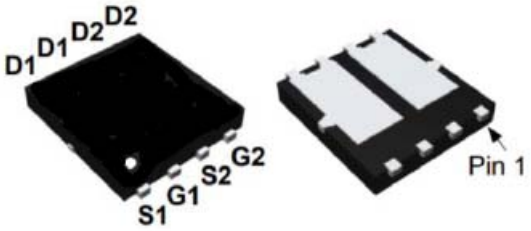
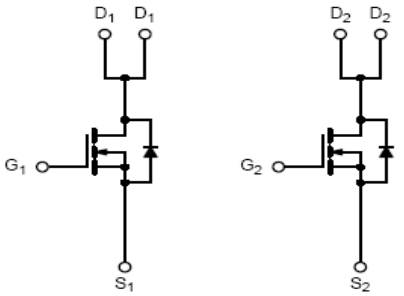
SPN8848
Dual N-Channel Enhancement Mode MOSFET

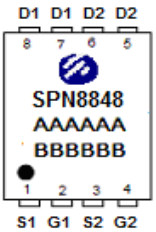
DESCRIPTION
The SPN8848 is the Dual N-Channel Enhancement mode power field effect transistors are produced using high cell density DMOS trench technology. This high density process is especially tailored to minimize on-state resistance and provide superior switching performance. These devices are particularly suited for low voltage applications such as notebook computer power management and other battery powered circuits where high-side switching, low in-line power loss, and resistance to transients are needed.

APPLICATIONS
- Portable Equipment
- Battery Powered System
- DC/DC Converter
- Load Switch

FEATURES
- 40V/10A, $R_{DS(ON)}$= 8.5mΩ@V_{GS}=10V
- 40V/8.0A, $R_{DS(ON)}$=12mΩ@V_{GS}=4.5V
- 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	S1	Source 1
2	G1	Gate 1
3	S2	Source 2
4	G2	Gate 2
5	D2	Drain 2
6	D2	Drain 2
7	D1	Drain 1
8	D1	Drain 1

ORDERING INFORMATION

Part Number	Package	Part Marking
SPN8848DN8RGB	PPAK5x6-8L	SPN8848

※ SPN8848DN8RGB 13" Tape Reel ; Pb – Free ; Halogen – Free

ABSOULTE MAXIMUM RATINGS

(T_A=25℃ Unless otherwise noted)

Parameter		Symbol	Rating	Unit
Drain-Source Voltage		V_{DSS}	40	V
Gate –Source Voltage		V_{GSS}	±20	V
Continuous Drain Current(T_J=150℃)	T_C=25℃	I_D	35	A
	T_C=100℃		22	
Pulsed Drain Current[2]		I_{DM}	70	A
Single Pulse Avalanche Energy[3]		EAS	51	mJ
Avalanche Current		I_{AS}	32	A
Power Dissipation	T_C=25℃	P_D	83	W
Operating Junction Temperature		T_J	-55/150	℃
Storage Temperature Range		T_{STG}	-55/150	℃
Thermal Resistance Junction to Case[1]		$R_{\theta JC}$	1.5	℃/W

ELECTRICAL CHARACTERISTICS

(T_J=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	40			V
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS},I_D=250uA	1.0	1.6	2.5	
Gate Leakage Current	I_{GSS}	V_{DS}=0V,V_{GS}=±12V			±100	nA
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=32V, V_{GS}=0V, T_J=25℃			1	uA
		V_{DS}=32V, V_{GS}=0V, TJ=55℃			5	
On-State Drain Current	$I_{D(on)}$	V_{DS}=5V, V_{GS} =10V			35	A
Drain-Source On-Resistance	$R_{DS(on)}$	V_{GS}=10V, I_D=10A		7.9	8.5	mΩ
		V_{GS}=4.5V, I_D=8A		10.8	12	
Forward Transconductance	gfs	V_{DS}=5V,I_D=10A		39		S
Gate Resistance	R_G	V_{DS}=0V, V_{GS}=0V,f=1MHz		1.6		Ω
Diode Forward Voltage[2]	V_{SD}	I_S=1A,V_{GS} =0V, T_J=25℃		0.8	1.0	V
Dynamic						
Total Gate Charge	Q_g	V_{DS}=20V,V_{GS}=4.5V I_D=10A		18.8		nC
Gate-Source Charge	Q_{gs}			4.7		
Gate-Drain Charge	Q_{gd}			8.2		
Input Capacitance	Ciss	V_{DS}=15V, V_{GS}=0V,f=1MHz		2332		pF
Output Capacitance	Coss			193		
Reverse Transfer Capacitance	Crss			138		
Turn-On Delay Time	$t_{d(on)}$	V_{DD}=15V, V_{GS}=10V, R_G=3.3Ω, I_D=1A		14.3		nS
	tr			2.6		
Turn-Off Delay Time	$t_{d(off)}$			77		
	tf			4.8		

