



SPN340T06

N-Channel Enhancement Mode MOSFET

DESCRIPTION

The SPN340T06 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 $R_{DS(ON)}$ and fast switching speed..

FEATURES

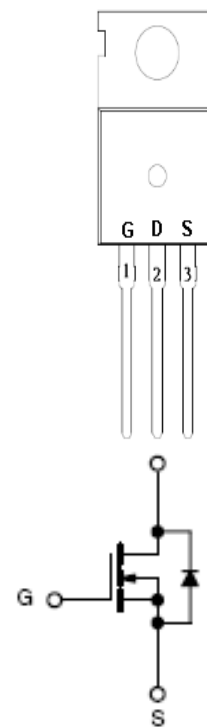
- ◆ 60V/340A, $R_{DS(ON)}=1.9m\Omega@V_{GS}=10V$
- ◆ Super high density cell design for extremely low $R_{DS(ON)}$
- ◆ Exceptional on-resistance and maximum DC current capability
- ◆ Enhanced Avalanche Ruggedness
- ◆ TO-220-3L package design

APPLICATIONS

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

PIN CONFIGURATION

TO-220-3L



PART MARKING



A : Lot Code
B : Date Code



SPN340T06

N-Channel Enhancement Mode MOSFET

PIN DESCRIPTION

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

ORDERING INFORMATION

Part Number	Package	Part Marking
SPN340T06T220TGB	TO-220-3L	SPN340T06

※ SPN340T060T220TGB: Tube ; Pb – Free; Halogen – Free

ABSOLUTE MAXIMUM RATINGS

(T_A=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)	T _C =25°C	I _D	340	A
	T _C =70°C		240	
Continuous Drain Current(Package Limited)	T _C =25°C		120	
Pulsed Drain Current		I _{DM}	900	A
Power Dissipation	T _A =25°C	P _D	104	W
Avalanche Energy with Single Pulse (T _C =25°C , L =1mH)		E _{AS}	702	mJ
Operating Junction Temperature		T _J	-55/150	°C
Storage Temperature Range		T _{STG}	-55/150	°C
Thermal Resistance-Junction to Case		R _{θJC}	1.2	°C/W



SPN340T06

N-Channel Enhancement Mode MOSFET

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 =250μA	60			V
Gate Threshold Voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =250μA	2	3	4	
Gate Leakage Current	I _{GSS}	V _{DS} =0V, V _{GS} =±20V			±100	nA
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =60V, V _{GS} =0V T _J = 25 °C			1	μA
		V _{DS} =60V, V _{GS} =0V T _J = 100 °C			100	
On-State Drain Current	I _{D(on)}	V _{DS} ≥5V, V _{GS} =10V	60			A
Drain-Source On-Resistance	R _{DS(on)}	V _{GS} =10V, I _D =20A		1.67	1.9	mΩ
Forward Transconductance	g _{fs}	V _{DS} =5V, I _D =20A		92		S
Gate Resistance	R _G	V _{GS} =0V, V _{DS} =Open, f=1MHz		0.7		Ω
Diode Forward Voltage	V _{SD}	I _F =20A, V _{GS} =0V		0.9	1.2	V
Dynamic						
Total Gate Charge	Q _g	V _{DS} =30V, V _{GS} =10V I _D =20A		124		nC
Gate-Source Charge	Q _{gs}			30		
Gate-Drain Charge	Q _{gd}			20		
Input Capacitance	C _{iss}	V _{DS} =30V, V _{GS} =0V f=1MHz		10570		pF
Output Capacitance	C _{oss}			4050		
Reverse Transfer Capacitance	C _{rss}			84		
Turn-On Time	t _{d(on)}	V _{DD} =30V, I _D =20A, V _{GS} =10V, R _G =3Ω		35		nS
	t _r			27		
Turn-Off Time	t _{d(off)}			70		
	t _f			15		



