



SPN3402

N-Channel Enhancement Mode MOSFET

DESCRIPTION

The SPN3402 is the N-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, and low in-line power loss are needed in a very small outline surface mount package.

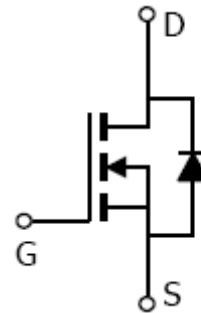
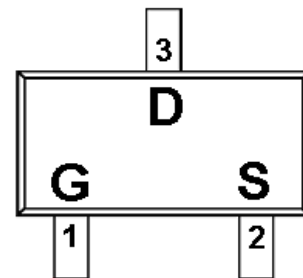
FEATURES

- ◆ 30V/2.8A, $R_{DS(ON)} = 58m\Omega @ V_{GS} = 10V$
- ◆ 30V/2.3A, $R_{DS(ON)} = 65m\Omega @ V_{GS} = 4.5V$
- ◆ 30V/1.5A, $R_{DS(ON)} = 105m\Omega @ V_{GS} = 2.5V$
- ◆ Super high density cell design for extremely low $R_{DS(ON)}$
- ◆ Exceptional on-resistance and maximum DC current capability
- ◆ SOT-23-3L package design

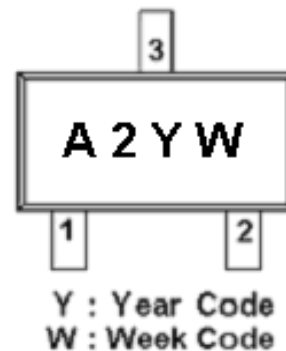
APPLICATIONS

- 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





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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
SPN3402S23RG	SOT-23-3L	A2YW
SPN3402S23RGB	SOT-23-3L	A2YW

- ※ Week Code : A ~ Z (1 ~ 26) ; a ~ z (27 ~ 52)
- ※ SPN3402S23RG : Tape Reel ; Pb – Free
- ※ SPN3402S23RGB : 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	T _A =25°C	4.0	A
		T _A =70°C	2.8	
Pulsed Drain Current	I _{DM}	10	A	
Continuous Source Current(Diode Conduction)	I _S	1.25	A	
Power Dissipation	P _D	T _A =25°C	1.25	W
		T _A =70°C	0.8	
Operating Junction Temperature	T _J	150	°C	
Storage Temperature Range	T _{STG}	-55/150	°C	
Thermal Resistance-Junction to Ambient	R _{θJA}	100	°C/W	



