



SPN4920A

N-Channel Enhancement Mode MOSFET

DESCRIPTION

The SPN4920A is the Dual N-Channel logic 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.

These devices are particularly suited for low voltage application , notebook computer power management and other battery powered circuits where high-side switching .

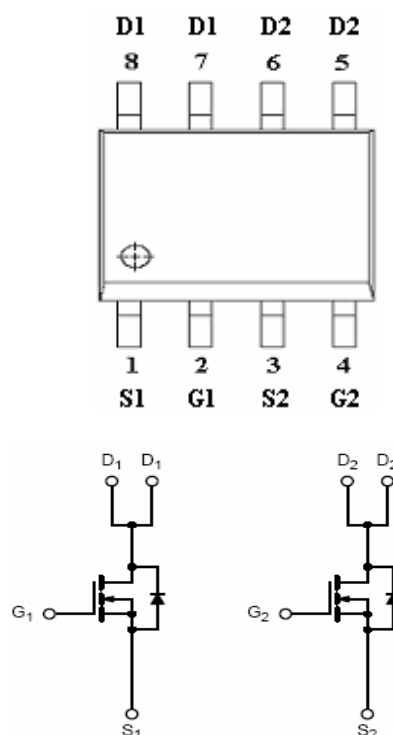
FEATURES

- ◆ 30V/6.8A, $R_{DS(ON)} = 35m\Omega @ V_{GS} = 10V$
- ◆ 30V/5.8A, $R_{DS(ON)} = 45m\Omega @ V_{GS} = 4.5V$
- ◆ Super high density cell design for extremely low $R_{DS(ON)}$
- ◆ Exceptional on-resistance and maximum DC current capability
- ◆ SOP – 8P package design

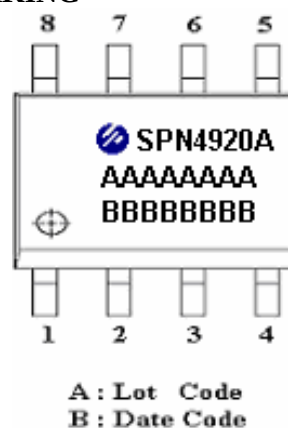
APPLICATIONS

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

PIN CONFIGURATION(SOP – 8P)



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
SPN4920AS8RG	SOP- 8P	SPN4920A
SPN4920AS8TG	SOP- 8P	SPN4920A

※ SPN4920AS8RG : 13" Tape Reel ; Pb – Free

※ SPN4920AS8TG : Tube ; Pb – 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(T _J =150°C)	I _D	6.8	A
		5.8	
Pulsed Drain Current	I _{DM}	35	A
Continuous Source Current(Diode Conduction)	I _S	1.7	A
Power Dissipation	P _D	2.8	W
		1.8	
Operating Junction Temperature	T _J	-55/150	°C
Storage Temperature Range	T _{STG}	-55/150	°C
Thermal Resistance-Junction to Ambient	R _{θJA}	65	°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 =250μA	30			V
Gate Threshold Voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =250μA	1.0		3.0	
Gate Leakage Current	I _{GSS}	V _{DS} =0V, V _{GS} =±20V			±100	nA
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =30V, V _{GS} =0V			1	μA
		V _{DS} =30V, V _{GS} =0V T _J =85°C			5	
On-State Drain Current	I _{D(on)}	V _{DS} ≥5V, V _{GS} =10V	20			A
Drain-Source On-Resistance	R _{DS(on)}	V _{GS} =10V, I _D =6.8A		0.026	0.035	Ω
		V _{GS} =4.5V, I _D =5.8A		0.036	0.045	
Forward Transconductance	g _{fs}	V _{DS} =15V, I _D =6.2A		13		S
Diode Forward Voltage	V _{SD}	I _S =2.0A, V _{GS} =0V		0.8	1.2	V
Dynamic						
Total Gate Charge	Q _g	V _{DS} =20V, V _{GS} =10V I _D =7.2A		10	15	nC
Gate-Source Charge	Q _{gs}			1.8		
Gate-Drain Charge	Q _{gd}			2.3		
Turn-On Time	t _{d(on)}	V _{DD} =20V, R _L =20Ω I _D =1.0A, V _{GEN} =10V R _G =6Ω		8	15	nS
	t _r			12	25	
Turn-Off Time	t _{d(off)}			15	35	
	t _f			10	20	

