



SPN6242

N-Channel Enhancement Mode MOSFET

DESCRIPTION

The SPN6242 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.

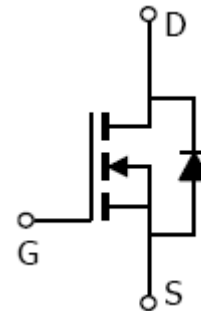
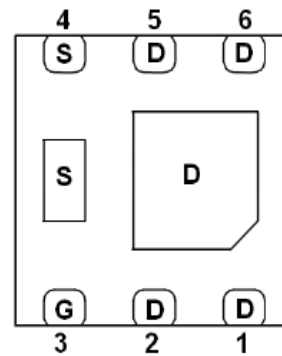
FEATURES

- ◆ 20V/3.3A, $R_{DS(ON)}=19m\Omega@V_{GS}=4.5V$
- ◆ 20V/2.8A, $R_{DS(ON)}=24m\Omega@V_{GS}=2.5V$
- ◆ 20V/2.3A, $R_{DS(ON)}=32m\Omega@V_{GS}=1.8V$
- ◆ Super high density cell design for extremely low $R_{DS(ON)}$
- ◆ Exceptional on-resistance and maximum DC current capability
- ◆ UDFN2x2-6L package design

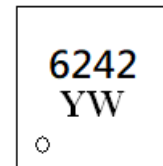
APPLICATIONS

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

PIN CONFIGURATION(UDFN2x2-6L)



PART MARKING



Y : Year Code
W: Week Code



SPN6242

N-Channel Enhancement Mode MOSFET

PIN DESCRIPTION

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

ORDERING INFORMATION

Part Number	Package	Part Marking
SPN6242UDN6RGB	UDFN2x2-6L	6242

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

※ SPN6242UDN6RGB : Tape Reel ; Pb – Free ; Halogen – Free

ABSOLUTE MAXIMUM RATINGS

($T_A=25^{\circ}\text{C}$ Unless otherwise noted)

Parameter	Symbol	Typical	Unit	
Drain-Source Voltage	V_{DSS}	20	V	
Gate –Source Voltage	V_{GSS}	± 10	V	
Continuous Drain Current($T_J=150^{\circ}\text{C}$)	I_D	$T_C=25^{\circ}\text{C}$	6.7	A
		$T_C=100^{\circ}\text{C}$	4.2	
Pulsed Drain Current (*1)	I_{DM}	26.8	A	
Continuous Source Current(Diode Conduction)	I_S	6.7	A	
Power Dissipation	P_D	$T_A=25^{\circ}\text{C}$	1.9	W
		$T_A=70^{\circ}\text{C}$	1.2	
Operating Junction Temperature	T_J	-55/150	$^{\circ}\text{C}$	
Storage Temperature Range	T_{STG}	-55/150	$^{\circ}\text{C}$	
Thermal Resistance-Junction to Ambient	$R_{\theta JA}$	65	$^{\circ}\text{C}/\text{W}$	



SPN6242

N-Channel Enhancement Mode MOSFET

ELECTRICAL CHARACTERISTICS (TA=25°C Unless otherwise noted)

Parameter	Symbol	Conditions	Min.	Typ	Max.	Unit
Static						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS}=0V, I_D=250\mu A$	20			V
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=250\mu A$	0.4	0.6	1.0	
Gate Leakage Current	I_{GSS}	$V_{DS}=0V, V_{GS}=\pm 10V$			± 100	nA
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=16V, V_{GS}=0V, T_J=25^\circ C$			1	uA
		$V_{DS}=16V, V_{GS}=0V, T_J=125^\circ C$			10	
Drain-Source On-Resistance	$R_{DS(on)}$	$V_{GS}=4.5V, I_D=3.3A$		15	19	mΩ
		$V_{GS}=2.5V, I_D=2.8A$		18	24	
		$V_{GS}=1.8V, I_D=2.3A$		23	32	
Forward Transconductance	g_{fs}	$V_{DS}=10V, I_D=4A$		9.5		S
Diode Forward Voltage	V_{SD}	$I_S=1A, V_{GS}=0V, T_J=25^\circ C$			1	V
Dynamic						
Total Gate Charge (*2,3)	Q_g	$V_{DS}=10V, V_{GS}=4.5V, I_D=4A$		5.8	8	nC
Gate-Source Charge (*2,3)	Q_{gs}			0.6	1	
Gate-Drain Charge (*2,3)	Q_{gd}			2	4	
Input Capacitance	C_{iss}	$V_{DS}=10V, V_{GS}=0V, f=1MHz$		600	870	pF
Output Capacitance	C_{oss}			70	100	
Reverse Transfer Capacitance	C_{rss}			45	65	
Turn-On Time (*2,3)	$t_{d(on)}$	$V_{DD}=10V, I_D=1A, V_{GEN}=4.5V, R_G=25\Omega$		5.0	9	nS
	t_r			14.4	27	
Turn-Off Time (*2,3)	$t_{d(off)}$			30	55	
	t_f			9.2	17	

