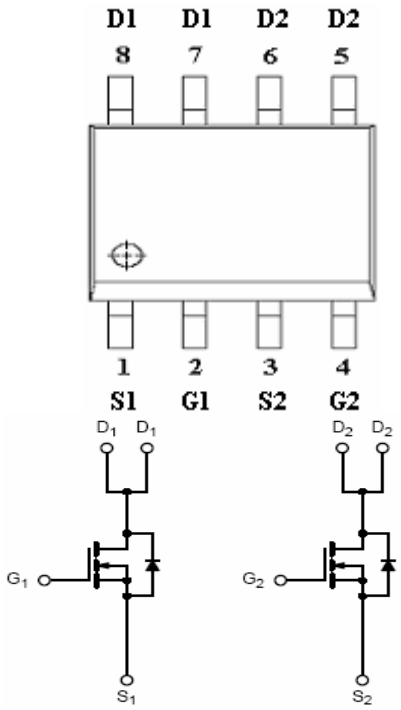
SPN4906
N-Channel Enhancement Mode MOSFET

DESCRIPTION
The SPN4906 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
- Power Management in Note book
- Portable Equipment
- Battery Powered System
- DC/DC Converter
- Load Switch
- DSC
- LCD Display inverter

FEATURES
- N-Channel
  40V/6.0A,$R_{DS(ON)}$= 45mΩ@V_{GS}= 10V
  40V/5.0A,$R_{DS(ON)}$= 54mΩ@V_{GS}= 4.5V
  40V/4.5A,$R_{DS(ON)}$= 83mΩ@V_{GS}= 2.5V
- Super high density cell design for extremely low RDS (ON)
- Exceptional on-resistance and maximum DC current capability
- SOP – 8P package design

PIN CONFIGURATION(SOP – 8P)



PART MARKING



A : Lot Code
B : Date Code

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N-Channel Enhancement Mode MOSFET

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
SPN4906S8RGB	SOP- 8P	SPN4906

※ SPN4906S8RGB 13" Tape Reel ; Pb – Free ; Halogen – Free

ABSOULTE MAXIMUM RATINGS

(T_A=25℃ Unless otherwise noted)

Parameter		Symbol	Typical	Unit
Drain-Source Voltage		V_{DSS}	40	V
Gate –Source Voltage		V_{GSS}	±20	V
Continuous Drain Current(T_J=150℃)	T_A=25℃	I_D	6.0	A
	T_A=70℃		5.0	
Pulsed Drain Current		I_{DM}	25	A
Continuous Source Current(Diode Conduction)		I_S	2.3	A
Power Dissipation	T_A=25℃	P_D	2.5	W
	T_A=70℃		1.6	
Operating Junction Temperature		T_J	-55/150	℃
Storage Temperature Range		T_{STG}	-55/150	℃
Thermal Resistance-Junction to Ambient	T ≤ 10sec	$R_{\theta JA}$	50	℃/W
	Steady State		80	

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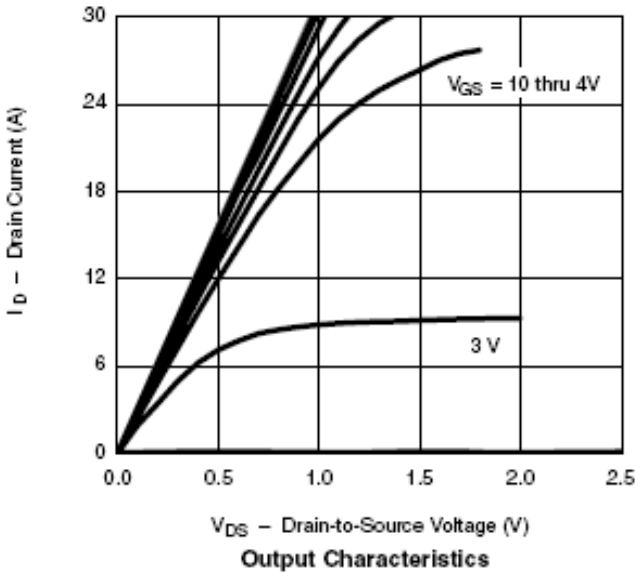
ELECTRICAL CHARACTERISTICS

