



# SPP4931W

## P-Channel Enhancement Mode MOSFET

### DESCRIPTION

The SPP4931W is the Dual P-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 .

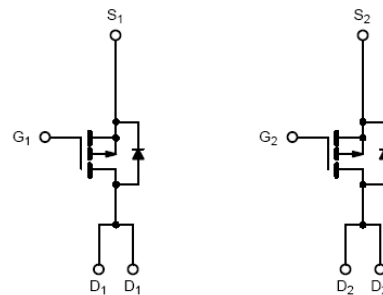
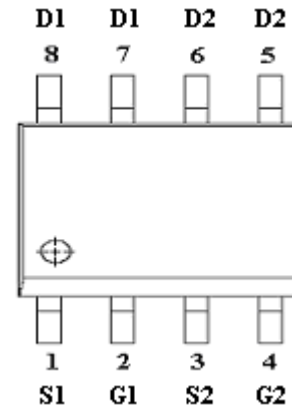
### FEATURES

- ◆ -20V/-8.5A,  $R_{DS(ON)} = 20m\Omega @ V_{GS} = -4.5V$
- ◆ -20V/-8.0 A,  $R_{DS(ON)} = 25m\Omega @ V_{GS} = -2.5V$
- ◆ -20V/-5.0 A,  $R_{DS(ON)} = 35m\Omega @ V_{GS} = -1.8V$
- ◆ 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



A : Lot Code  
B : Date Code



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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
SPP4931WS8RGB	SOP- 8P	SPP4931W

※ SPP4931WS8RGB : 13" Tape Reel ; Pb – Free ; Halogen - Free

### ABSOLUTE MAXIMUM RATINGS

(TA=25°C Unless otherwise noted)

Parameter	Symbol	Typical	Unit
Drain-Source Voltage	V <sub>DSS</sub>	-20	V
Gate –Source Voltage	V <sub>GSS</sub>	±12	V
Continuous Drain Current(T <sub>J</sub> =150°C)	I <sub>D</sub>	TA=25°C	-8.5
		TA=70°C	-7.0
Pulsed Drain Current	I <sub>DM</sub>	-30	A
Continuous Source Current(Diode Conduction)	I <sub>S</sub>	-2.3	A
Power Dissipation	P <sub>D</sub>	TA=25°C	2.8
		TA=70°C	1.8
Operating Junction Temperature	T <sub>J</sub>	-55/150	°C
Storage Temperature Range	T <sub>STG</sub>	-55/150	°C
Thermal Resistance-Junction to Ambient	R <sub>θJA</sub>	70	°C/W



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### ELECTRICAL CHARACTERISTICS

