# SPN2342W N-Channel Enhancement Mode MOSFET

## **DESCRIPTION**

The SPN2342W 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.

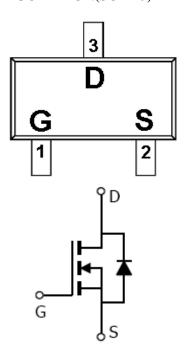
#### **FEATURES**

- 20V/4.0A,RDS(ON)= $35m\Omega$ @VGS=4.5V
- 20V/3.0A, RDS(ON)= $40m\Omega$ @VGS=2.5V
- 20V/2.0A, RDS(ON)= $55m\Omega$ @VGS=1.8V
- ◆ Super high density cell design for extremely low RDS(ON)
- Exceptional on-resistance and maximum DC current capability
- ♦ SOT-23 package design

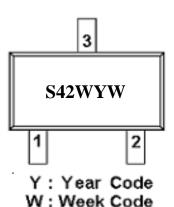
## **APPLICATIONS**

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

# PIN CONFIGURATION(SOT-23)



## **PART MARKING**



PIN DESCRIPTION					
Pin	Symbol	Description			
1	G	Gate			
2	S	Source			
3	D	Drain			

# ORDERING INFORMATION

Part Number	Package	Part Marking
SPN2342WS23RGB	SOT-23	S42W

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

※ SPN2342WS23RGB: Tape Reel; Pb − Free; Halogen − Free

# ABSOULTE MAXIMUM RATINGS

(Ta=25°C Unless otherwise noted)

Parameter		Symbol	Typical	Unit
Drain-Source Voltage		Vdss	20	V
Gate –Source Voltage		VGSS	±12	V
Carrier Davis Community 1500C)	Ta=25°C	- ID	6.0	Δ.
Continuous Drain Current(TJ=150°C)	Ta=70°C		4.8	A
Pulsed Drain Current		Ірм	24	A
Power Dissipation	TA=25°C		1.4	W
Operating Junction Temperature		Тл	-55/150	°C
Storage Temperature Range		Tstg	-55/150	°C
Thermal Resistance-Junction to Ambient		RθJA	90	°C/W

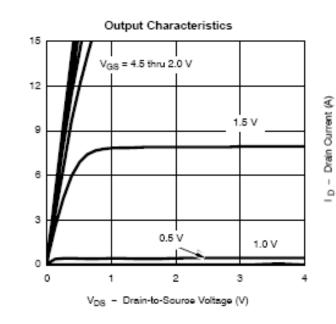
# **ELECTRICAL CHARACTERISTICS**

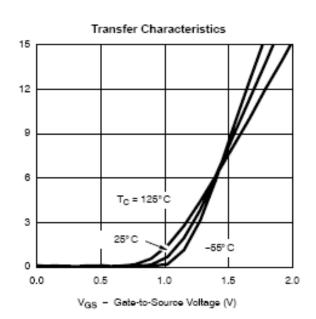
(TA=25°C Unless otherwise noted)

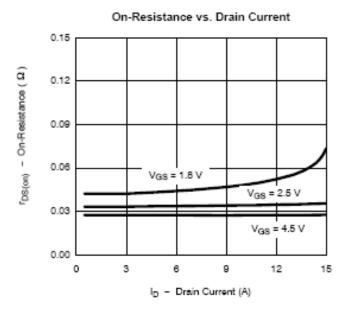
Parameter	Symbol	Conditions	Min.	Тур	Max.	Unit
Static	<u> </u>					
Drain-Source Breakdown Voltage	V(BR)DSS	VGS=0V,ID=250uA	20			V
Gate Threshold Voltage	V <sub>GS</sub> (th)	VDS=VGS,ID=250uA	0.4		1.0	] <b>'</b>
Gate Leakage Current	Igss	$V_{DS}=0V,V_{GS}=\pm 12V$			±100	nA
		VDS=16V,VGS=0V			1	uA
Zero Gate Voltage Drain Current	Idss	V <sub>DS</sub> =16V,V <sub>GS</sub> =0V T <sub>J</sub> =55°C			10	
On-State Drain Current	ID(on)	V <sub>D</sub> s≥5V,V <sub>G</sub> s=4.5V	6			A
		V <sub>G</sub> S= 4.5V,I <sub>D</sub> =4.0A		25	35	mΩ
Drain-Source On-Resistance	RDS(on)	$V_{GS} = 2.5V_{ID} = 3.0A$		30	40	
		VGS= 1.8V,ID=2.0A		42	55	<u> </u>
Forward Transconductance	gfs	VDS=10V,ID=3.0A		6.5		S
Diode Forward Voltage	Vsd	Is=1.0A,VGS=0V		0.8		V
Dynamic						
Total Gate Charge	Qg	V <sub>DS</sub> =10V,V <sub>GS</sub> =4.5V I <sub>D</sub> =4.0A		7.8	11	nC
Gate-Source Charge	Qgs			1		
Gate-Drain Charge	Qgd	-ID-4.0A		2.4		
Input Capacitance	Ciss			600		pF
Output Capacitance	Coss	VDS=10V,VGS=0V f=1MHz		60		
Reverse Transfer Capacitance	Crss			34		
Turn-On Time	td(on)			4.1	8	nS
	tr	VDD=10V, ID=1.0A		11.5	22	
Turn-Off Time	td(off)	VGEN=4.5V, RG=25 $\Omega$		24	45	
	tf	1		7.6	14	

