



SPP2311

P-Channel Enhancement Mode MOSFET

DESCRIPTION

The SPP2311 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.

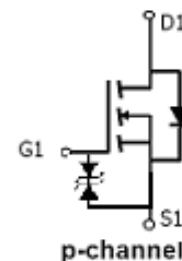
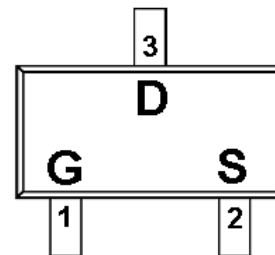
FEATURES

- ◆ P-Channel
 - 20V/0.45A, $R_{DS(ON)}=0.65\Omega@V_{GS}=-4.5V$
 - 20V/0.35A, $R_{DS(ON)}=0.90\Omega@V_{GS}=-2.5V$
 - 20V/0.25A, $R_{DS(ON)}=1.5\Omega@V_{GS}=-1.8V$
 - 20V/0.25A, $R_{DS(ON)}=3.0\Omega@V_{GS}=-1.5V$
- ◆ Super high density cell design for extremely low RDS (ON)
- ◆ Exceptional on-resistance and maximum DC current capability
- ◆ SOT-23 package design

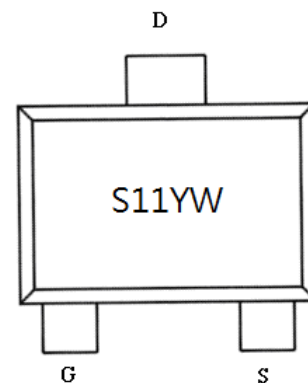
APPLICATIONS

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

PIN CONFIGURATION(SOT-23)



PART MARKING





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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
SPP2311S23RGB	SOT-23	S11

※ SPP2311S23RGB : Tape Reel ; Pb – Free, Halogen – 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}	±12	V
Continuous Drain Current(T _J =150°C)	I _D	-0.45	A
	TA=25°C		
Pulsed Drain Current	I _{DM}	-1.0	A
Continuous Source Current(Diode Conduction)	I _S	-0.3	A
Power Dissipation	P _D	0.15	W
	TA=25°C		
Operating Junction Temperature	T _J	-55/150	°C
Storage Temperature Range	T _{STG}	-55/150	°C