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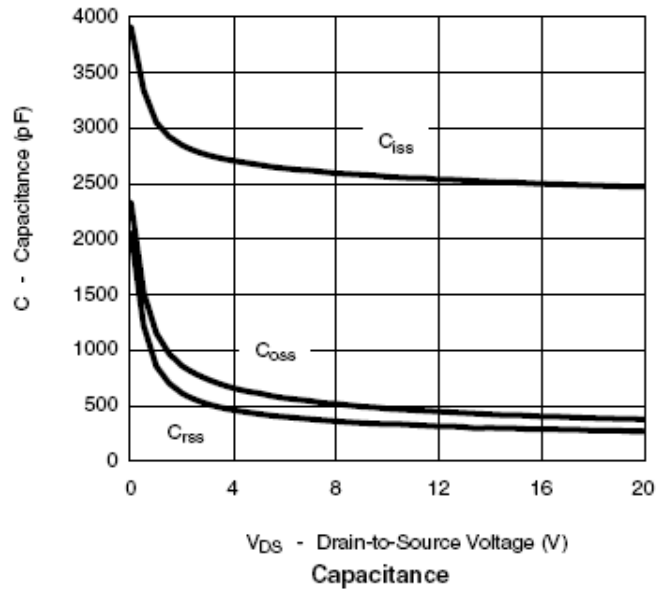
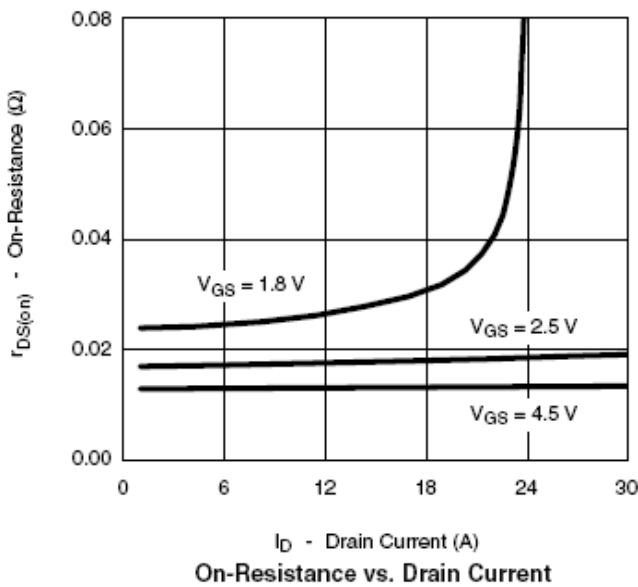
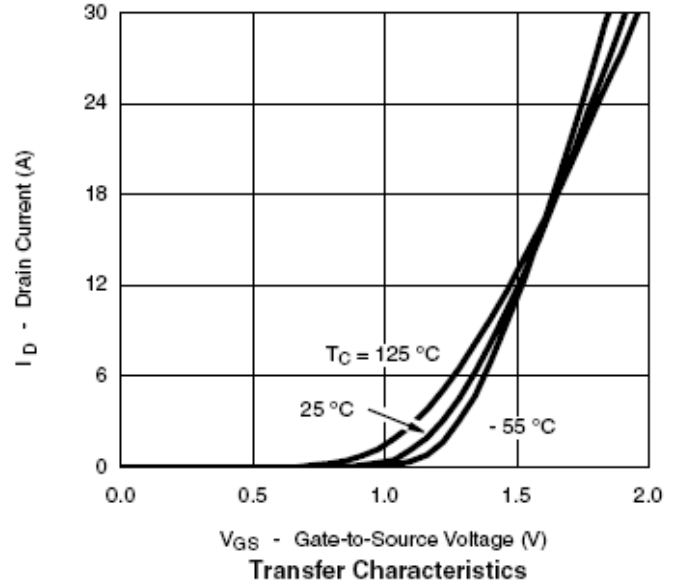
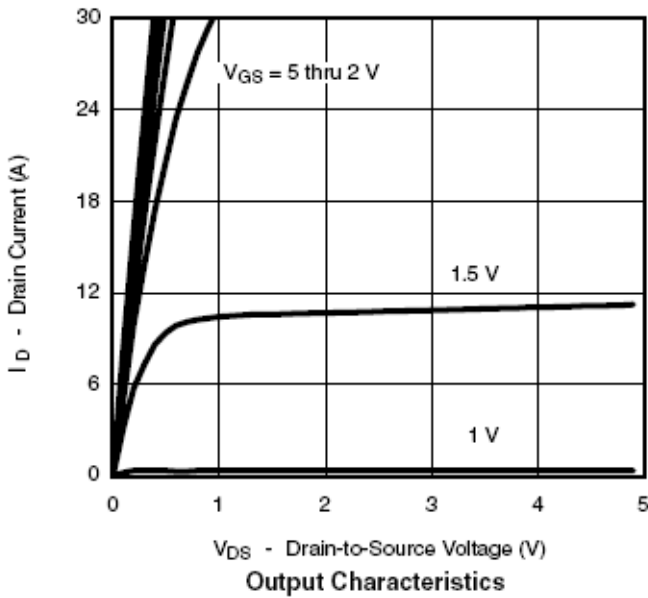
Parameter	Symbol	Conditions	Min.	Typ	Max.	Unit
<b>Static</b>						
Drain-Source Breakdown Voltage	V <sub>(BR)DSS</sub>	V <sub>GS</sub> =0V, I <sub>D</sub> =-250uA	-20			V
Gate Threshold Voltage	V <sub>GS(th)</sub>	V <sub>DS</sub> =V <sub>GS</sub> , I <sub>D</sub> =-250uA	-0.35		-0.9	
Gate Leakage Current	I <sub>GSS</sub>	V <sub>DS</sub> =0V, V <sub>GS</sub> =±12V			±100	nA
Zero Gate Voltage Drain Current	I <sub>DSS</sub>	V <sub>DS</sub> =-16V, V <sub>GS</sub> =0V			-1	uA
		V <sub>DS</sub> =-16V, V <sub>GS</sub> =0V T <sub>J</sub> =55°C			-10	
On-State Drain Current	I <sub>D(on)</sub>	V <sub>DS</sub> ≤ -5V, V <sub>GS</sub> =-4.5V	-20			A
Drain-Source On-Resistance	R <sub>DS(on)</sub>	V <sub>GS</sub> =-4.5V, I <sub>D</sub> =-8.5A		0.016	0.020	Ω
