



SPN7510

N-Channel Enhancement Mode MOSFET

DESCRIPTION

The SPN7510 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 , notebook computer power management and other battery powered circuits where high-side switching .

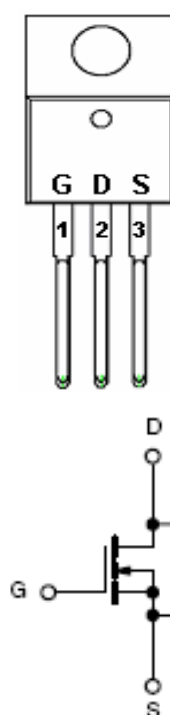
FEATURES

- ◆ 100V/30A, $R_{DS(ON)} = 16m\Omega @ V_{GS} = 10V$
- ◆ 100V/16A, $R_{DS(ON)} = 21m\Omega @ V_{GS} = 4.5V$
- ◆ Super high density cell design for extremely low $R_{DS(ON)}$
- ◆ Exceptional on-resistance and maximum DC current capability
- ◆ TO-220-3L package design

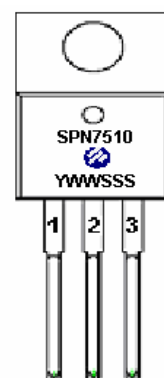
APPLICATIONS

- DC/DC Converter
- Load Switch
- SMPS Secondary Side Synchronous Rectifier

PIN CONFIGURATION(TO-220-3L)



PART MARKING



Y : Last Digit of The Year
W : Week
S : Sequence



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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
SPN7510T220TGB	TO-220-3L	SPN7510

※ SPN7510T220TGB : Tube ; 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(T _J =150°C)	I _D	72	A
		45	
Pulsed Drain Current	I _{DM}	240	A
Power Dissipation	P _D	130	W
		3.38	
Avalanche Energy with Single Pulse (T _J =25°C , L = 0.12mH , I _{AS} = 75A , V _{DD} = 80V.)	E _{AS}	335	mJ
Operating Junction Temperature	T _J	-55/150	°C
Storage Temperature Range	T _{STG}	-55/150	°C
Thermal Resistance-Junction to Ambient	R _{θJA}	2	°C/W



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ELECTRICAL CHARACTERISTICS

(T_A=25°C Unless otherwise noted)

