



# SPP3403

## P-Channel Enhancement Mode MOSFET

### DESCRIPTION

The SPP3403 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 such as cellular phone and notebook computer power management and other battery powered circuits where high-side switching , and low in-line power loss are needed in a very small outline surface mount package.

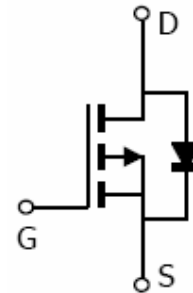
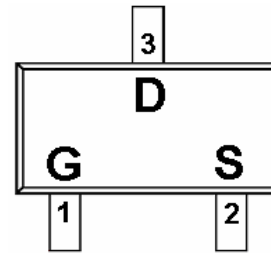
### FEATURES

- ◆ -30V/-2.8A, $R_{DS(ON)}=100m\Omega@V_{GS}=-10V$
- ◆ -30V/-2.5A, $R_{DS(ON)}=110m\Omega@V_{GS}=-4.5V$
- ◆ -30V/-1.5A, $R_{DS(ON)}=145m\Omega@V_{GS}=-2.5V$
- ◆ -30V/-1.0A, $R_{DS(ON)}=200m\Omega@V_{GS}=-1.8V$
- ◆ Super high density cell design for extremely low  $R_{DS(ON)}$
- ◆ Exceptional on-resistance and maximum DC current capability
- ◆ SOT-23-3L package design

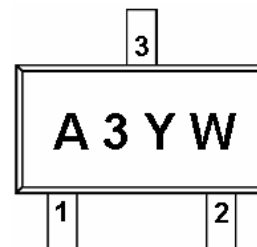
### APPLICATIONS

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

### PIN CONFIGURATION ( SOT-23-3L )



### 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
SPP3403S23RG	SOT-23-3L	A3YW

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

※ SPP3403S23RG : Tape Reel ; Pb – Free

### ABSOLUTE MAXIMUM RATINGS

(TA=25°C Unless otherwise noted)

Parameter	Symbol	Typical	Unit	
Drain-Source Voltage	V <sub>DSS</sub>	-30	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	-3.5	A
		TA=70°C	-2.8	
Pulsed Drain Current	I <sub>DM</sub>	-20	A	
Continuous Source Current(Diode Conduction)	I <sub>S</sub>	-1.4	A	
Power Dissipation	P <sub>D</sub>	TA=25°C	1.25	W
		TA=70°C	0.81	
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>	105	°C/W	



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### ELECTRICAL CHARACTERISTICS

