



SPP7401 P-Channel Enhancement Mode MOSFET

DESCRIPTION

The SPP7401 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.

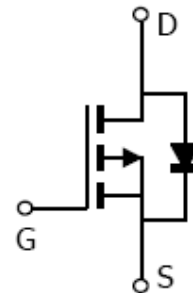
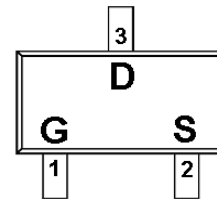
FEATURES

- ◆ -30V/-2.8A, $R_{DS(ON)}=115m\Omega@V_{GS}=-10V$
- ◆ -30V/-2.5A, $R_{DS(ON)}=125m\Omega@V_{GS}=-4.5V$
- ◆ -30V/-1.5A, $R_{DS(ON)}=170m\Omega@V_{GS}=-2.5V$
- ◆ -30V/-1.0A, $R_{DS(ON)}=240m\Omega@V_{GS}=-1.8V$
- ◆ Super high density cell design for extremely low $R_{DS(ON)}$
- ◆ Exceptional on-resistance and maximum DC current capability
- ◆ SOT-323 (SC-70) package design

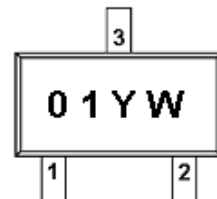
APPLICATIONS

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

PIN CONFIGURATION (SOT-323 ; SC-70)



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
SPP7401S32RG	SOT-323	01YW

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

※ SPP7401S32RG : Tape Reel ; Pb – Free

ABSOLUTE MAXIMUM RATINGS

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

Parameter	Symbol	Typical	Unit
Drain-Source Voltage	V_{DS}	-30	V
Gate –Source Voltage	V_{GS}	± 12	V
Continuous Drain Current($T_J=150^{\circ}\text{C}$)	I_D	$T_A=25^{\circ}\text{C}$ -2.8	A
		$T_A=70^{\circ}\text{C}$ -2.1	
Pulsed Drain Current	I_{DM}	-8	A
Continuous Source Current(Diode Conduction)	I_S	-1.4	A
Power Dissipation	P_D	$T_A=25^{\circ}\text{C}$ 0.33	W
		$T_A=70^{\circ}\text{C}$ 0.21	
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	$R_{\theta JA}$	105	$^{\circ}\text{C}/\text{W}$



