



# SPP9235

## P-Channel Enhancement Mode MOSFET

### DESCRIPTION

The SPP9235 is the 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 .

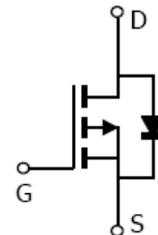
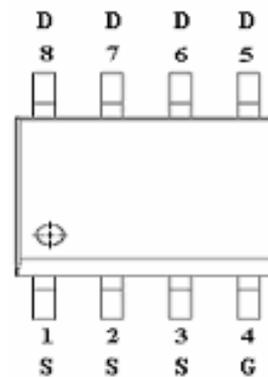
### FEATURES

- -25V/-7.5A,R<sub>DS(ON)</sub>=45mΩ@V<sub>GS</sub>=-10V
- -25V/-6.0A,R<sub>DS(ON)</sub>=55mΩ@V<sub>GS</sub>=-6V
- -25V/-5.4A,R<sub>DS(ON)</sub>=65mΩ@V<sub>GS</sub>=-4.5V
- Super high density cell design for extremely low R<sub>DS</sub> (ON)
- Exceptional on-resistance and maximum DC current capability
- SOP-8 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-8)



### PART MARKING



A : Lot Code  
B : Date Code



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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
SPP9235S8RG	SOP-8	SPP9235
SPP9235S8TG	SOP-8	SPP9235

※ SPP9235S8RG : 13" Tape Reel ; Pb – Free

※ SPP9235S8TG : Tube ; Pb – Free

### ABSOLUTE MAXIMUM RATINGS

( $T_A=25^{\circ}\text{C}$  Unless otherwise noted)

Parameter	Symbol	Typical	Unit	
Drain-Source Voltage	$V_{DSS}$	-25	V	
Gate –Source Voltage	$V_{GSS}$	$\pm 20$	V	
Continuous Drain Current( $T_J=150^{\circ}\text{C}$ )	$I_D$	$T_A=25^{\circ}\text{C}$	-8.0	A
		$T_A=70^{\circ}\text{C}$	-6.0	
Pulsed Drain Current	$I_{DM}$	-30	A	
Continuous Source Current(Diode Conduction)	$I_S$	-2.3	A	
Power Dissipation	$P_D$	$T_A=25^{\circ}\text{C}$	2.8	W
		$T_A=70^{\circ}\text{C}$	1.8	
Operating Junction Temperature	$T_J$	-55/150	$^{\circ}\text{C}$	
Storage Temperature Range	$T_{STG}$	-55/150	$^{\circ}\text{C}$	
Thermal Resistance-Junction to Ambient	$R_{\theta JA}$	70	$^{\circ}\text{C}/\text{W}$	



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### ELECTRICAL CHARACTERISTICS

(TA=25°C Unless otherwise noted)

Parameter	Symbol	Conditions	Min.	Typ	Max.	Unit
<b>Static</b>						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS}=0V, I_D=-250\mu A$	-30			V
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=-250\mu A$	-1.0		-3.0	
Gate Leakage Current	$I_{GSS}$	$V_{DS}=0V, V_{GS}=\pm 20V$			$\pm 100$	nA
Zero Gate Voltage Drain Current	$I_{DSS}$	$V_{DS}=-18V, V_{GS}=0V$			-1	uA
		$V_{DS}=-18V, V_{GS}=0V$ $T_J=85^\circ C$			-5	
On-State Drain Current	$I_{D(on)}$	$V_{DS}=-5V, V_{GS}=-4.5V$	-10			A
Drain-Source On-Resistance	$R_{DS(on)}$	$V_{GS}=-10V, I_D=-7.5A$		0.035	0.045	$\Omega$
		$V_{GS}=-6.0V, I_D=-6.0A$		0.045	0.055	
		$V_{GS}=-4.5V, I_D=-5.4A$		0.055	0.065	
Forward Transconductance	$g_{fs}$	$V_{DS}=-15V, I_D=-5.7A$		13		S
Diode Forward Voltage	$V_{SD}$	$I_S=-2.3A, V_{GS}=0V$		-0.8	-1.2	V
<b>Dynamic</b>						
Total Gate Charge	$Q_g$	$V_{DS}=-15V, V_{GS}=-10V$ $I_D=-3.5A$		16	24	nC
Gate-Source Charge	$Q_{gs}$			2.3		
Gate-Drain Charge	$Q_{gd}$			4.5		
Input Capacitance	$C_{iss}$	$V_{DS}=-15V, V_{GS}=0V$ $f=1MHz$		680		pF
Output Capacitance	$C_{oss}$			120		
Reverse Transfer Capacitance	$C_{rss}$			75		
Turn-On Time	$t_{d(on)}$	$V_{DD}=-15V, R_L=15\Omega$ $I_D=-1.0A, V_{GEN}=-10V$ $R_G=6\Omega$		14	25	nS
	$t_r$			15	26	
Turn-Off Time	$t_{d(off)}$			42	70	
	$t_f$			30	50	

