



SPN340N06

N-Channel Enhancement Mode MOSFET

DESCRIPTION

The SPN340N06 is the N-Channel enhancement mode power field effect transistor which is produced using super high cell density DMOS trench technology. This high density process is especially tailored to minimize on-state resistance. These devices are particularly suitable for synchronous rectifier application, Motor control power management and other Power Tool circuits. It has been optimized for low gate charge, low RDS(ON) and fast switching speed..

FEATURES

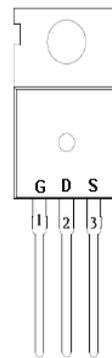
- ◆ 60V/340A, $R_{DS(ON)}=2.1m\Omega@V_{GS}=10V$
- ◆ Super high density cell design for extremely low $R_{DS(ON)}$
- ◆ Exceptional on-resistance and maximum DC current capability
- ◆ Enhanced Avalanche Ruggedness
- ◆ TO-220-3L/PPAK5x6 package design

APPLICATIONS

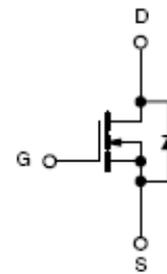
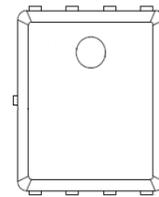
- DC/DC Converter
- Hard Switching and High Speed Circuit
- Synchronous Buck Converter
- Power Tools
- UPS
- Motor Control

PIN CONFIGURATION

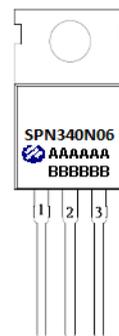
TO-220-3L



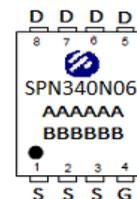
PPAK5x6



PART MARKING



A : Lot Code
B : Date Code



A : Lot Code
B : Date Code
(YY/MM/DD)



SPN340N06

N-Channel Enhancement Mode MOSFET

PIN DESCRIPTION

PPAK5x6 PIN DESCRIPTION

Pin	Symbol	Description
1~3	S	Source
4	G	Gate
5~8	D	Drain

TO-220

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

ORDERING INFORMATION

Part Number	Package	Part Marking
SPN340N06DN8RGB	PPAK5x6	SPN340N06
SPN340N06T220TGB	TO-220-3L	SPN340N06

※ SPN340N06DN8RGB: Tape&Reel; Pb – Free; Halogen – Free

※ SPN340N06 T220TGB: Tube ; Pb – Free; Halogen – Free

ABSOLUTE MAXIMUM RATINGS

(TA=25°C Unless otherwise noted)

Parameter	Symbol	Typical	Unit
Drain-Source Voltage	V _{DSS}	60	V
Gate –Source Voltage	V _{GSS}	±20	V
Continuous Drain Current(Silicon Limited)	I _D	Tc=25°C	363
		Tc=100°C	257
Pulsed Drain Current	I _{DM}	900	A
Power Dissipation @ Tc=25°C	P _D	PPAK5x6	83
		TO-220	104
Avalanche Energy with Single Pulse (Tc=25°C , L =0.1mH)	EAS	180	mJ
Operating Junction Temperature	T _J	-55/150	°C
Storage Temperature Range	T _{STG}	-55/150	°C
Thermal Resistance-Junction to Case	R _{θJC}	PPAK5x6	1.5
		TO-220	1.2



SPN340N06

N-Channel Enhancement Mode MOSFET

ELECTRICAL CHARACTERISTICS

(TA=25°C Unless otherwise noted)