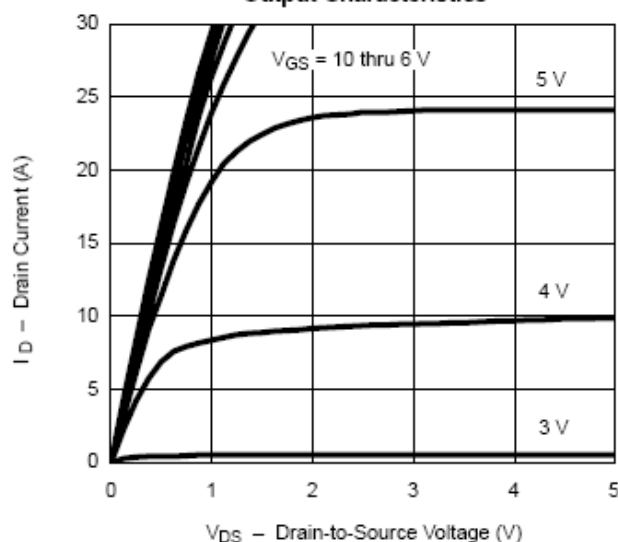


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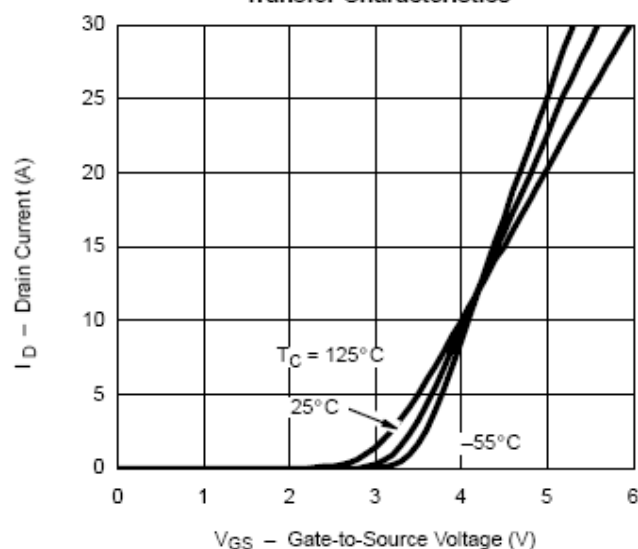
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TYPICAL CHARACTERISTICS