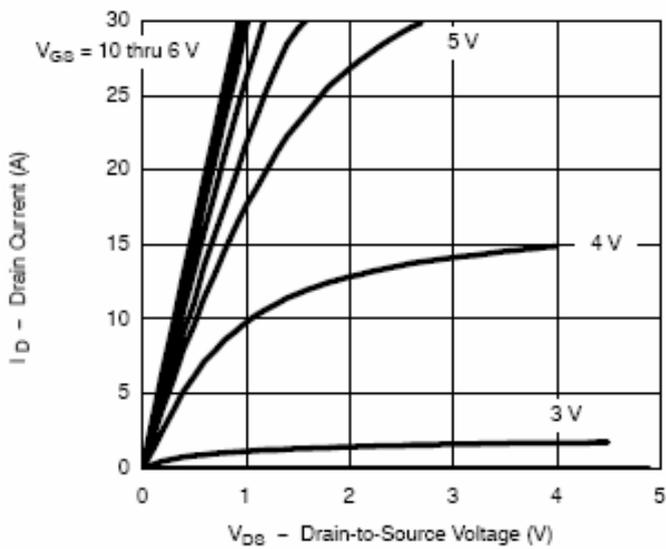


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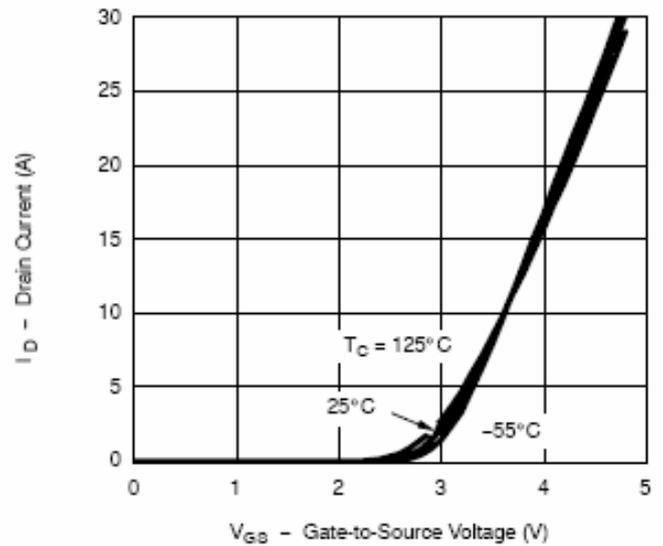
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### TYPICAL CHARACTERISTICS