TYPICAL CHARACTERISTICS

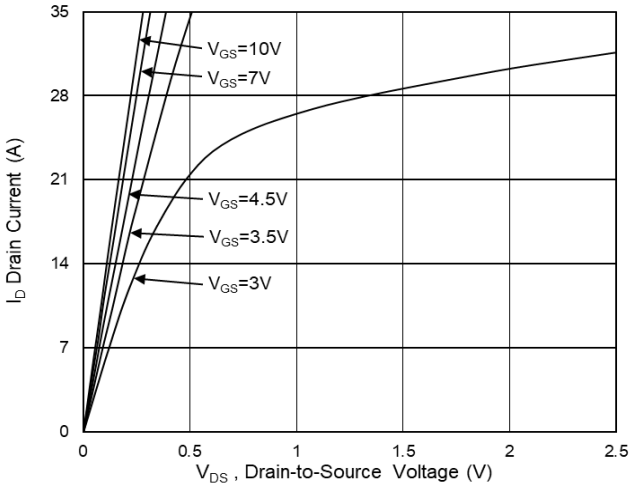

Fig.1 Typical Output Characteristics

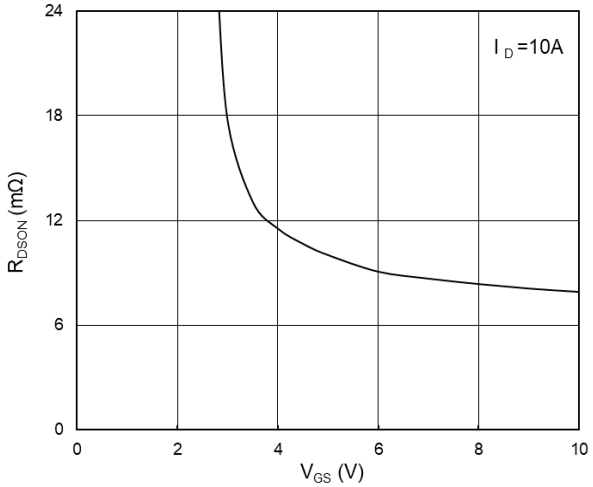

Fig.2 On-Resistance vs G-S Voltage

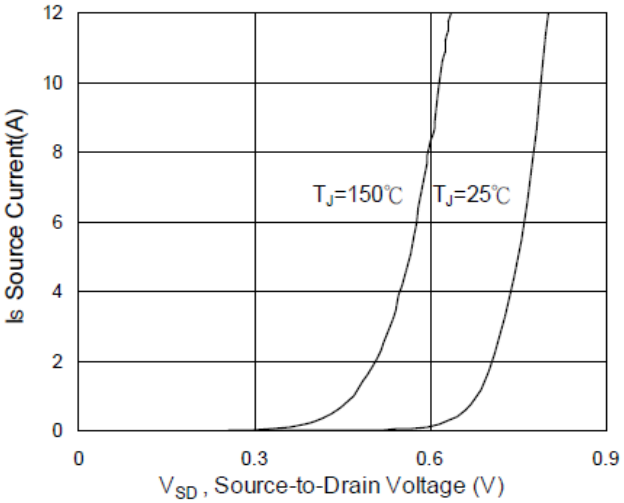

Fig.3 Source Drain Forward Characteristics

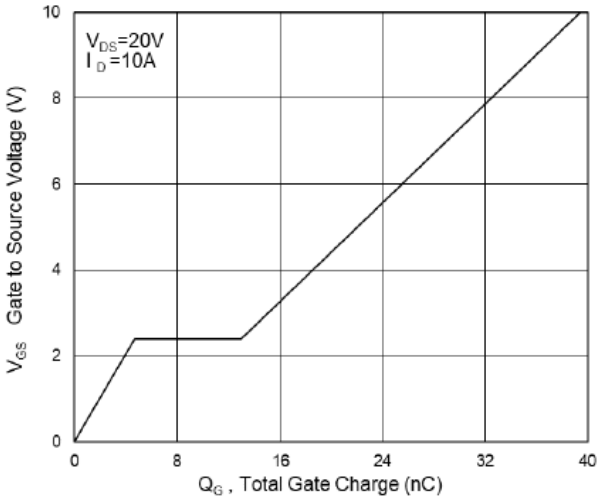