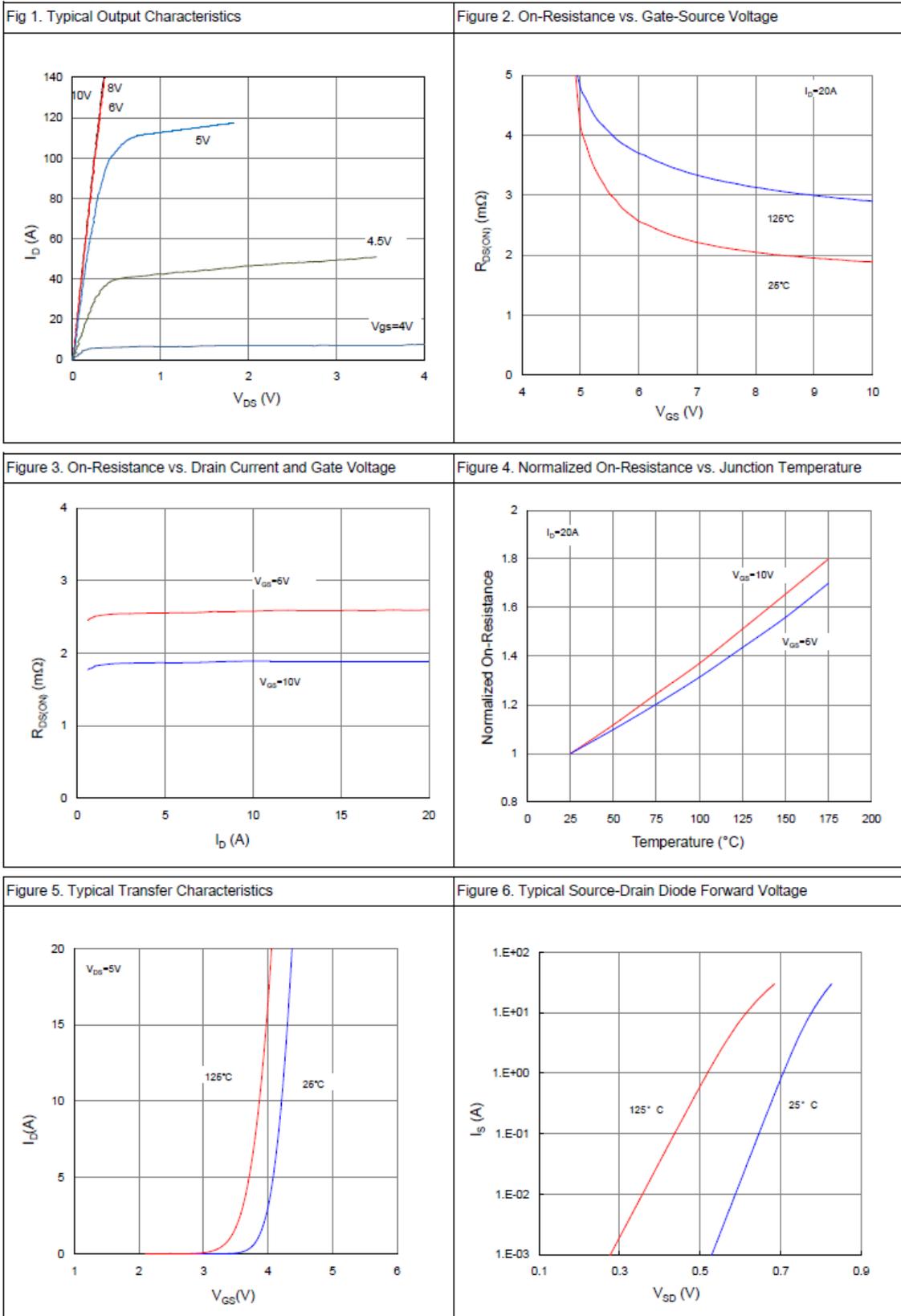
Parameter	Symbol	Conditions	Min.	Typ	Max.	Unit
Static						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS}=0V, I_D=250\mu A$	60			V
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=250\mu A$	2	3	4	V
Gate Leakage Current	I_{GSS}	$V_{DS}=0V, V_{GS}=\pm 20V$			± 100	nA
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=60V, V_{GS}=0V$ $T_J = 25^\circ C$			1	uA
		$V_{DS}=60V, V_{GS}=0V$ $T_J = 100^\circ C$			100	
Drain-Source On-Resistance(PPAK5x6)	$R_{DS(on)}$	$V_{GS}=10V, I_D=20A$		1.9	2.1	mΩ
Drain-Source On-Resistance(TO220)				2.1	2.3	
Forward Transconductance	g_{fs}	$V_{DS}=5V, I_D=20A$		80		S
Gate Resistance	R_G	$V_{GS}=0V, V_{DS}=\text{Open},$ $f=1MHz$		0.63		Ω
Dynamic						
Total Gate Charge	Q_g	$V_{DS}=30V, V_{GS}=10V$ $I_D=20A$		85		nC
Gate-Source Charge	Q_{gs}			24		
Gate-Drain Charge	Q_{gd}			14		
Input Capacitance	C_{iss}	$V_{DS}=30V, V_{GS}=0V$ $f=1MHz$		7271		pF
Output Capacitance	C_{oss}			2042		
Reverse Transfer Capacitance	C_{rss}			61		
Turn-On Time	$t_{d(on)}$	$V_{DD}=30V, I_D=20A,$ $V_{GS}=10V, R_G=10\Omega$		35		nS
	t_r			62		
Turn-Off Time	$t_{d(off)}$			96		
	t_f			33		
Diode						
Diode Forward Voltage	V_{SD}	$I_F=20A, V_{GS}=0V$		0.9	1.2	V
Reverse Recovery Time	t_{rr}	$V_R=30V, I_F=30A,$ $dI_F/dt=300A/\mu S$		60		nS
Reverse Recovery Charge	Q_{rr}			175		nC



