SPN9507
N-Channel Enhancement Mode MOSFET

28DESCRIPTION

The SPN9507 is the N-Channel 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 .

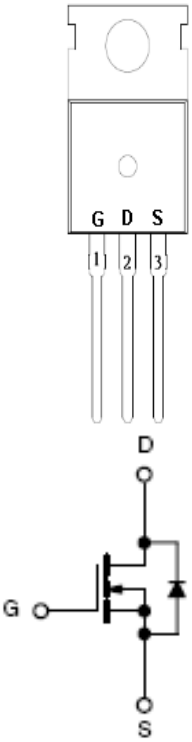
FEATURES

- 75V/60A,$R_{DS(ON)}$=5.0mΩ@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 package design

APPLICATIONS

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

PIN CONFIGURATION(TO-220-3L)



PART MARKING

SPN9507
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
SPN9507T220TGB	TO-220-3L	SPN9507

※ SPN9507T220TGB: Tube ; Pb – Free; Halogen – Free

ABSOULTE MAXIMUM RATINGS

(T_A=25℃ Unless otherwise noted)

Parameter		Symbol	Typical	Unit
Drain-Source Voltage		V_{DSS}	75	V
Gate –Source Voltage		V_{GSS}	±20	V
Continuous Drain Current(T_J=150℃)	T_A=25℃	I_D	80	A
	T_A=70℃		70	
Pulsed Drain Current		I_{DM}	240	A
Power Dissipation	T_A=25℃	P_D	300	W
	T_A=70℃		3.38	
Avalanche Energy with Single Pulse (Tj=25℃, L = 0.12mH , I_{AS} = 80A , V_{DD} = 60V.)		E_{AS}	380	mJ
Operating Junction Temperature		T_J	-55/150	℃
Storage Temperature Range		T_{STG}	-55/150	℃
Thermal Resistance-Junction to Ambient		$R_{\theta JA}$	2	℃/W

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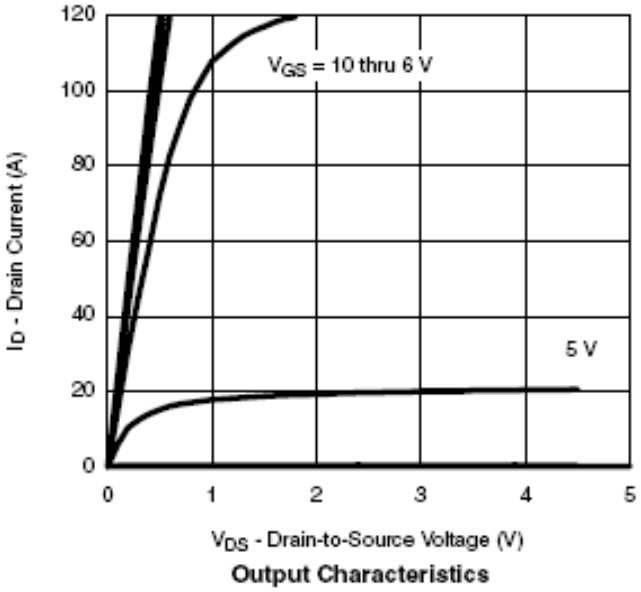
ELECTRICAL CHARACTERISTICS

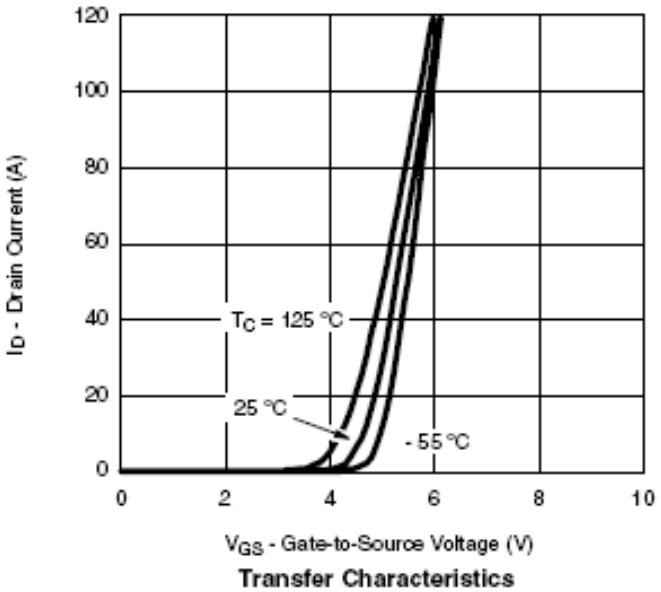
(T_A=25℃ Unless otherwise noted)

