



SPN2346W

N-Channel Enhancement Mode MOSFET

DESCRIPTION

The SPN2346W 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.

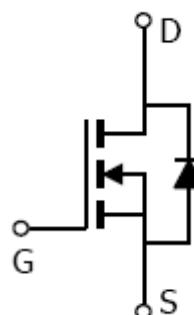
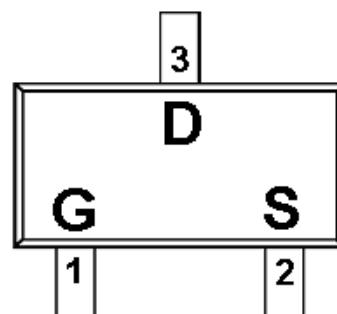
FEATURES

- ◆ 20V/6.0A,R_{DS(ON)}= 35mΩ@V_{GS}=4.5V
- ◆ 20V/5.0A,R_{DS(ON)}= 40mΩ@V_{GS}=2.5V
- ◆ 20V/4.0A,R_{DS(ON)}= 100mΩ@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 package design

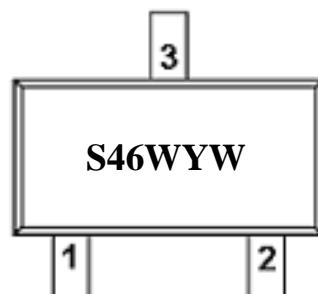
APPLICATIONS

- 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



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
SPN2346WS23RGB	SOT-23	S46WYW

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

※ SPN2346WS23RGB : Tape Reel ; Pb – Free ; Halogen – Free

ABSOULTE MAXIMUM RATINGS

(TA=25°C Unless otherwise noted)

Parameter	Symbol	Typical	Unit
Drain-Source Voltage	V _{DSS}	20	V
Gate –Source Voltage	V _{GSS}	±12	V
Continuous Drain Current(T _J =150°C)	TA=25°C	ID	A
	TA=70°C		
Pulsed Drain Current	I _{DM}	13	A
Continuous Source Current(Diode Conduction)	I _S	1.0	A
Power Dissipation	TA=25°C	P _D	W
	TA=70°C		
Operating Junction Temperature	T _J	-55/150	°C
Storage Temperature Range	T _{STG}	-55/150	°C
Thermal Resistance-Junction to Ambient	R _{θJA}	140	°C/W