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ELECTRICAL CHARACTERISTICS

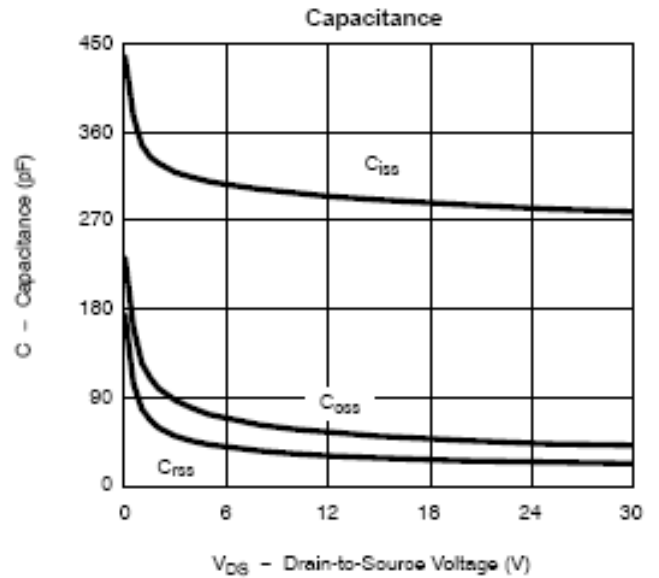
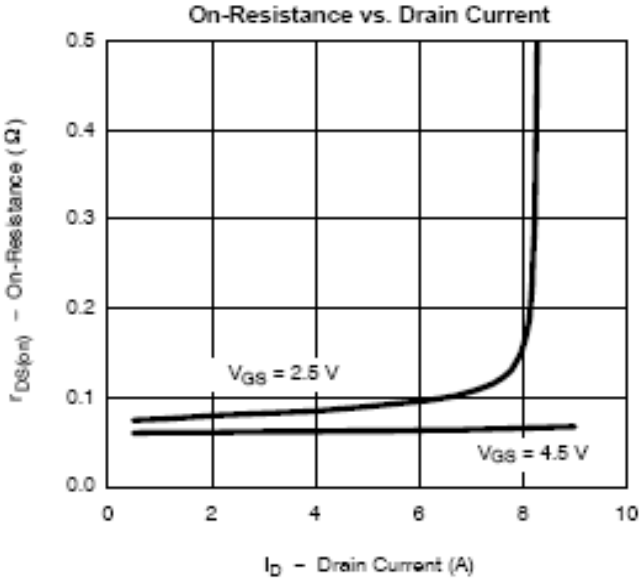
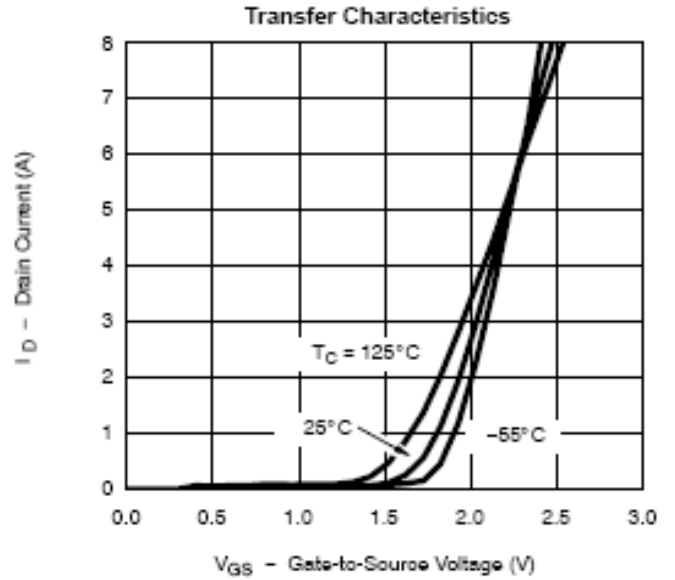
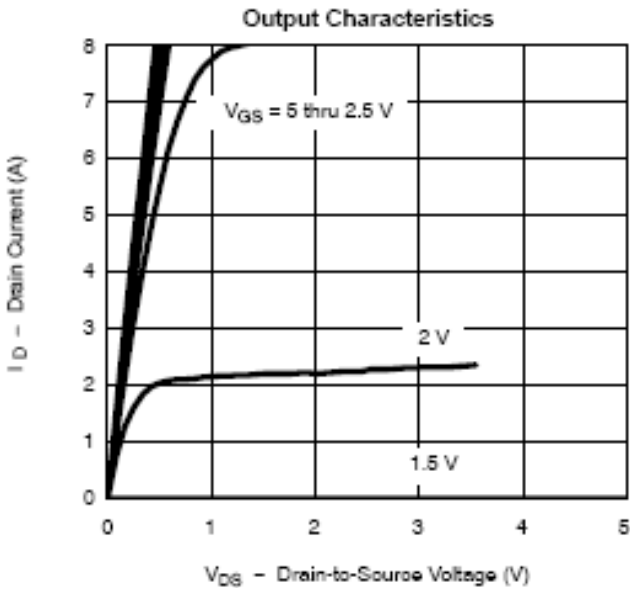
(TA=25°C Unless otherwise noted)

Parameter	Symbol	Conditions	Min.	Typ	Max.	Unit	
Static							
Drain-Source Breakdown Voltage	V _{(BR)DSS}	V _{GS} =0V, I _D =250uA	30			V	
Gate Threshold Voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =250uA	0.8		1.6		
Gate Leakage Current	I _{GSS}	V _{DS} =0V, V _{GS} =±12V			±100	nA	
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =24V, V _{GS} =0.0V			1	uA	
		V _{DS} =24V, V _{GS} =0.0V T _J =55°C			10		
On-State Drain Current	I _{D(on)}	V _{DS} ≥ 4.5V, V _{GS} =10V	6			A	
		V _{DS} ≥ 4.5V, V _{GS} =4.5V	4				
Drain-Source On-Resistance	R _{DS(on)}	V _{GS} = 10V, I _D =2.8A		0.048	0.058	Ω	
		V _{GS} = 4.5V, I _D =2.3A		0.053	0.065		
		V _{GS} = 2.5V, I _D =1.5A		0.080	0.105		
Forward Transconductance	g _{fs}	V _{DS} =4.5V, I _D =2.8A		4.6		S	
Diode Forward Voltage	V _{SD}	I _S =1.25A, V _{GS} =0V		0.82	1.2	V	
Dynamic							
Total Gate Charge	Q _g	V _{DS} =15, V _{GS} =4.5V I _D =2.0A		4.2	6	nC	
Gate-Source Charge	Q _{gs}			0.6			
Gate-Drain Charge	Q _{gd}			1.5			
Input Capacitance	C _{iss}	V _{DS} =15, V _{GS} =0V f=1MHz		350		pF	
Output Capacitance	C _{oss}			55			
Reverse Transfer Capacitance	C _{rss}			41			
Turn-On Time	t _{d(on)}	V _{DD} =15, R _L =10Ω V _{GEN} =10V, R _G =3Ω		2.5		ns	
	t _r			2.5			
Turn-Off Time	t _{d(off)}				20		
	t _f				4		



