

DESCRIPTION

The SPN3422 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.

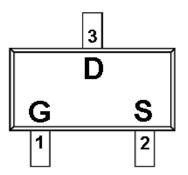
FEATURES

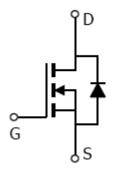
- 60V/3.0A, RDS(ON)= $125m\Omega$ @VGS=10V
- 60V/2.5A,RDS(ON)= $145m\Omega$ @VGS=4.5V
- ◆ Super high density cell design for extremely low RDS(ON)
- Exceptional on-resistance and maximum DC current capability
- ◆ SOT-23 package design

APPLICATIONS

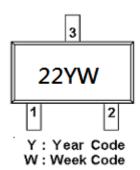
- Power Management in Note book
- Portable Equipment
- Battery Powered System
- DC/DC Converter
- Load SwitchDSC
- LCD Display inverter

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
SPN3422S23RGB	SOT-23	22

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

※ SPN3422S23RGB: Tape Reel; Pb − Free; Halogen − Free

ABSOULTE MAXIMUM RATINGS

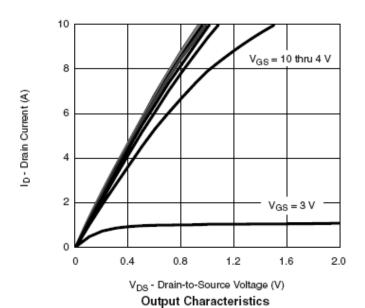
(TA=25°C Unless otherwise noted)

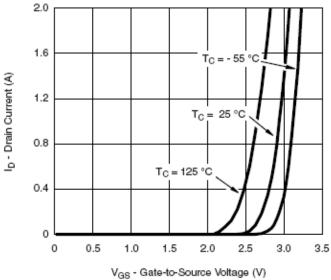
Parameter		Symbol	Typical	Unit	
Drain-Source Voltage		Vdss	60	V	
Gate –Source Voltage		VGSS	±20	V	
Continuous Drain Current/Tr-150°C)	Ta=25°C	In	3.0	Λ	
Continuous Drain Current(TJ=150°C)	Ta=70°C	- Id	2.2	A	
Pulsed Drain Current		Ірм	6	A	
Continuous Source Current(Diode Conduction)		Is	2.0	A	
Barrara Direitardian	Ta=25°C	D-	2.0	W	
Power Dissipation	Ta=70°C	PD	1.3		
Operating Junction Temperature		TJ	150	°C	
Storage Temperature Range		Tstg	-55/150	°C	
Thermal Resistance-Junction to Ambient		RθJA	140	°C/W	

ELECTRICAL CHARACTERISTICS

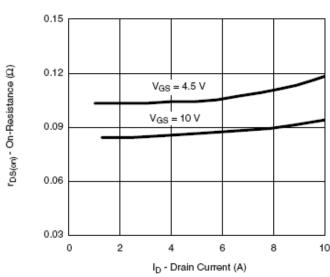
(Ta=25°C Unless otherwise noted)

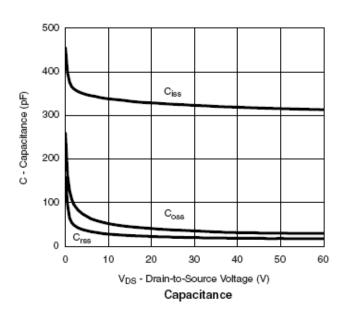
Parameter	Symbol	Conditions	Min.	Тур	Max.	Unit
Static	<u> </u>					
Drain-Source Breakdown Voltage	V(BR)DSS	VGS=0V,ID=250uA	60			V
Gate Threshold Voltage	VGS(th)	VGS(th) VDS=VGS,ID=250uA			1.5]
Gate Leakage Current	Igss	VDS=0V,VGS=±20V			±100	nA
Zero Gate Voltage Drain Current		VDS=48V,VGS=0.0V			1	uA
	Idss	VDS=48V,VGS=0.0V TJ=55°C			10	
On-State Drain Current	ID(on)	$V_{DS} \ge 4.5V, V_{GS} = 4.5V$	10			A
Drain-Source On-Resistance	RDS(on)	VGS = 10V,ID=3.0A		0.106	0.125	Ω
	KD3(0II)	$V_{GS} = 4.5V, I_{D} = 2.5A$		0.118	0.145	3.2
Forward Transconductance	gfs	VDS=15V,ID=4.0A		12		S
Diode Forward Voltage	Vsd	Is=2.5A,VGS=0V		0.8	1.2	V
Dynamic						
Total Gate Charge	Qg			4.0	6	nC
Gate-Source Charge	Qgs	VDS=30V, VGS=4.5V ID=4.0A		1.2		
Gate-Drain Charge	Qgd	-1D-4.0A		1.0		
Input Capacitance	Ciss			320		pF
Output Capacitance	Coss	V _{DS} =30V, V _{GS} =0V f=1MHz		42		
Reverse Transfer Capacitance	Crss			20		
Turn-On Time	td(on)			6	10	
	tr	VDD=30V, RL= 12Ω		12	20	
Turn-Off Time	td(off)	ID= $2.5A$,VGEN= $10V$		18	30	nS
	tf			10	15	



