



SPN68T10

N-Channel Enhancement Mode MOSFET

DESCRIPTION

The SPN68T10 is the N-Channel enhancement mode power field effect transistor which is produced using 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

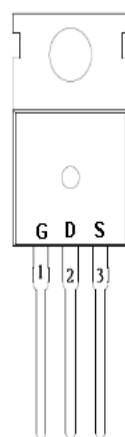
- ◆ 100V/68A, $R_{DS(ON)}=14m\Omega@V_{GS}=10V$
- ◆ Super high density cell design for extremely low $R_{DS(ON)}$
- ◆ Exceptional on-resistance and maximum DC current capability
- ◆ TO-220-3L and TO-252-2L package design

APPLICATIONS

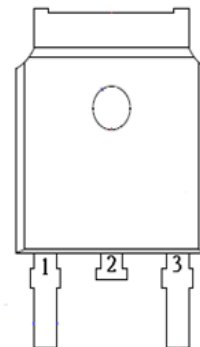
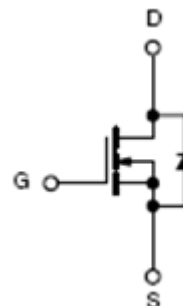
- DC/DC Converter
- Load Switch
- SMPS Secondary Side Synchronous Rectifier
- Power Tool
- Motor Control

PIN CONFIGURATION

TO-220-3L



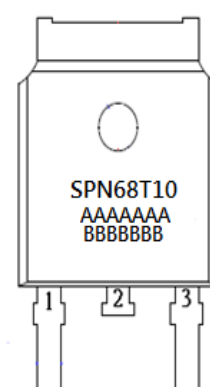
TO-252-2L



PART MARKING



A : Lot Code
B : Date Code



A : Lot Code
B : Date Code



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PIN DESCRIPTION

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

ORDERING INFORMATION

Part Number	Package	Part Marking
SPN68T10T220TGB	TO-220-3L	SPN68T10
SPN68T10T252RGB	TO-252-2L	SPN68T10

※ SPN68T10T220TGB : Tube ; Pb – Free ; Halogen – Free

※ SPN68T10T252RGB : Tape Reel ; Pb – Free ; Halogen – Free

ABSOLUTE MAXIMUM RATINGS

(TA=25°C Unless otherwise noted)

Parameter	Symbol	Typical	Unit
Drain-Source Voltage	V _{DSS}	100	V
Gate –Source Voltage	V _{GSS}	±20	V
Continuous Drain Current(Silicon Limited)	I _D	75	A
		60	
Pulsed Drain Current	I _{DM}	301	A
Power Dissipation@ T _C =25°C	P _D	166.7	W
Avalanche Energy with Single Pulse (T _J =25°C , L=0.1mH , I _{AS} =15A , V _{DD} =25V , V _{GS} =10V)	E _{AS}	113	mJ
Operating Junction Temperature	T _J	-55/150	°C
Storage Temperature Range	T _{STG}	-55/150	°C
Thermal Resistance-Junction to Case (TO-220-3L)	R _{θJC}	1.2	°C/W
Thermal Resistance-Junction to Case (TO-252-2L)	R _{θJC}	1.35	°C/W

Note :

The maximum current rating is package limited at 120A for TO-220-3L

The maximum current rating is package limited at 70A for TO-252-2L



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ELECTRICAL CHARACTERISTICS

(T_A=25°C Unless otherwise noted)