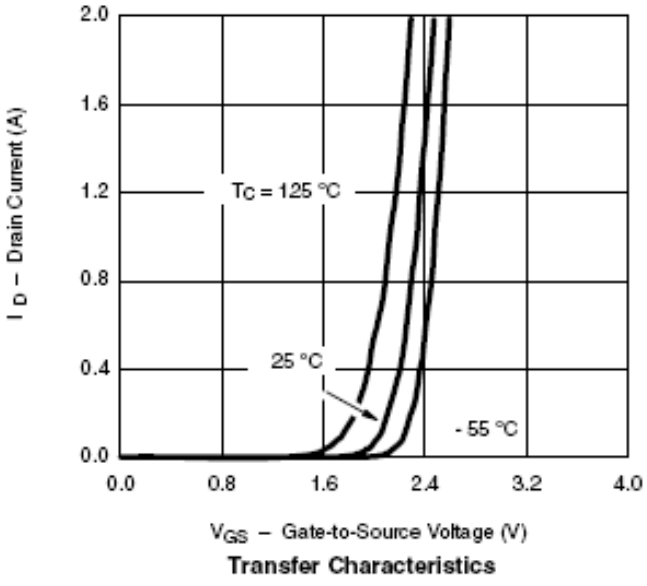
(T_A=25℃ Unless otherwise noted)

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	0.5		1.0	
Gate Leakage Current	I_{GSS}	V_{DS}=0V,V_{GS}=±12V			±100	nA
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=40V,V_{GS}=0V			1	uA
		V_{DS}=40V,V_{GS}=0V T_J=85℃			5	
On-State Drain Current	$I_{D(on)}$	V_{DS}= 5V,V_{GS} =4.5V	10			A
Drain-Source On-Resistance	$R_{DS(on)}$	V_{GS}= 10V,I_D=6.0A		0.040	0.045	Ω
		V_{GS}=4.5V,I_D=5.0A		0.047	0.054	
		V_{GS}=2.5V,I_D=4.5A		0.075	0.083	
Forward Transconductance	gfs	V_{DS}=15V,I_D=6.2A		13		S
Diode Forward Voltage	V_{SD}	I_S=2.3A,V_{GS} =0V		0.8	1.2	V
Dynamic						
Total Gate Charge	Q_g	V_{DS}=15V,V_{GS}=10V I_D= 2A		16	24	nC
Gate-Source Charge	Q_{gs}			3		
Gate-Drain Charge	Q_{gd}			2.5		
Turn-On Time	$t_{d(on)}$	V_{DD}=15V,R_L=15Ω I_D≡1.0A,V_{GEN}=10V R_G=6Ω		15	20	nS
	t_r			6	12	
Turn-Off Time	$t_{d(off)}$			10	20	
	t_f			40	80	