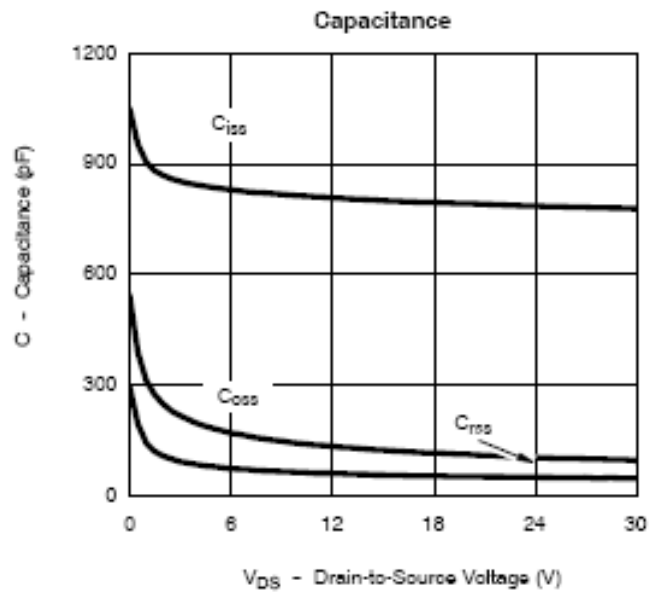
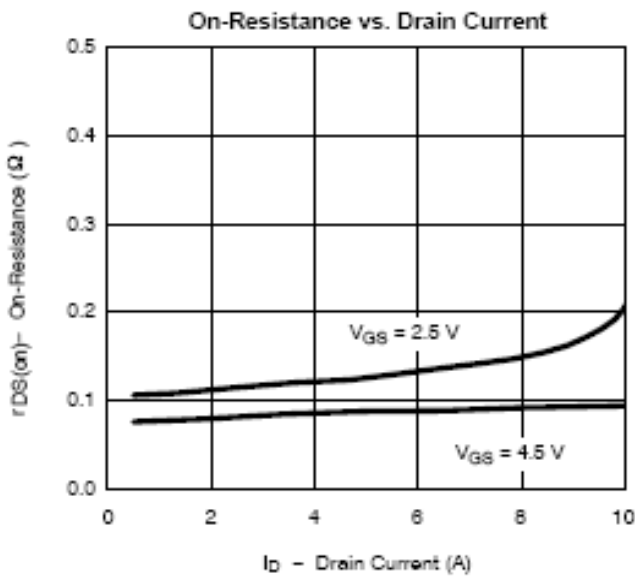
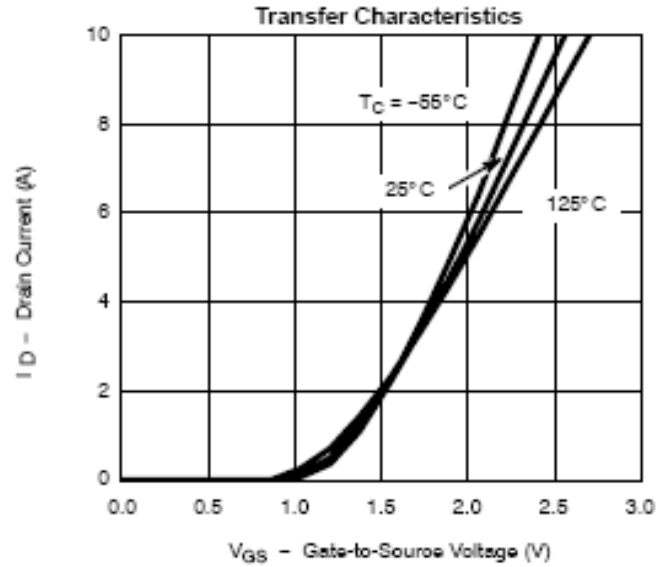
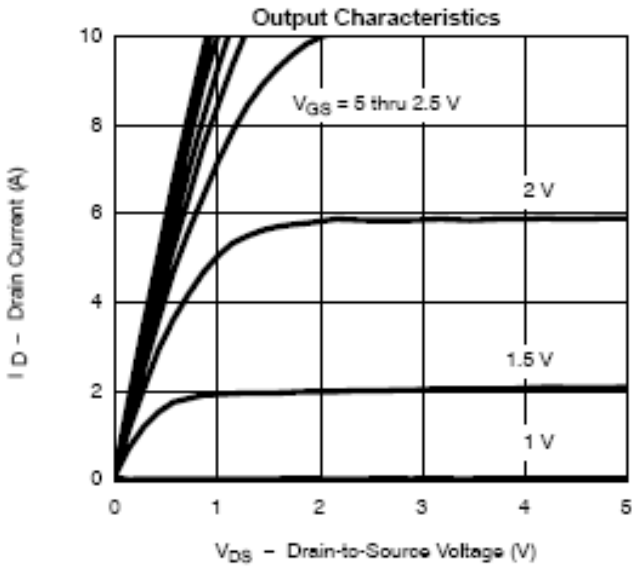
(TA=25°C Unless otherwise noted)

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	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=-250\mu A$	-0.4		-1.0		
Gate Leakage Current	$I_{GSS}$	$V_{DS}=0V, V_{GS}=\pm 12V$			$\pm 100$	nA	
Zero Gate Voltage Drain Current	$I_{DSS}$	$V_{DS}=-24V, V_{GS}=0V$			-1	uA	
		$V_{DS}=-24V, V_{GS}=0V$ $T_J=85^\circ C$			-5		
On-State Drain Current	$I_{D(on)}$	$V_{DS}=-5V, V_{GS}=-4.5V$	-4			A	
Drain-Source On-Resistance	$R_{DS(on)}$	$V_{GS}=-10V, I_D=-2.8A$		0.080	0.100	$\Omega$	
		$V_{GS}=-4.5V, I_D=-2.5A$		0.100	0.110		
		$V_{GS}=-2.5V, I_D=-1.5A$		0.130	0.145		
		$V_{GS}=-1.8V, I_D=-1.0A$		0.160	0.200		
Forward Transconductance	$g_{fs}$	$V_{DS}=-10V, I_D=-2.8A$		4		S	
Diode Forward Voltage	$V_{SD}$	$I_S=-1.2A, V_{GS}=0V$		-0.8	-1.2	V	
<b>Dynamic</b>							
Total Gate Charge	$Q_g$	$V_{DS}=-15V, V_{GS}=-4.5V$ $I_D=-2.0A$		5.8		nC	
Gate-Source Charge	$Q_{gs}$			0.8			
Gate-Drain Charge	$Q_{gd}$			1.5			
Input Capacitance	$C_{iss}$	$V_{DS}=-15V, V_{GS}=0V$ $f=1MHz$		380		pF	
Output Capacitance	$C_{oss}$			55			
Reverse Transfer Capacitance	$C_{rss}$			40			
Turn-On Time	$t_{d(on)}$	$V_{DD}=-15V, R_L=15\Omega$ $I_D=-1.0A, V_{GEN}=-10V$ $R_G=3\Omega$		6		ns	
	$t_r$			3.9			
Turn-Off Time	$t_{d(off)}$				40		
	$t_f$				15		