SPN340N06

N-Channel Enhancement Mode MOSFET

TYPICAL CHARACTERISTICS





SPN340N06

N-Channel Enhancement Mode MOSFET

TYPICAL CHARACTERISTICS

Figure 7. Typical Gate-Charge vs. Gate-to-Source Voltage

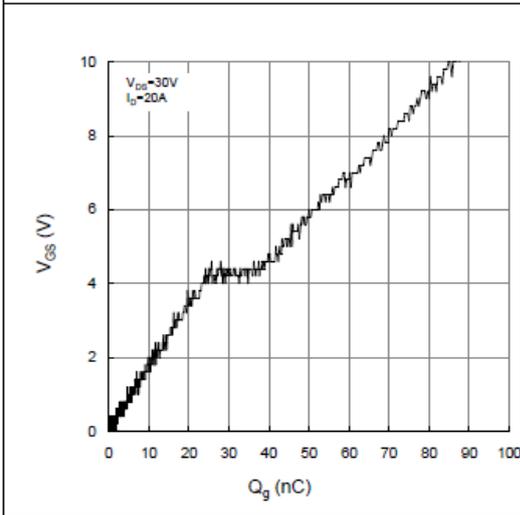


Figure 8. Typical Capacitance vs. Drain-to-Source Voltage

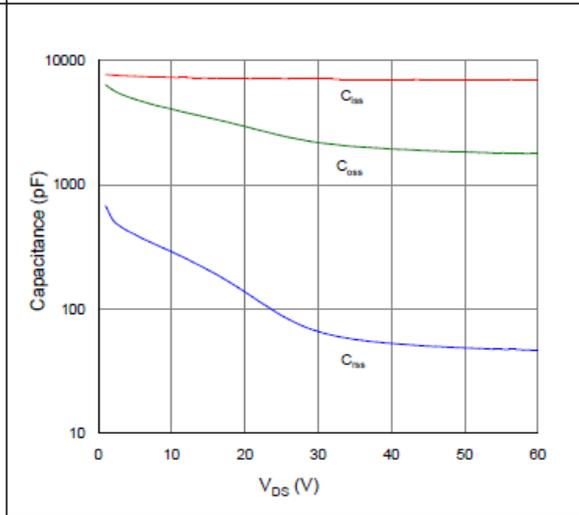


Figure 9. Maximum Safe Operating Area

