



SPN8832

N-Channel Enhancement Mode MOSFET

DESCRIPTION

The SPN8832 is the N-Channel logic enhancement mode power field effect transistors are produced using high cell density, DMOS trench technology. The SPN8832 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.

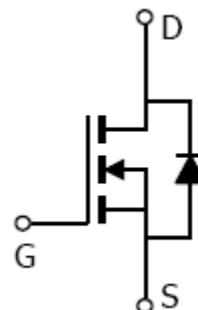
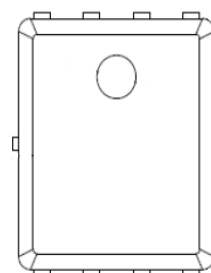
APPLICATIONS

- High Frequency Synchronous Buck Converter
- DC/DC Power System
- Load Switch

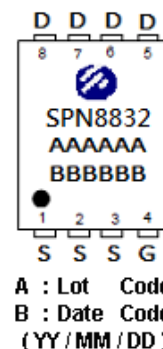
FEATURES

- ◆ 30V/163A, $R_{DS(ON)}=3.0\text{ m}\Omega@V_{GS}=10\text{V}$
- ◆ 30V/163A, $R_{DS(ON)}=4.0\text{ m}\Omega@V_{GS}=4.5\text{V}$
- ◆ Super high density cell design for extremely low $R_{DS(ON)}$
- ◆ Exceptional on-resistance and maximum DC current capability
- ◆ PPAK5x6-8L package design

PIN CONFIGURATION(PPAK5x6-8L)



PART MARKING





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PIN DESCRIPTION

Pin	Symbol	Description
1	S	Source
2	S	Source
3	S	Source
4	G	Gate
5	D	Drain
6	D	Drain
7	D	Drain
8	D	Drain

ORDERING INFORMATION

Part Number	Package	Part Marking
SPN8832DN8RGB	PPAK5x6-8L	SPN8832

※ SPN8832DN8RGB : Tape Reel ; Pb – Free ; Halogen - Free

ABSOLUTE MAXIMUM RATINGS

(TA=25°C Unless otherwise noted)

Parameter		Symbol	Typical	Unit
Drain-Source Voltage		V _{DSS}	30	V
Gate –Source Voltage		V _{GSS}	±20	V
Continuous Drain Current(Silicon Limited)	T _C =25°C	I _D	163	A
	T _C =100°C		103	
Pulsed Drain Current		I _{DM}	325	A
Avalanche Current		I _{AS}	70.2	A
Single Pulse Avalanche Energy		E _{AS}	246.4	mJ
Power Dissipation	T _C =25°C	P _D	83	W
Operating Junction Temperature		T _J	150	°C
Storage Temperature Range		T _{STG}	-55/150	°C
Thermal Resistance-Junction to Case		R _{θJC}	1.5	°C/W



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ELECTRICAL CHARACTERISTICS

(T_A=25°C Unless otherwise noted)