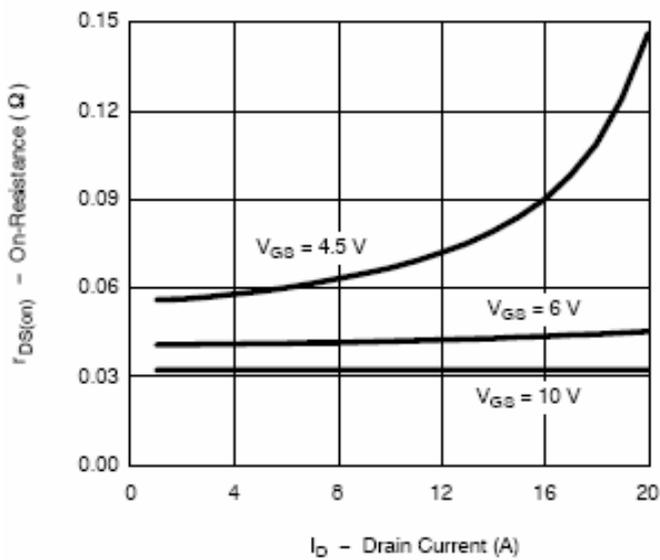
Output Characteristics



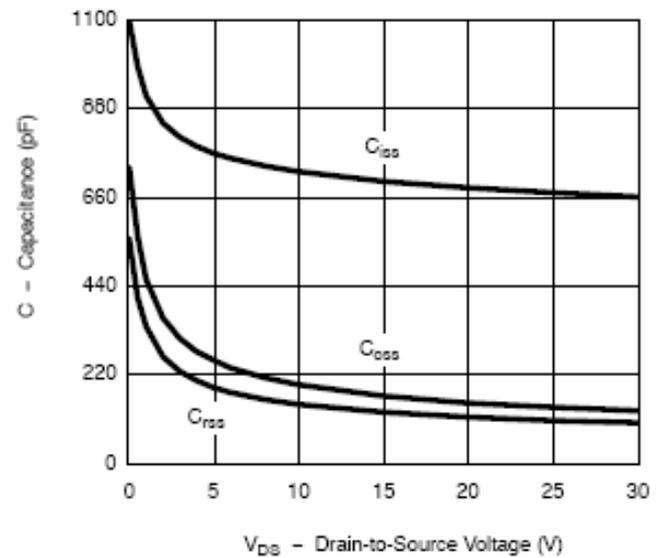
Transfer Characteristics



On-Resistance vs. Drain Current