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ELECTRICAL CHARACTERISTICS

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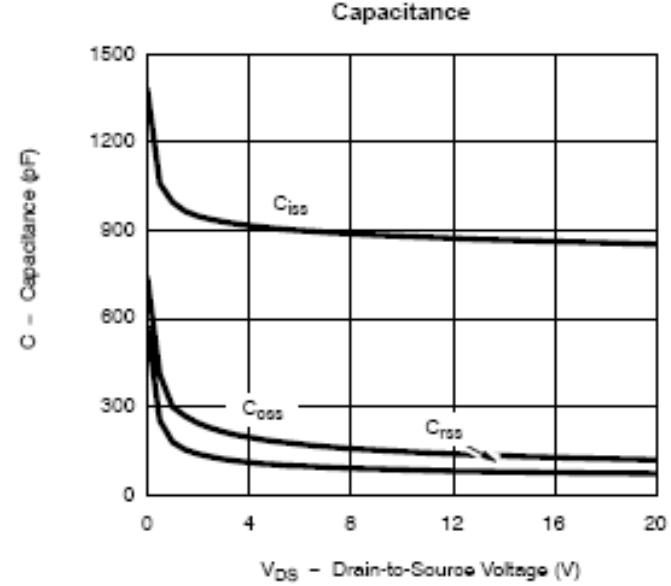
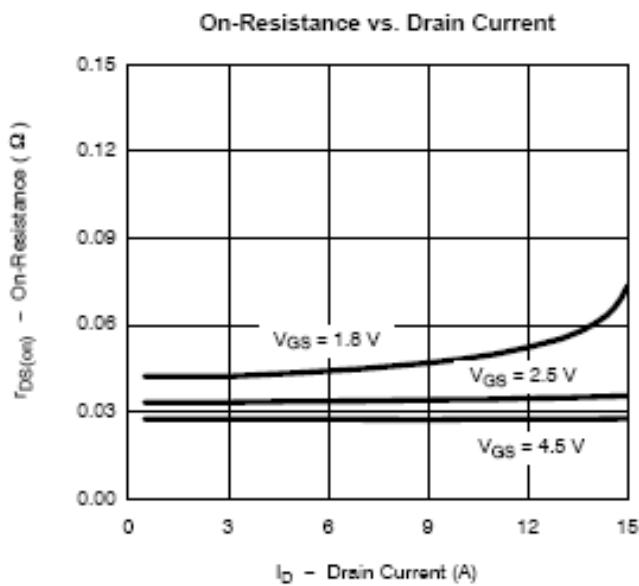
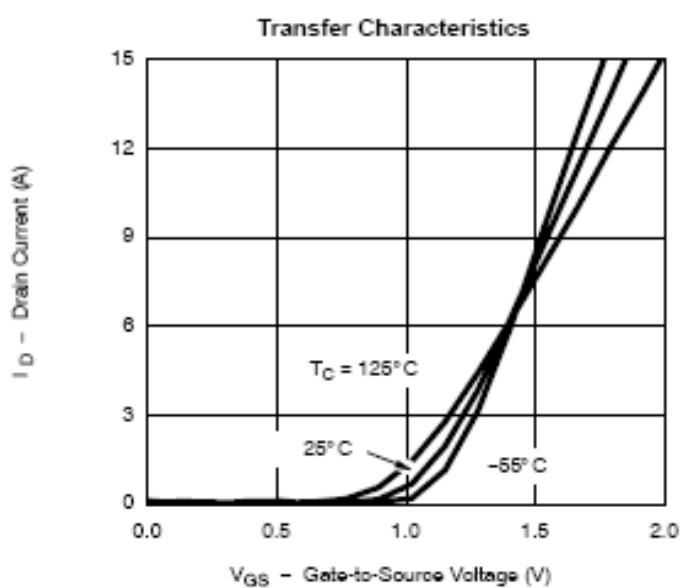
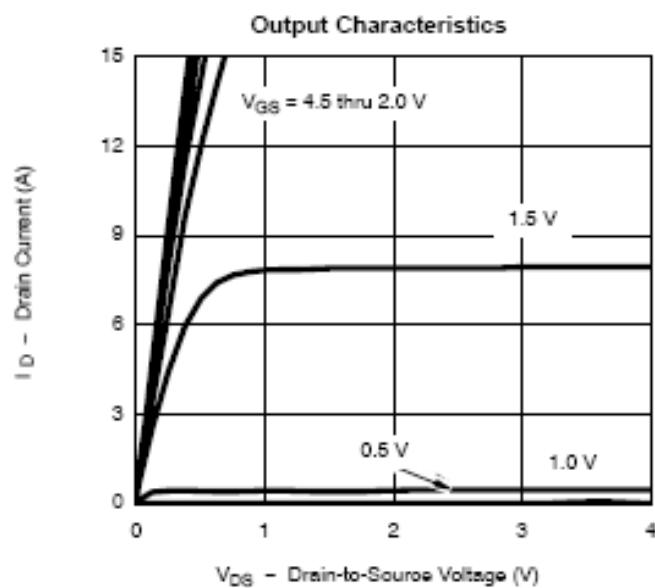
Parameter	Symbol	Conditions	Min.	Typ	Max.	Unit
Static						
Drain-Source Breakdown Voltage	V _{(BR)DSS}	V _{GS} =0V, ID=250uA	20			V
Gate Threshold Voltage	V _{GS(th)}	V _{DS} =V _{GS} , ID=250uA	0.4		1.0	
Gate Leakage Current	I _{GSS}	V _{DS} =0V, V _{GS} =±12V			±100	nA
Zero Gate Voltage Drain Current	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, ID=6.0A		0.028	0.035	Ω
		V _{GS} = 2.5V, ID=5.0A		0.036	0.040	
		V _{GS} = 1.8V, ID=4.0A		0.080	0.100	
Forward Transconductance	g _{fs}	V _{DS} =15V, ID=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 ID=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 ID=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