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ELECTRICAL CHARACTERISTICS

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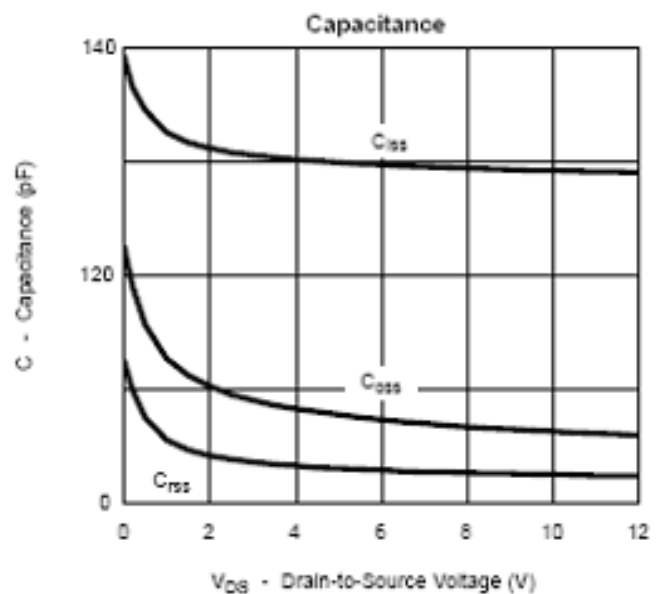
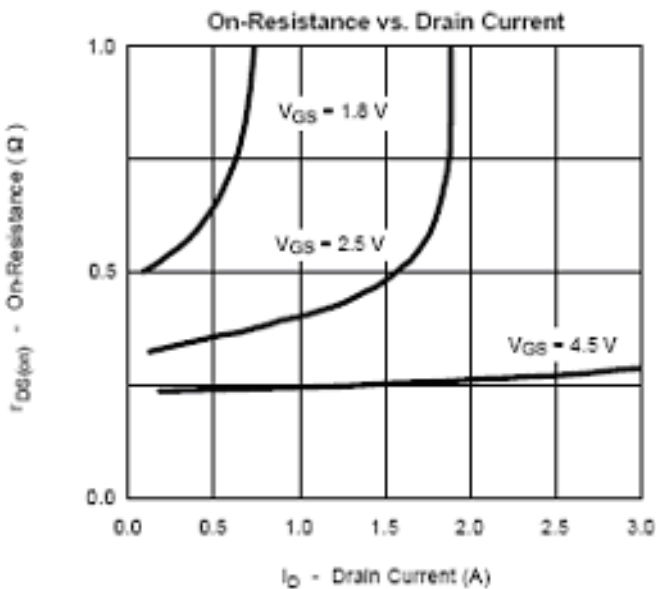
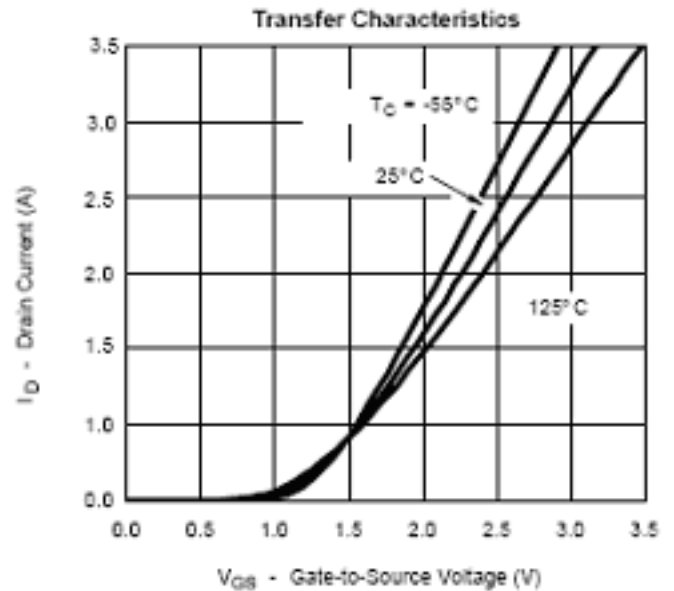
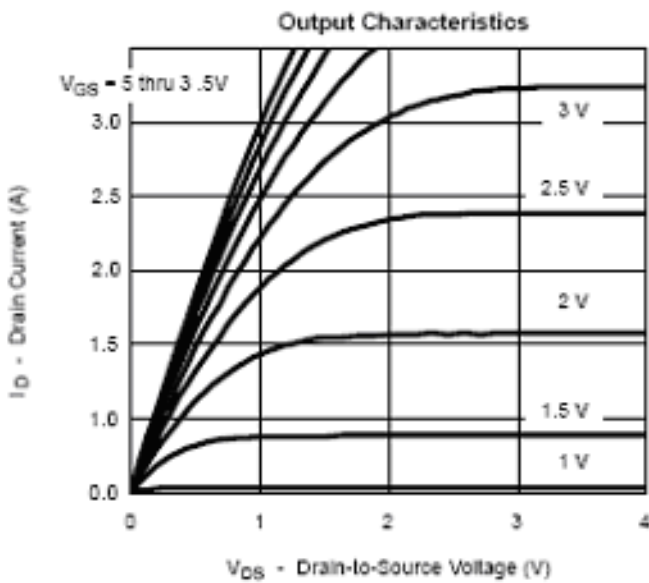
Parameter	Symbol	Conditions	Min.	Typ	Max.	Unit
Static						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS}=0V, I_D=-250\mu A$	-30			V
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=-250\mu A$	-0.35		-1.0	
Gate Leakage Current	I_{GSS}	$V_{DS}=0V, V_{GS}=\pm 12V$			± 30	μA
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=-24V, V_{GS}=0V$			-1	μA
		$V_{DS}=-24V, V_{GS}=0V$ $T_J=55^\circ C$			-5	
On-State Drain Current	$I_{D(on)}$	$V_{DS} \leq -4.5V, V_{GS} = -5V$	-0.7			A
Drain-Source On-Resistance	$R_{DS(on)}$	$V_{GS}=-4.5V, I_D=-0.45A$		550	650	$m\Omega$
		$V_{GS}=-2.5V, I_D=-0.35A$		750	900	
		$V_{GS}=-1.8V, I_D=-0.25A$		1100	1500	
		$V_{GS}=-1.5V, I_D=-0.25A$		2200	3000	
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
Dynamic						
Total Gate Charge	Q_g	$V_{DS}=-10V, V_{GS}=-4.5V, I_D \equiv -0.6A$		1.5	2.0	nC
Gate-Source Charge	Q_{gs}			0.3		
Gate-Drain Charge	Q_{gd}			0.35		
Turn-On Time	$t_{d(on)}$	$V_{DD}=-10V, R_L=10\Omega, I_D \equiv -0.4A$ $V_{GEN}=-4.5V, R_G=6\Omega$		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