Capacitance

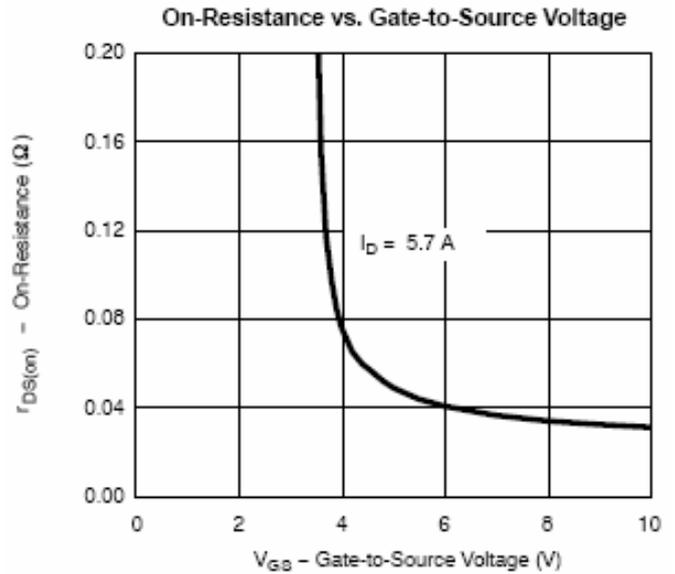
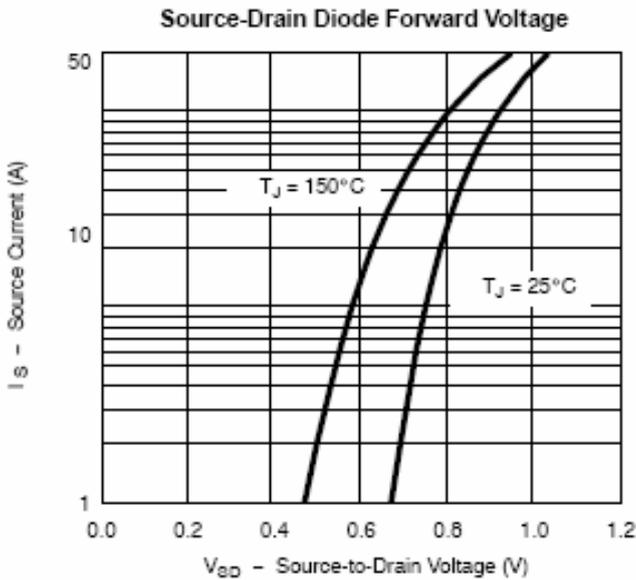
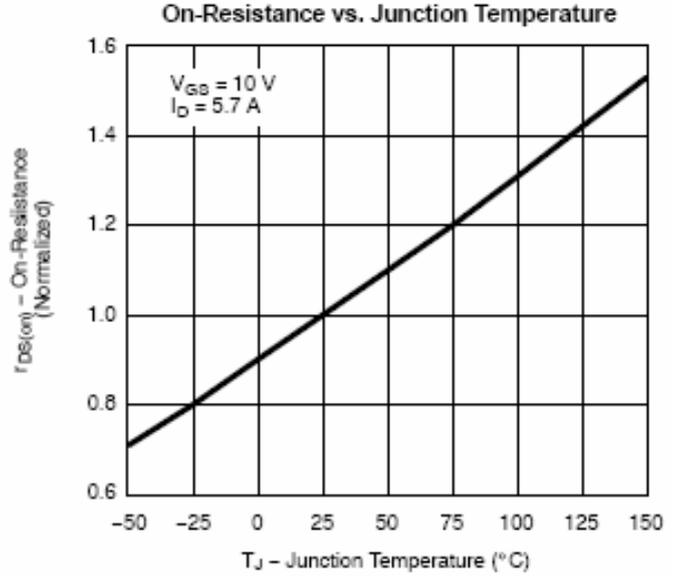
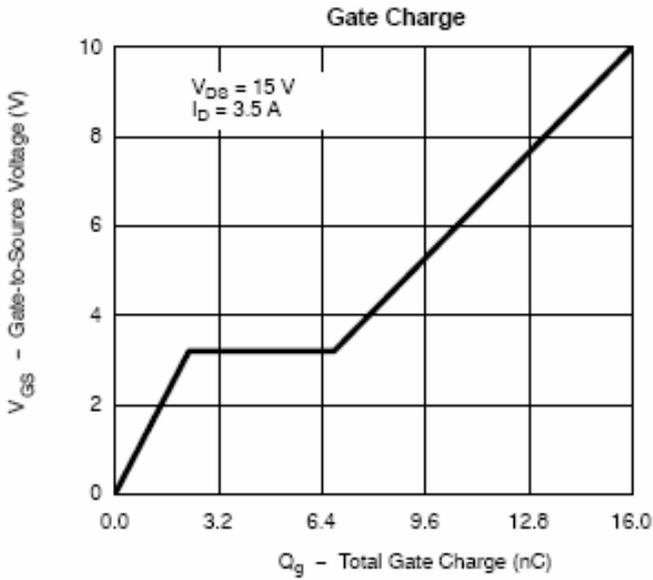