Parameter	Symbol	Conditions	Min.	Typ	Max.	Unit
Static						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	V_{GS}=0V,I_D=250uA	75			V
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS},I_D=250uA	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}=75V,V_{GS}=0V			10	uA
		V_{DS}=60V,V_{GS}=0V T_J = 150 ℃			250	
Drain-Source On-Resistance	$R_{DS(on)}$	V_{GS}= 10V,I_D=60A			5.0	mΩ
Forward Transconductance	gfs	V_{DS}=10V,I_D=60A		57		S
Diode Forward Voltage	V_{SD}	I_S=60A,V_{GS}=0V			1.3	V
Dynamic						
Total Gate Charge	Q_g	V_{DS}=40V,V_{GS}=10V I_D=80A		85	135	nC
Gate-Source Charge	Q_{gs}			25		
Gate-Drain Charge	Q_{gd}			36		
Input Capacitance	C_{iss}	V_{DS}=25V,V_{GS}=0V f=1MHz		4290	6870	pF
Output Capacitance	C_{oss}			985		
Reverse Transfer Capacitance	C_{rss}			390		
Turn-On Time	$t_{d(on)}$	V_{DD}=40V,R_L=0.5Ω I_D=80A,V_{GEN}=10V R_G=3.3Ω		22		nS
	t_r			160		
Turn-Off Time	$t_{d(off)}$			38		
	t_f			165		

