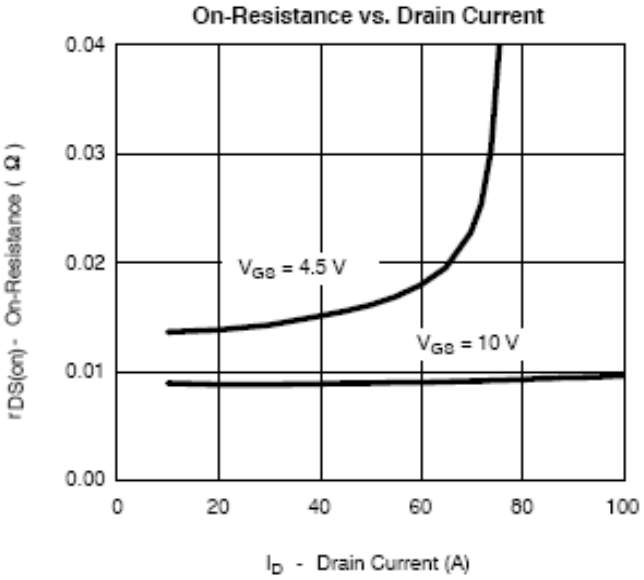
Parameter	Symbol	Conditions	Min.	Typ	Max.	Unit
Static						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	V_{GS} = 0V , I_D =250uA	30			V
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS} = V_{GS},I_{DS} =250uA	0.8		2.4	
Gate Leakage Current	I_{GSS}	V_{DS} = 0V,V_{GS} = ±20 V			±100	nA
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS} = 24V,V_{GS} =0V			1	uA
		V_{DS} = 24V,V_{GS} =0V, T_J = 125C			100	
Drain-Source On-Resistance	$R_{DS(on)}$	V_{GS} = 10V, ID = 35A		0.008	0.010	Ω
		V_{GS} = 4.5V, ID = 35A		0.012	0.014	
Forward Transconductance	gfs	V_{DS} = 15V, I_D =20 A	10			S
Diode Forward Voltage	V_{SD}	I_F = 40 A,V_{GS} = 0V		1.0	1.5	V
Dynamic						
Total Gate Charge	Q_g	V_{DS} = 15V,V_{GS} = 5V, I_D =50 A		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} = 15 V,I_D = 50 A, V_{GS}=10V,R_G = 2.5Ω)		8	12	ns
	t_r			10	15	
Turn-Off Time	$t_{d(off)}$			18	30	
	t_f			6	9	