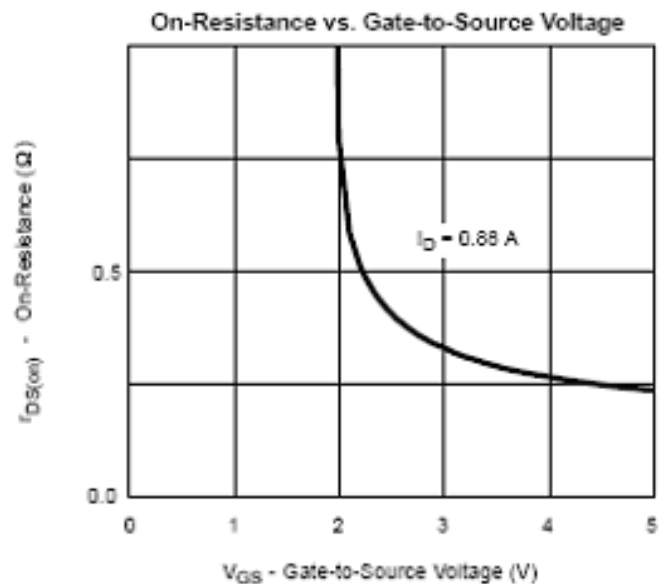
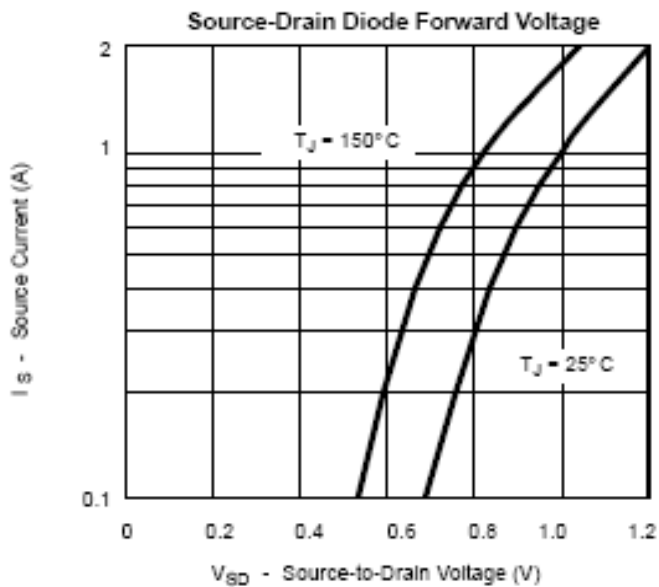
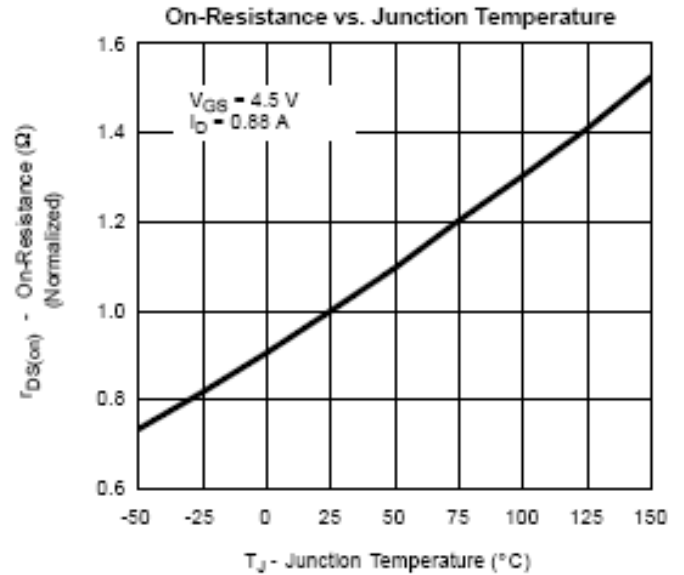
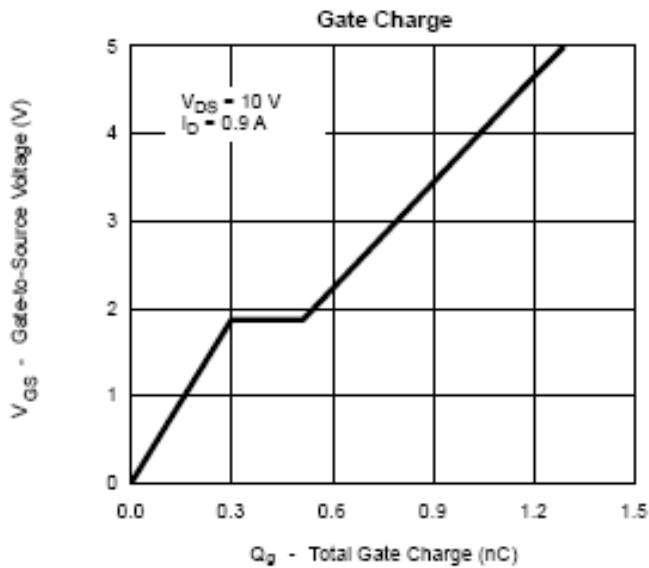