SPN340T06

N-Channel Enhancement Mode MOSFET

TYPICAL CHARACTERISTICS

Fig 1. Typical Output Characteristics

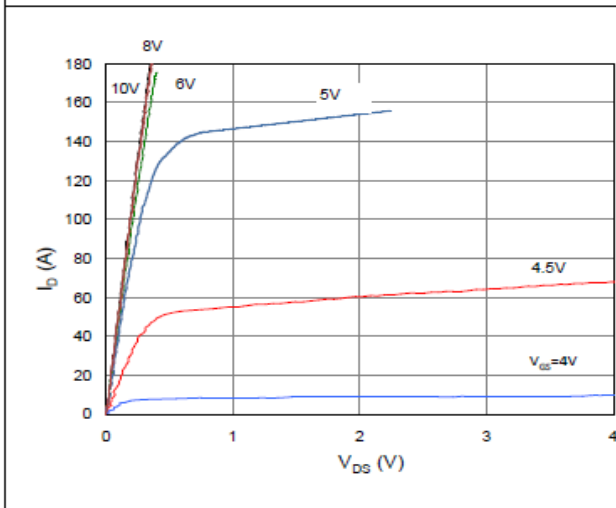


Figure 2. On-Resistance vs. Gate-Source Voltage

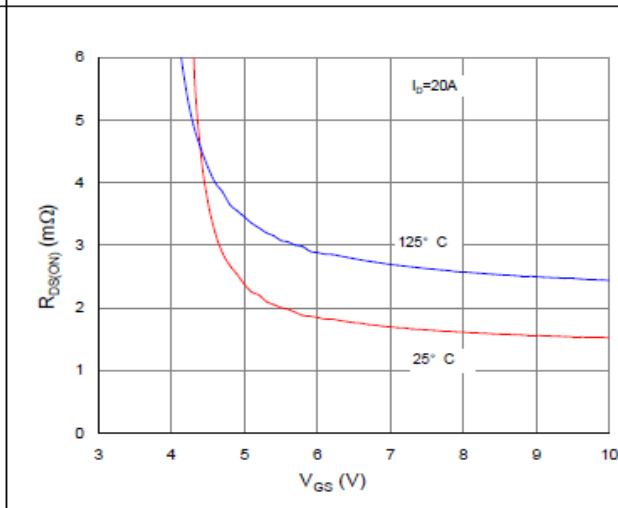


Figure 3. On-Resistance vs. Drain Current and Gate Voltage

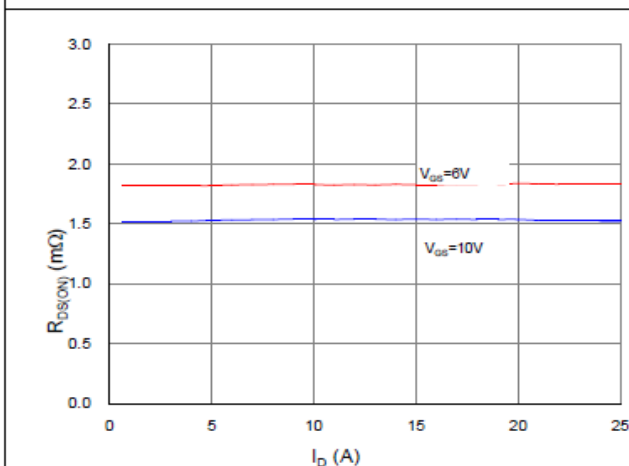


Figure 4. Normalized On-Resistance vs. Junction Temperature

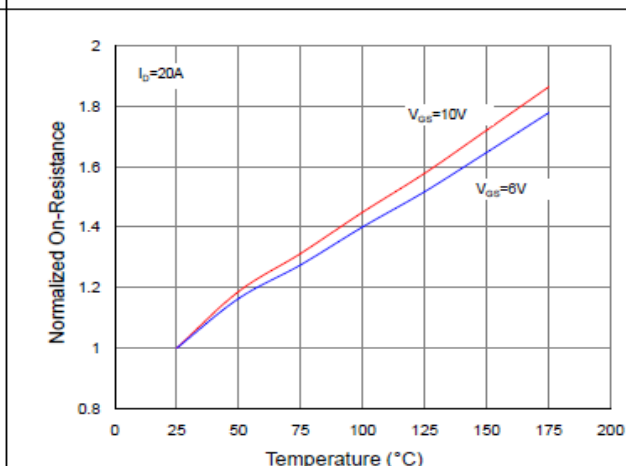


Figure 5. Typical Transfer Characteristics

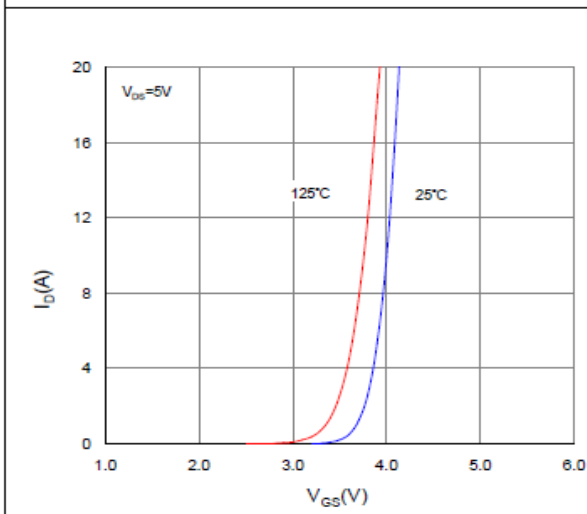
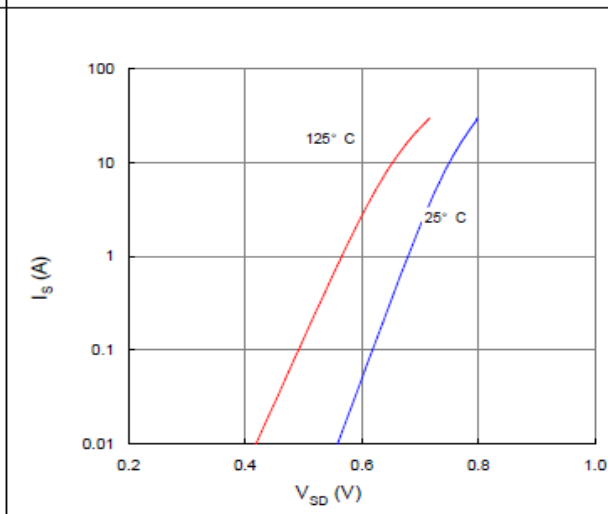