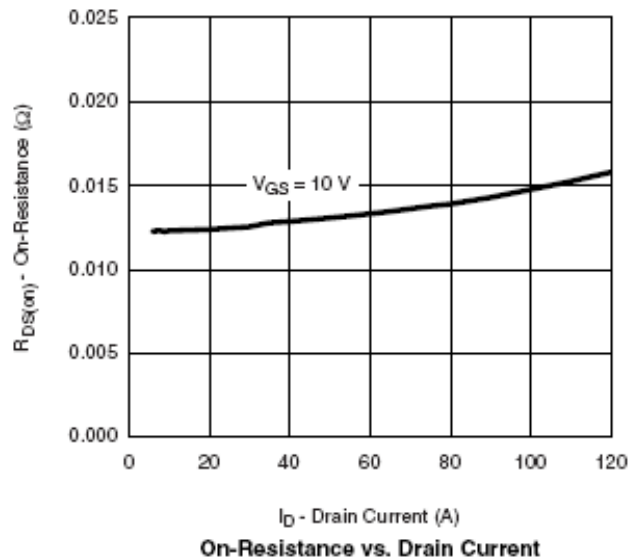
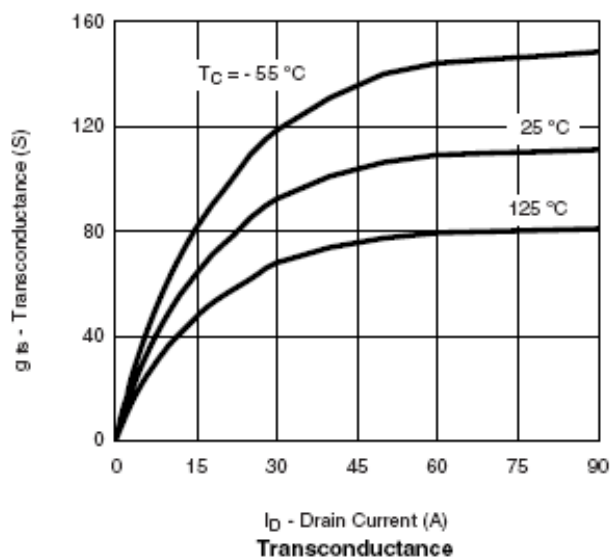
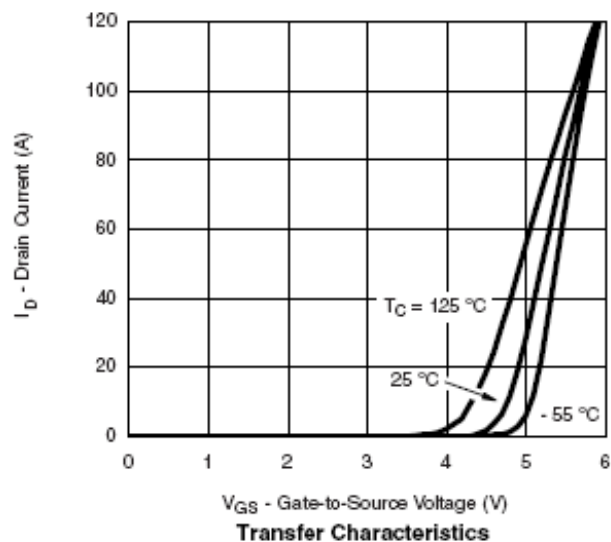
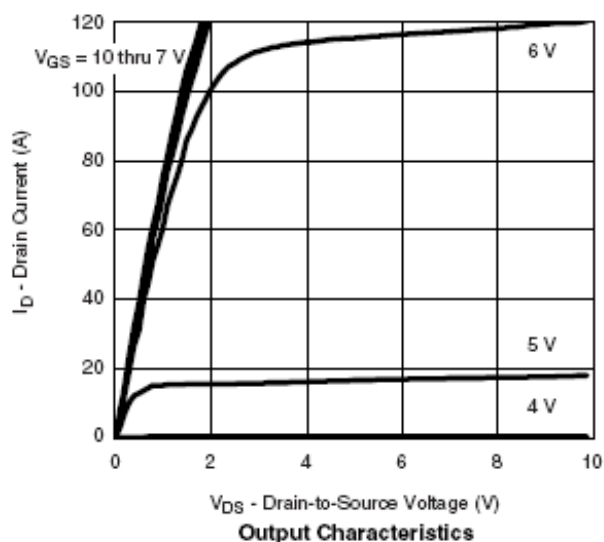
Parameter	Symbol	Conditions	Min.	Typ	Max.	Unit
Static						
Drain-Source Breakdown Voltage	V _{(BR)DSS}	V _{GS} =0V, I _D =250μA	100			V
Gate Threshold Voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =250μA	1.0		3.0	
Gate Leakage Current	I _{GSS}	V _{DS} =0V, V _{GS} =±20V			±100	nA
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =100V, V _{GS} =0V			10	μA
		V _{DS} =80V, V _{GS} =0V T _J = 150 °C			100	
Drain-Source On-Resistance	R _{DS(on)}	V _{GS} = 10V, I _D =30A			16	mΩ
		V _{GS} = 4.5V, I _D =16A			21	
Forward Transconductance	g _{fs}	V _{DS} =10V, I _D =30A		52		S
Diode Forward Voltage	V _{SD}	I _S =30A, V _{GS} =0V			1.3	V
Dynamic						
Total Gate Charge	Q _g	V _{DS} =80V, V _{GS} =4.5V I _D = 30A		69	111	nC
Gate-Source Charge	Q _{gs}			12		
Gate-Drain Charge	Q _{gd}			39		
Input Capacitance	C _{iss}	V _{DS} =25V, V _{GS} =0V f=1MHz		5690	9100	pF
Output Capacitance	C _{oss}			540		
Reverse Transfer Capacitance	C _{rss}			605		
Turn-On Time	t _{d(on)}	V _{DD} =50V, R _L =1.6Ω I _D ≒30A, V _{GEN} =10V R _G =10Ω		12		nS
	t _r			75		
Turn-Off Time	t _{d(off)}			220		
	t _f			250		