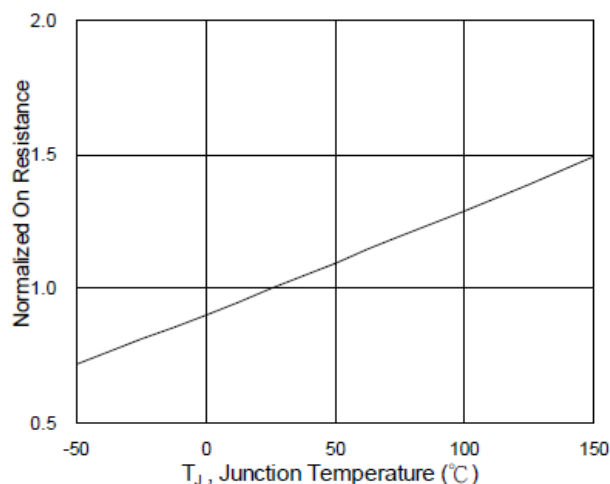
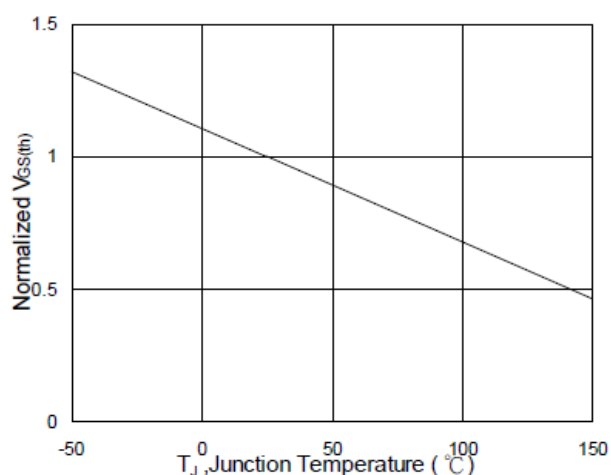
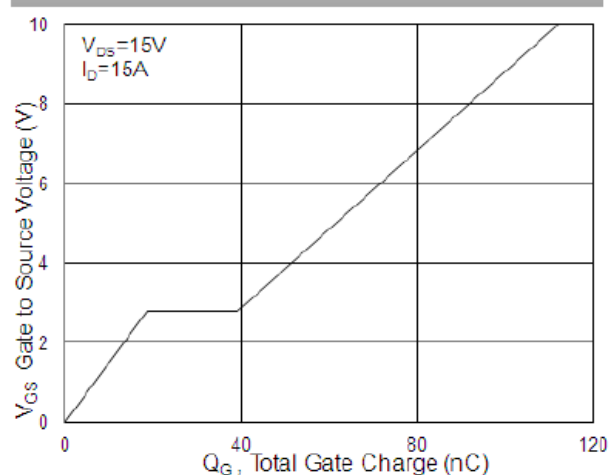
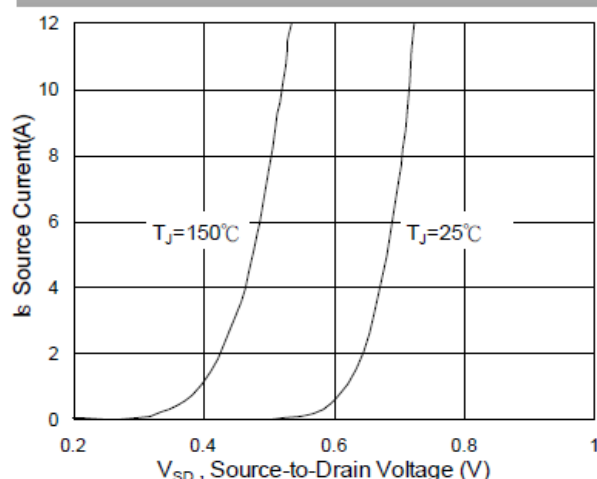
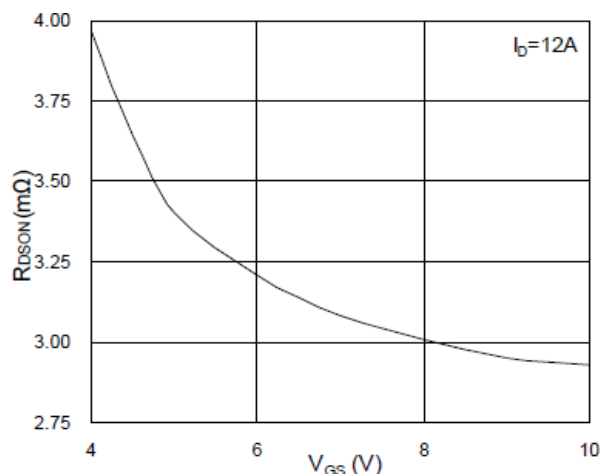
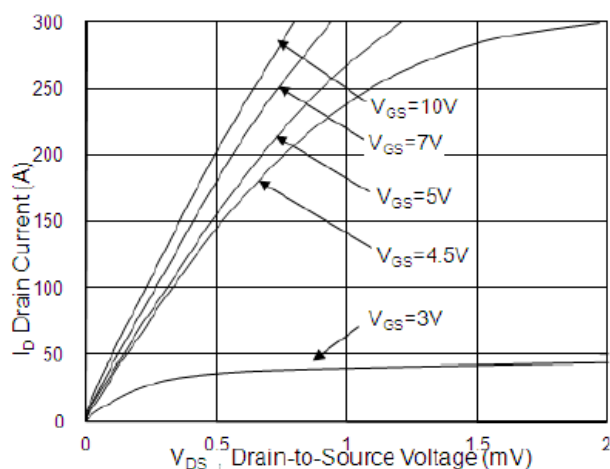
Parameter	Symbol	Conditions	Min.	Typ	Max.	Unit
Static						
Drain-Source Breakdown Voltage	V _{(BR)DSS}	V _{GS} =0V, I _D =250uA	30			V
Gate Threshold Voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =250uA	1.2		2.5	
Gate Leakage Current	I _{GSS}	V _{DS} =0V, V _{GS} =±20V			±100	nA
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =24V, V _{GS} =0V			1	uA
		V _{DS} =24V, V _{GS} =0V, T _J =55°C			5	
Gate Resistance	R _g	V _{DS} =V _{GS} =0V, f=1MHz		0.9		Ω
Drain-Source On-Resistance	R _{DS(on)}	V _{GS} =10V, I _D =30A			3	mΩ
		V _{GS} =4.5V, I _D =15A			4	
Forward Transconductance	g _{fs}	V _{DS} =5V, I _D =30A		60		S
Diode Forward Voltage	V _{SD}	I _S =1A, V _{GS} =0V			1.2	V
Dynamic						
Total Gate Charge (4.5V)	Q _g	V _{DS} =15V, V _{GS} =10V I _D =15A		56		nC
Gate-Source Charge	Q _{gs}			18		
Gate-Drain Charge	Q _{gd}			21		
Input Capacitance	C _{iss}	V _{DS} =15V, V _{GS} =0V f=1MHz		5935		pF
Output Capacitance	C _{oss}			725		
Reverse Transfer Capacitance	C _{rss}			538		
Turn-On Time	t _{d(on)}	V _{DD} =15V, I _D =15A, V _{GS} =10V R _G =3.3Ω		22		nS
	t _r			43.6		
Turn-Off Time	t _{d(off)}			100		
	t _f			33.6		



