



SPN2342

N-Channel Enhancement Mode MOSFET

DESCRIPTION

The SPN2342 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.

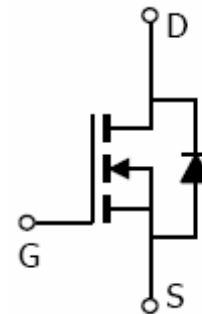
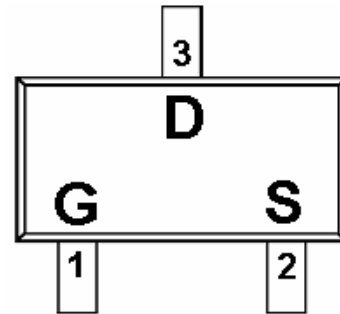
FEATURES

- ◆ 20V/5.0A, $R_{DS(ON)} = 35m\Omega @ V_{GS} = 4.5V$
- ◆ 20V/4.5A, $R_{DS(ON)} = 40m\Omega @ V_{GS} = 2.5V$
- ◆ 20V/4.0A, $R_{DS(ON)} = 48m\Omega @ V_{GS} = 1.8V$
- ◆ Super high density cell design for extremely low $R_{DS(ON)}$
- ◆ Exceptional on-resistance and maximum DC current capability
- ◆ SOT-23-3L package design

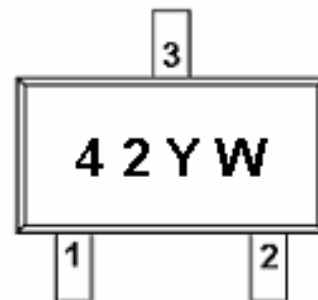
APPLICATIONS

- 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
SPN2342S23RG	SOT-23-3L	42YW
SPN2342S23RGB	SOT-23-3L	42YW

- ※ Week Code : A ~ Z (1 ~ 26) ; a ~ z (27 ~ 52)
- ※ SPN2342S23RG : Tape Reel ; Pb – Free
- ※ SPN2342S23RGB : Tape Reel ; Pb – Free ; Halogen – Free

ABSOLUTE MAXIMUM RATINGS

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

Parameter	Symbol	Typical	Unit	
Drain-Source Voltage	V_{DS}	20	V	
Gate –Source Voltage	V_{GS}	± 12	V	
Continuous Drain Current($T_J=150^{\circ}\text{C}$)	I_D	$T_A=25^{\circ}\text{C}$	4.0	A
		$T_A=70^{\circ}\text{C}$	3.0	
Pulsed Drain Current	I_{DM}	13	A	
Continuous Source Current(Diode Conduction)	I_S	1.0	A	
Power Dissipation	P_D	$T_A=25^{\circ}\text{C}$	1.25	W
		$T_A=70^{\circ}\text{C}$	0.8	
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	$R_{\theta JA}$	140	$^{\circ}\text{C}/\text{W}$	