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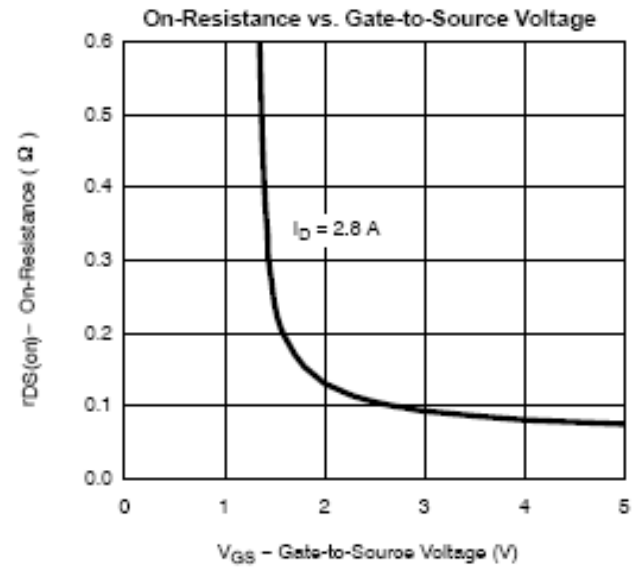
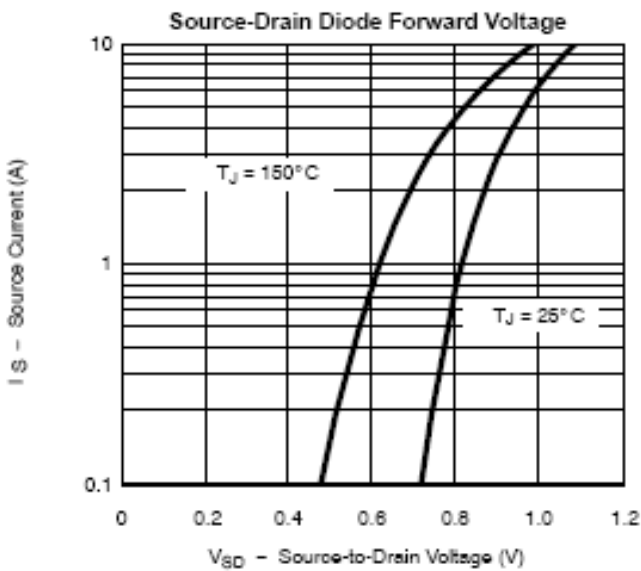
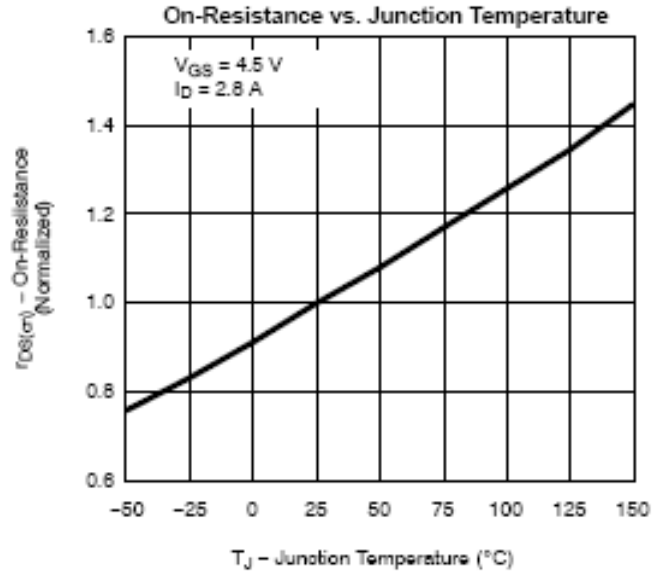
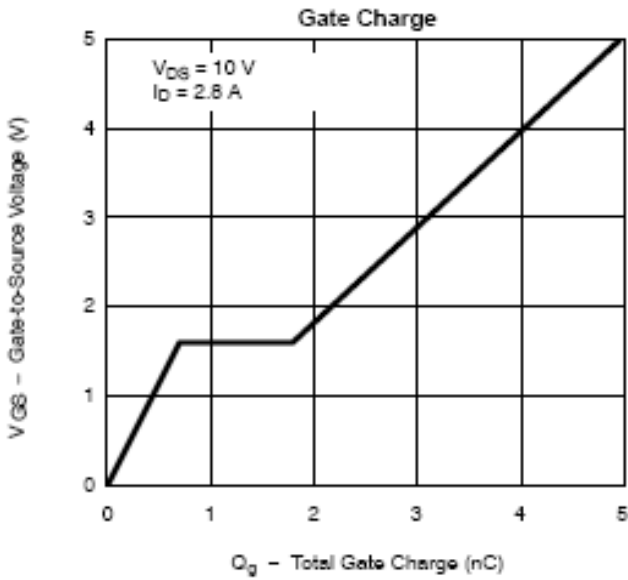
## TYPICAL CHARACTERISTICS