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TYPICAL CHARACTERISTICS

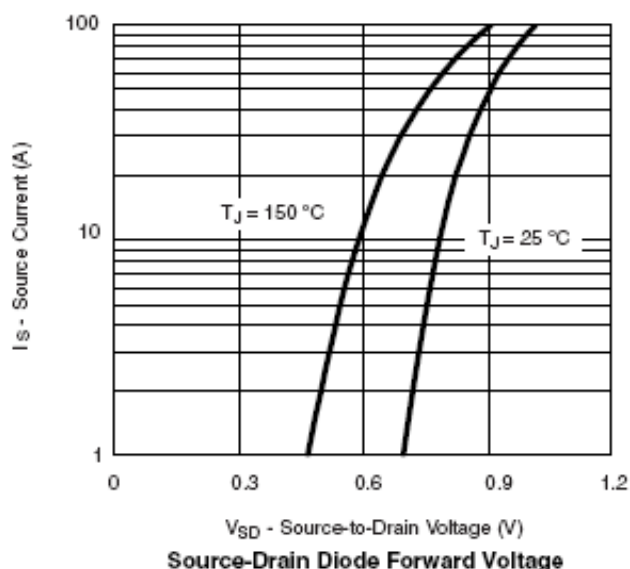
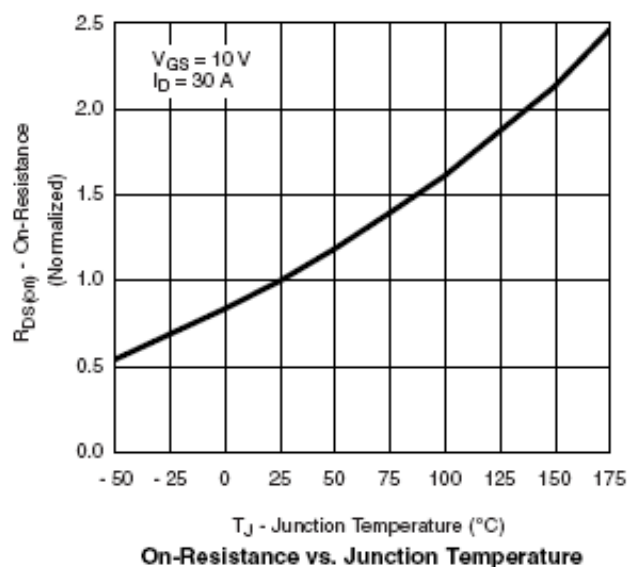
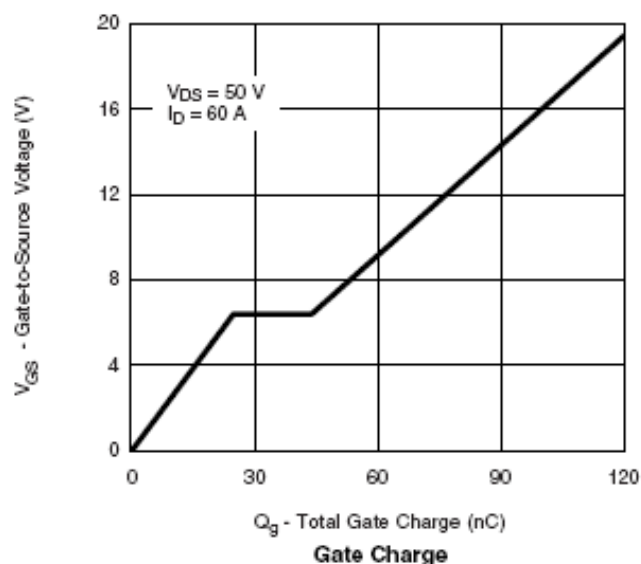
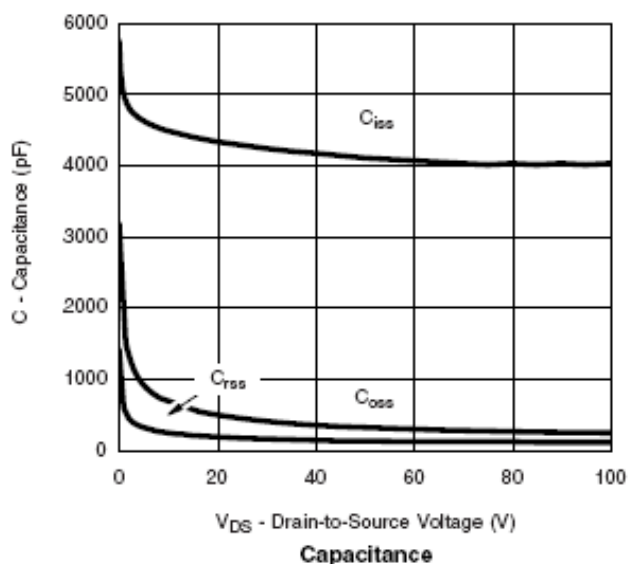