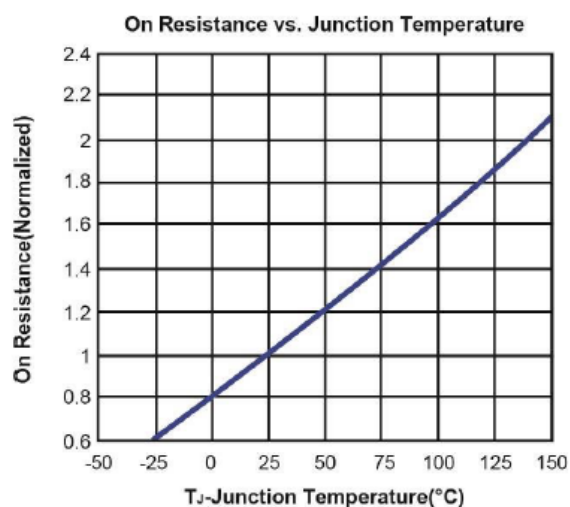
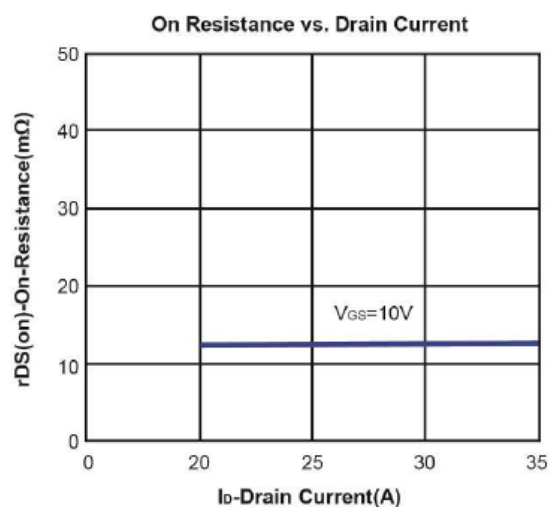
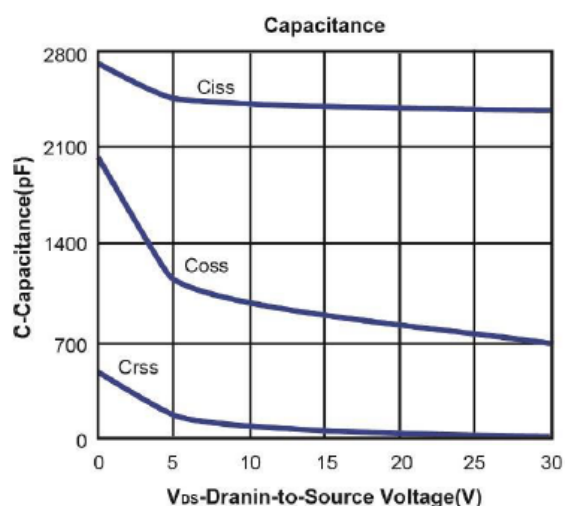
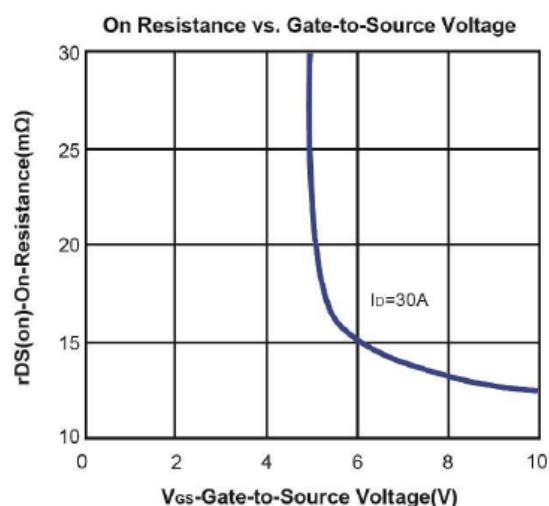
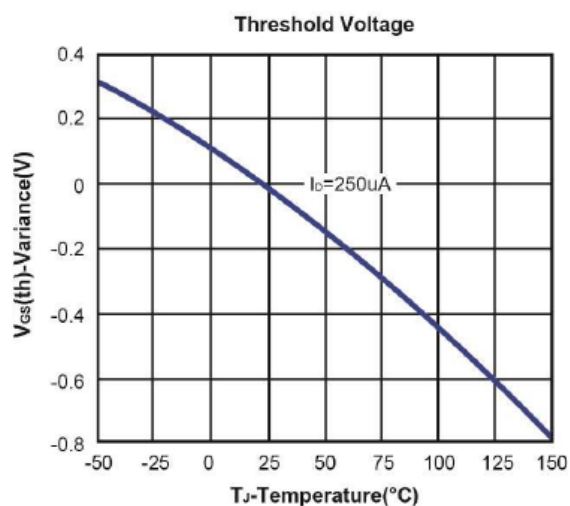
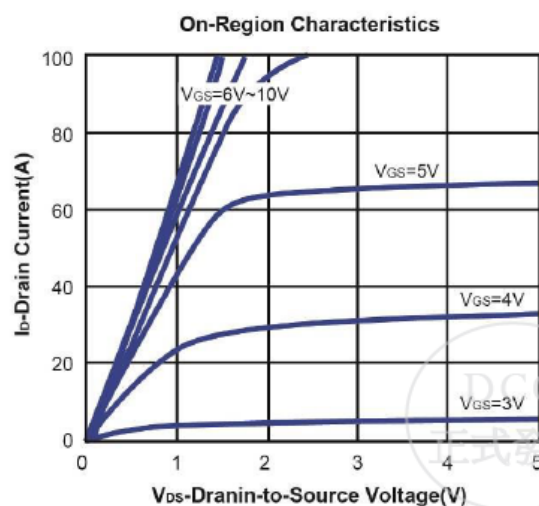
Parameter	Symbol	Conditions	Min.	Typ	Max.	Unit
Static						
Drain-Source Breakdown Voltage	V _{(BR)DSS}	V _{GS} =0V, I _D =250μA	100			V
Gate Threshold Voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =250μA	2.0		4.0	
Gate Leakage Current	I _{GSS}	V _{DS} =0V, V _{GS} =±20V			±100	nA
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =80V, V _{GS} =0V T _J =25°C			1	μA
		V _{DS} =80V, V _{GS} =0V T _J =55°C			5	
Drain-Source On-Resistance	R _{DS(on)}	V _{GS} =10V, I _D =30A		12.5	14	mΩ
Diode Forward Voltage	V _{SD}	I _S =1A, V _{GS} =0V		0.6	1.2	V
Dynamic						
Total Gate Charge	Q _g	V _{DS} =50V, V _{GS} =10V I _D =11.5A		40		nC
Gate-Source Charge	Q _{gs}			9		
Gate-Drain Charge	Q _{gd}			6		
Input Capacitance	C _{iss}	V _{DD} =30V, V _{GS} =0V f=1MHz		2342		pF
Output Capacitance	C _{oss}			702		
Reverse Transfer Capacitance	C _{rss}			38		
Turn-On Time	t _{d(on)}	V _{DD} =50V, I _D =30A, V _{GS} =10V R _G =6Ω		8.4		nS
	t _r			30.3		
Turn-Off Time	t _{d(off)}			25.4		
	t _f			12.8		