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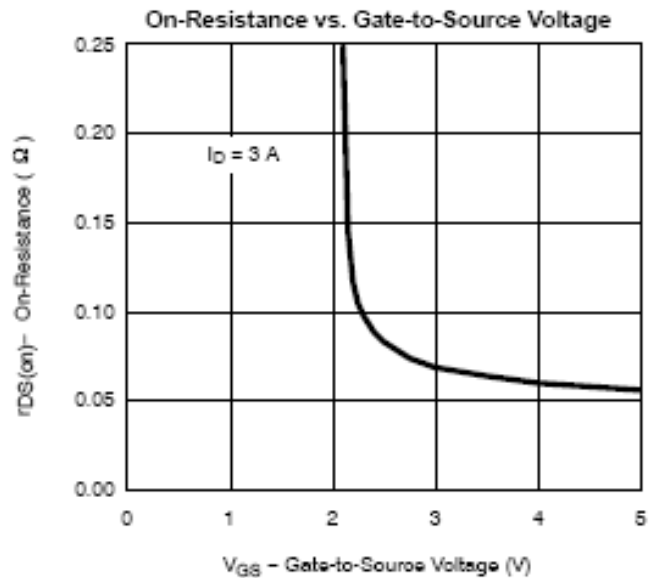
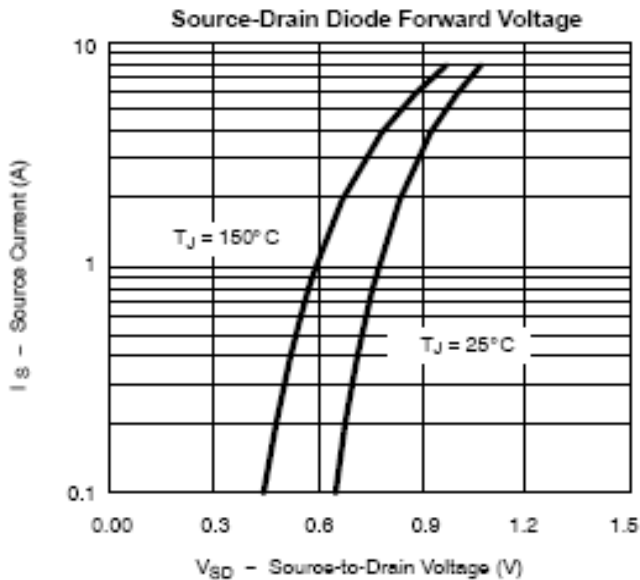
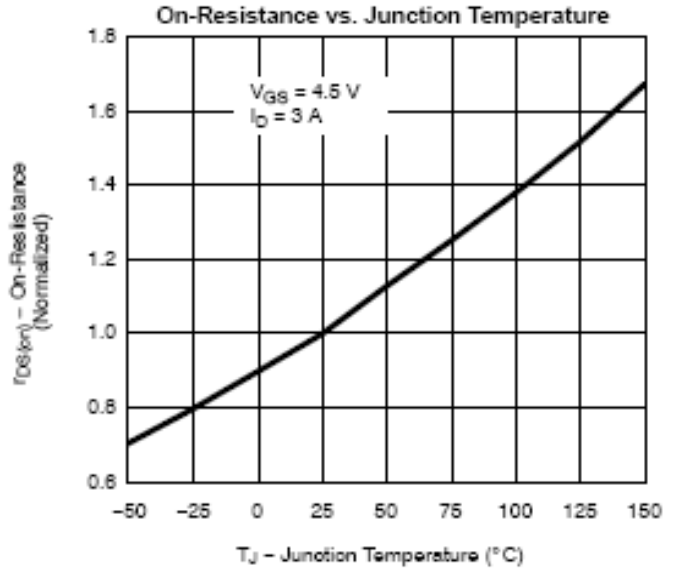
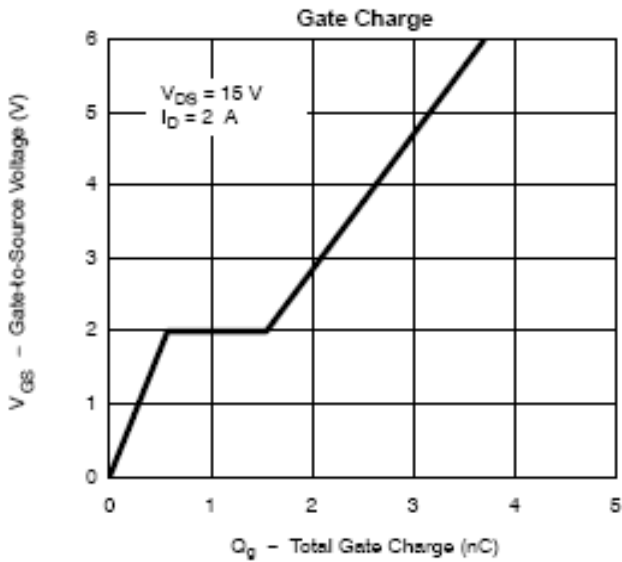
TYPICAL CHARACTERISTICS





