SPN2342

DESCRIPTION

The SPN2342 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.

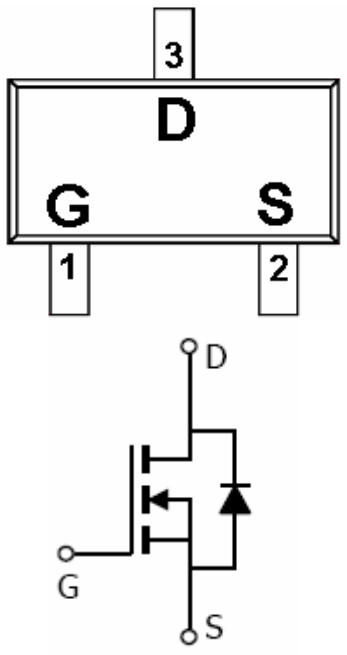
APPLICATIONS

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

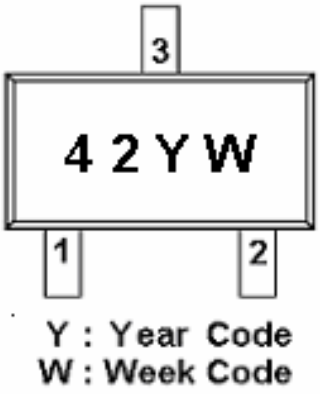
FEATURES

- 20V/5.0A,$R_{DS(ON)}$= 35mΩ@V_{GS}=4.5V
- 20V/4.5A,$R_{DS(ON)}$= 40mΩ@V_{GS}=2.5V
- 20V/4.0A,$R_{DS(ON)}$= 48mΩ@V_{GS}=1.8V
- Super high density cell design for extremely low $R_{DS\ (ON)}$
- Exceptional on-resistance and maximum DC current capability
- SOT-23-3L package design

PIN CONFIGURATION(SOT-23-3L)



PART MARKING



Y : Year Code
W : Week Code

SPN2342

PIN DESCRIPTION

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

ORDERING INFORMATION

Part Number	Package	Part Marking
SPN2342S23RG	SOT-23-3L	42YW
SPN2342S23RGB	SOT-23-3L	42YW

※ Week Code : A ~ Z(1 ~ 26) ; a ~ z(27 ~ 52)
※ SPN2342S23RG : Tape Reel ; Pb – Free
※ SPN2342S23RGB : Tape Reel ; Pb – Free ; Halogen – Free

ABSOULTE MAXIMUM RATINGS

(T_A=25℃ 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℃)	T_A=25℃	I_D	4.0	A
	T_A=70℃		3.0	
Pulsed Drain Current		I_{DM}	13	A
Continuous Source Current(Diode Conduction)		I_S	1.0	A
Power Dissipation	T_A=25℃	P_D	1.25	W
	T_A=70℃		0.8	
Operating Junction Temperature		T_J	-55/150	℃
Storage Temperature Range		T_{STG}	-55/150	℃
Thermal Resistance-Junction to Ambient		$R_{\theta JA}$	140	℃/W

SPN2342

ELECTRICAL CHARACTERISTICS

(T_A=25℃ 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	0.4		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℃			10	
On-State Drain Current	$I_{D(on)}$	V_{DS}≥5V,V_{GS}=4.5V	6			A
Drain-Source On-Resistance	$R_{DS(on)}$	V_{GS}= 4.5V,I_D=5.0A		0.026	0.035	Ω
		V_{GS}= 2.5V,I_D=4.5A		0.029	0.040	
		V_{GS}= 1.8V,I_D=4.0A		0.035	0.048	
Forward Transconductance	gfs	V_{DS}=15V,I_D=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 I_D≡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 I_D≡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	