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TYPICAL CHARACTERISTICS





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TYPICAL CHARACTERISTICS

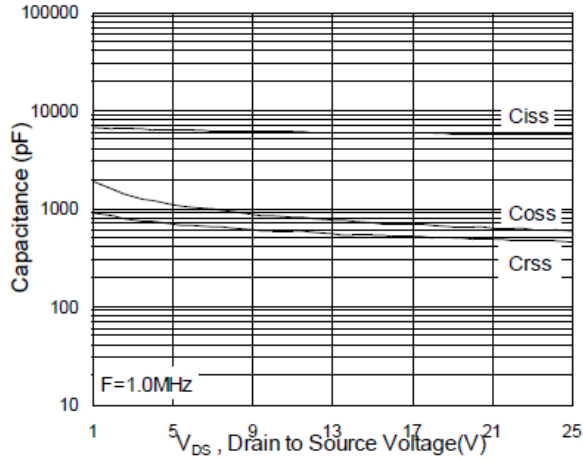


Fig.7 Capacitance

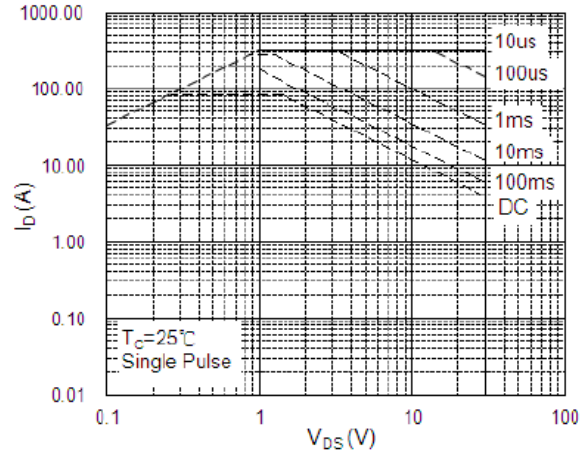


Fig.8 Safe Operating Area

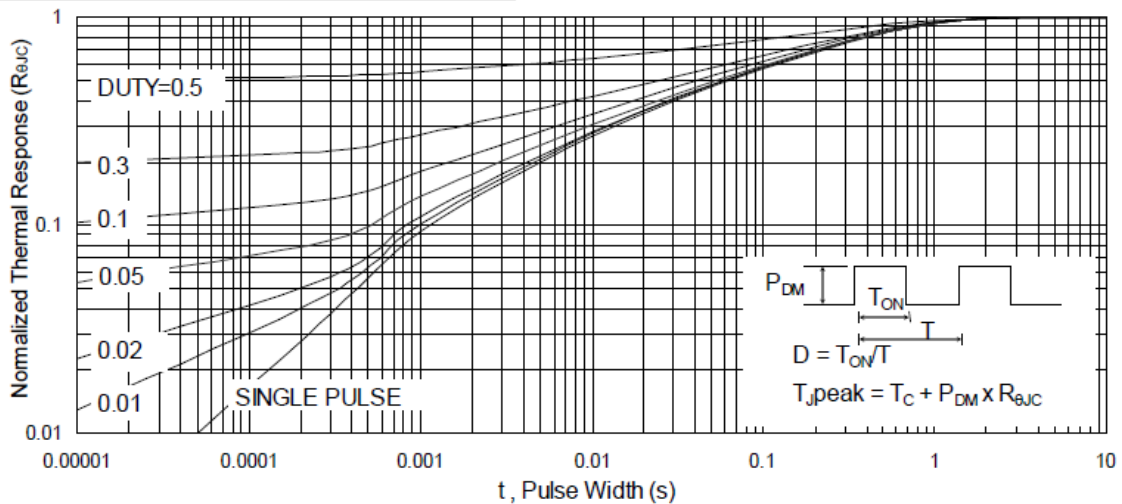


Fig.9 Normalized Maximum Transient Thermal Impedance

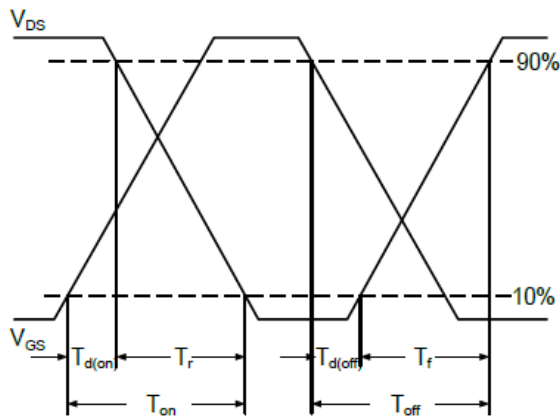


Fig.10 Switching Time Waveform

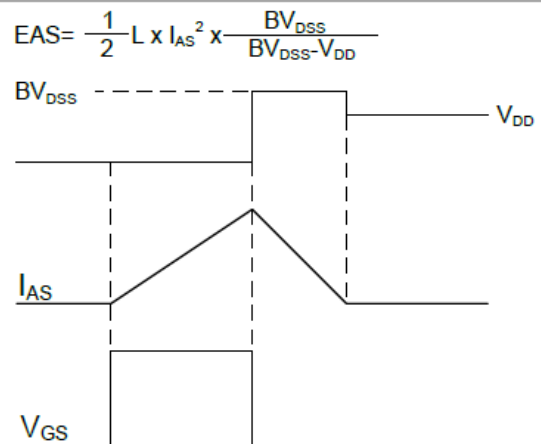


