

DESCRIPTION

The SPN2306W 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.

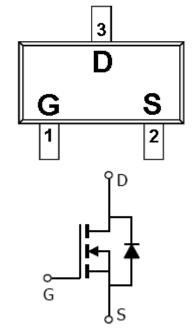
APPLICATIONS

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

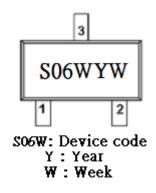
FEATURES

- 30V/5.4A, RDS(ON)= $38m\Omega@VGS=10V$
- 30V/4.6A, RDS(ON)= $42m\Omega@VGS=4.5V$
- $30V/3.8A,RDS(ON)=55m\Omega@VGS=2.5V$
- Super high density cell design for extremely low RDS(ON)
- Exceptional on-resistance and maximum DC current capability
- ◆ SOT-23 package design

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		
SPN2306WS23RGB	SOT-23	S06W		

Week Code : $A \sim Z(1 \sim 26)$; $a \sim z(27 \sim 52)$

* SPN2306WS23RGB : Tape Reel ; Pb – Free

ABSOULTE MAXIMUM RATINGS

(TA=25°C Unless otherwise noted)

Parameter		Symbol	Typical	Unit	
Drain-Source Voltage		Vdss	30	V	
Gate –Source Voltage		VGSS	±12	V	
Continuous Dusin Cumont/Tz=150°C)	TA=25°C	In	4.5	۵	
Continuous Drain Current(TJ=150°C)	TA=70°C	ID	3.5	A	
Pulsed Drain Current	Ідм	25	А		
Continuous Source Current(Diode Conduction)		Is	1.7	А	
Demon Dissingtion	TA=25°C	Do	1.25	W	
Power Dissipation	TA=70°C	PD	0.8	W	
Operating Junction Temperature		τT	-55/150	°C	
Storage Temperature Range		Tstg	-55/150	°C	
Thermal Resistance-Junction to Ambient		Rөја	140	°C/W	

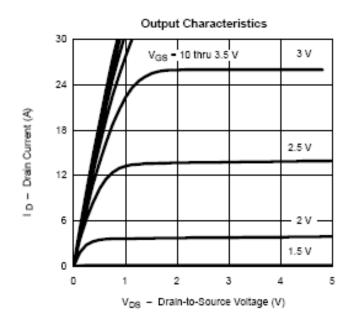


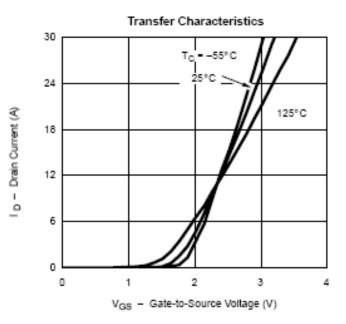
ELECTRICAL CHARACTERISTICS

(TA=25°C Unless otherwise noted)

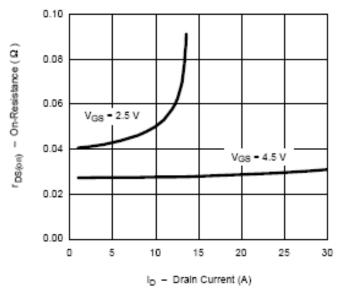
Parameter	Symbol	Conditions	Min.	Тур	Max.	Unit
Static	·	•				<u>.</u>
Drain-Source Breakdown Voltage	V(BR)DSS	Vgs=0V,Id=250uA	30			v
Gate Threshold Voltage	VGS(th)	VDS=VGS,ID=250uA	0.8		1.6	
Gate Leakage Current	Igss	VDS=0V,VGS=±12V			±100	nA
		VDS=24V,VGS=1.0V			1	uA
Zero Gate Voltage Drain Current	Idss	VDS=24V,VGS=0.0V TJ=55°C			10	
On-State Drain Current	ID(on)	$V_{DS} \ge 4.5V, V_{GS} = 4.5V$	10			Α
Drain-Source On-Resistance		$V_{GS} = 10V, I_{D} = 5.4A$		0.033	0.038	Ω
	RDS(on)	VGS =4.5V,ID=4.6A		0.038	0.042	
		VGS = 2.5V, ID = 3.8A		0.050	0.055	
Forward Transconductance	gfs	VDS=4.5V,ID=5.4A		12		S
Diode Forward Voltage	Vsd	Is=1.7A,VGs=0V		0.8	1.2	V
Dynamic						
Total Gate Charge	Qg	Vds=15Vgs=10V Id=6.7A		10	18	nC
Gate-Source Charge	Qgs			1.6		
Gate-Drain Charge	Qgd	ID-0.7A		3.2		
Input Capacitance	Ciss			450		pF
Output Capacitance	Coss	VDS=15VGS=0V f=1MHz		240		
Reverse Transfer Capacitance	Crss			38		
Turn-On Time	td(on)			7	15	- nS
	tr	$V_{DD}=15RL=15$		10	20	
Turn-Off Time	td(off)	$ID \equiv 1.0A, VGEN = 10$ RG=6 Ω		20	40	
	tf			11	20	