TYPICAL CHARACTERISTICS

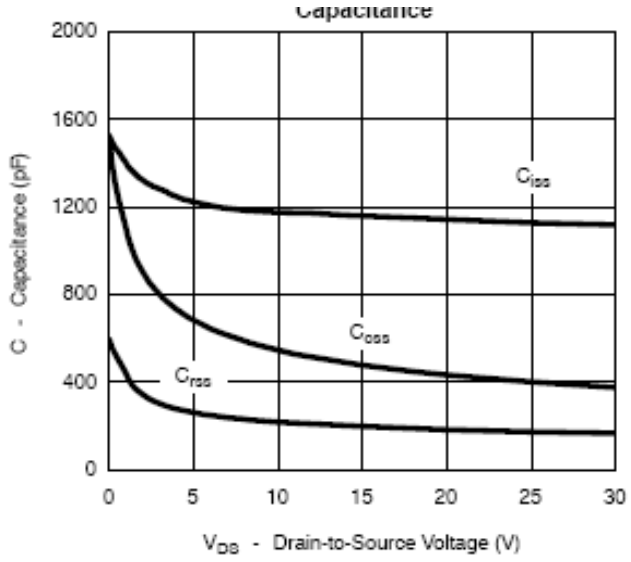


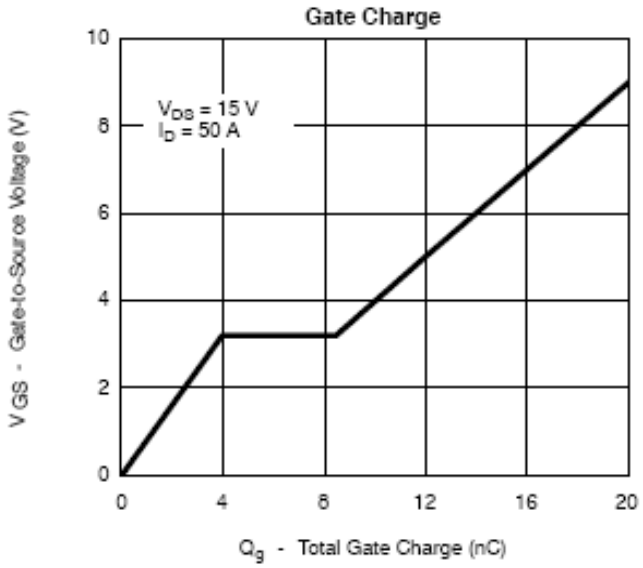


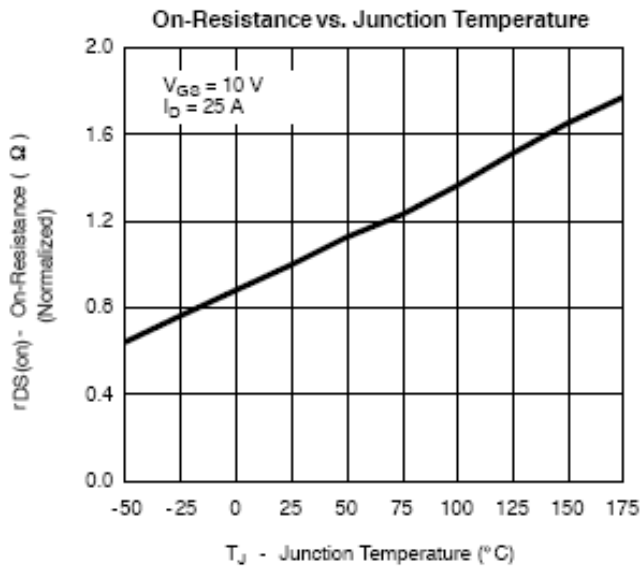


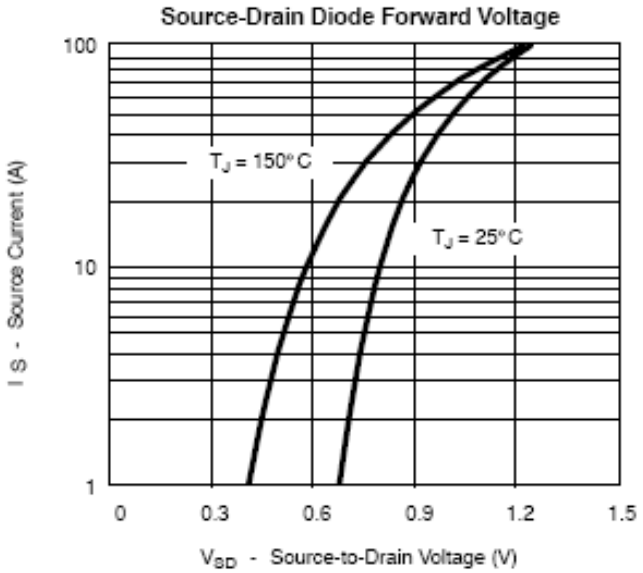


TYPICAL CHARACTERISTICS

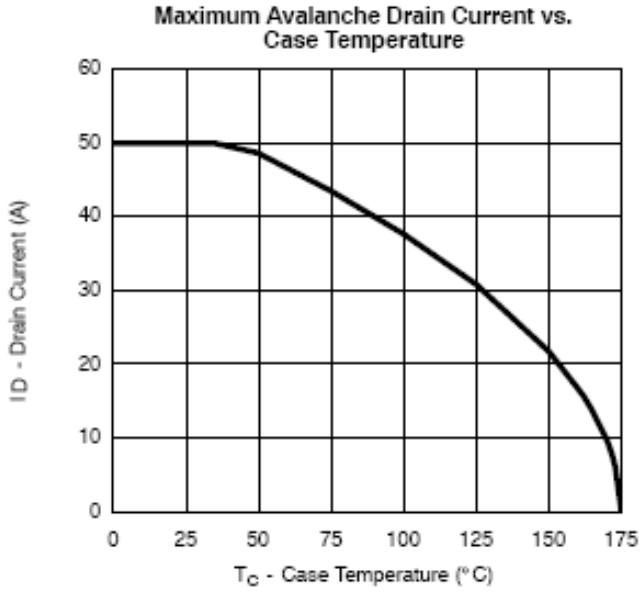


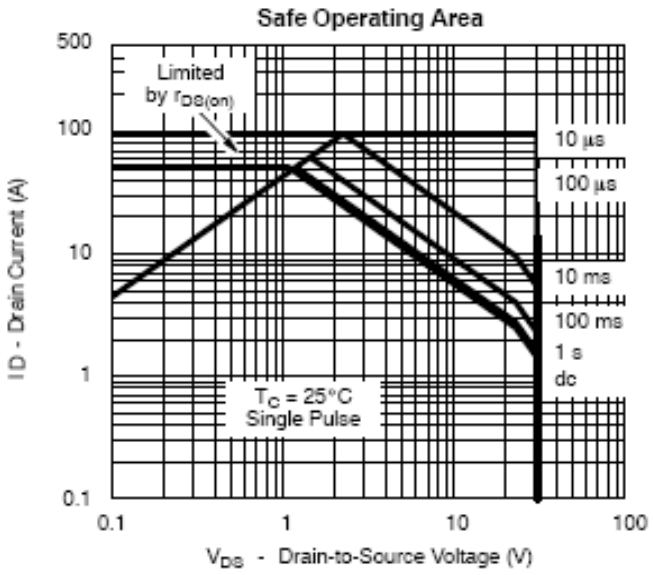


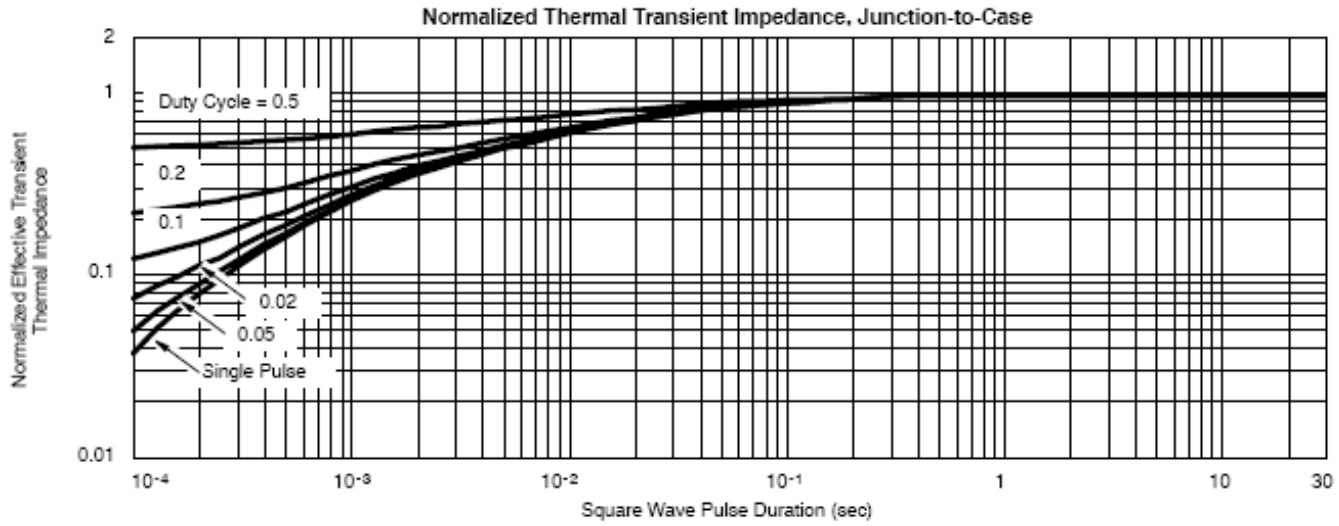




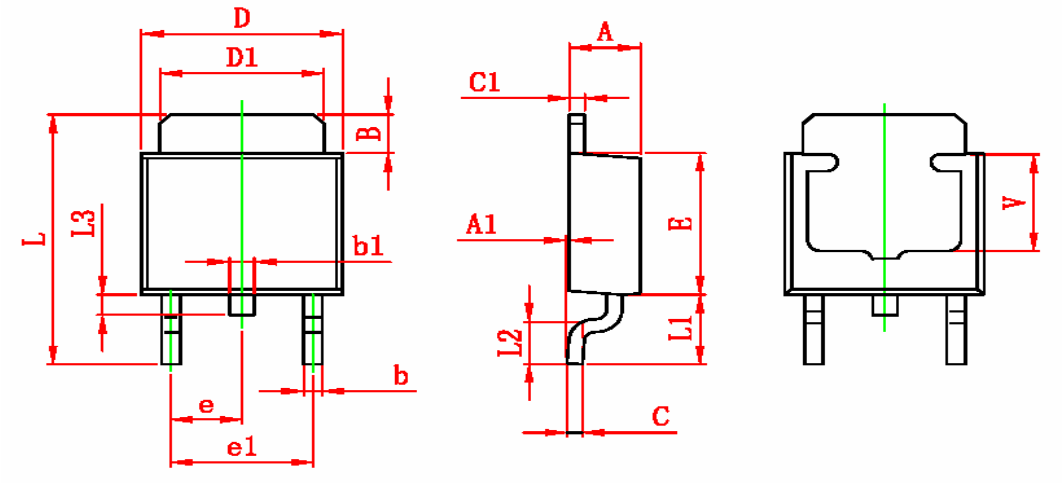
TYPICAL CHARACTERISTICS





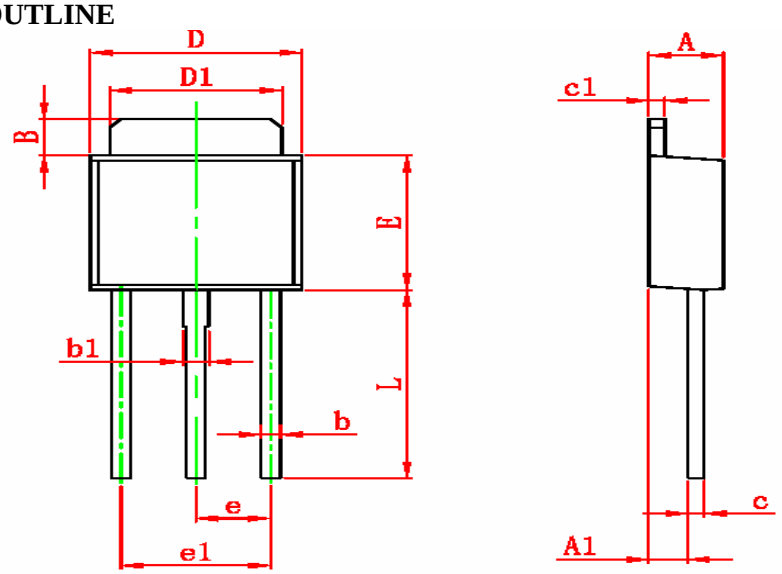


TO-252 PACKAGE OUTLINE