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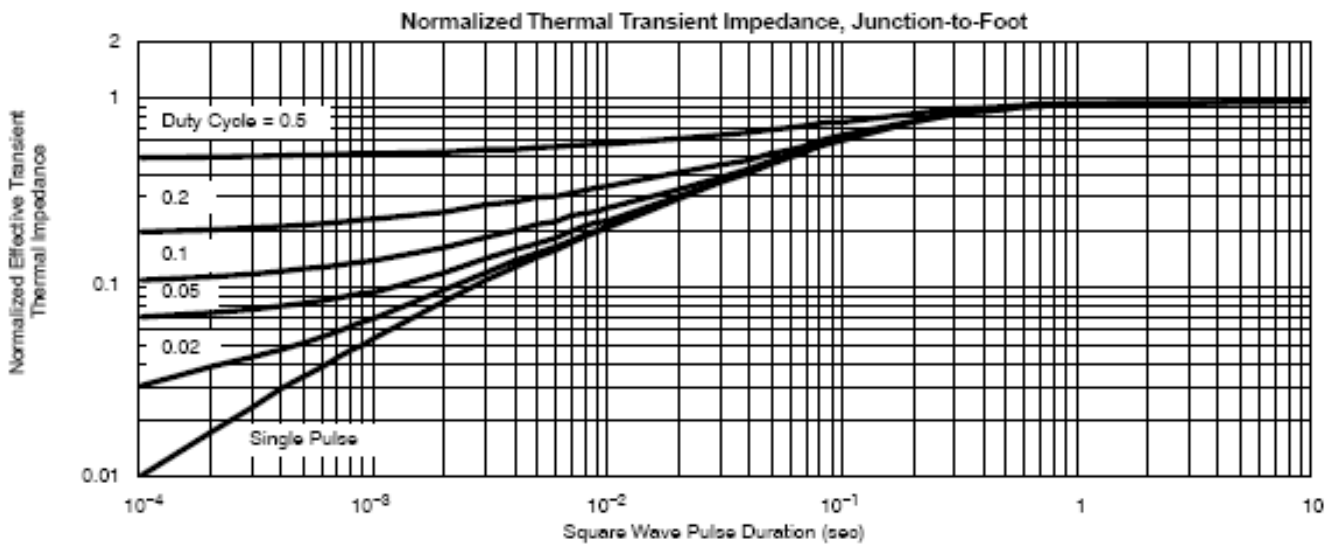
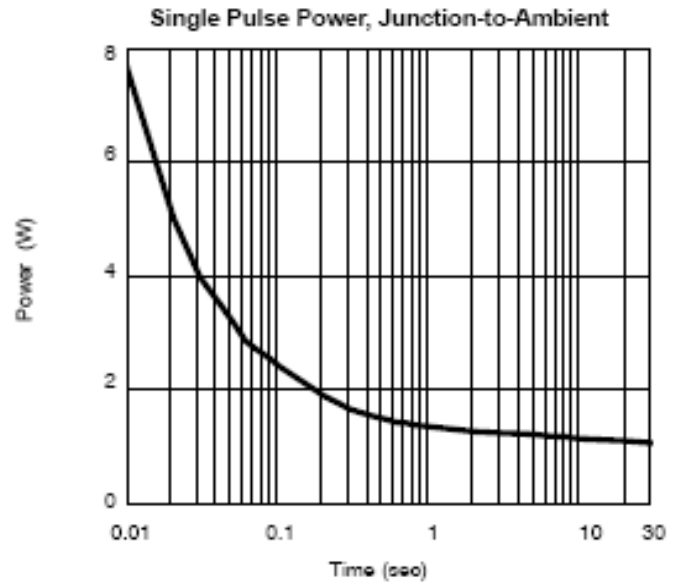
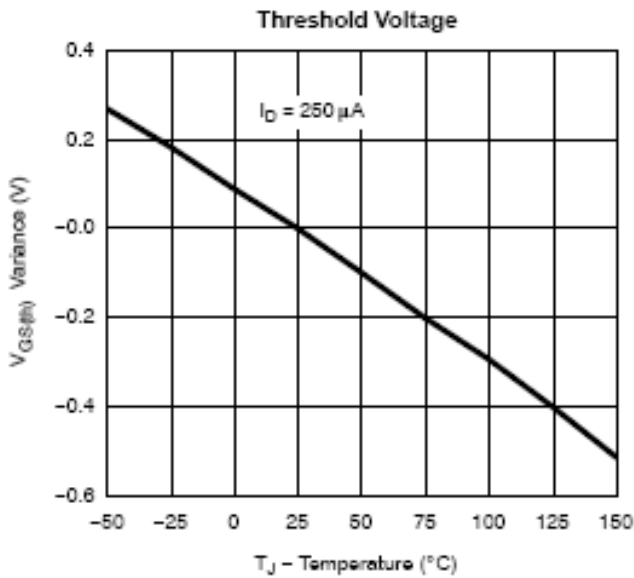




