



# SPP6233

## P-Channel Enhancement Mode MOSFET

### DESCRIPTION

The SPP6233 is the P-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.

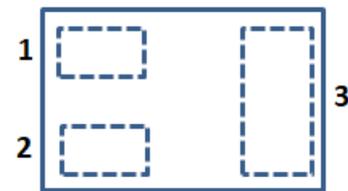
### FEATURES

- ◆ P-Channel
  - 30V/0.45A, $R_{DS(ON)}=0.65\Omega@V_{GS}=-4.5V$
  - 30V/0.35A, $R_{DS(ON)}=0.90\Omega@V_{GS}=-2.5V$
  - 30V/0.25A, $R_{DS(ON)}=1.5\Omega@V_{GS}=-1.8V$
- ◆ Super high density cell design for extremely low  $R_{DS(ON)}$
- ◆ Exceptional on-resistance and maximum DC current capability
- ◆ ESD protected
- ◆ DFN1.0x0.6-3L(SOT-883) package design

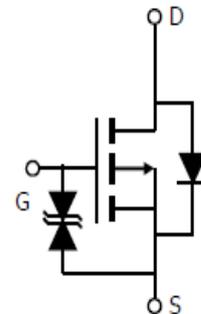
### APPLICATIONS

- Drivers : Relays/Solenoids/Lamps/Hammers
- Power Supply Converter Circuits
- Load/Power Switching Cell Phones, Pagers

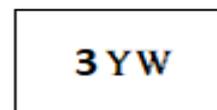
### PIN CONFIGURATION (DFN1.0x0.6-3L)



Top View



### PART MARKING



Y : Year Code  
W: Week Code



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### PIN DESCRIPTION

Pin	Symbol	Description
1	G	Gate
2	S	Source
3	D	Drain

### ORDERING INFORMATION

Part Number	Package	Part Marking
SPP6233DN3RGB	DFN1.0x0.6-3L	3

※ SPP6233DN3RGB : Tape Reel ; Pb – Free, Halogen – Free

※ Week Code : A ~ Z( 1 ~ 26 ) ; a ~ z( 27 ~ 52 )

### ABSOLUTE MAXIMUM RATINGS

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

Parameter	Symbol	Typical	Unit	
Drain-Source Voltage	$V_{DSS}$	-30	V	
Gate –Source Voltage	$V_{GSS}$	$\pm 12$	V	
Continuous Drain Current( $T_J=150^{\circ}\text{C}$ )	$I_D$	$T_A=25^{\circ}\text{C}$	-0.45	A
		$T_A=80^{\circ}\text{C}$	-0.35	
Pulsed Drain Current	$I_{DM}$	-1.0	A	
Continuous Source Current(Diode Conduction)	$I_S$	-0.3	A	
Power Dissipation	$P_D$	$T_A=25^{\circ}\text{C}$	0.27	W
		$T_A=70^{\circ}\text{C}$	0.16	
Operating Junction Temperature	$T_J$	-55/150	$^{\circ}\text{C}$	
Storage Temperature Range	$T_{STG}$	-55/150	$^{\circ}\text{C}$	



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### ELECTRICAL CHARACTERISTICS

(TA=25°C Unless otherwise noted)