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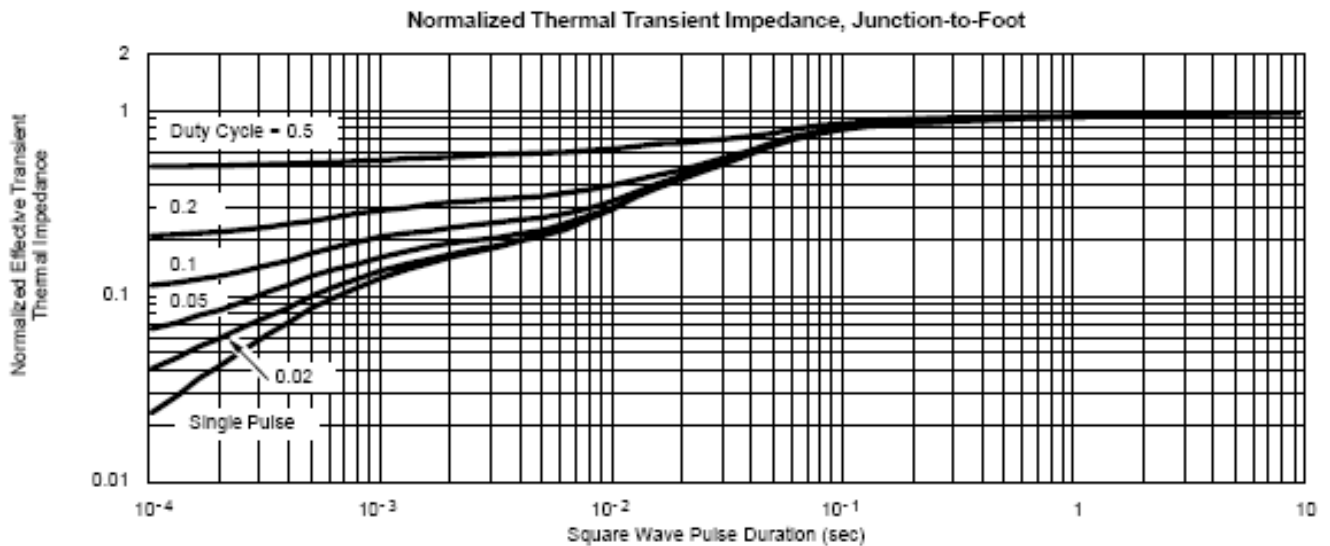
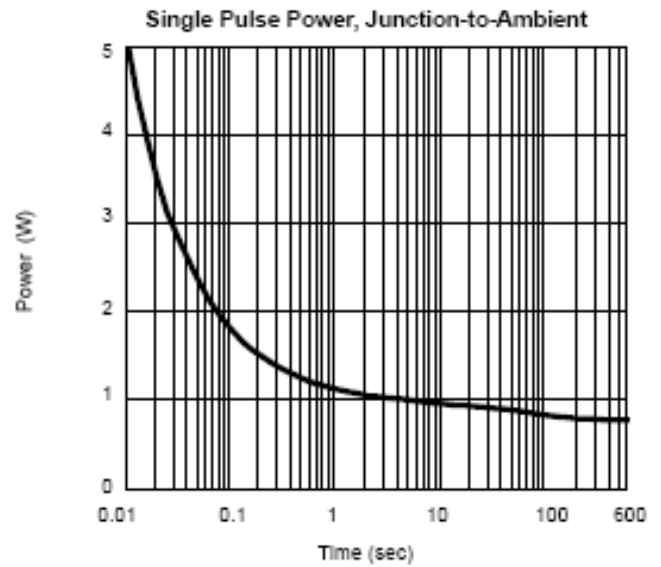
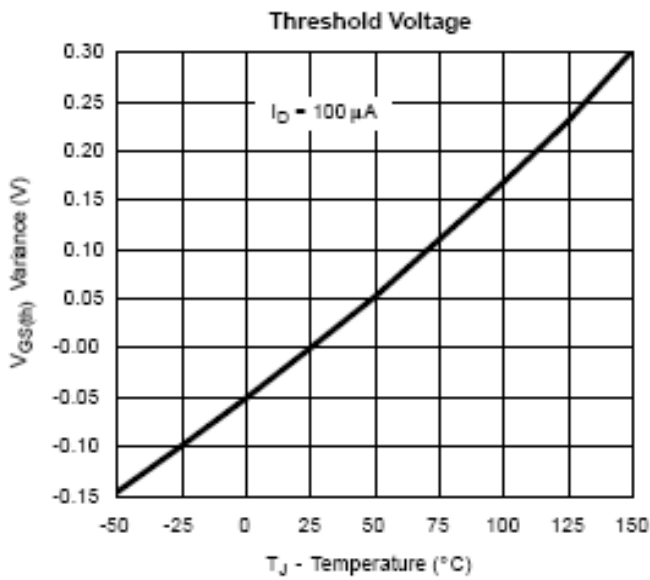