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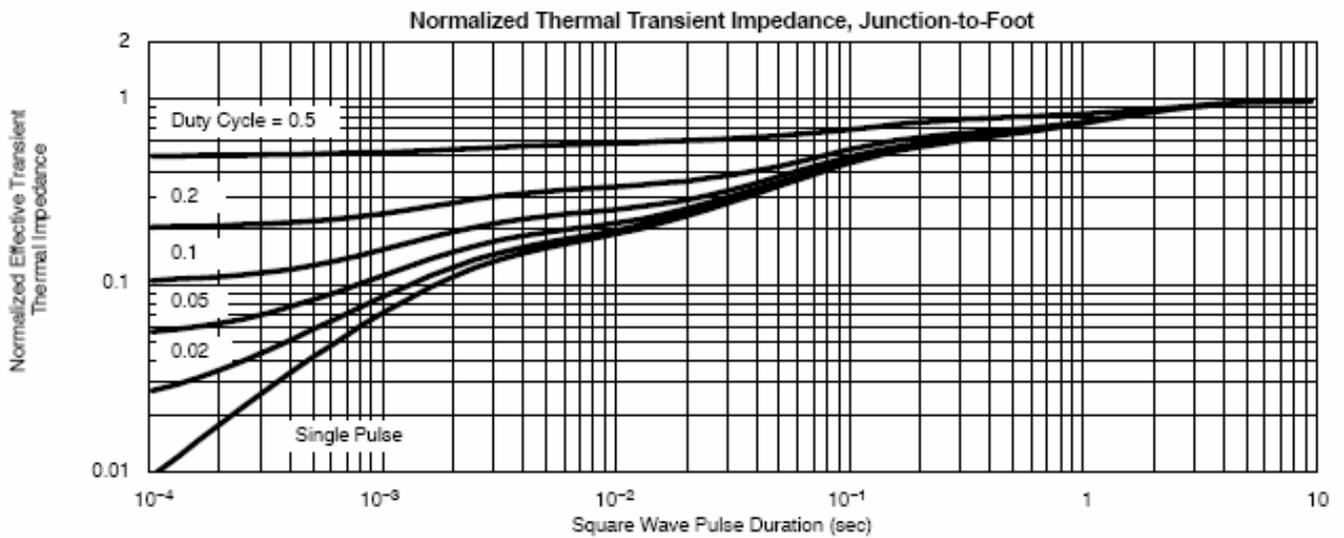
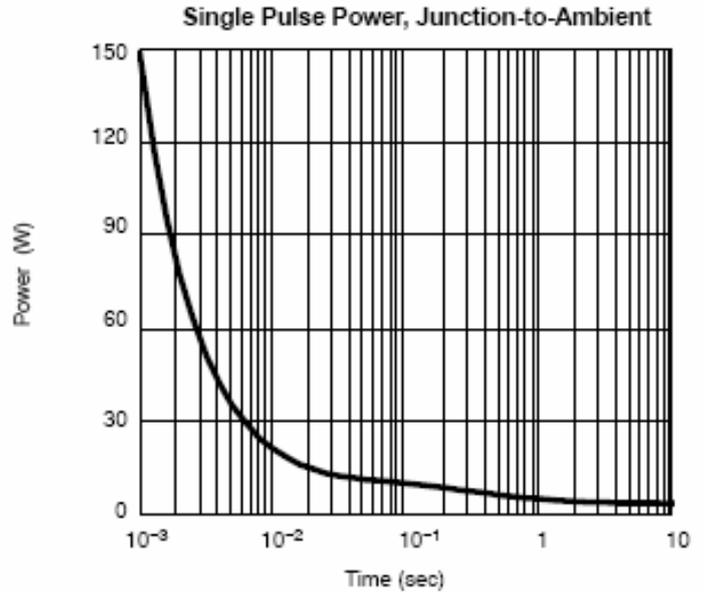
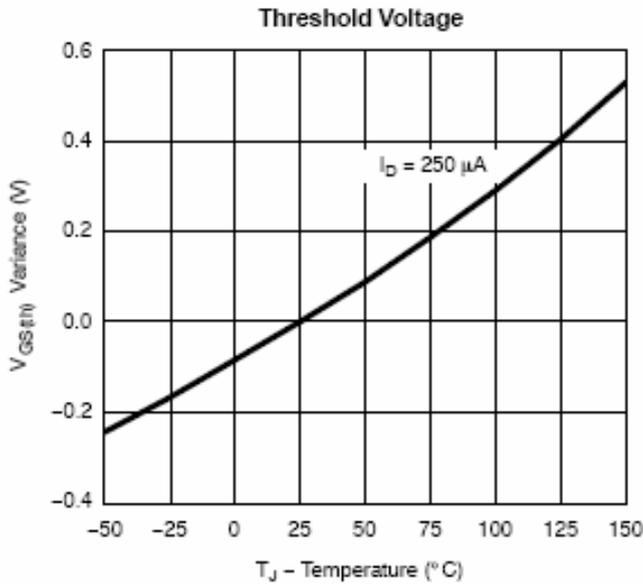




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### TYPICAL CHARACTERISTICS





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