SPN8622
Dual N-Channel Enhancement Mode MOSFET

DESCRIPTION

The SPN8622 is a dual N-Channel logic enhancement mode power field effect transistor which is produced using super high cell density DMOS trench technology. The SPN8622 has been designed specifically to improve the overall efficiency of DC/DC converters using either synchronous or conventional switching PWM controllers. It has been optimized for low gate charge, low $R_{DS(ON)}$ and fast switching speed.

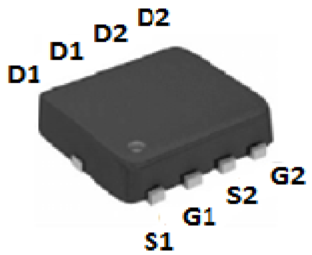
APPLICATIONS

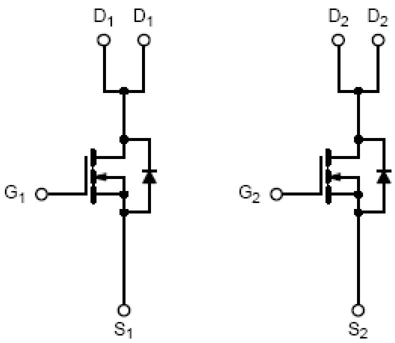
- Powered System
- DC/DC Converter
- Load Switch

FEATURES

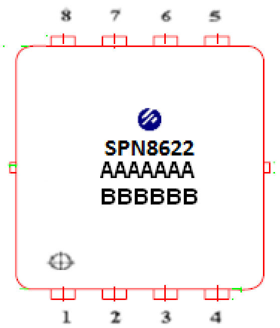
- 20V/5A, $R_{DS(ON)}$=14mΩ@V_{GS}=4.5V
- 20V/4A,$R_{DS(ON)}$=18mΩ@V_{GS}=2.5V
- 20V/4A,$R_{DS(ON)}$=28mΩ@V_{GS}=1.8V
- High density cell design for extremely low R_{DS} (ON)
- Exceptional on-resistance and maximum DC current capability
- PPAK3x3-8L* package design

PIN CONFIGURATION (PPAK3x3-Dual 8L)





PART MARKING



PIN DESCRIPTION

Pin	Symbol	Description
1	S1	Source
2	G1	Gate
3	S2	Source
4	G2	Gate
5	D2	Drain
6	D2	Drain
7	D1	Drain
8	D1	Drain

ORDERING INFORMATION

Part Number	Package	Part Marking
SPN8622DN8RGB	PPAK3x3-Dual 8L	SPN8622

※ SPN8622DN8RGB : 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_C=25℃	I_D	20	A
Continuous Drain Current	T_C=70℃		23	
Pulsed Drain Current		I_{DM}	39	A
Power Dissipation @ T_C=25℃		P_D	26	W
Operating Junction Temperature		T_J	150	℃
Storage Temperature Range		T_{STG}	-55/150	℃
Thermal Resistance-Junction to Ambient		$R_{\theta JC}$	4.8	℃/W

*Limited by the package.

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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	0.5		1	V
Gate Leakage Current	I_{GSS}	V_{DS}=0V,V_{GS}=±12V			±100	nA
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=16V,V_{GS}=0V			1	uA
		V_{DS}=16V,V_{GS}=0V T_J=55℃			5	uA
On-State Drain Current	$I_{D(on)}$	V_{DS}≥5V,V_{GS} =10V	20			A
Drain-Source On-Resistance	$R_{DS(on)}$	V_{GS}= 4.5V,I_D=5A			14	mΩ
		V_{GS}= 2.5V,I_D=4A			18	mΩ
		V_{GS}= 1.8V,I_D=4A			28	mΩ
Forward Transconductance	gfs	V_{DS}=5V,I_D=15A		24		S
Gate resistance	Rg	f=1MHz		1.4		Ω
Diode Forward Voltage	V_{SD}	I_S=1A,V_{GS} =0V			1.2	V
Dynamic						
Total Gate Charge	Q_g	V_{DS}=15V, V_{GS}=4.5V I_D= 5A		10.1		nC
Gate-Source Charge	Q_{gs}			1.2		nC
Gate-Drain Charge	Q_{gd}			3.4		nC
Input Capacitance	C_{iss}	V_{DS}=15V,V_{GS}=0V f=1MHz		702		pF
Output Capacitance	C_{oss}			97		pF
Reverse Transfer Capacitance	C_{rss}			96		pF
Turn-On Time	$t_{d(on)}$	V_{DD}=15V, I_D≡5A, V_{GS}=4.5V R_G=3.3Ω		6		nS
	t_r			41		nS
Turn-Off Time	$t_{d(off)}$			17		nS
	t_f			7		nS