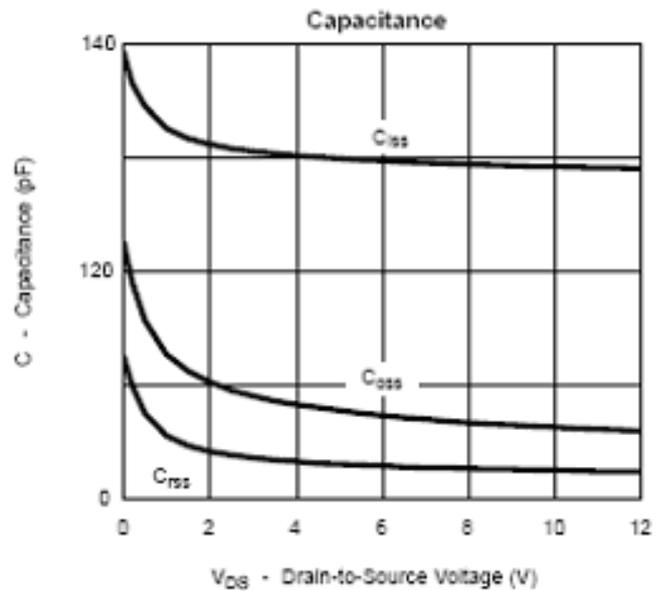
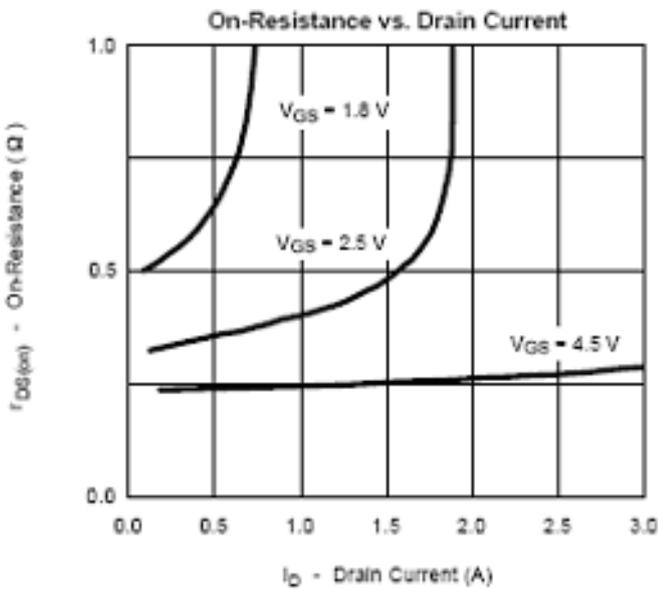
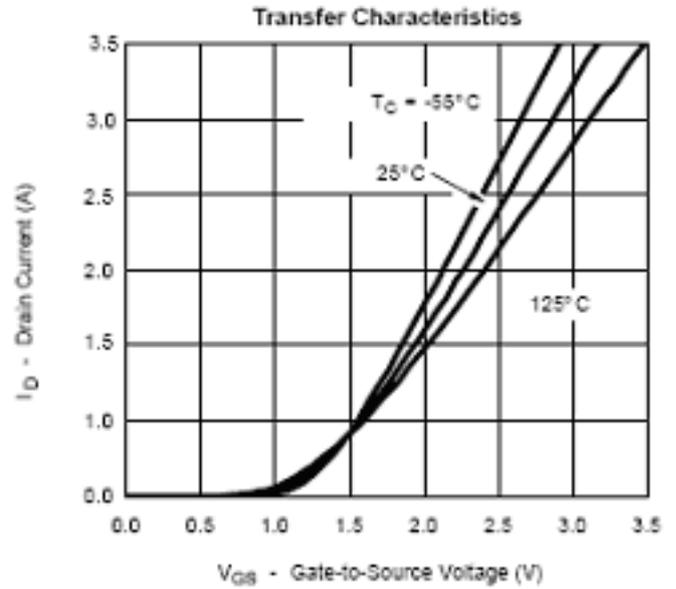
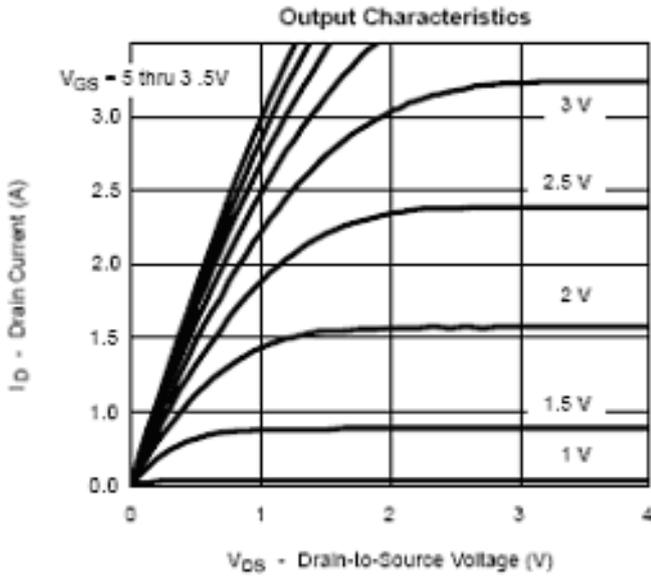
Parameter	Symbol	Conditions	Min.	Typ	Max.	Unit
<b>Static</b>						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS}=0V, I_D=-250\mu A$	-30			V
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=-250\mu A$	-0.45		-1.0	V
Gate Leakage Current	$I_{GSS}$	$V_{DS}=0V, V_{GS}=\pm 12V$			$\pm 10$	$\mu A$
Zero Gate Voltage Drain Current	$I_{DSS}$	$V_{DS}=-24V, V_{GS}=0V$			-1	$\mu A$
		$V_{DS}=-24V, V_{GS}=0V$ $T_J=55^\circ C$			-5	
On-State Drain Current	$I_{D(on)}$	$V_{DS}\leq -4.5V, V_{GS}=-5V$	-0.7			A
Drain-Source On-Resistance	$R_{DS(on)}$	$V_{GS}=-4.5V, I_D=-0.45A$			0.65	$\Omega$
		$V_{GS}=-2.5V, I_D=-0.35A$			0.90	
		$V_{GS}=-1.8V, I_D=-0.25A$			1.50	
Forward Transconductance	$g_{fs}$	$V_{DS}=-10V, I_D=-0.25A$		0.4		S
Diode Forward Voltage	$V_{SD}$	$I_S=-0.15A, V_{GS}=0V$		-0.8	-1.2	V
<b>Dynamic</b>						
Total Gate Charge	$Q_g$	$V_{DS}=-10V, V_{GS}=-4.5V$ $I_D=-0.6A$		1.5	2.0	nC
Gate-Source Charge	$Q_{gs}$			0.3		
Gate-Drain Charge	$Q_{gd}$			0.35		
Turn-On Time	$t_{d(on)}$	$V_{DD}=-10V, R_L=10\Omega$ $I_D=-0.4A$ $V_{GEN}=-4.5V, R_G=6\Omega$		5	10	nS
	$t_r$			15	25	
Turn-Off Time	$t_{d(off)}$			8	15	
	$t_f$			1.4	1.8	