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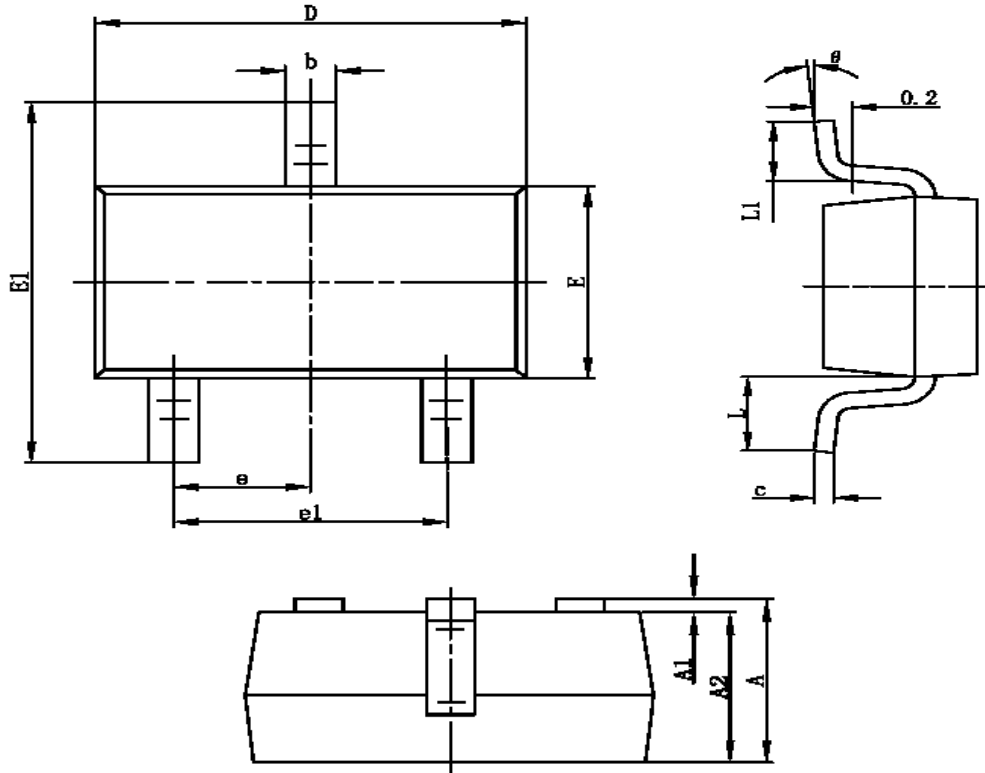




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SOT-23-3L PACKAGE OUTLINE



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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