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ELECTRICAL CHARACTERISTICS

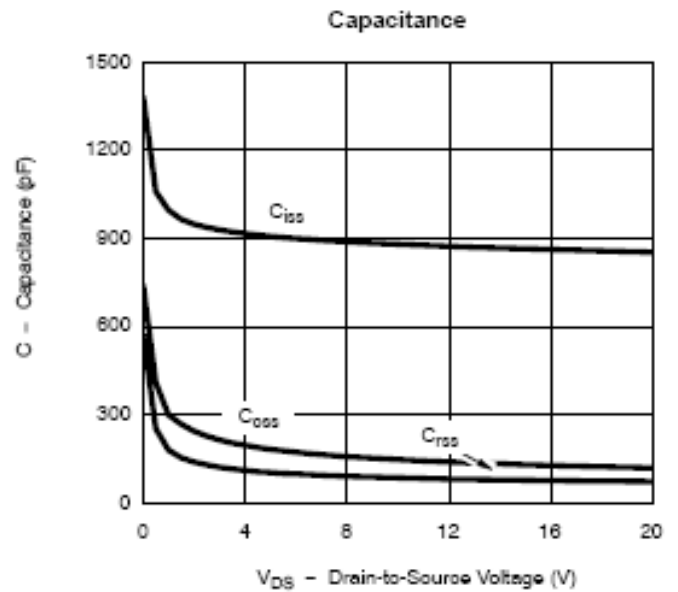
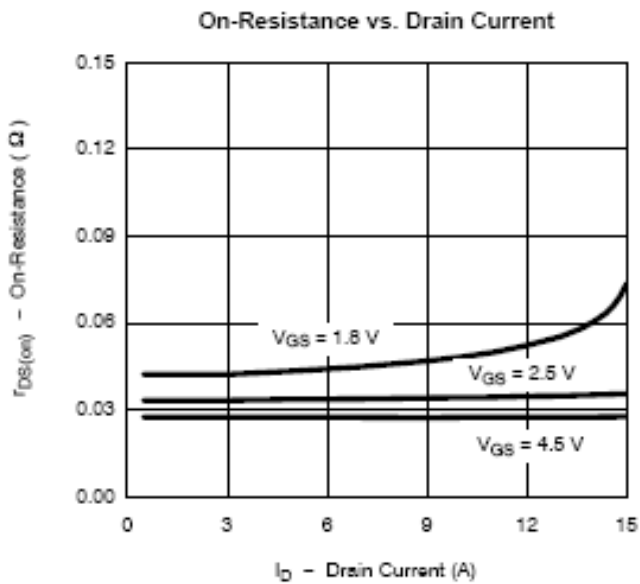
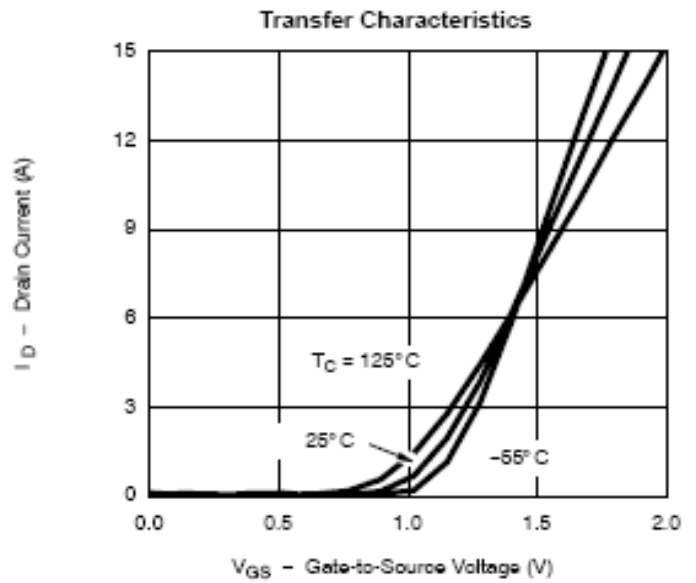
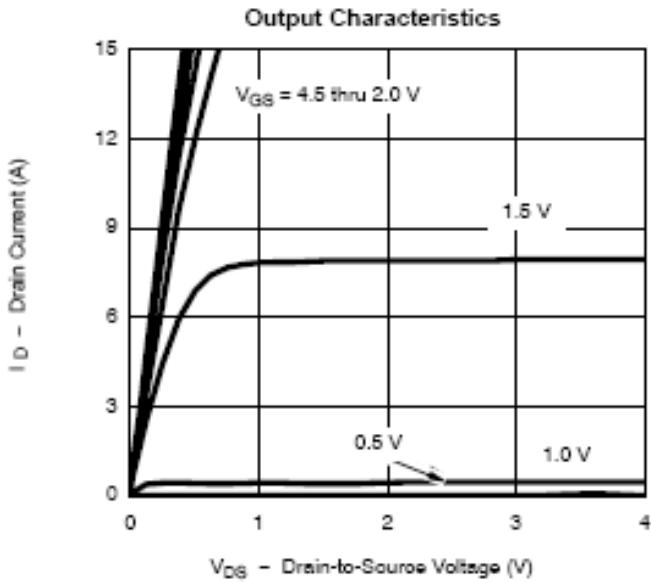
(TA=25°C Unless otherwise noted)