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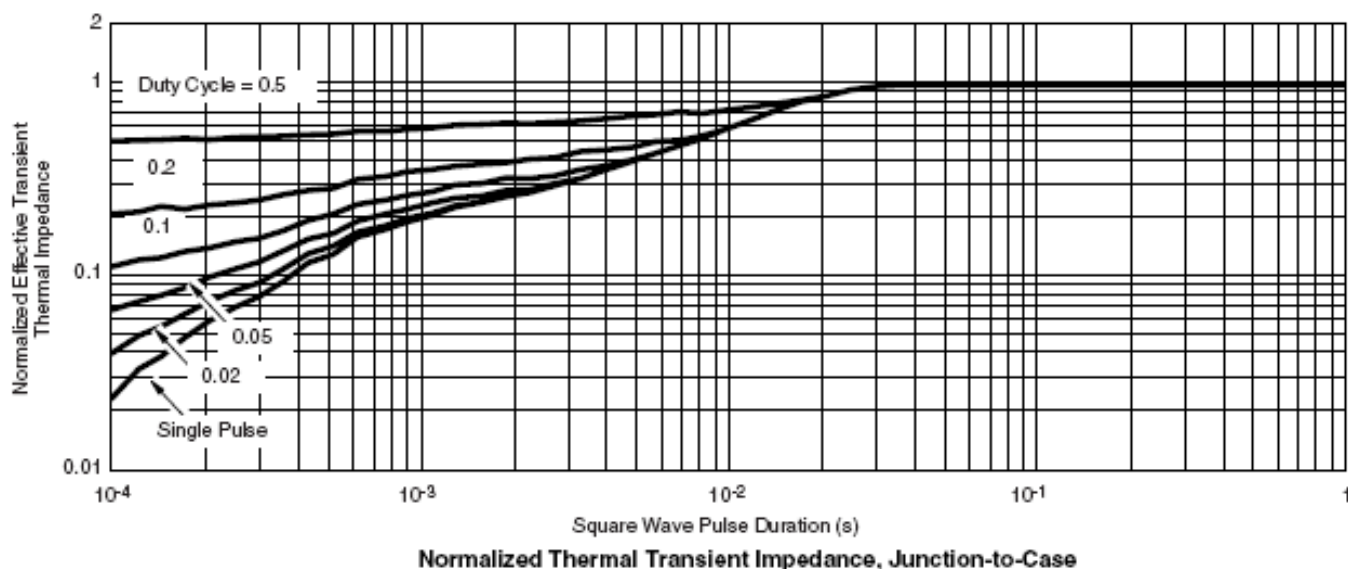
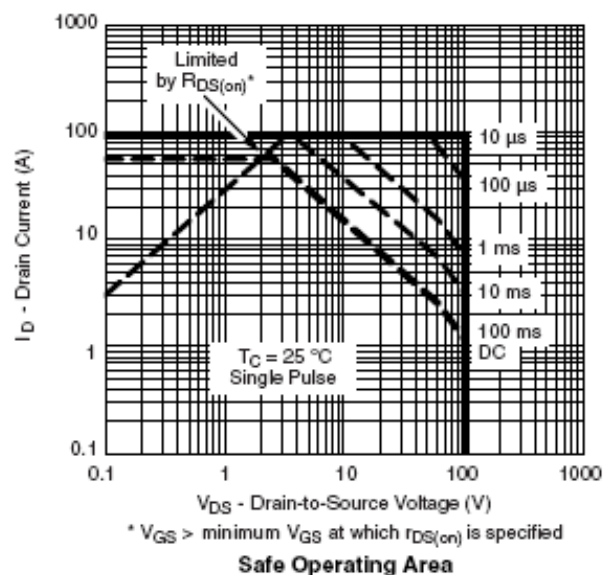
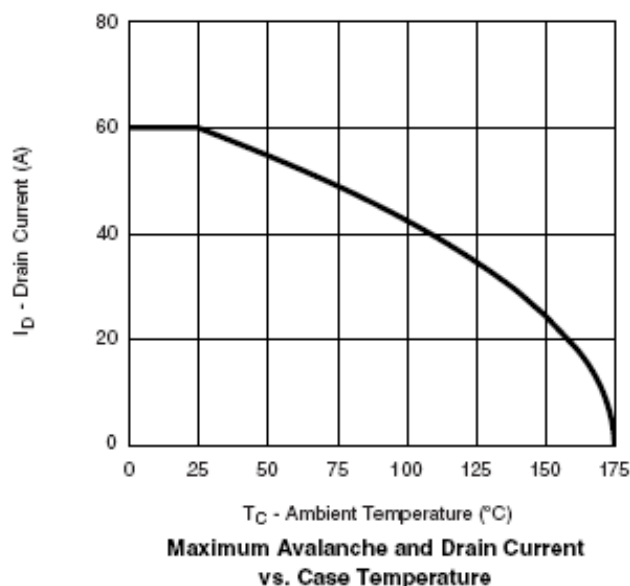