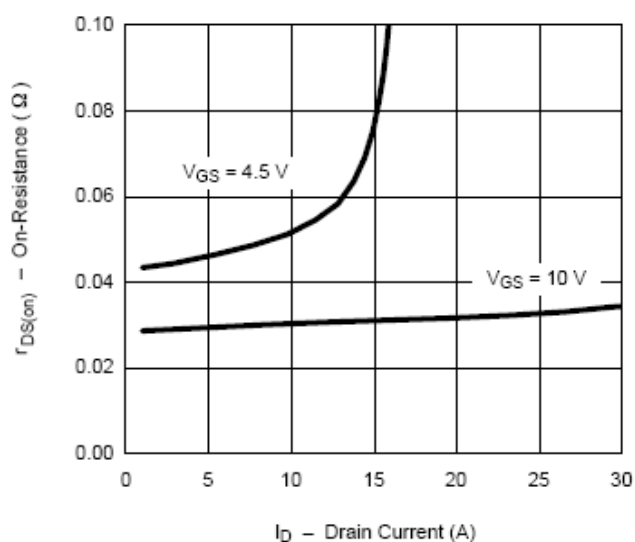
Output Characteristics



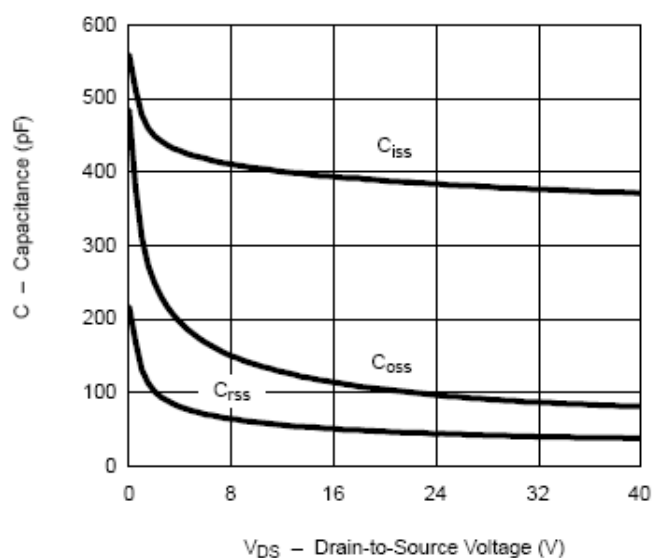
Transfer Characteristics



On-Resistance vs. Drain Current



Capacitance

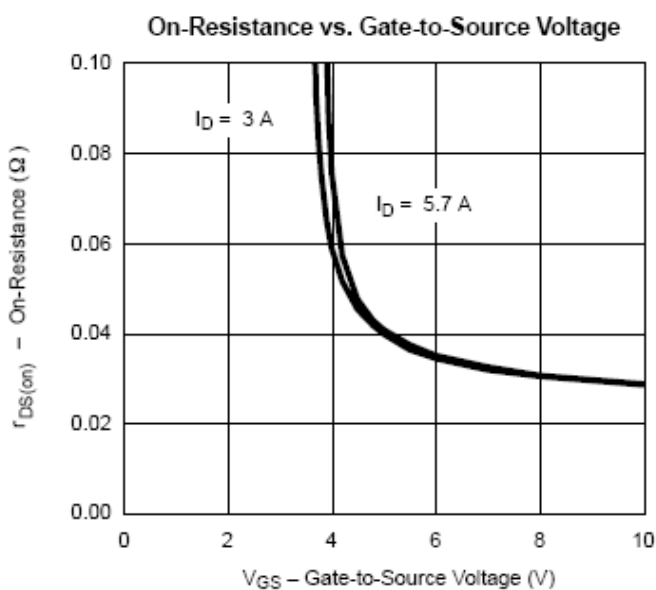
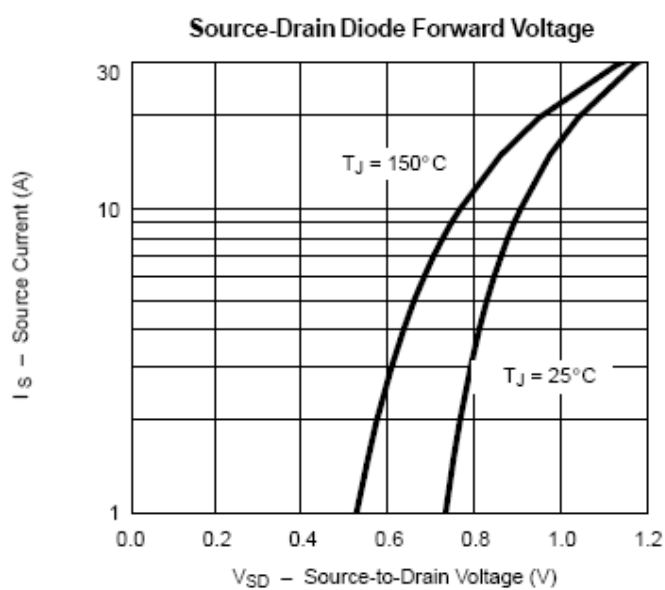
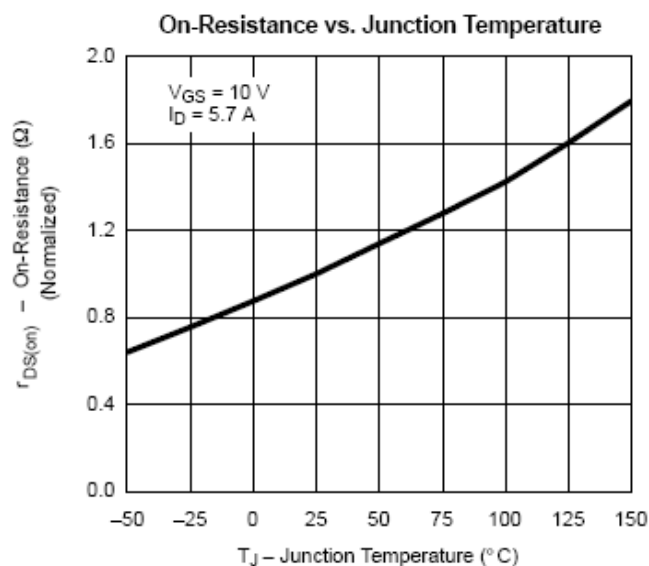
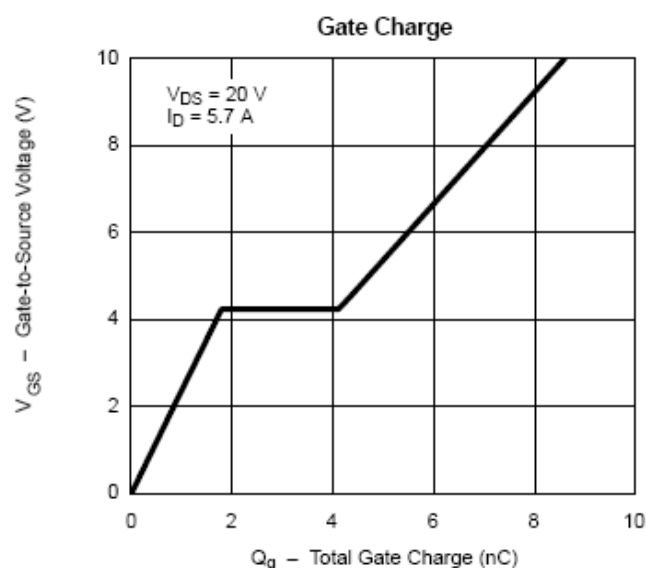