		V <sub>GS</sub> =-2.5V, I <sub>D</sub> =-8.0A		0.020	0.025	
		V <sub>GS</sub> =-1.8V, I <sub>D</sub> =-5.0A		0.028	0.035	
Forward Transconductance	g <sub>fs</sub>	V <sub>DS</sub> =-5.0V, I <sub>D</sub> =-10.0A		36		S
Diode Forward Voltage	V <sub>SD</sub>	I <sub>S</sub> =-2.5A, V <sub>GS</sub> =0V		-0.8	-1.2	V
<b>Dynamic</b>						
Total Gate Charge	Q <sub>g</sub>	V <sub>DS</sub> =-10V, V <sub>GS</sub> =-5.0V I <sub>D</sub> =-10.0A		30	45	nC
Gate-Source Charge	Q <sub>gs</sub>			4.5		
Gate-Drain Charge	Q <sub>gd</sub>			8.0		
Input Capacitance	C <sub>iss</sub>	V <sub>DS</sub> =-10V, V <sub>GS</sub> =0V f=1MHz		2670		pF
Output Capacitance	C <sub>oss</sub>			520		
Reverse Transfer Capacitance	C <sub>rss</sub>			480		
Turn-On Time	t <sub>d(on)</sub>	V <sub>DD</sub> =-10V, R <sub>L</sub> =15Ω I <sub>D</sub> =-1.0A, V <sub>GEN</sub> =-4.5V R <sub>G</sub> =6Ω		25	40	ns
	t <sub>r</sub>			45	70	
Turn-Off Time	t <sub>d(off)</sub>			145	240	
	t <sub>f</sub>			70	115	