Figure 6. Typical Source-Drain Diode Forward Voltage





SPN340T06

N-Channel Enhancement Mode MOSFET

TYPICAL CHARACTERISTICS

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

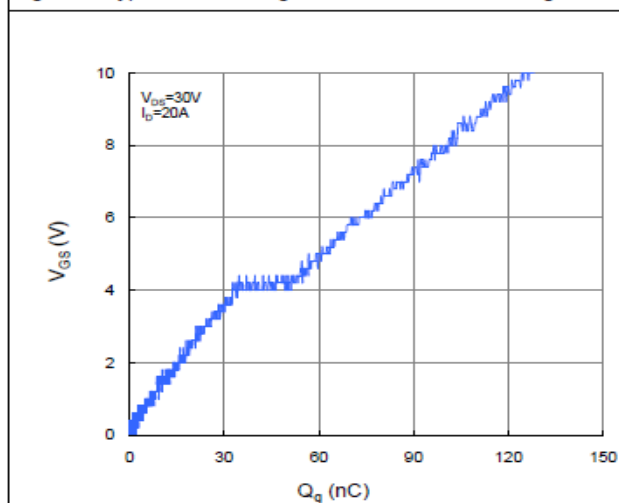


Figure 8. Typical Capacitance vs. Drain-to-Source Voltage

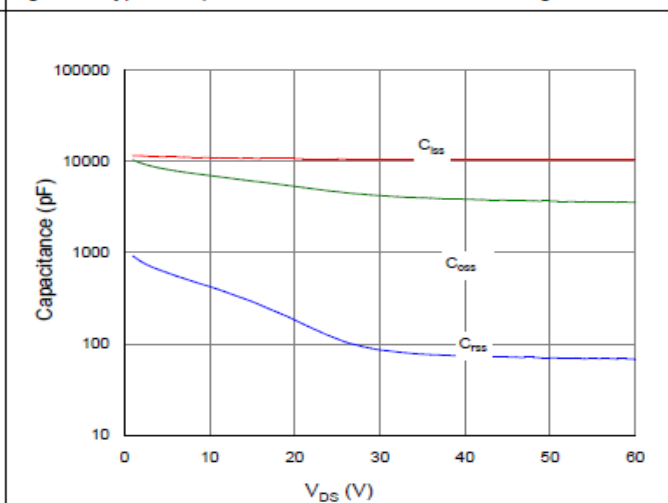