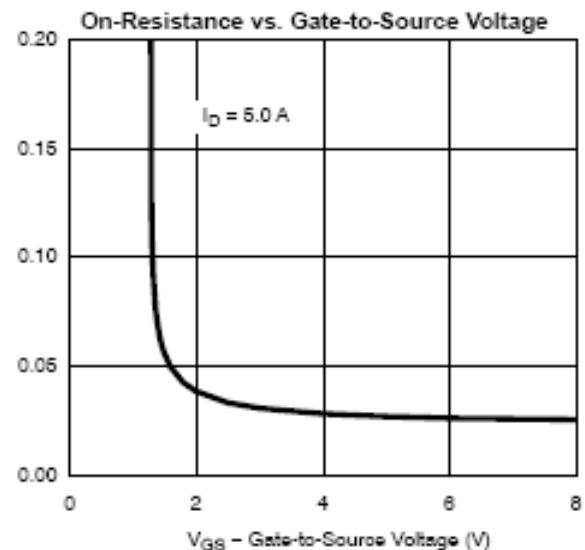
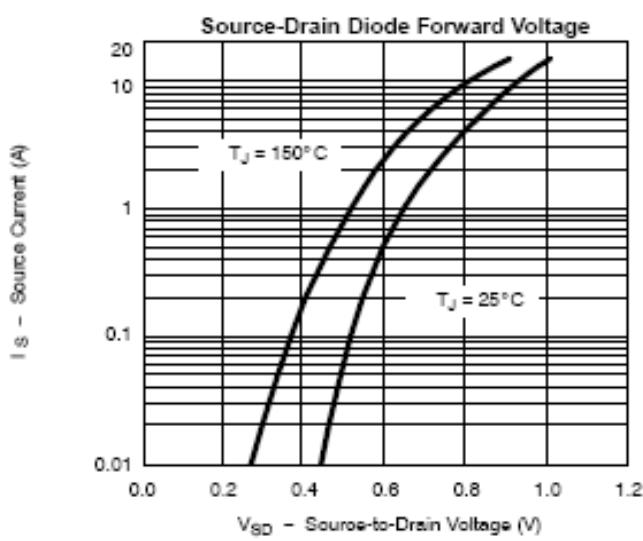
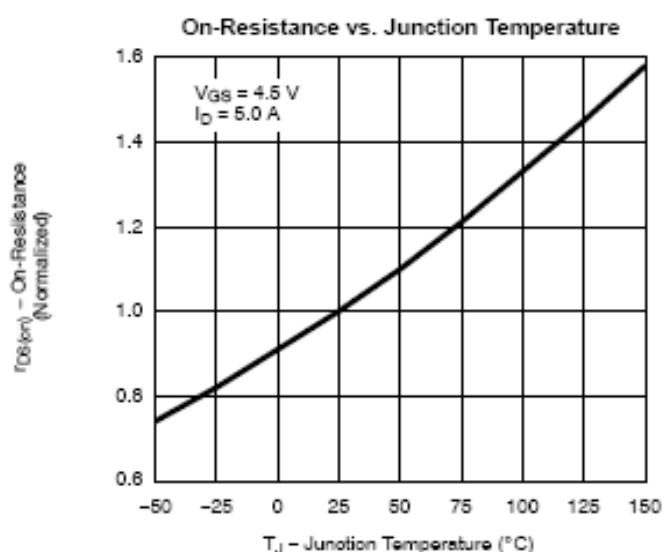
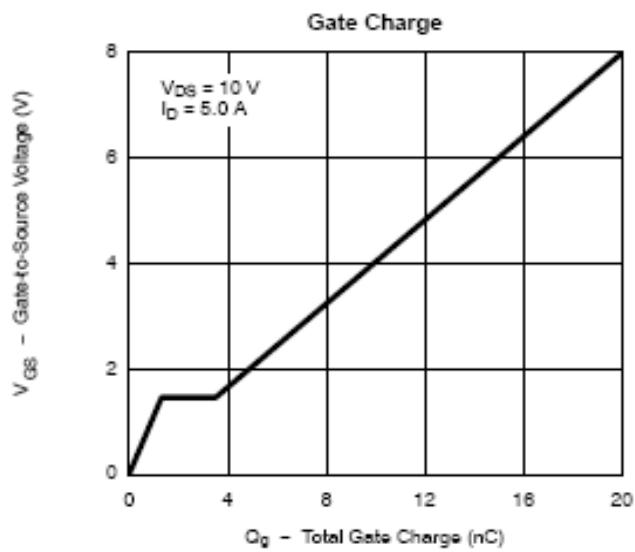