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### TYPICAL CHARACTERISTICS

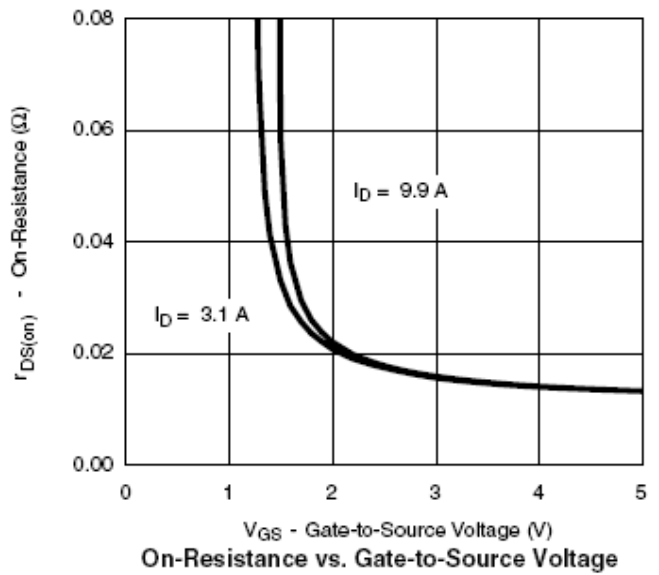
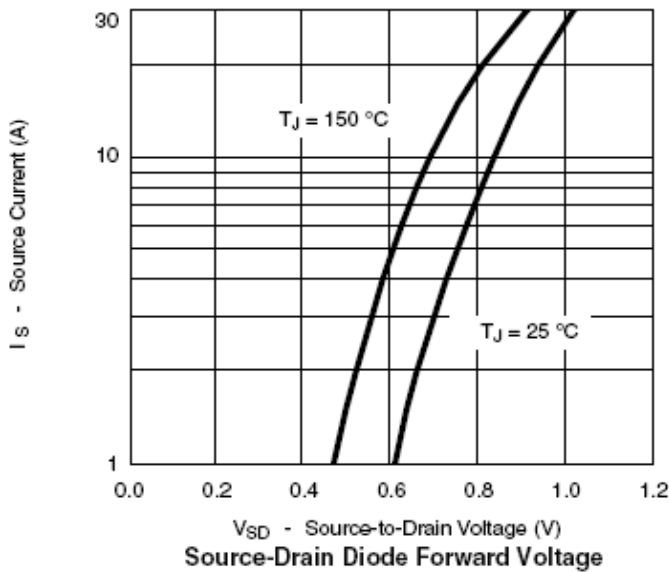
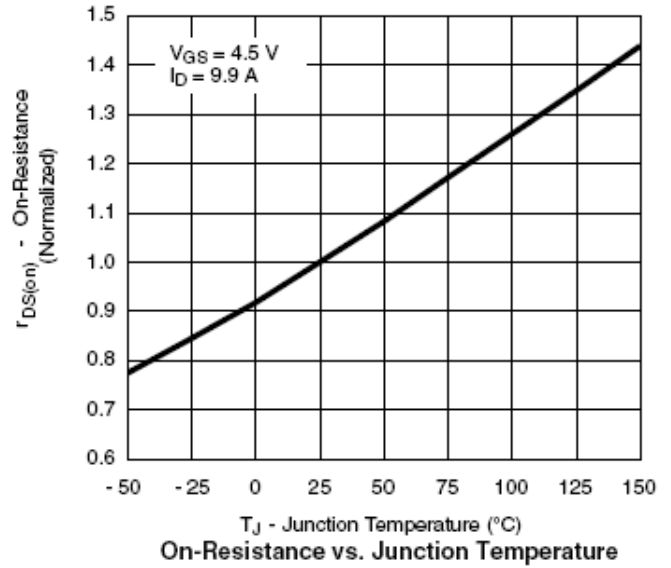
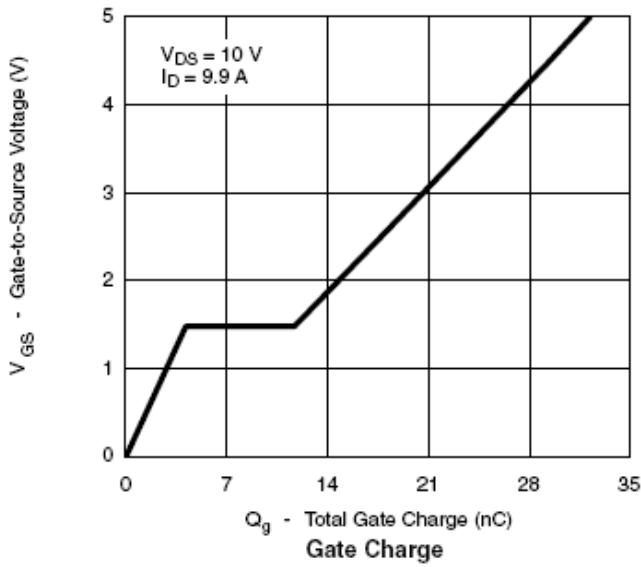