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ELECTRICAL CHARACTERISTICS

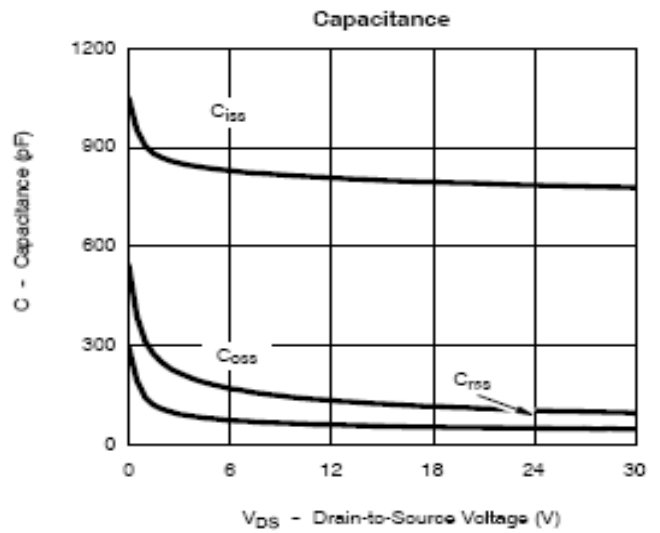
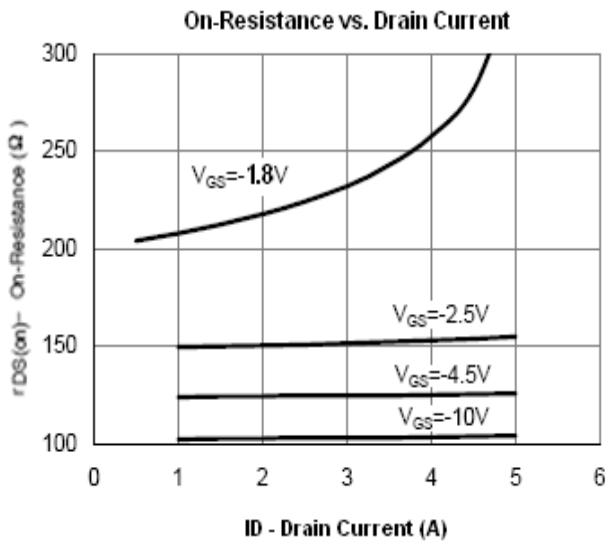
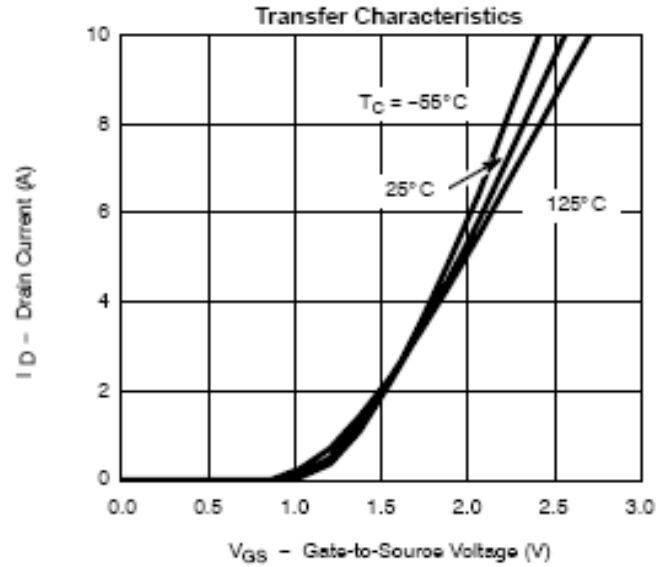
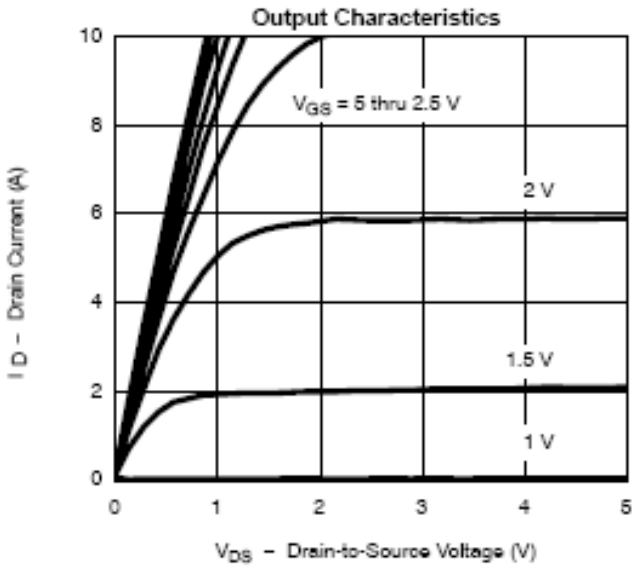
(TA=25°C Unless otherwise noted)