Figure 9. Maximum Safe Operating Area

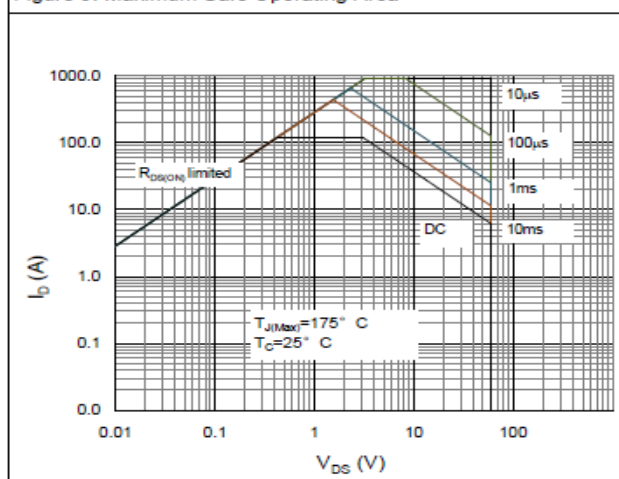


Figure 10. Maximum Drain Current vs. Case Temperature

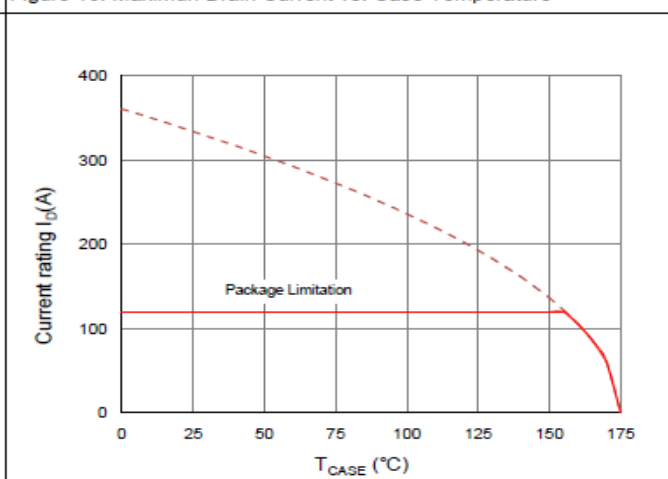
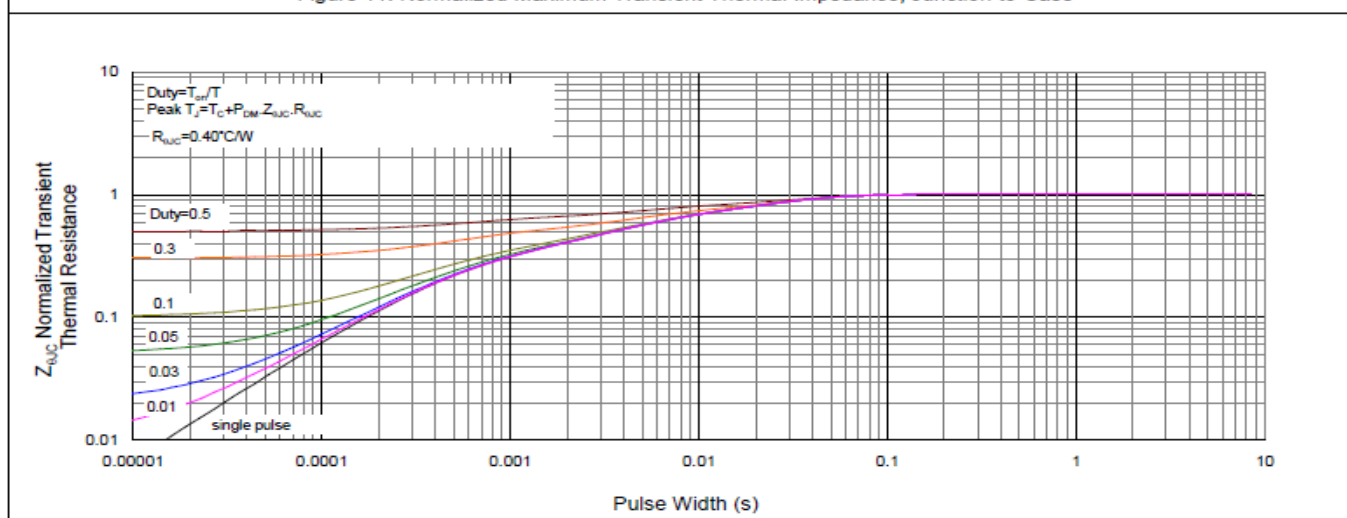


Figure 11. Normalized Maximum Transient Thermal Impedance, Junction-to-Case





SPN340T06

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>