Parameter	Symbol	Conditions	Min.	Typ	Max.	Unit
Static						
Drain-Source Breakdown Voltage	V _{(BR)DSS}	V _{GS} =0V, I _D =250uA	20			V
Gate Threshold Voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =250uA	0.4		1.0	
Gate Leakage Current	I _{GSS}	V _{DS} =0V, V _{GS} =±12V			±100	nA
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =20V, V _{GS} =0V			1	uA
		V _{DS} =20V, V _{GS} =0V T _J =55°C			10	
On-State Drain Current	I _{D(on)}	V _{DS} ≥5V, V _{GS} =4.5V	6			A
Drain-Source On-Resistance	R _{DSS(on)}	V _{GS} = 4.5V, I _D =5.0A		0.026	0.035	Ω
		V _{GS} = 2.5V, I _D =4.5A		0.029	0.040	
		V _{GS} = 1.8V, I _D =4.0A		0.035	0.048	
Forward Transconductance	g _{fs}	V _{DS} =15V, I _D =5.0A		30		S
Diode Forward Voltage	V _{SD}	I _S =1.0A, V _{GS} =0V		0.8	1.2	V
Dynamic						
Total Gate Charge	Q _g	V _{DS} =10V, V _{GS} =4.5V I _D =5.0A		10	13	nC
Gate-Source Charge	Q _{gs}			1.4		
Gate-Drain Charge	Q _{gd}			2.1		
Input Capacitance	C _{iss}	V _{DS} =10V, V _{GS} =0V f=1MHz		600		pF
Output Capacitance	C _{oss}			120		
Reverse Transfer Capacitance	C _{rss}			100		
Turn-On Time	t _{d(on)}	V _{DD} =10V, R _L =10Ω I _D =1.0A, V _{GEN} =4.5V R _G =6Ω		15	25	ns
	t _r			40	60	
Turn-Off Time	t _{d(off)}			45	65	
	t _f			30	40	



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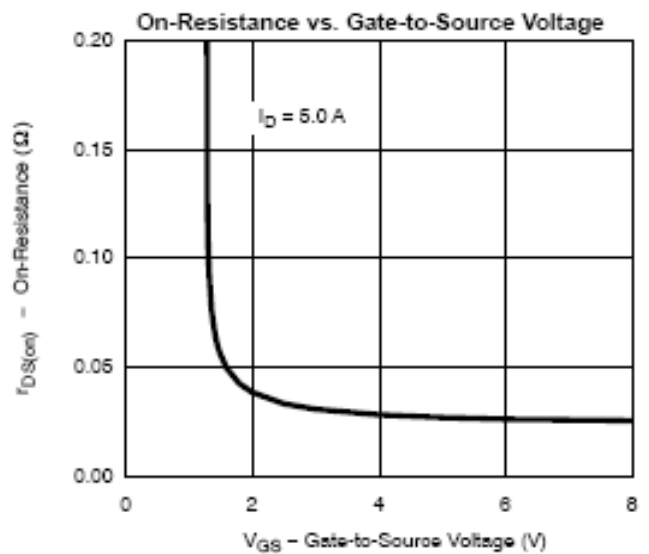
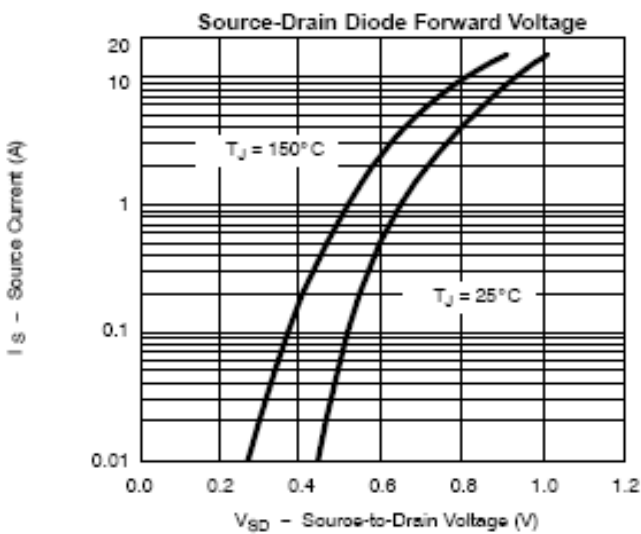
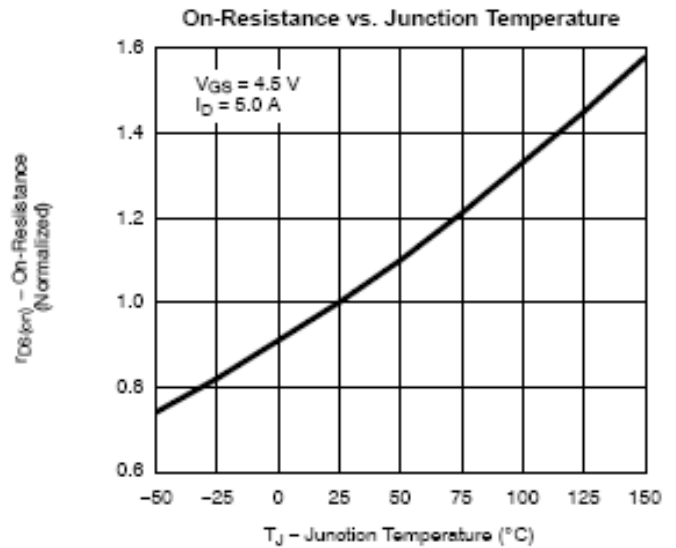
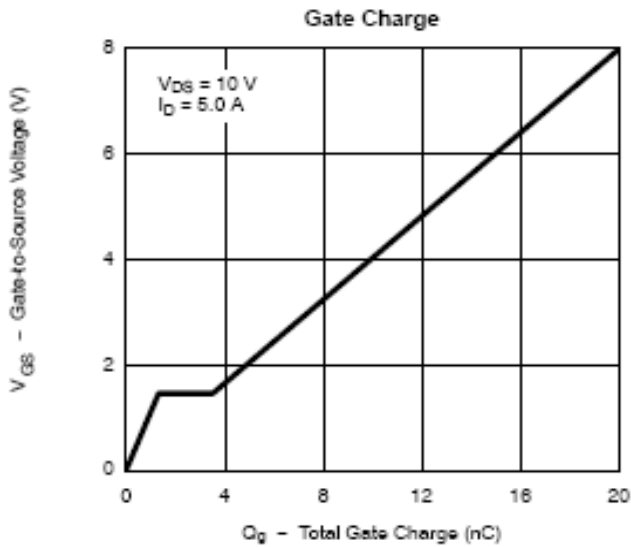
TYPICAL CHARACTERISTICS