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### TYPICAL CHARACTERISTICS

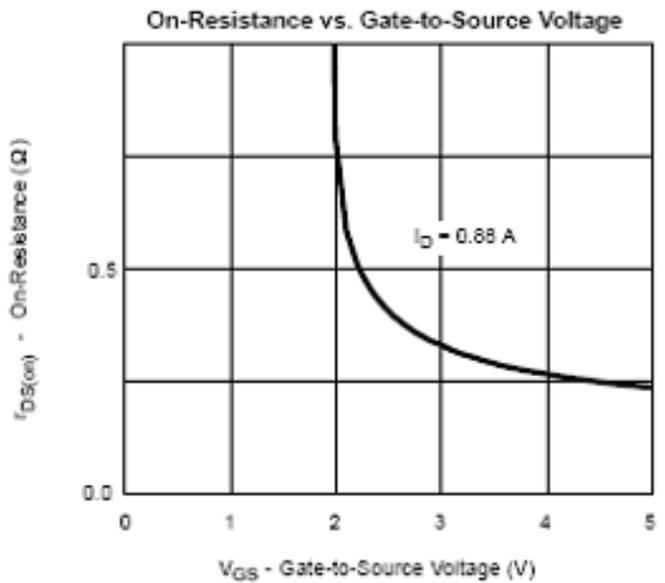
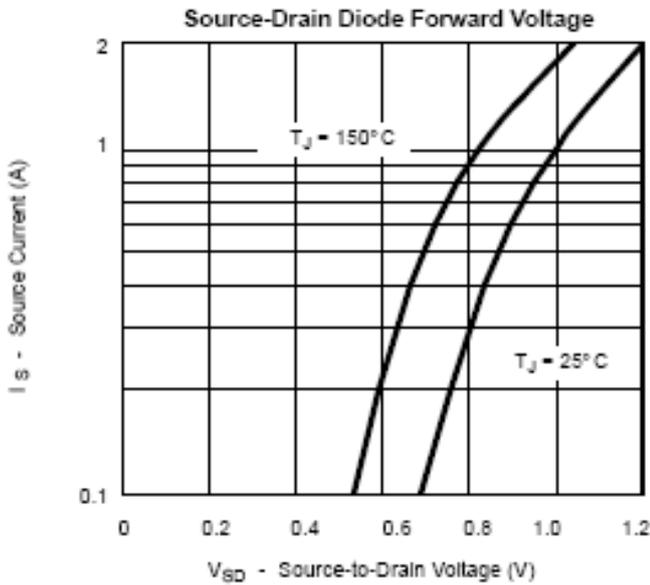
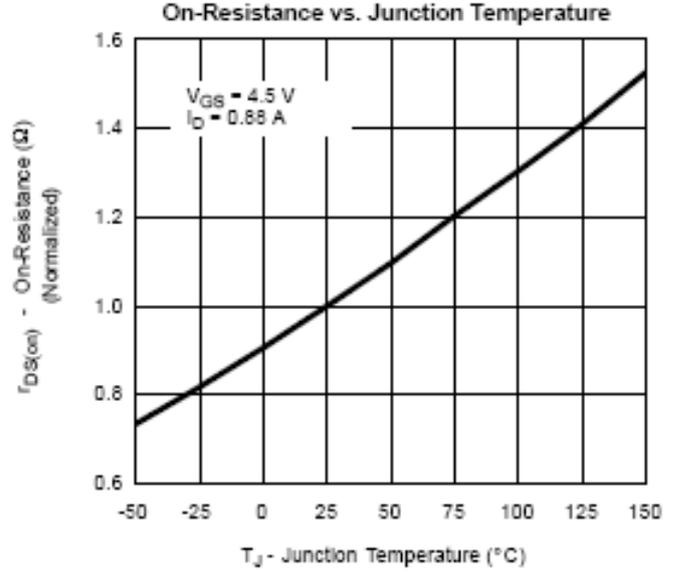
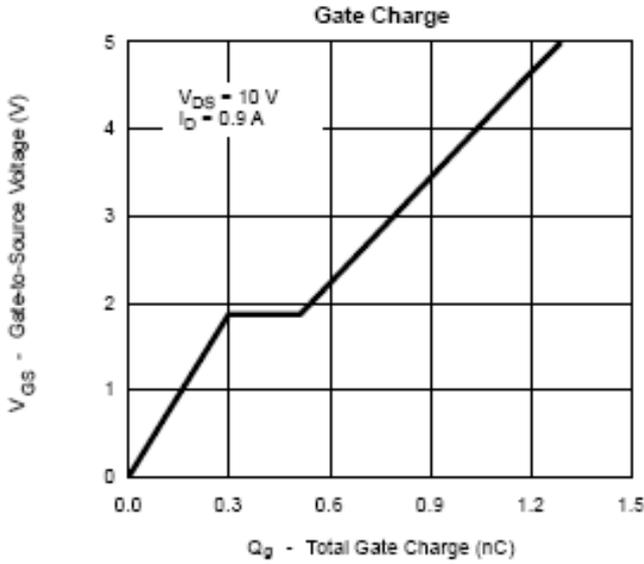