TYPICAL CHARACTERISTICS

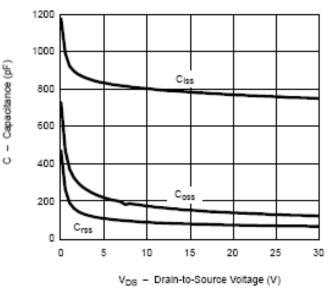




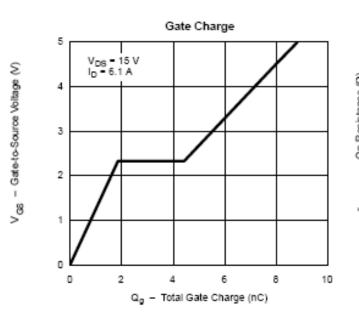
On-Resistance vs. Drain Current

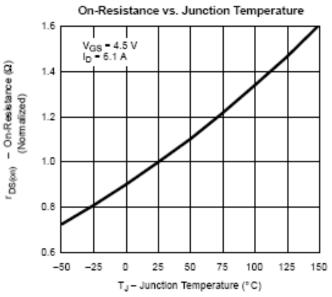


Capacitance



TYPICAL CHARACTERISTICS







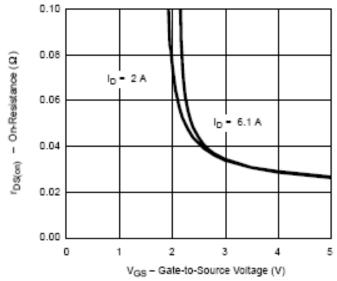
T_J = 150°C

T_J = 25°C

1.0

1.2





30

10

0.0

0.2

0.4

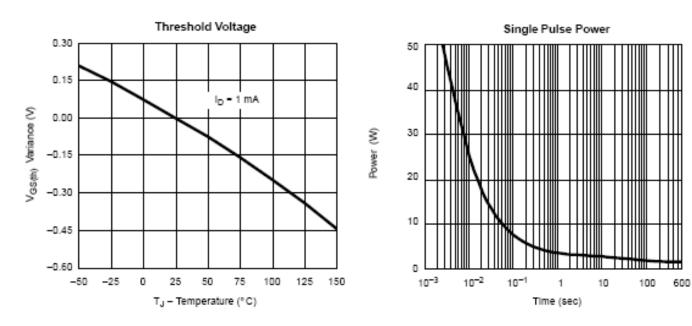
0.6

V_{SD} - Source-to-Drain Voltage (V)

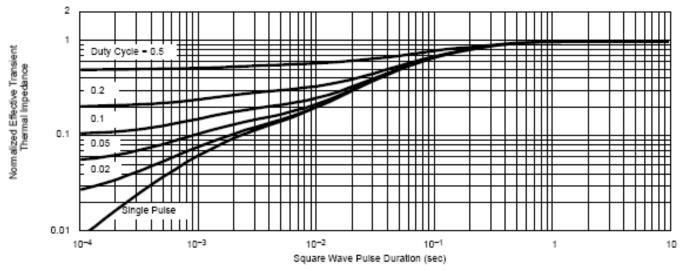
0.8

I s - Source Current (A)

TYPICAL CHARACTERISTICS



Normalized Thermal Transient Impedance, Junction-to-Foot





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