TYPICAL CHARACTERISTICS

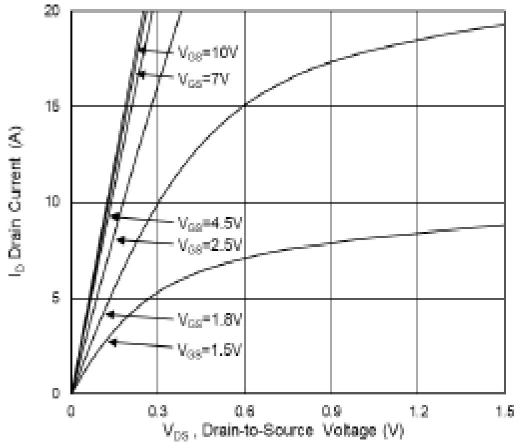

Fig.1 Typical Output Characteristics

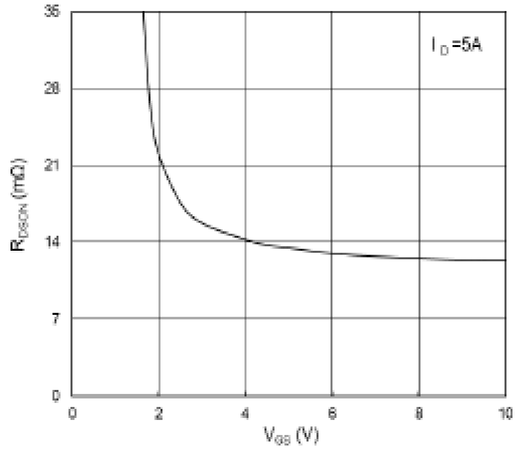

Fig.2 On-Resistance vs G-S Voltage

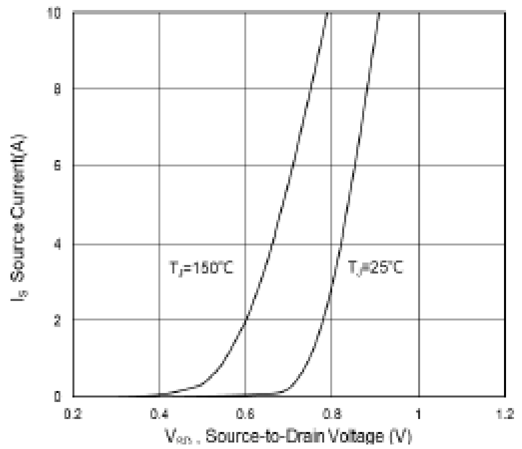

Fig.3 Source Drain Forward Characteristics

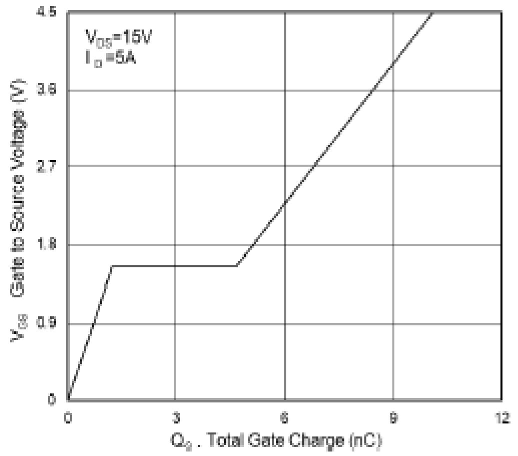

Fig.4 Gate-Charge Characteristics

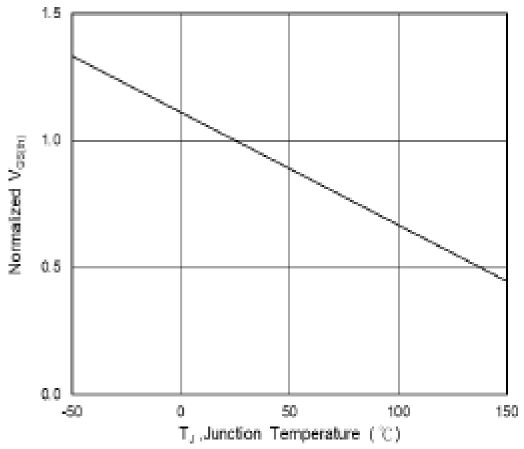

Fig.5 Normalized $V_{GS(th)}$ vs T_J