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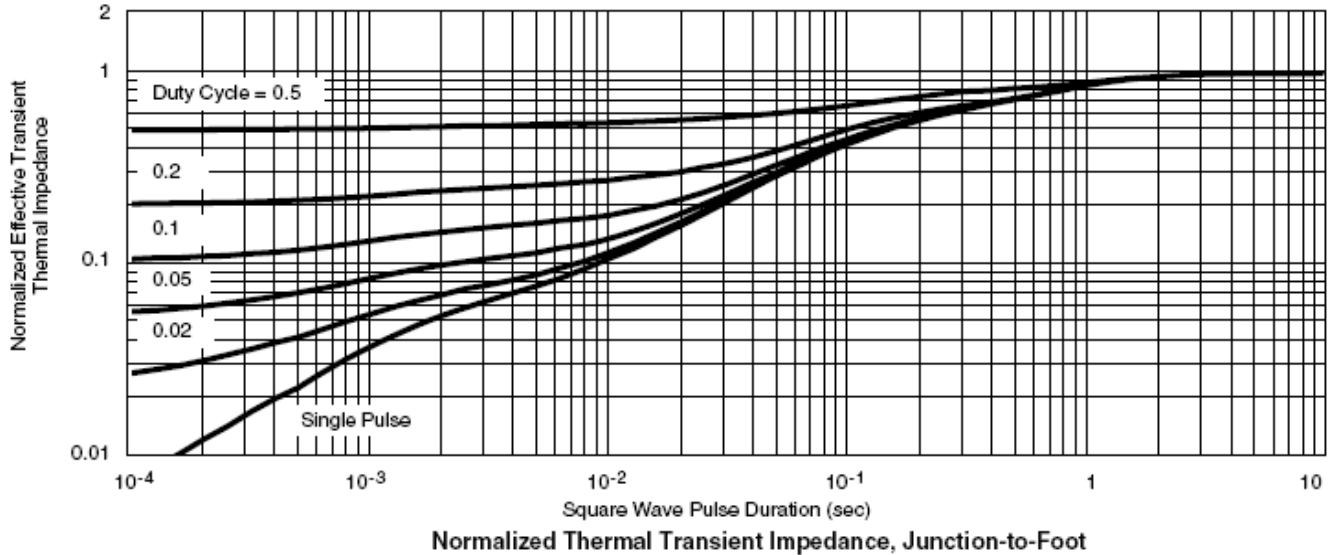
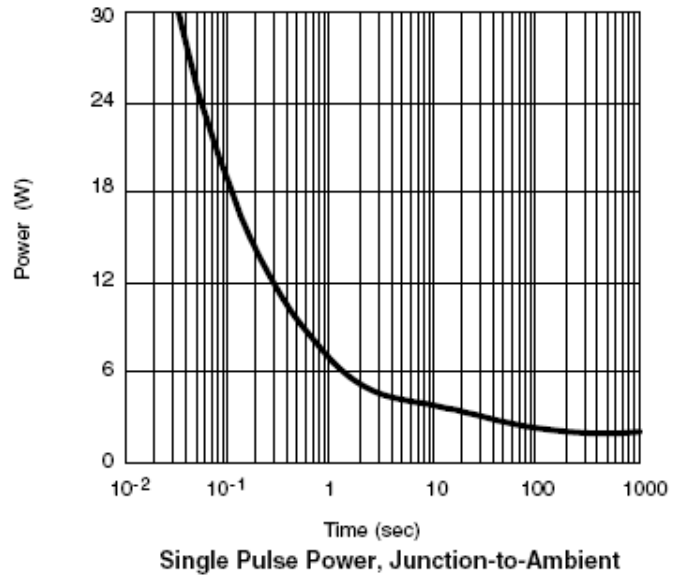
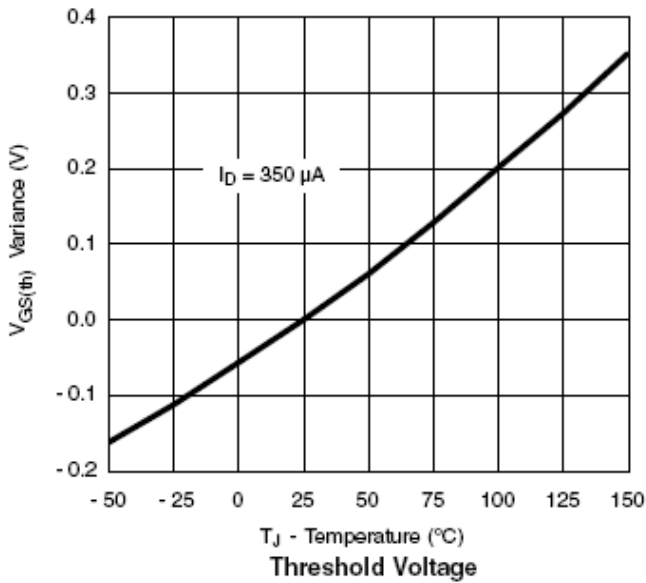