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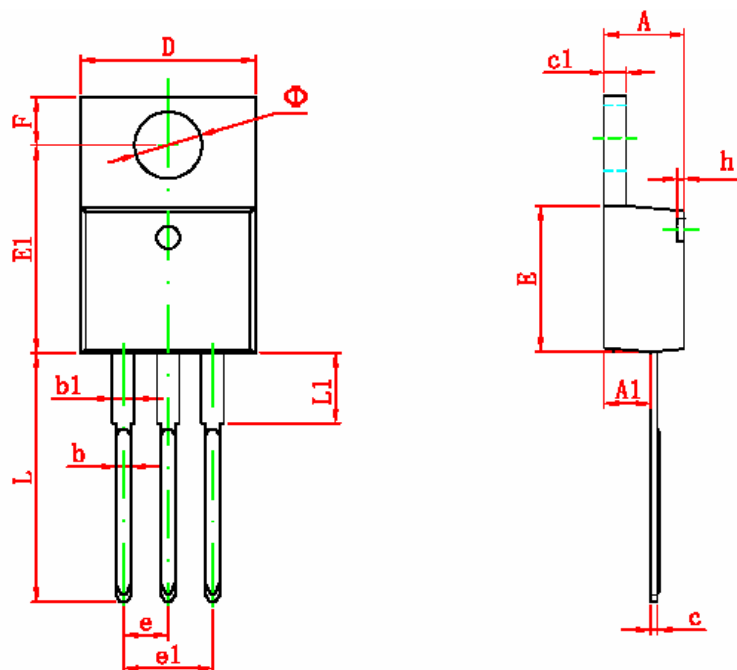




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TO-220-3L PACKAGE OUTLINE



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	4.470	4.670	0.176	0.184
A1	2.520	2.820	0.099	0.111
b	0.710	0.910	0.028	0.036
b1	1.170	1.370	0.046	0.054
c	0.310	0.530	0.012	0.021
c1	1.170	1.370	0.046	0.054
D	10.010	10.310	0.394	0.406
E	8.500	8.900	0.335	0.350
E1	12.060	12.460	0.475	0.491
e	2.540 TYP		0.100 TYP	
e1	4.980	5.180	0.196	0.204
F	2.590	2.890	0.102	0.114
h	0.000	0.300	0.000	0.012
L	13.400	13.800	0.528	0.543
L1	3.560	3.960	0.140	0.156
• •	3.735	3.935	0.147	0.155



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