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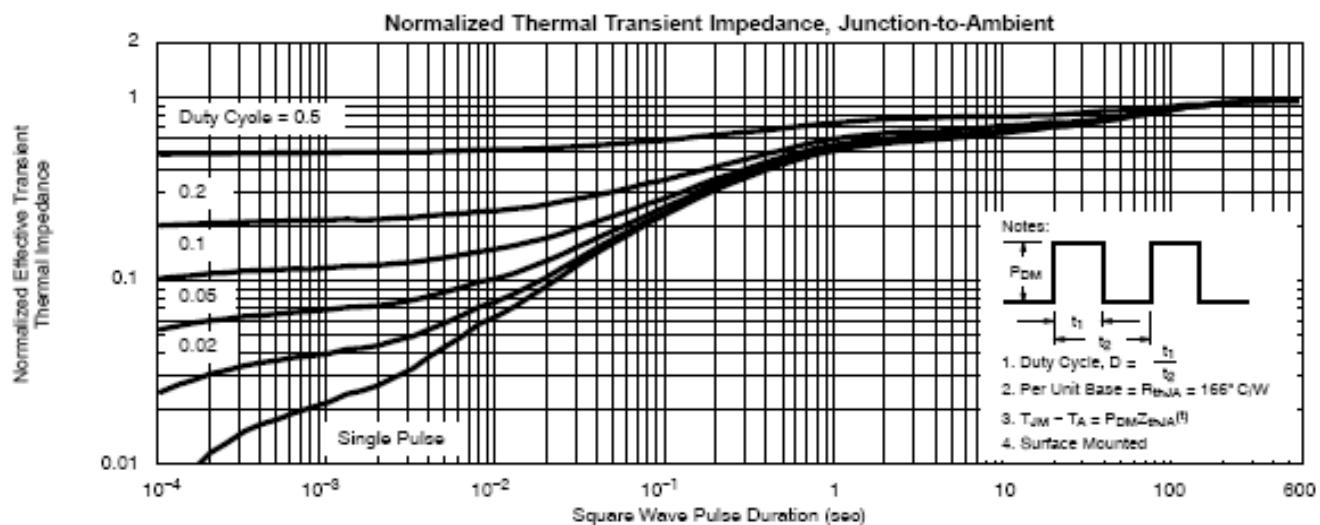
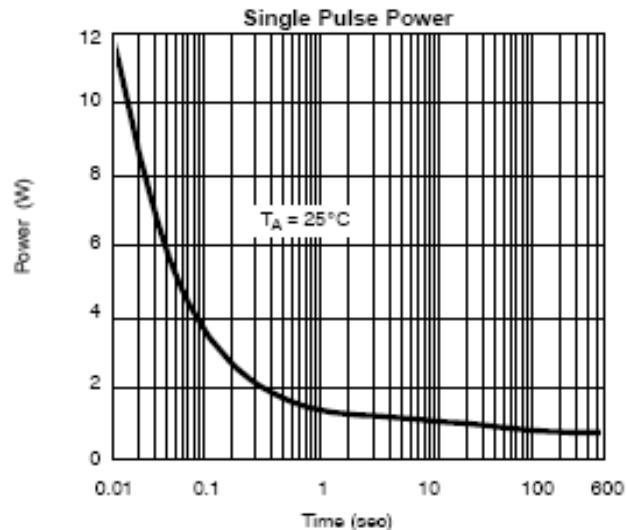
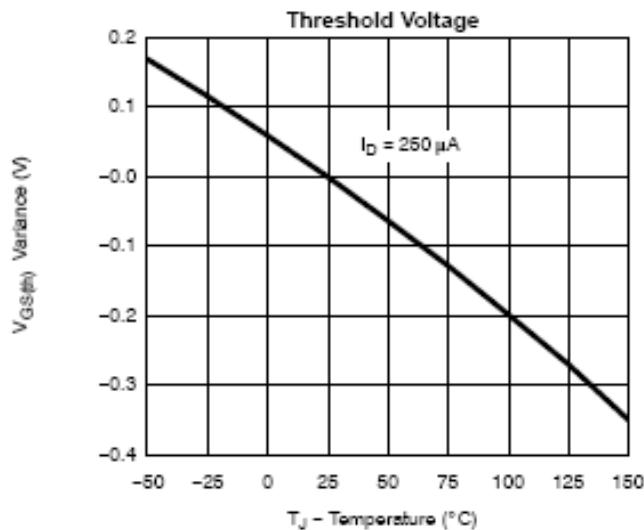