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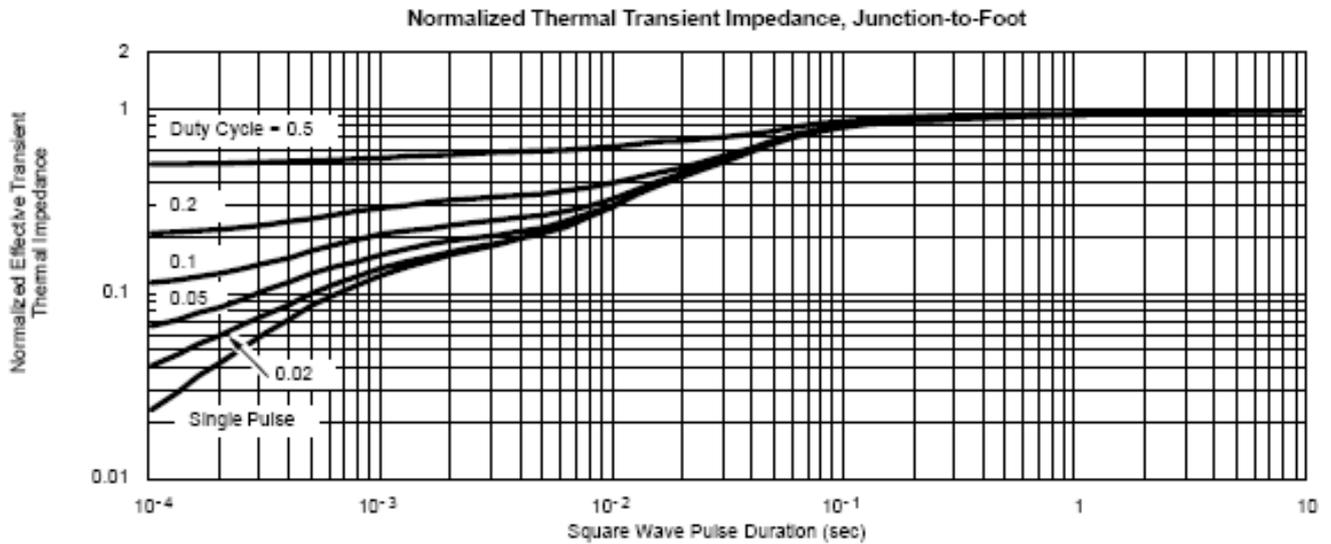
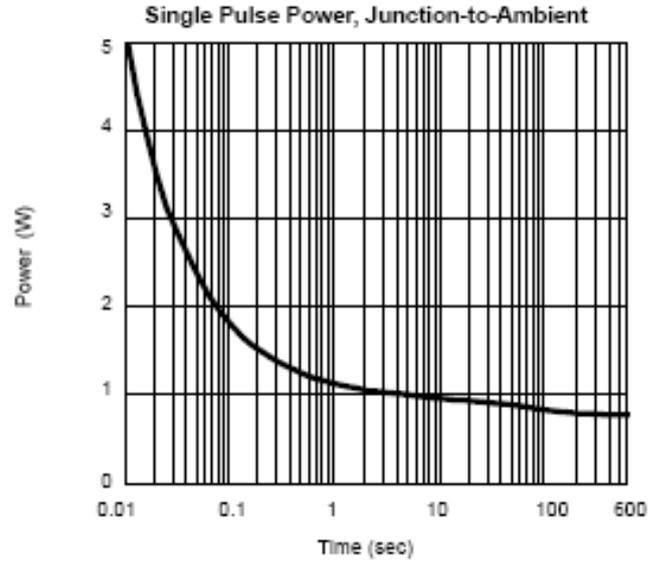
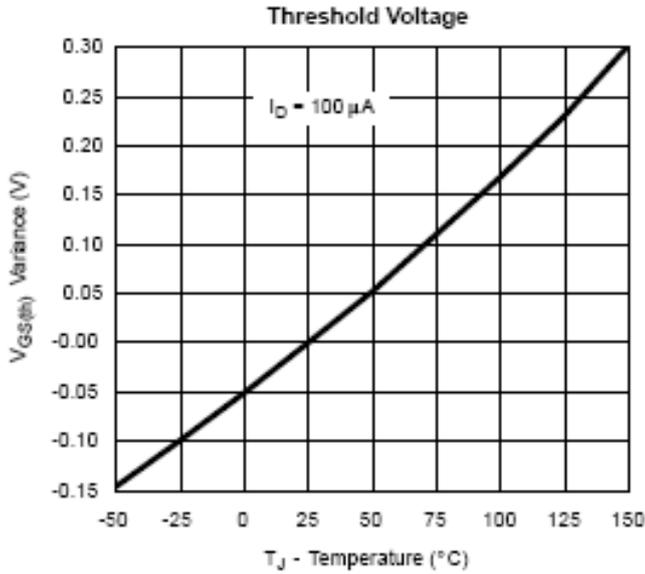




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### TYPICAL CHARACTERISTICS





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