Fig.4 Gate-Charge Characteristics

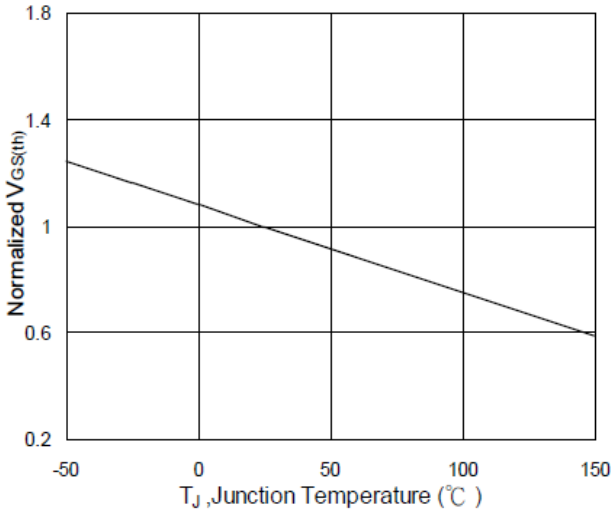

Fig.5 Normalized $V_{GS(th)}$ vs T_J

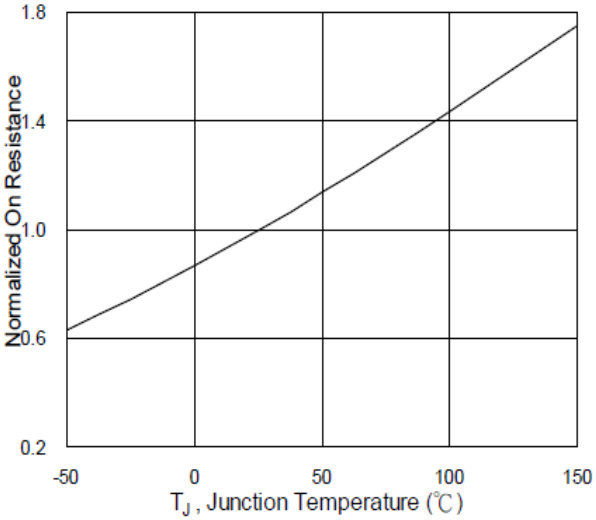

Fig.6 Normalized R_{DSON} vs T_J

TYPICAL CHARACTERISTICS

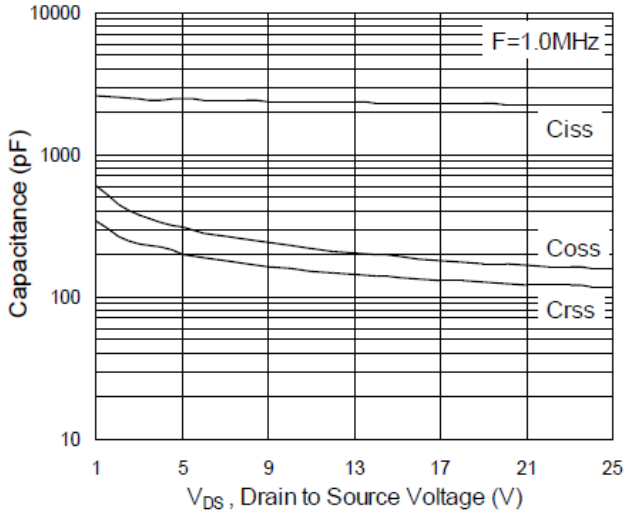

Fig.7 Capacitance

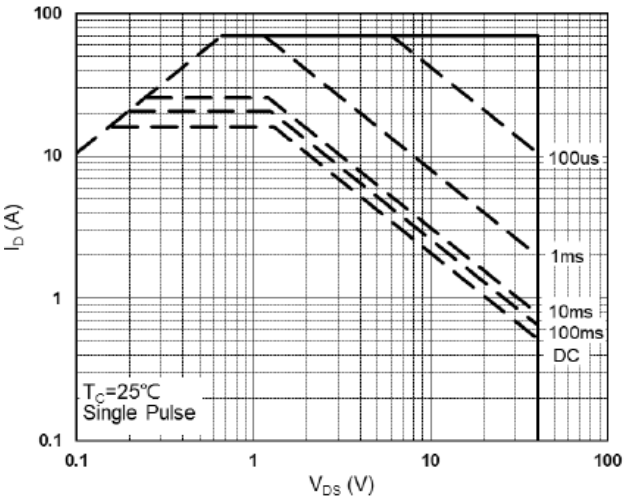