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	2.200	2.400	0.087	0.094
A1	0.000	0.127	0.000	0.005
B	1.350	1.650	0.053	0.065
b	0.500	0.700	0.020	0.028
b1	0.700	0.900	0.028	0.035
c	0.430	0.580	0.017	0.023
c1	0.430	0.580	0.017	0.023
D	6.350	6.650	0.250	0.262
D1	5.200	5.400	0.205	0.213
E	5.400	5.700	0.213	0.224
e	2.300 TYP		0.091 TYP	
e1	4.500	4.700	0.177	0.185
L	9.500	9.900	0.374	0.390
L1	2.550	2.900	0.100	0.114
L2	1.400	1.780	0.055	0.070
L3	0.350	0.650	0.014	0.026
V	3.80 REF		0.150 REF	

TO-251 PACKAGE OUTLINE



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	2.200	2.400	0.087	0.094
A1	1.020	1.270	0.040	0.050
B	1.350	1.650	0.053	0.065
b	0.500	0.700	0.020	0.028
b1	0.700	0.900	0.028	0.035
c	0.430	0.580	0.017	0.023
c1	0.430	0.580	0.017	0.023
D	6.350	6.650	0.250	0.262
D1	5.200	5.400	0.205	0.213
E	5.400	5.700	0.213	0.224
e	2.300 TYP		0.091 TYP	
e1	4.500	4.700	0.177	0.185
L	7.500	7.900	0.295	0.311

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