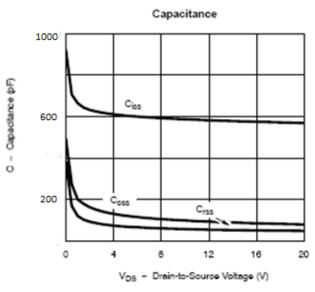
# TYPICAL CHARACTERISTICS

D - Drain Current (A)



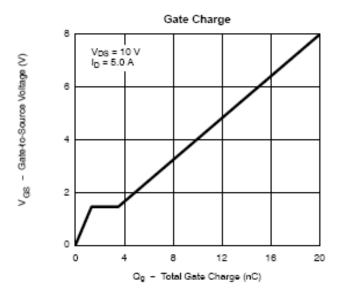


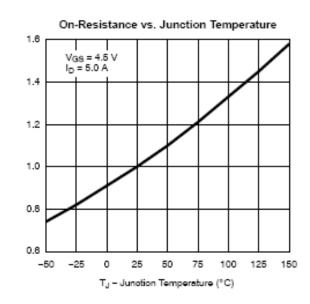


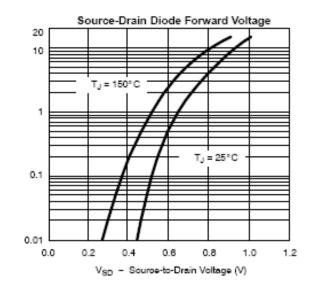


rDs(pn) - On-Resilstance (Normalized)

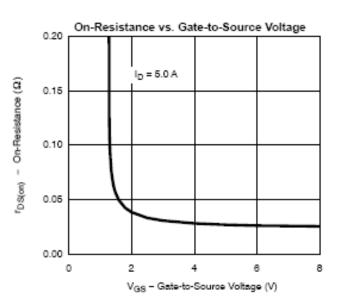
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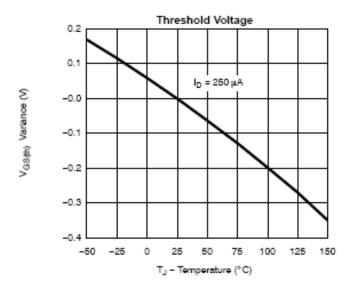


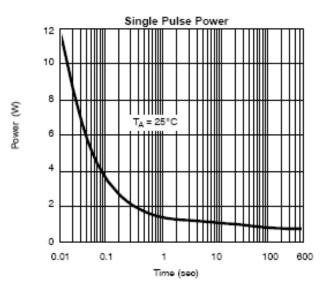


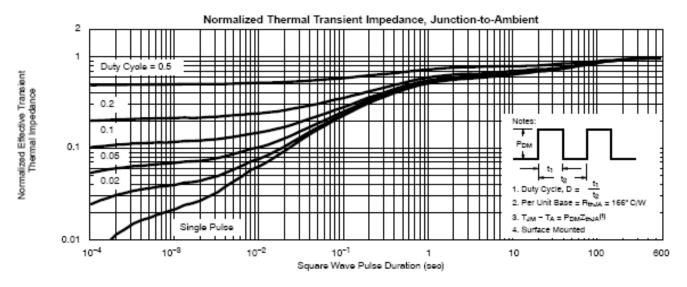
Is - Source Current (A)



# TYPICAL CHARACTERISTICS







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