Note :

- 1.Repetitive Rating : Pulsed width limited by maximum junction temperature.
- 2.The data tested by pulsed , pulse width $\leq 300\mu s$, duty cycle $\leq 2\%$.
- 3.Essentially independent of operating temperature.



SPN6242 N-Channel Enhancement Mode MOSFET

TYPICAL CHARACTERISTICS

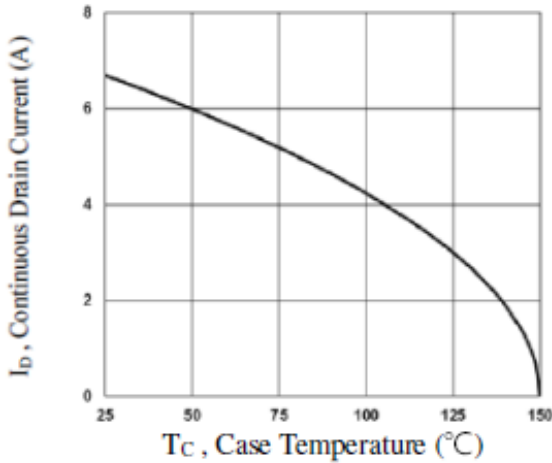


Fig.1 Continuous Drain Current vs. T_C

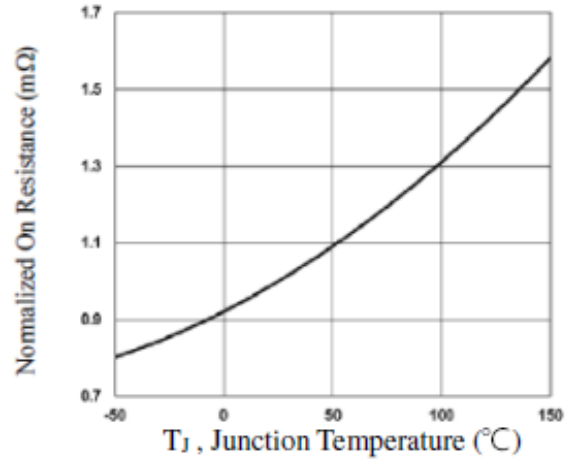


Fig.2 Normalized $R_{DS(on)}$ vs. T_J

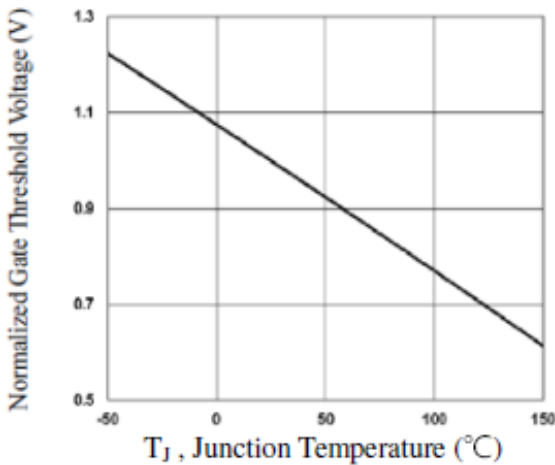


Fig.3 Normalized V_{th} vs. T_J

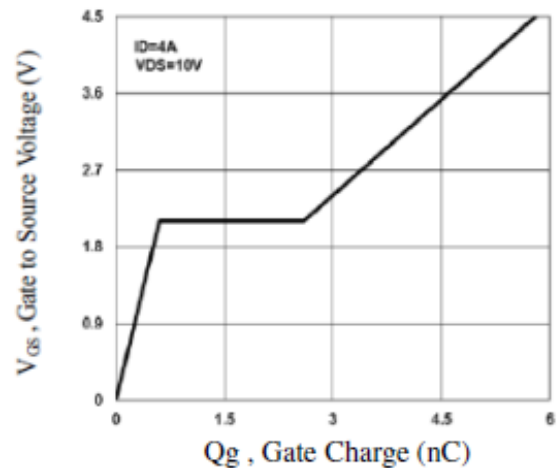


Fig.4 Gate Charge Waveform

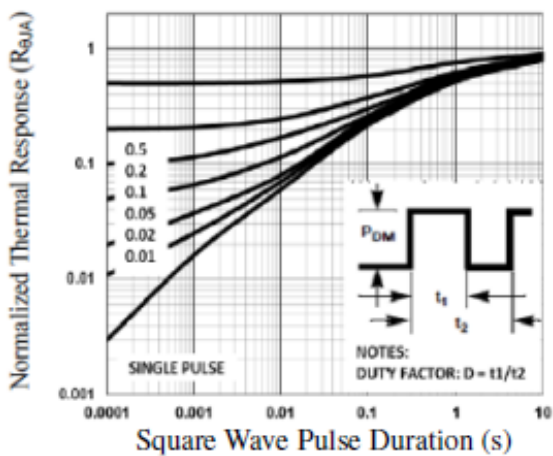


Fig.5 Normalized Transient Impedance

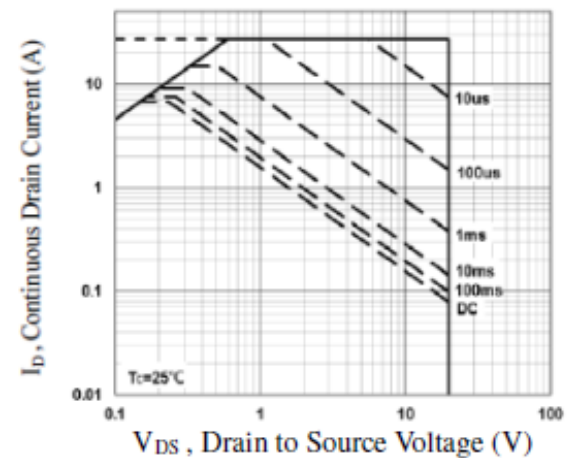


Fig.6 Maximum Safe Operation Area



SPN6242 N-Channel Enhancement Mode MOSFET

TYPICAL CHARACTERISTICS

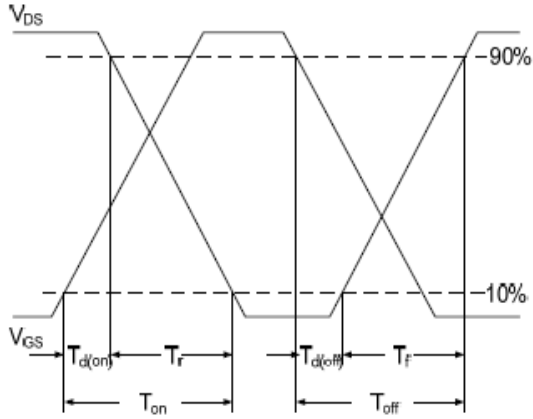


Fig.7 Switching Time Waveform

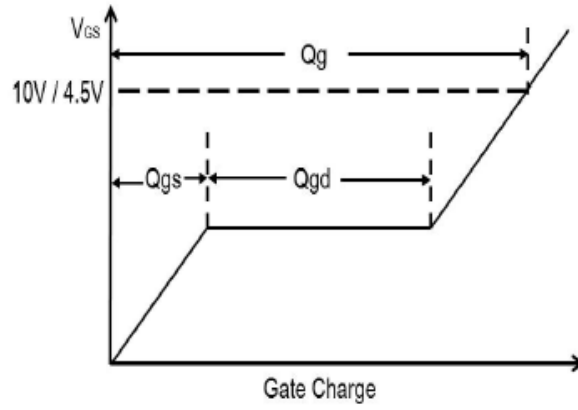


Fig.8 Gate Charge Waveform



SPN6242

N-Channel Enhancement Mode MOSFET

Information provided is alleged to be exact and consistent. SYNC Power Corporation presumes no responsibility for the penalties of use of such information or for any violation of patents or other rights of third parties which may result from its use. No license is granted by allegation or otherwise under any patent or patent rights of SYNC Power Corporation. Conditions mentioned in this publication are subject to change without notice. This publication surpasses and replaces all information previously supplied. SYNC Power Corporation products are not authorized for use as critical components in life support devices or systems without express written approval of SYNC Power Corporation.

© The SYNC Power logo is a registered trademark of SYNC Power Corporation

© 2020 SYNC Power Corporation – Printed in Taiwan – All Rights Reserved

SYNC Power Corporation

7F-2, No.3-1, Park Street

NanKang District (NKSP), Taipei, Taiwan 115

Phone: 886-2-2655-8178

Fax: 886-2-2655-8468

© <http://www.syncpower.com>