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	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=-250\mu A$	-0.4		-1.0		
Gate Leakage Current	I_{GSS}	$V_{DS}=0V, V_{GS}=\pm 12V$			± 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	$R_{DS(on)}$	$V_{GS}=-10V, I_D=-2.8A$		0.105	0.115	Ω	
		$V_{GS}=-4.5V, I_D=-2.5A$		0.125	0.135		
		$V_{GS}=-2.5V, I_D=-1.5A$		0.155	0.170		
		$V_{GS}=-1.8V, I_D=-1.0A$		0.210	0.240		
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	
Dynamic							
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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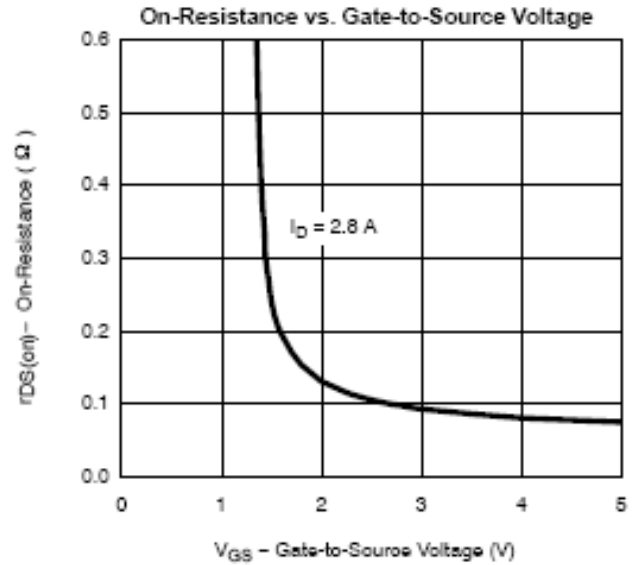
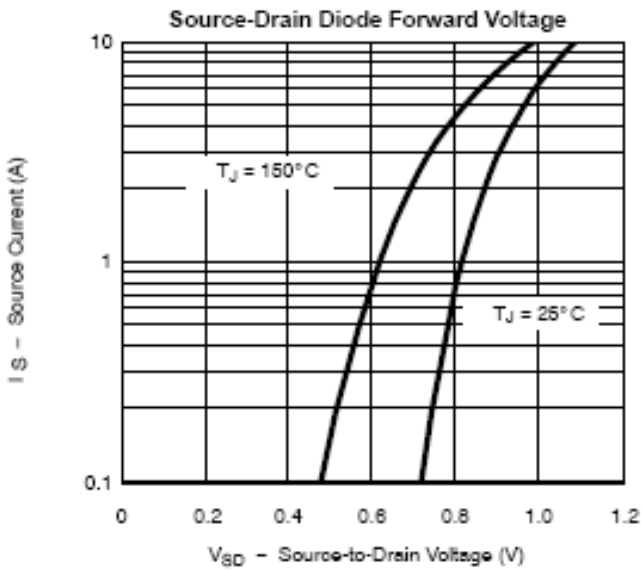
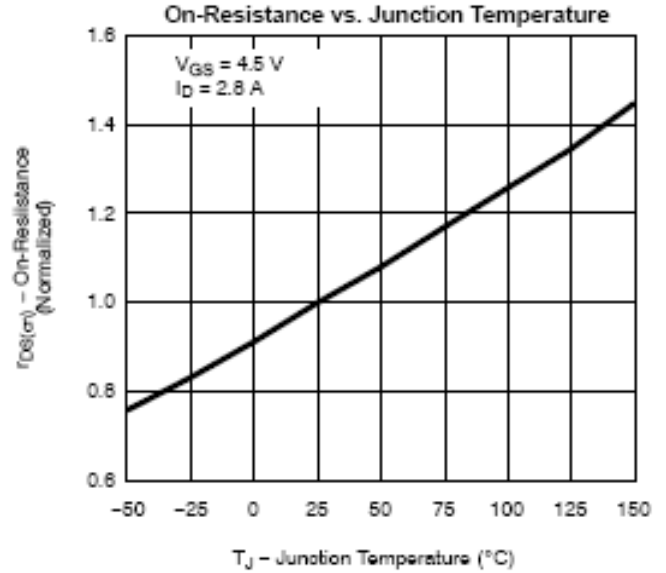
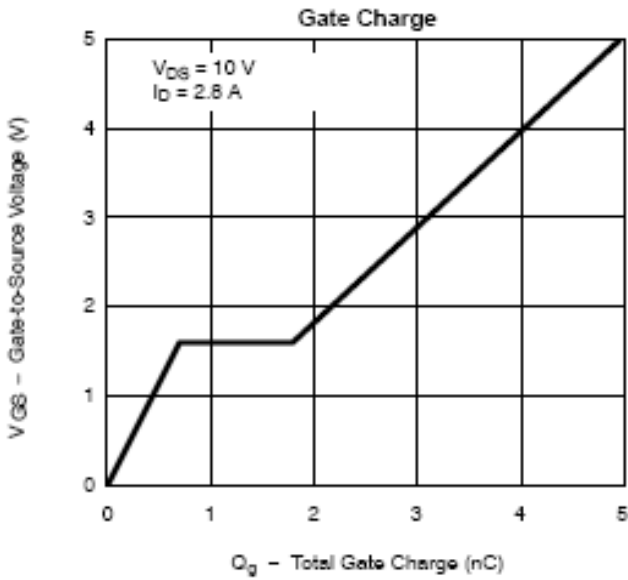
TYPICAL CHARACTERISTICS