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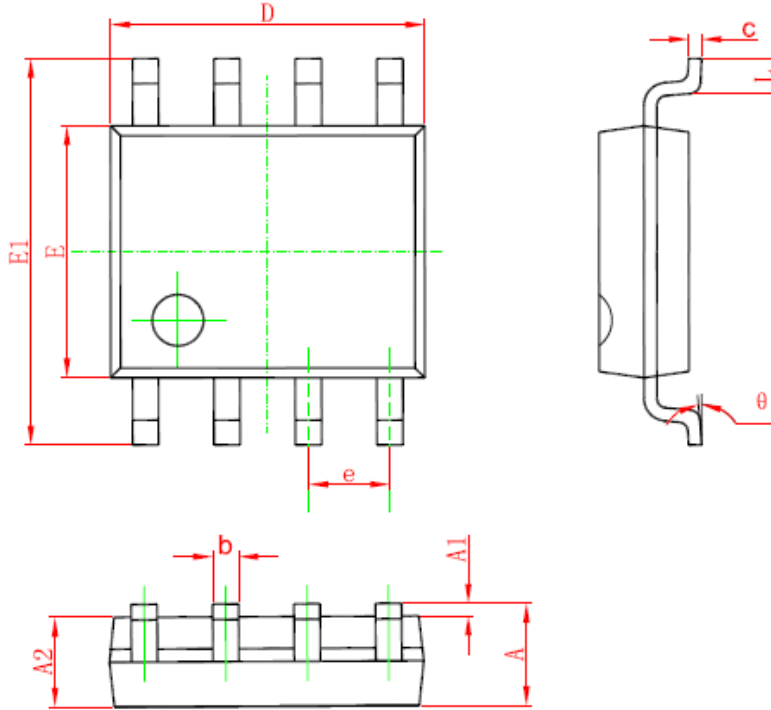




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### SOP- 8 PACKAGE OUTLINE



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	1.350	1.750	0.053	0.069
A1	0.100	0.250	0.004	0.010
A2	1.350	1.550	0.053	0.061
b	0.330	0.510	0.013	0.020
c	0.170	0.250	0.006	0.010
D	4.700	5.100	0.185	0.200
E	3.800	4.000	0.150	0.157
E1	5.800	6.200	0.228	0.244
e	1.270 (BSC)		0.050 (BSC)	
L	0.400	1.270	0.016	0.050
θ	0°	8°	0°	8°



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