Fig.8 Safe Operating Area

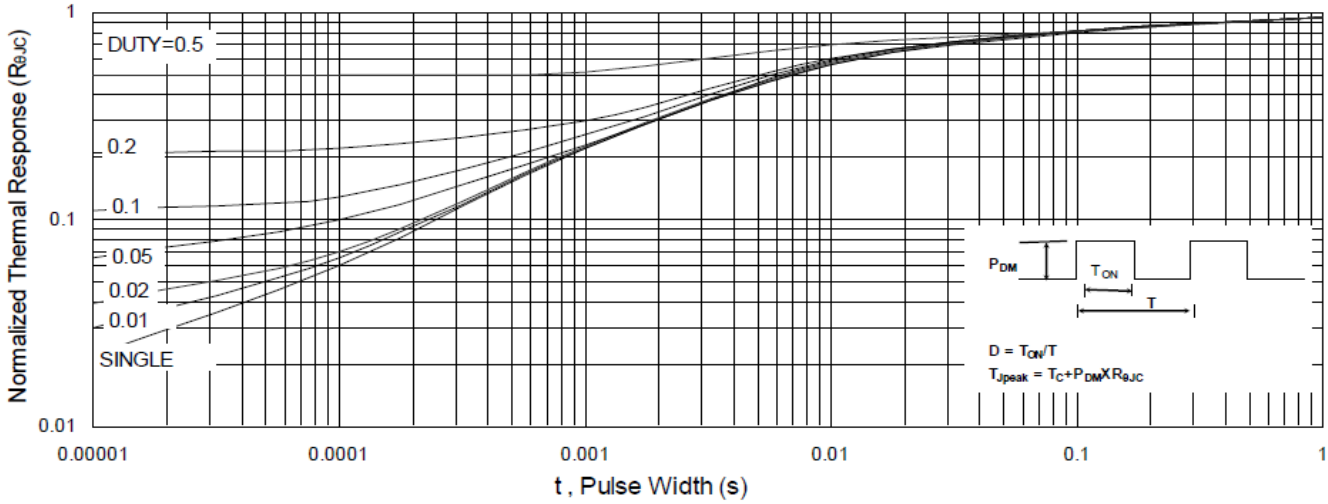

Fig.9 Normalized Maximum Transient Thermal Impedance

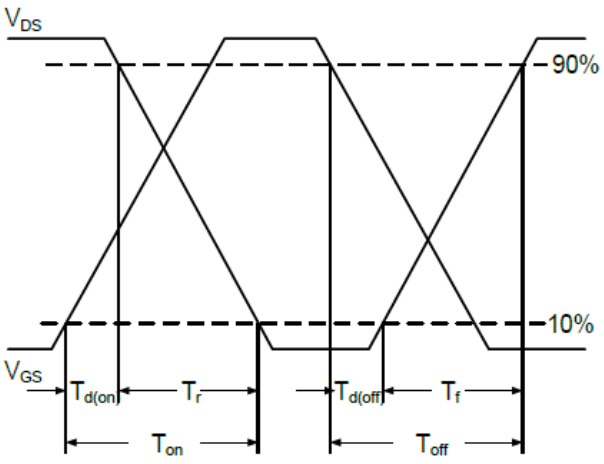

Fig.10 Switching Time Waveform

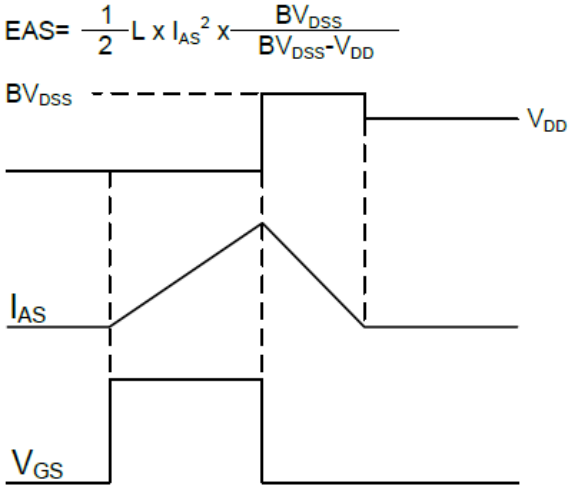

Fig.11 Unclamping Inductive Waveform

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