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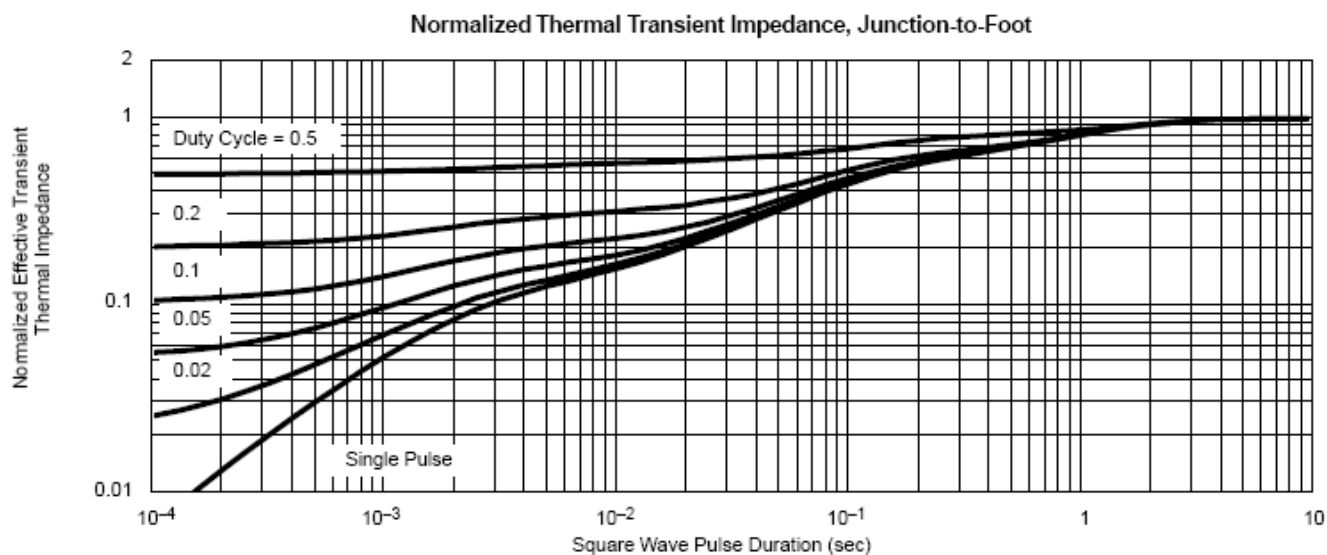
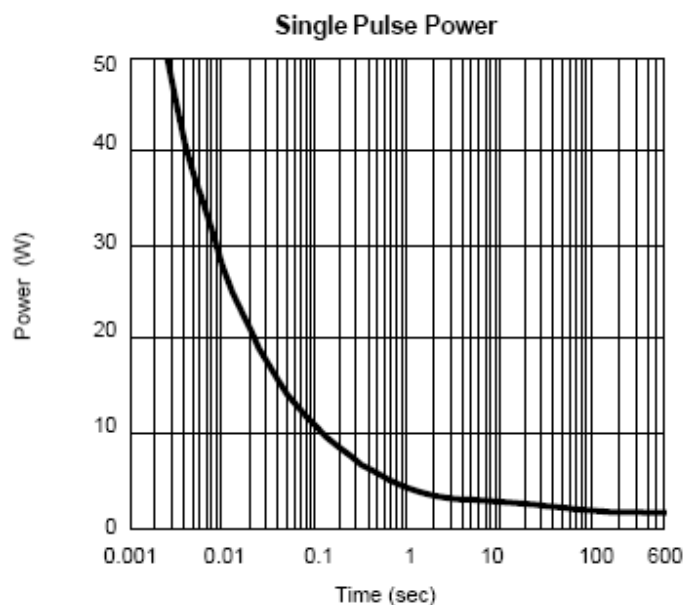
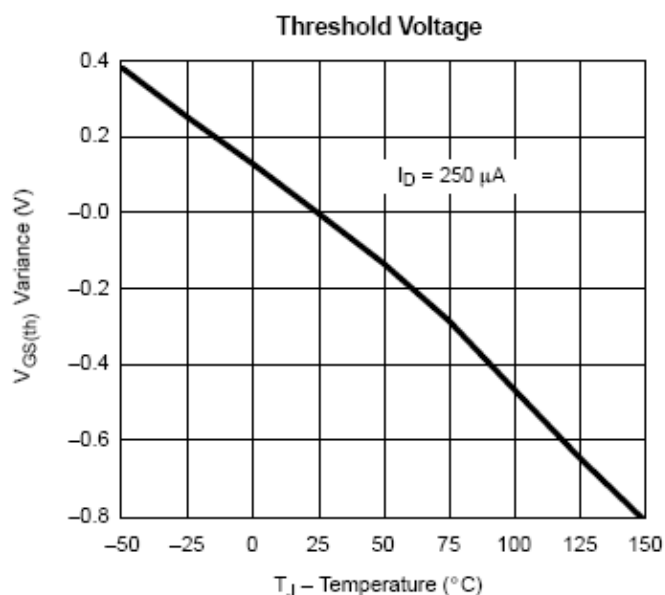