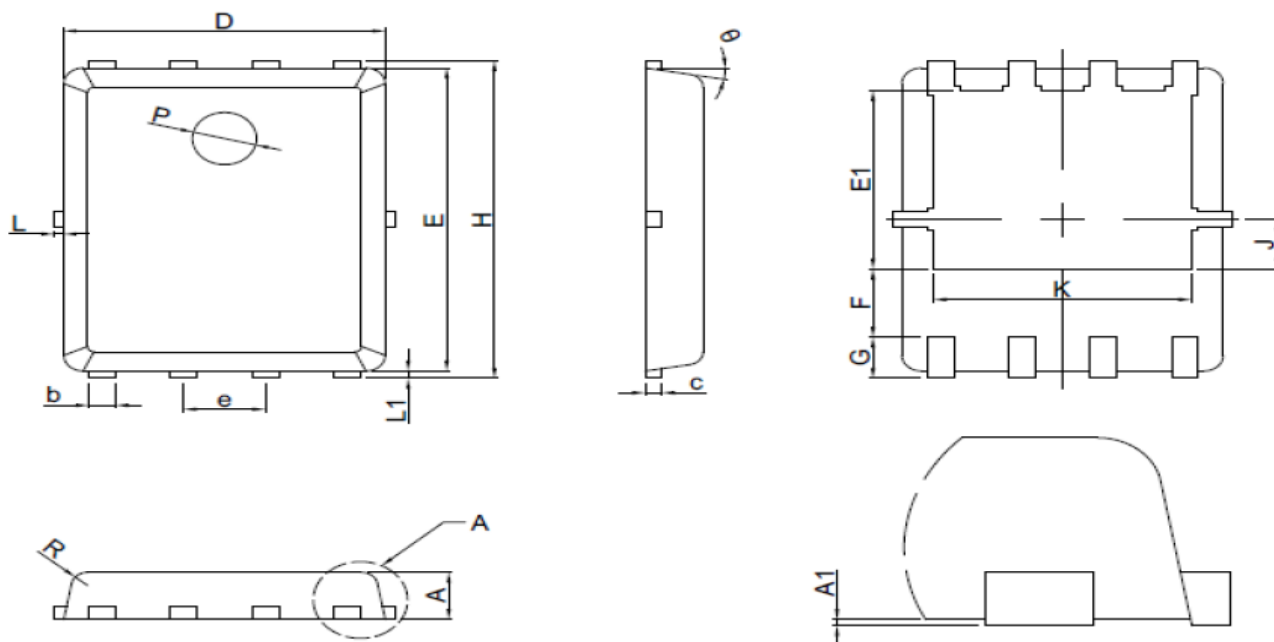
Fig.11 Unclamped Inductive Switching Waveform



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PPAK5x6-8L PACKAGE OUTLINE



SYMBOL	MILLIMETERS		
	MIN	NOM	MAX
A	0.8	0.95	1.1
A1	0.00	0.03	0.05
b	0.33	0.41	0.51
c	0.254 REF		
D	4.80	4.95	5.10
F	1.40 REF		
E	5.70	5.80	5.90
e	1.27 BSC		
H	5.90	6.05	6.20
L1	0.06	0.13	0.20
G	0.60 REF		
J	0.95 BSC		
K	4.00 REF		
L	---	----	0.20
P	1.00 REF		
E1	3.40REF		
E2	0.95 REF		
θ	6°	10°	14°
R	0.25REF		



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