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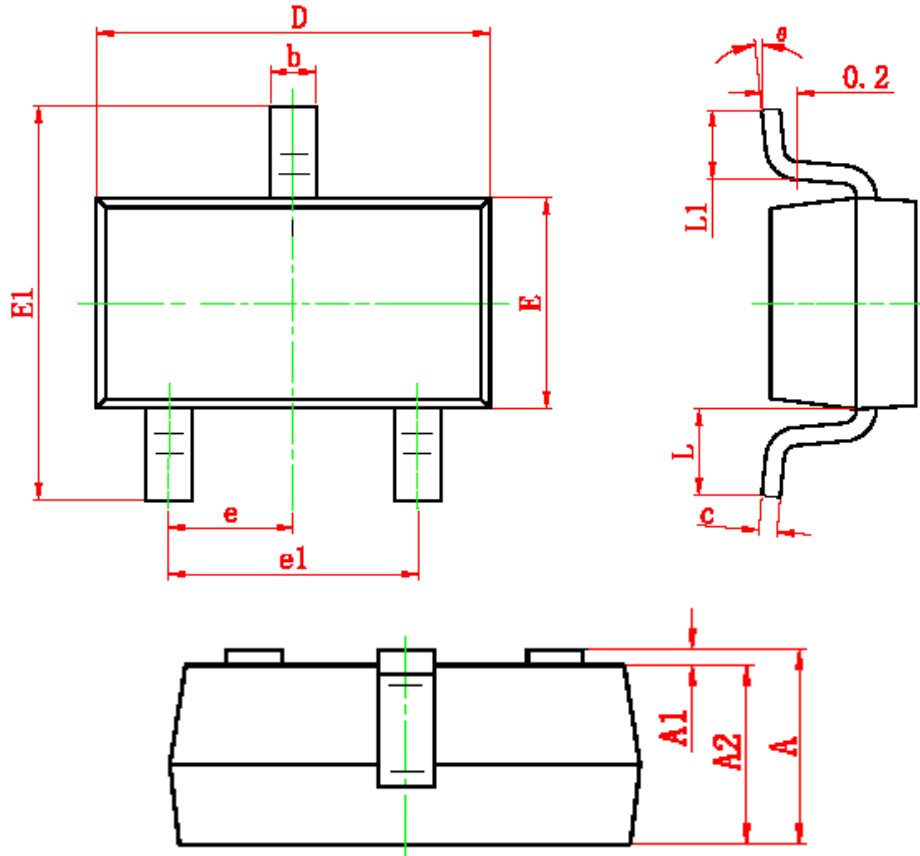




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SOT-23 PACKAGE OUTLINE



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	0.900	1.200	0.035	0.043
A1	0.000	0.100	0.000	0.004
A2	0.900	1.100	0.035	0.039
b	0.300	0.500	0.012	0.020
c	0.080	0.150	0.003	0.006
D	2.800	3.000	0.110	0.118
E	1.200	1.400	0.047	0.055
E1	2.250	2.550	0.089	0.100
e	0.950 TYP		0.037 TYP	
e1	1.800	2.000	0.071	0.079
L	0.550 REF		0.022 REF	
L1	0.300	0.500	0.012	0.020
θ	0°	8°	0°	6°



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