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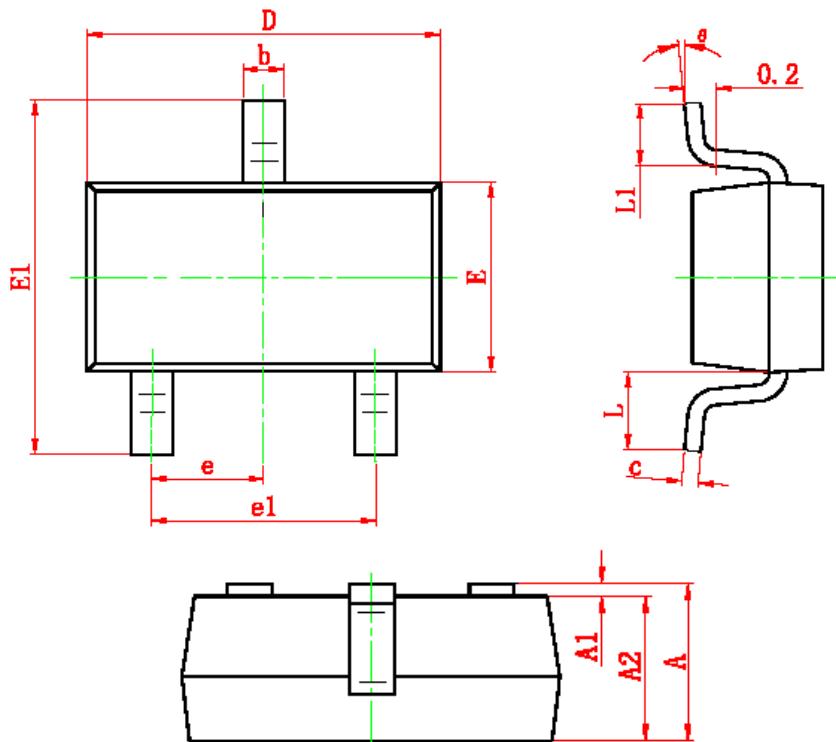




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SOT-23 PACKAGE OUTLINE



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	0.900	1.200	0.035	0.043
A1	0.000	0.100	0.000	0.004
A2	0.900	1.100	0.035	0.039
b	0.300	0.500	0.012	0.020
c	0.080	0.150	0.003	0.006
D	2.800	3.000	0.110	0.118
E	1.200	1.400	0.047	0.055
E1	2.250	2.550	0.089	0.100
e	0.950 TYP		0.037 TYP	
e1	1.800	2.000	0.071	0.079
L	0.550 REF		0.022 REF	
L1	0.300	0.500	0.012	0.020
θ	0°	8°	0°	6°



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