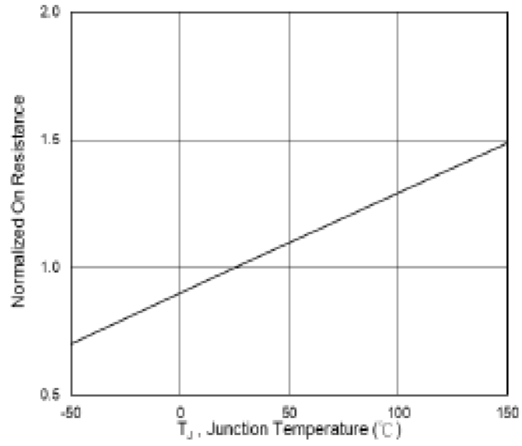

Fig.6 Normalized R_{DSON} vs T_J

TYPICAL CHARACTERISTICS

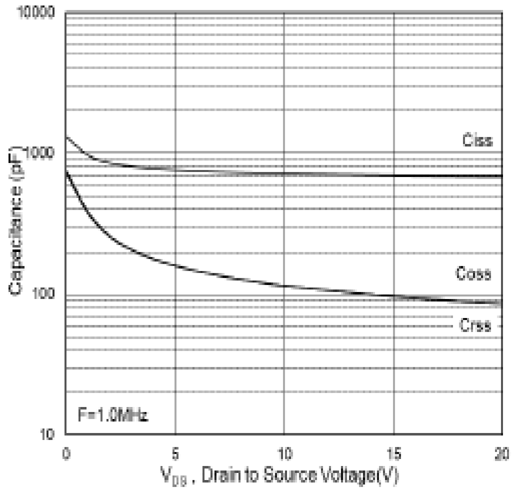

Fig.7 Capacitance

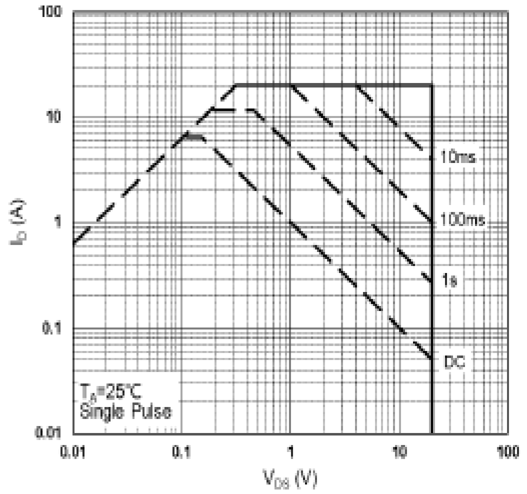

Fig.8 Safe Operating Area

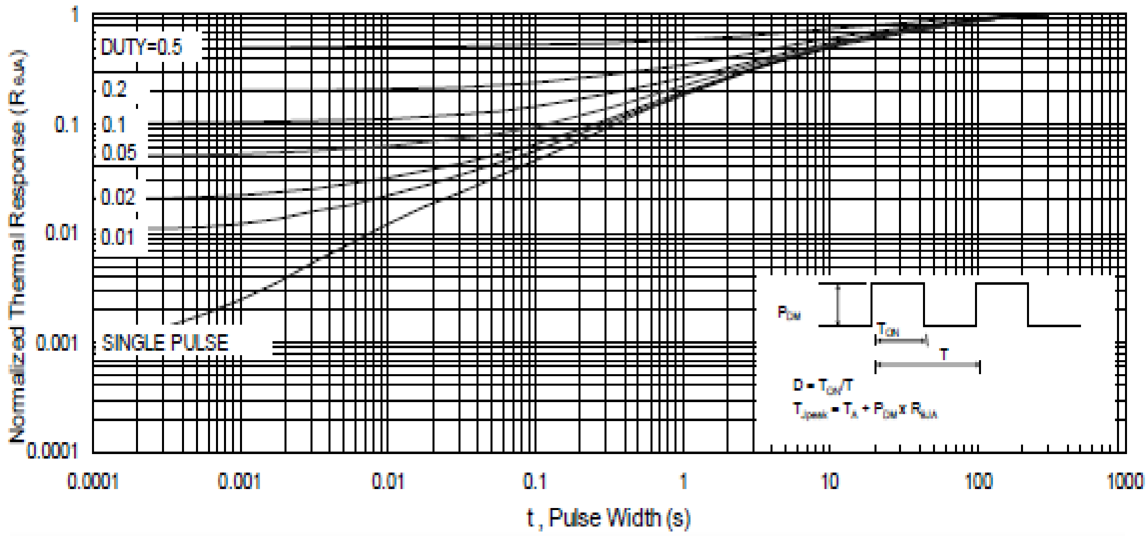

Fig.9 Normalized Maximum Transient Thermal Impedance

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
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