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TYPICAL CHARACTERISTICS

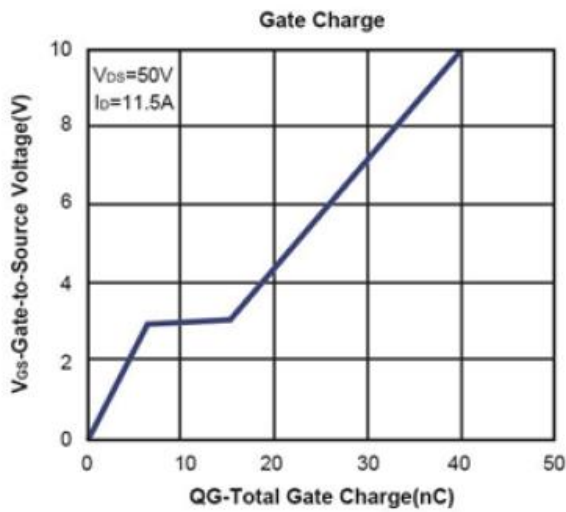
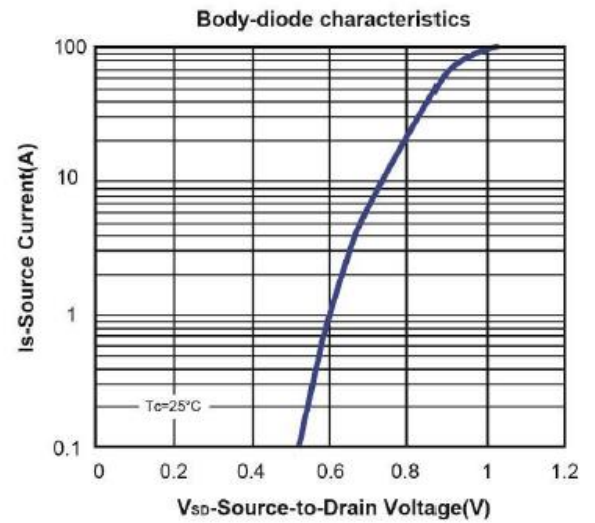
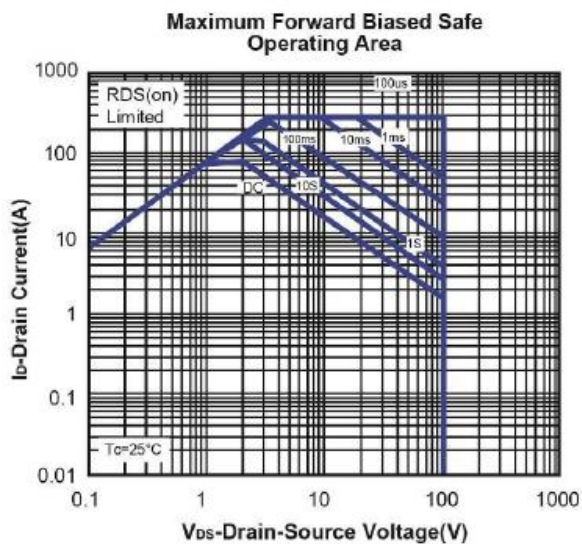




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TYPICAL CHARACTERISTICS





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