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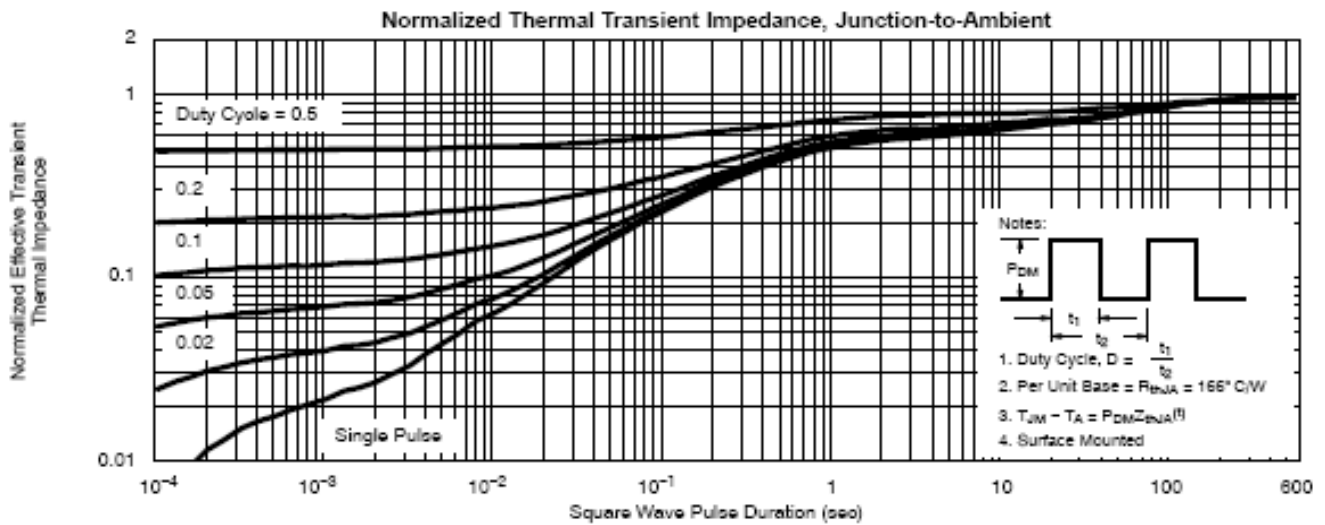
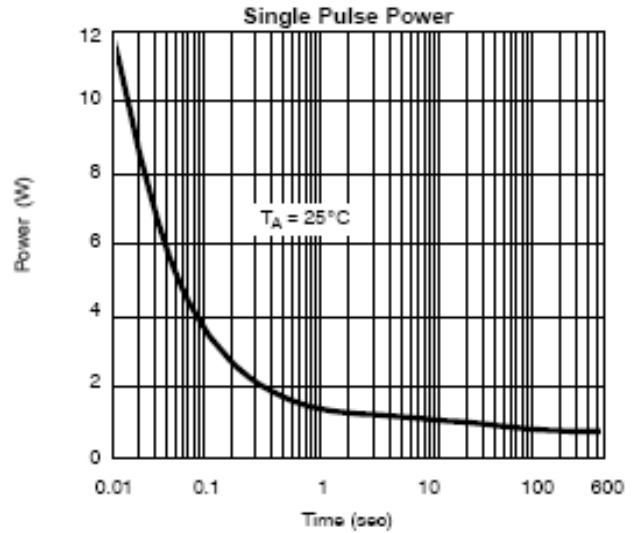
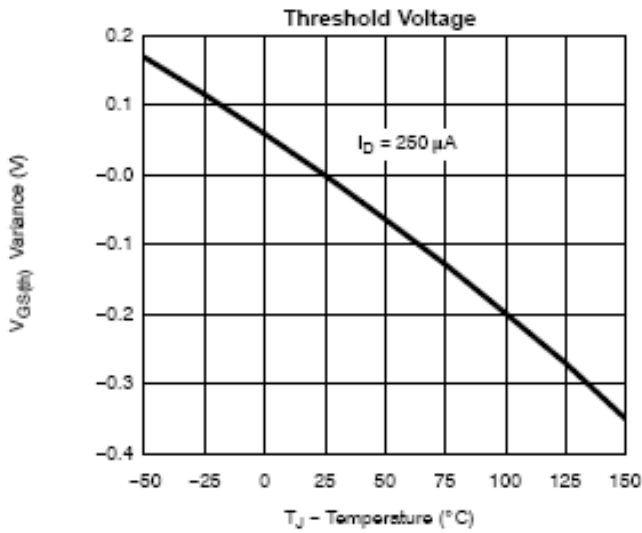
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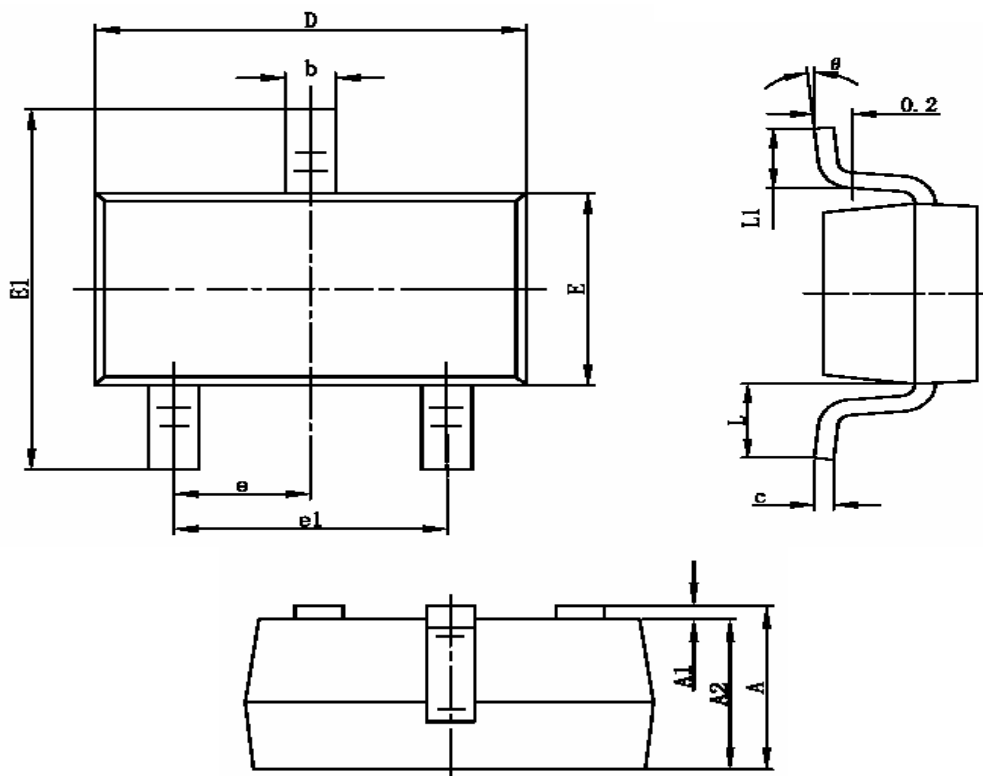




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SOT-23-3L PACKAGE OUTLINE



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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SYNC Power Corporation

9F-5, No.3-2, Park Street

NanKang District (NKSP), Taipei, Taiwan 115

Phone: 886-2-2655-8178

Fax: 886-2-2655-8468

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