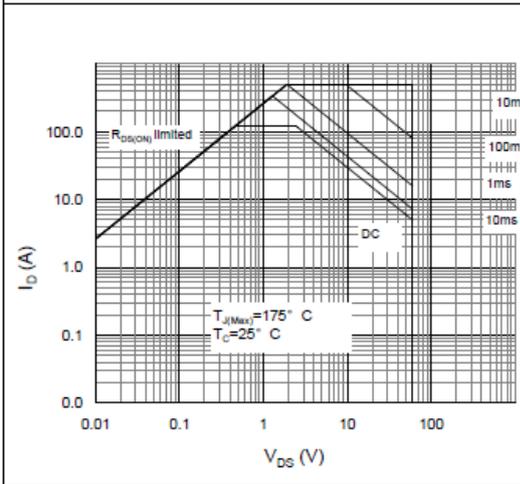


Figure 10. Maximum Drain Current vs. Case Temperature

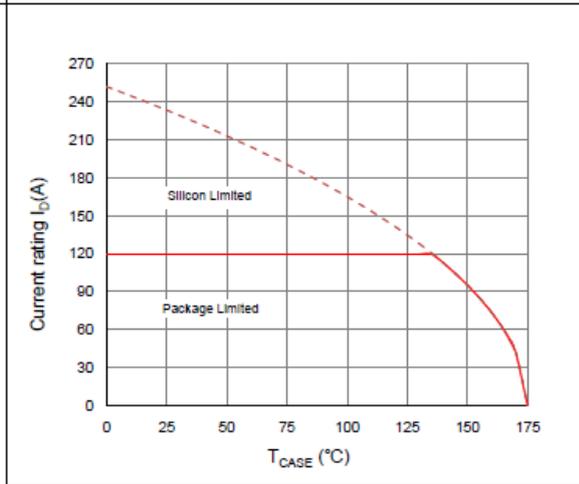
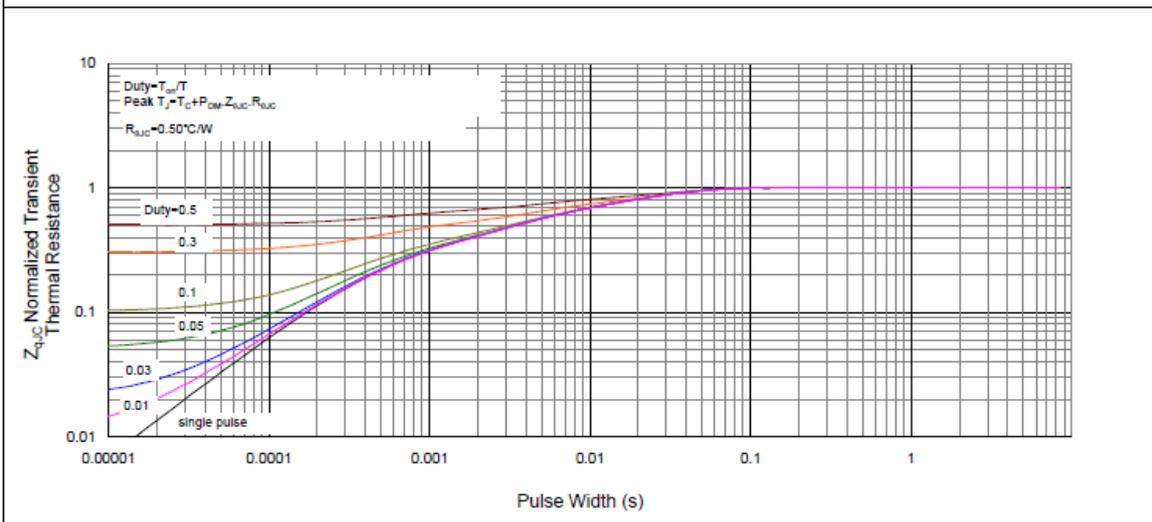


Figure 11. Normalized Maximum Transient Thermal Impedance, Junction-to-Case





SPN340N06

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
© 2024 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>