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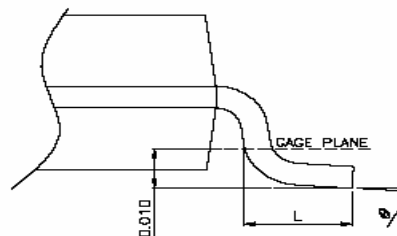
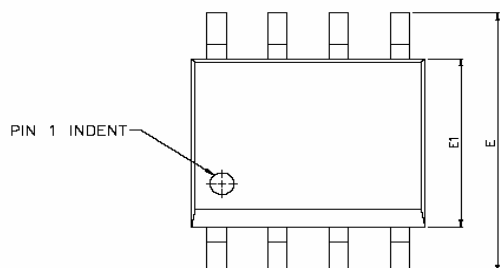




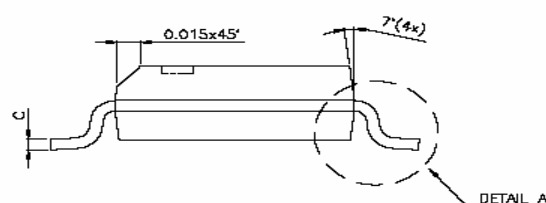
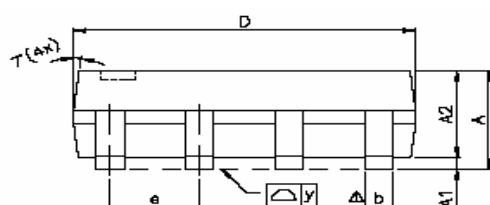
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SOP- 8 PACKAGE OUTLINE



DETAIL A



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
Δy	—	—	0.076	—	—	0.003
θ	0°	—	8°	0°	—	8°



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