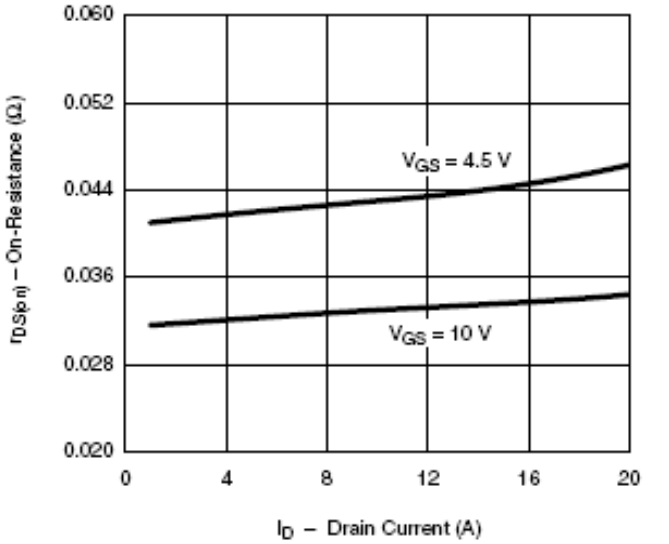
TYPICAL CHARACTERISTICS



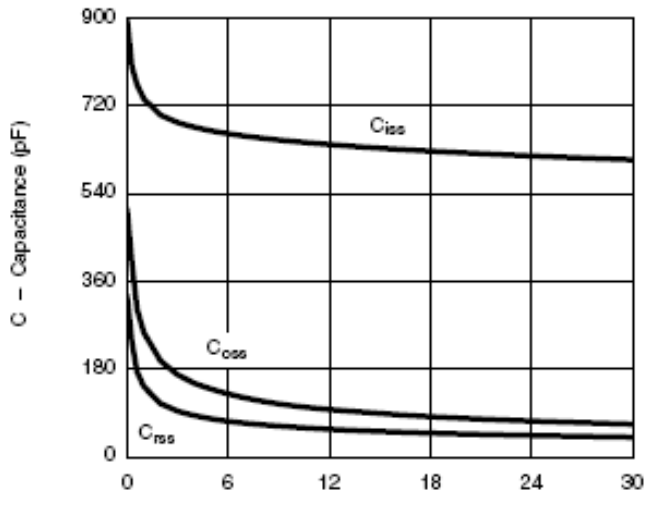
Output Characteristics



Transfer Characteristics

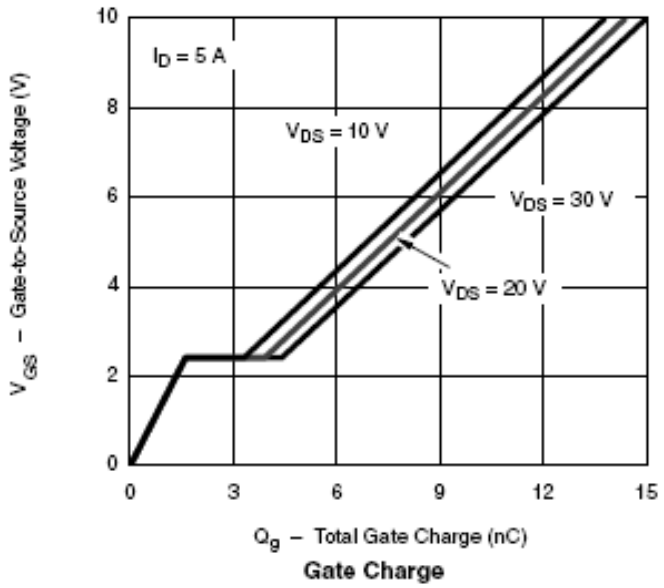


On-Resistance vs. Drain Current and Gate Voltage

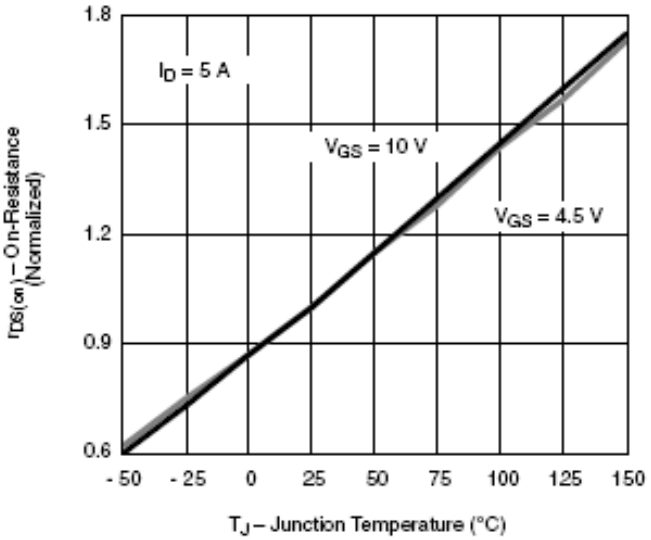


Capacitance

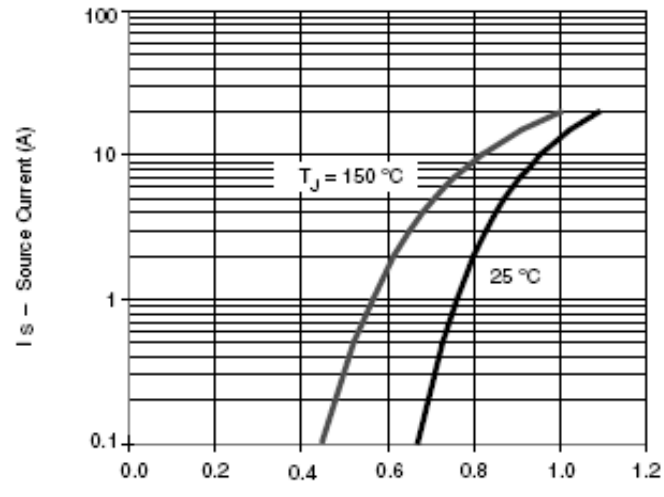
TYPICAL CHARACTERISTICS



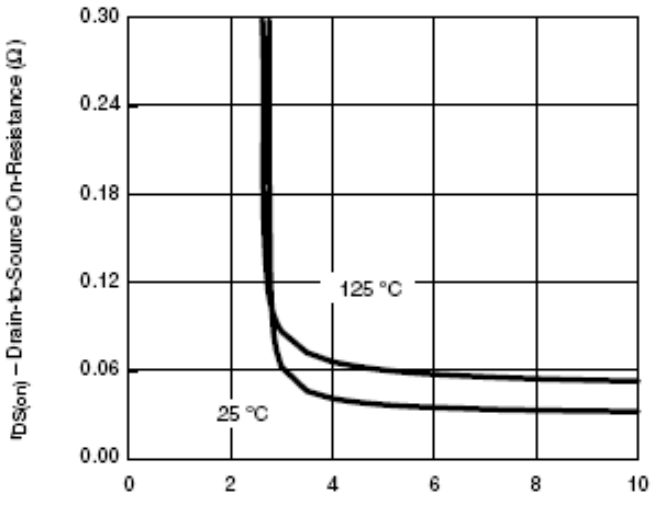
Gate Charge



On-Resistance vs. Junction Temperature

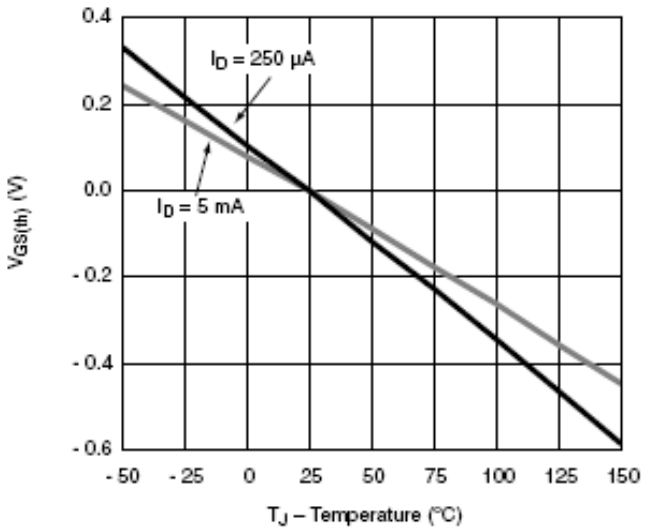