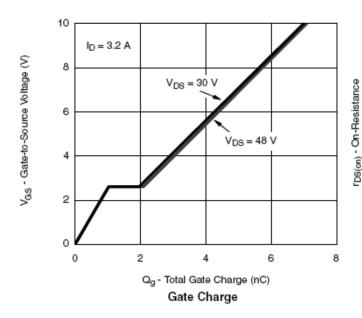


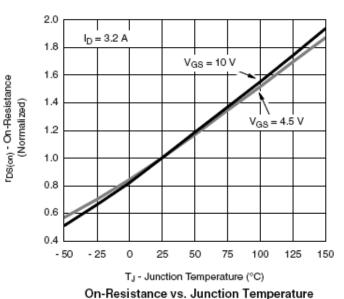
Transfer Characteristics

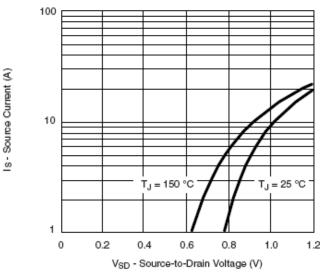


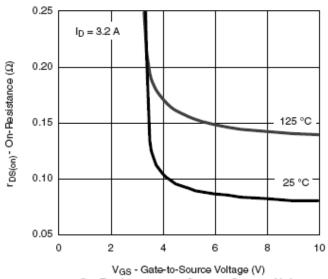


On-Resistance vs. Drain Current and Gate Voltage







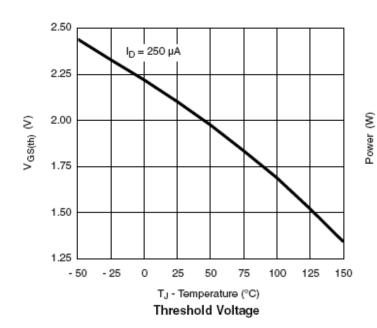


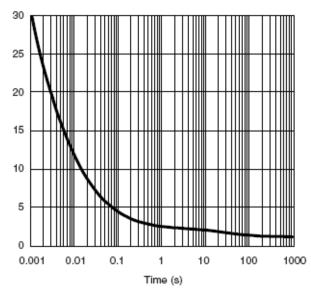
V_{SD} - Source-to-Drain Voltage (V)

V_{GS} - Gate-to-Source Voltage (V)

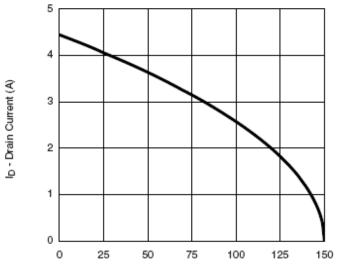
Source-Drain Diode Forward Voltage

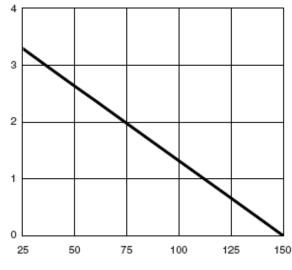
On-Resistance vs. Gate-to-Source Voltage





Single Pulse Power (Junction-to-Ambient)





T_C - Foot (Drain) Temperature (°C)

Current Derating*

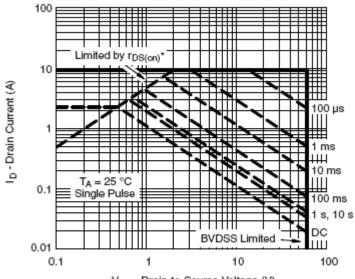
T_C - Foot (Drain) Temperature (°C)

Power Derating

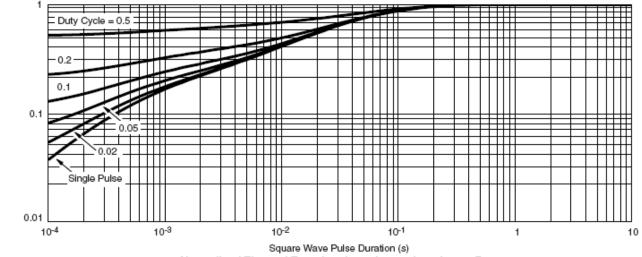
2020/1/21 **Ver.2** Page 6

Power Dissipation (W)

Nomalized Effective Transient Thermal Impedance



$$\begin{split} &V_{DS}\text{ - Drain-to-Source Voltage (V)}\\ ^*V_{GS}>&\min V_{GS}\text{ at which }r_{DS(on)}\text{ is specified}\\ \textbf{Safe Operating Area, Junction-to-Ambient} \end{split}$$



Normalized Thermal Transient Impedance, Junction-to-Foot

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