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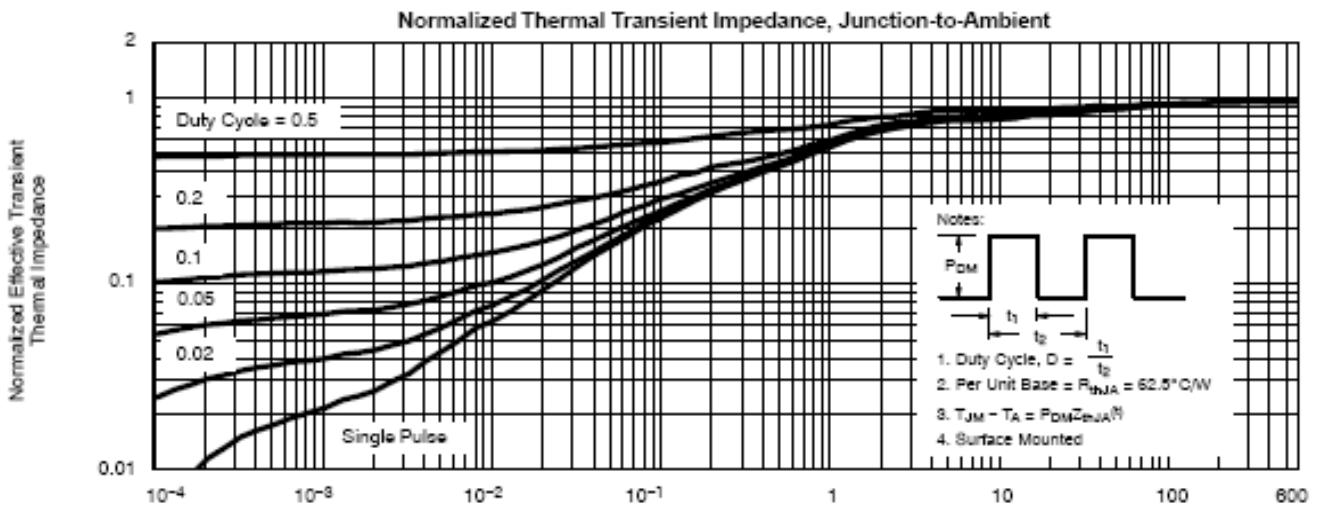
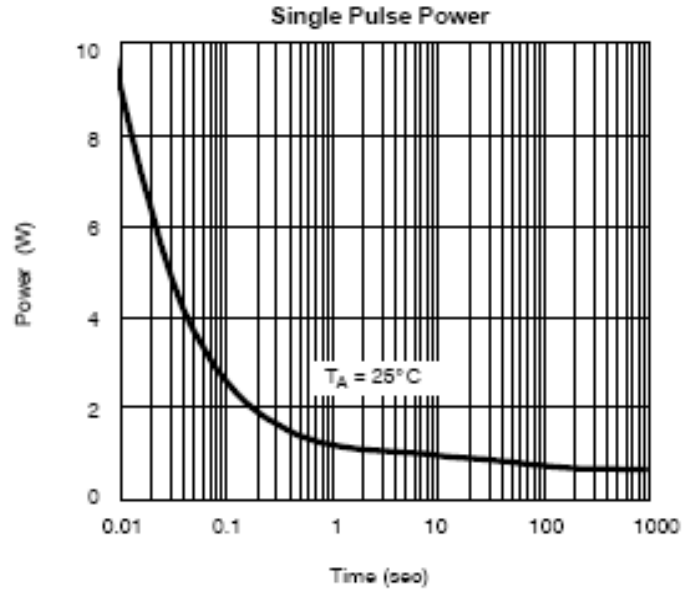
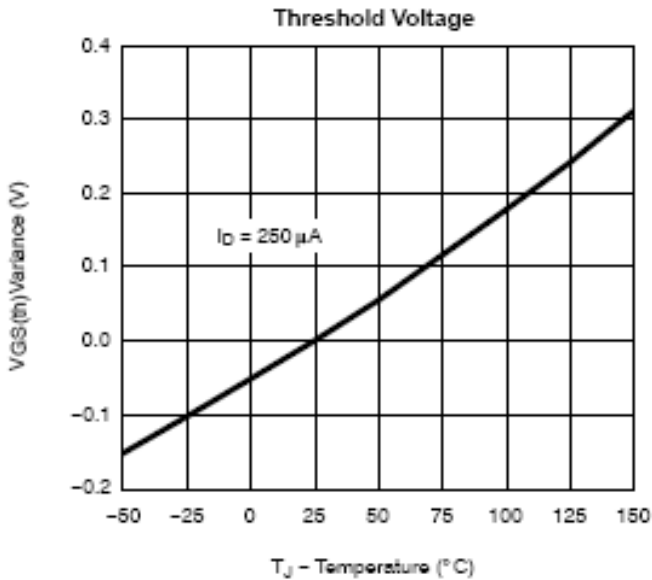
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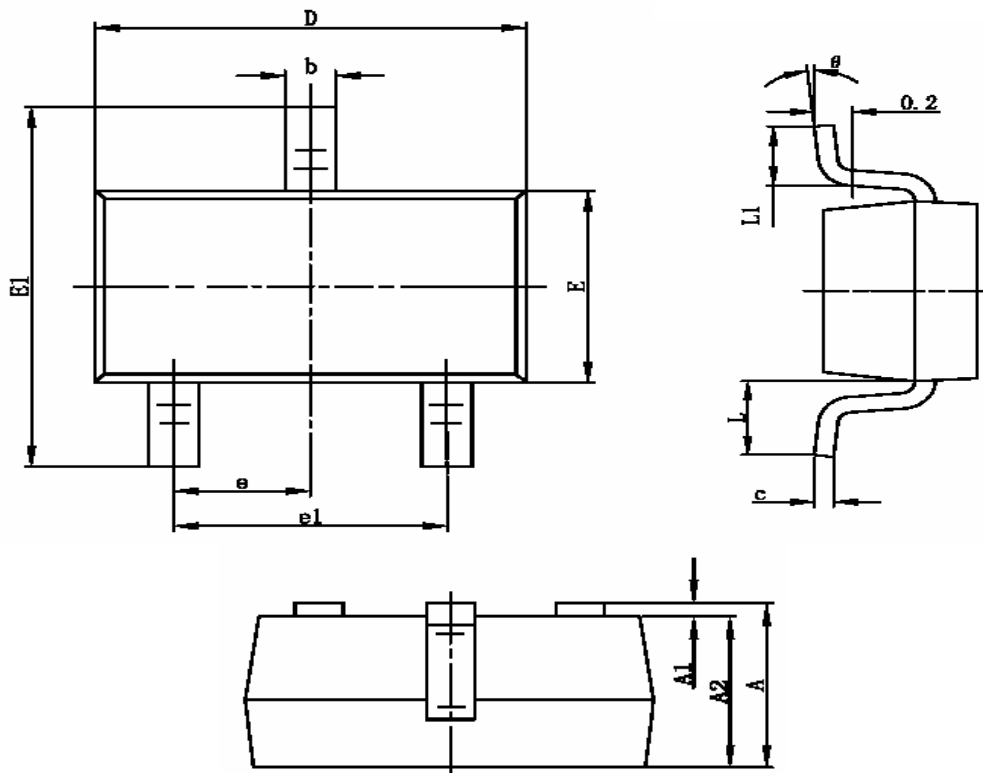




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### SOT-23-3L PACKAGE OUTLINE



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	1.050	1.250	0.041	0.049
A1	0.000	0.100	0.000	0.004
A2	1.050	1.150	0.041	0.045
b	0.300	0.400	0.012	0.016
c	0.100	0.200	0.004	0.008
D	2.820	3.020	0.111	0.119
E	1.500	1.700	0.059	0.067
E1	2.650	2.950	0.104	0.116
e	0.950TYP		0.037TYP	
e1	1.800	2.000	0.071	0.079
L	0.700REF		0.028REF	
L1	0.300	0.600	0.012	0.024
θ	0°	8°	0°	8°



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