Source-Drain Diode Forward Voltage

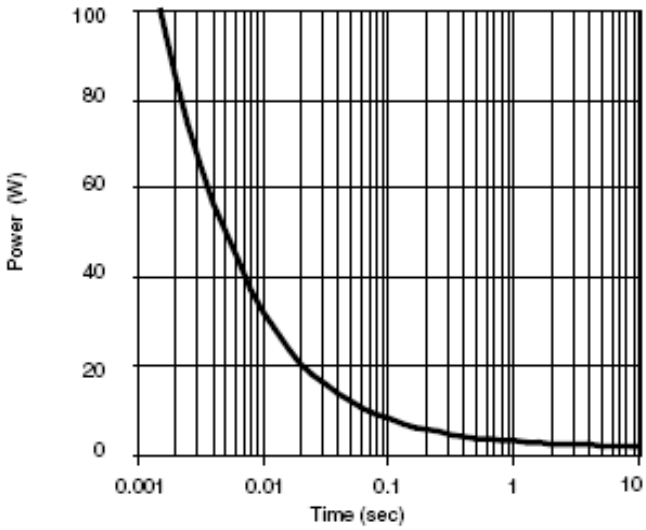


On-Resistance vs. Gate-to-Source Voltage

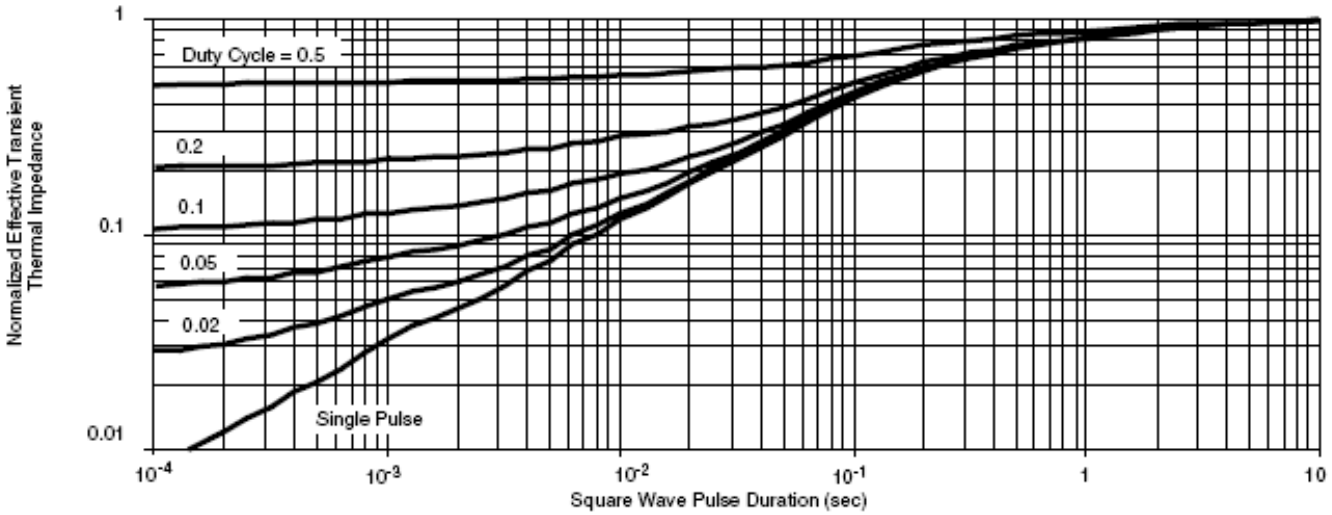
TYPICAL CHARACTERISTICS



Threshold Voltage

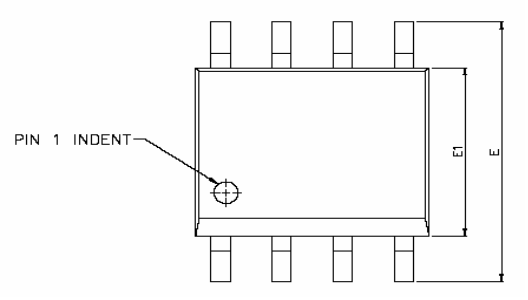


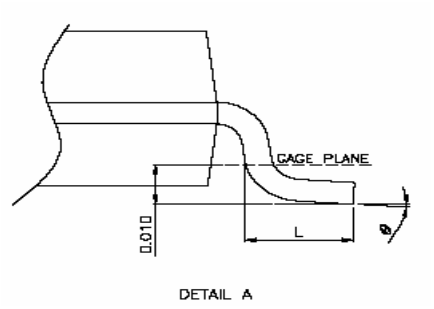
Single Pulse Power, Junction-to-Ambient

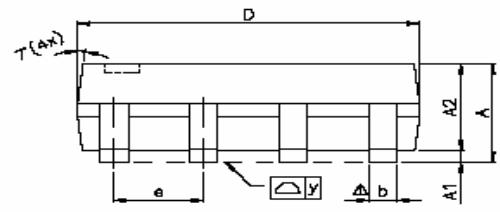


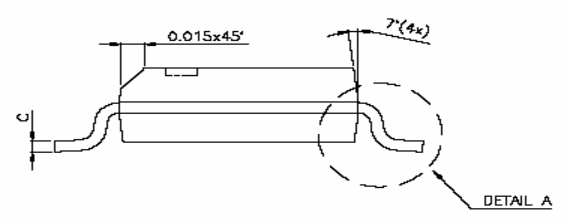
Normalized Thermal Transient Impedance, Junction-to-Foot

SOP- 8 PACKAGE OUTLINE









SYMBOLS	DIMENSIONS IN MILLIMETERS			DIMENSIONS IN INCHES		
	MIN	NOM	MAX	MIN	NOM	MAX
A	1.47	1.60	1.73	0.058	0.063	0.068
A1	0.10	——	0.25	0.004	——	0.010
A2	——	1.45	——	——	0.057	——
b	0.33	0.41	0.51	0.013	0.016	0.020
C	0.19	0.20	0.25	0.0075	0.008	0.0098
D	4.80	4.85	4.95	0.189	0.191	0.195
E	5.80	6.00	6.20	0.228	0.236	0.244
E1	3.80	3.90	4.00	0.150	0.154	0.157
e	——	1.27	——	——	0.050	——
L	0.38	0.71	1.27	0.015	0.028	0.050
2 y	——	——	0.076	——	——	0.003
θ	0°	——	8°	0°	——	8°

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