

SPN1423

DESCRIPTION

The SPN1423 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 where high-side switching , and low in-line power loss are needed in a very small outline surface mount package.

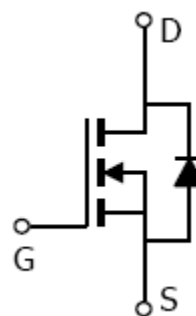
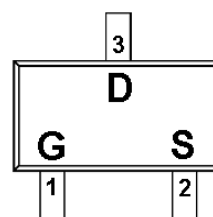
FEATURES

- ◆ 20V/2.8A, $R_{DS(ON)} = 90m\Omega @ V_{GS} = 4.5V$
- ◆ 20V/2.2A, $R_{DS(ON)} = 100m\Omega @ V_{GS} = 2.5V$
- ◆ Super high density cell design for extremely low $R_{DS(ON)}$
- ◆ Exceptional on-resistance and maximum DC current capability
- ◆ SOT-323 (SC-70) package design

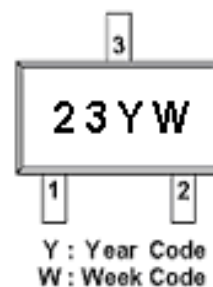
APPLICATIONS

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

PIN CONFIGURATION (SOT-323 ; SC-70)



PART MARKING



SPN1423

PIN DESCRIPTION

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

ORDERING INFORMATION

Part Number	Package	Part Marking
SPN1423S32RG	SOT-323	23YW
SPN1423S32RGB	SOT-323	23YW

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

※ SPN1423S32RG : Tape Reel ; Pb – Free

※ SPN1423S32RGB : Tape Reel ; Pb – Free ; Halogen – Free

ABSOLUTE 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)	I _D	T _A =25°C	2.8
		T _A =70°C	2.2
Pulsed Drain Current	I _{DM}	10	A
Continuous Source Current(Diode Conduction)	I _S	1.6	A
Power Dissipation	P _D	T _A =25°C	1.25
		T _A =70°C	0.8
Operating Junction Temperature	T _J	150	°C
Storage Temperature Range	T _{STG}	-55/150	°C
Thermal Resistance-Junction to Ambient	R _{θJA}	100	°C/W

SPN1423

ELECTRICAL CHARACTERISTICS

 (T_A=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	0.45		1.2	
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	5			A
		V _{DS} ≥ 5V, V _{GS} =2.5V	4			
Drain-Source On-Resistance	R _{Ds(on)}	V _{GS} =4.5V, I _D =2.8A		0.055	0.090	Ω
		V _{GS} =2.5V, I _D =2.2A		0.075	0.100	
Forward Transconductance	g _{fs}	V _{DS} =5V, I _D =2.8A		10		S
Diode Forward Voltage	V _{SD}	I _S =1.6A, V _{GS} =0V		0.85	1.2	V
Dynamic						
Total Gate Charge	Q _g	V _{DS} =10V, V _{GS} =4.5V I _D =2.8A		5.4	10	nC
Gate-Source Charge	Q _{gs}			0.65		
Gate-Drain Charge	Q _{gd}			1.4		
Input Capacitance	C _{iss}	V _{DS} =10V, V _{GS} =0V f=1MHz		340		pF
Output Capacitance	C _{oss}			115		
Reverse Transfer Capacitance	C _{rss}			33		
Turn-On Time	t _{d(on)}	V _{DD} =10V, R _L =5.5Ω I _D =2.8A, V _{GEN} =4.5V R _G =6Ω		12	25	ns
	t _r			36	60	
Turn-Off Time	t _{d(off)}			34	60	
	t _f			10	25	