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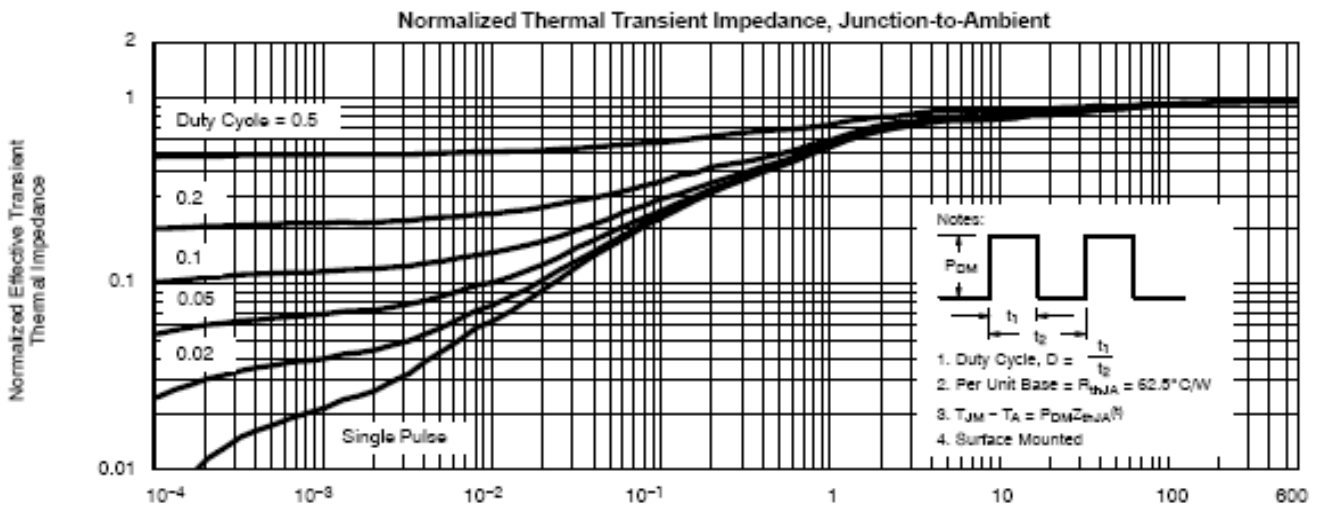
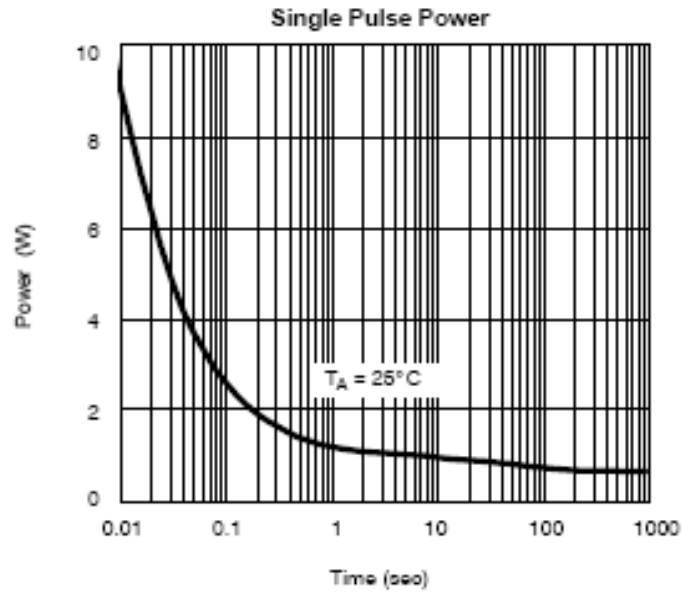
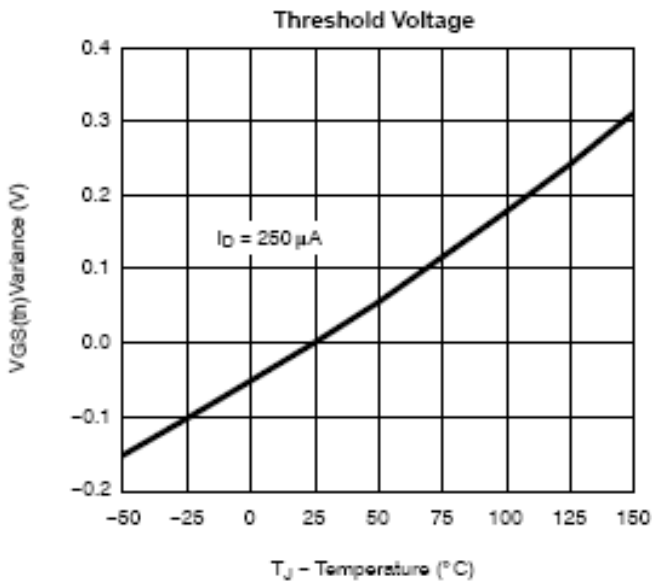
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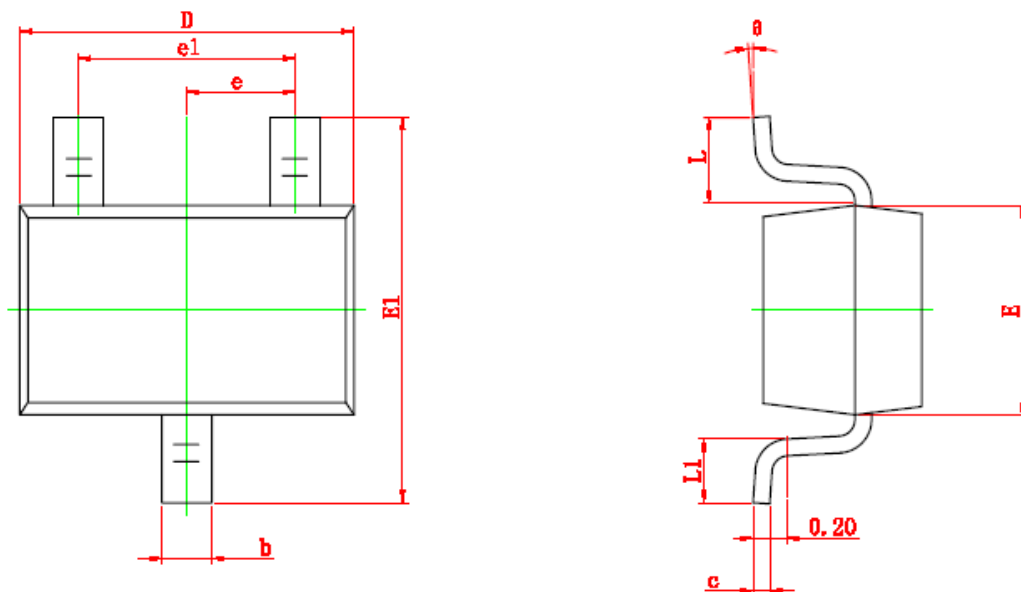




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SOT-323 PACKAGE OUTLINE



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	0.900	1.100	0.035	0.043
A1	0.000	0.100	0.000	0.004
A2	0.900	1.000	0.035	0.039
b	0.200	0.400	0.008	0.016
c	0.080	0.150	0.003	0.006
D	2.000	2.200	0.079	0.087
E	1.150	1.350	0.045	0.053
E1	2.150	2.450	0.085	0.096
e	0.650 TYP		0.026 TYP	
e1	1.200	1.400	0.047	0.055
L	0.525 REF		0.021 REF	
L1	0.260	0.460	0.010	0.018
θ	0°	8°	0°	8°



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