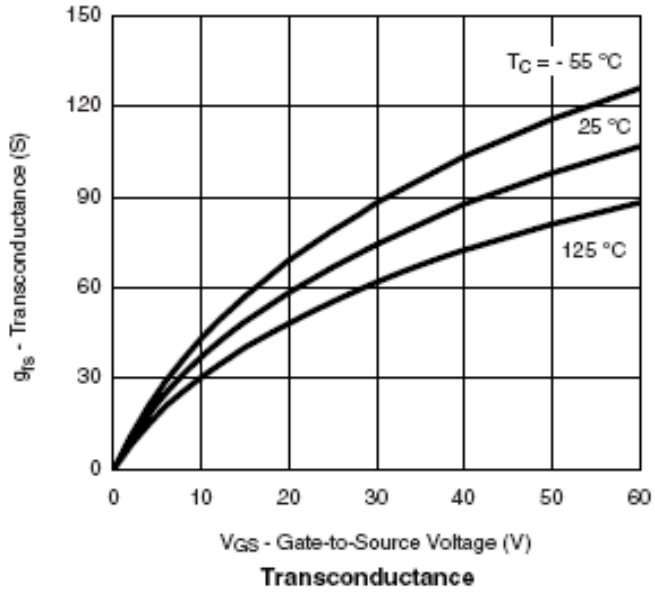
TYPICAL CHARACTERISTICS



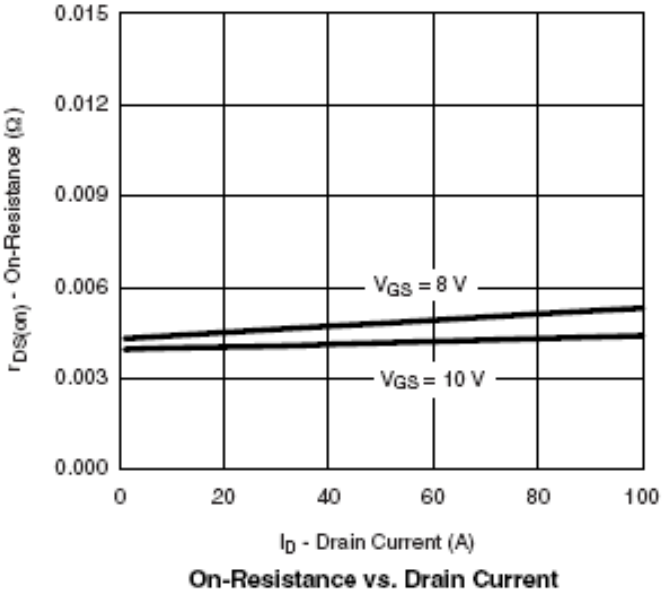
Output Characteristics



Transfer Characteristics

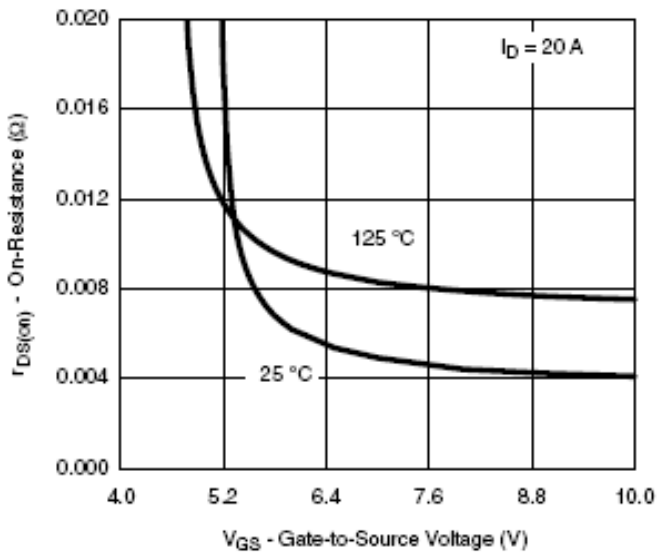


Transconductance

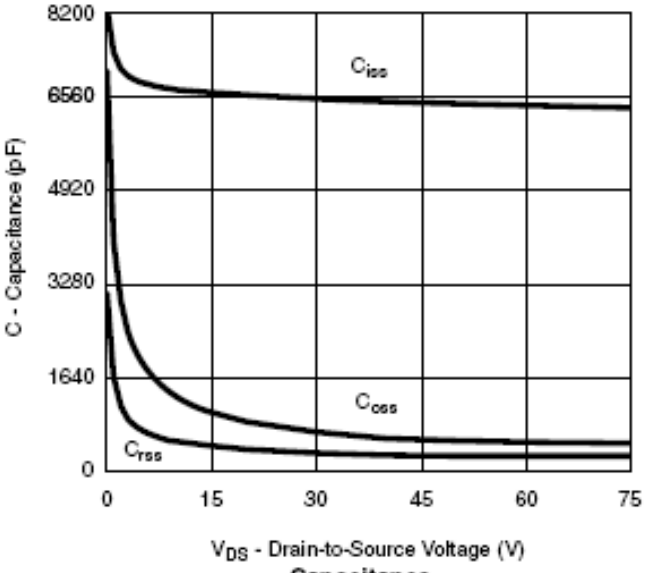


On-Resistance vs. Drain Current

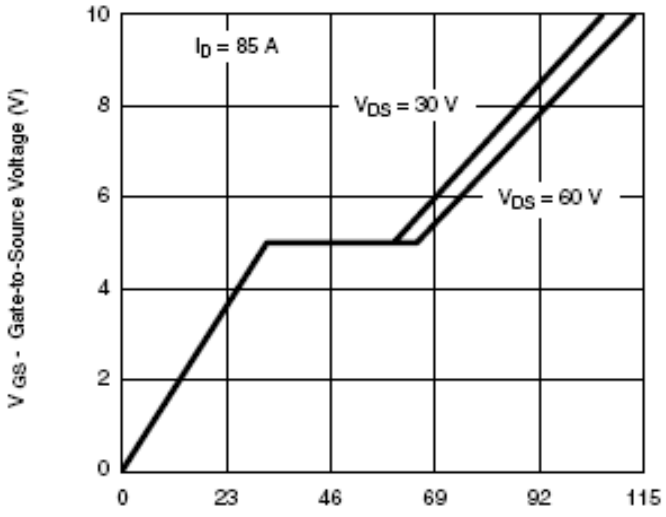
TYPICAL CHARACTERISTICS



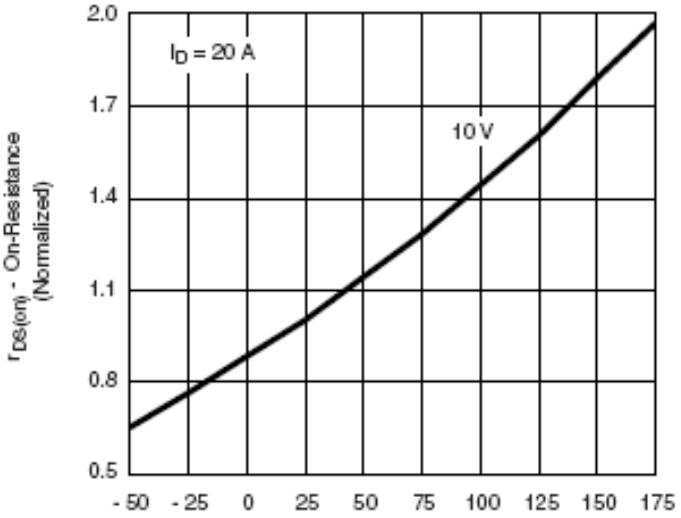
On-resistance vs. Gate-to-Source Voltage



Capacitance

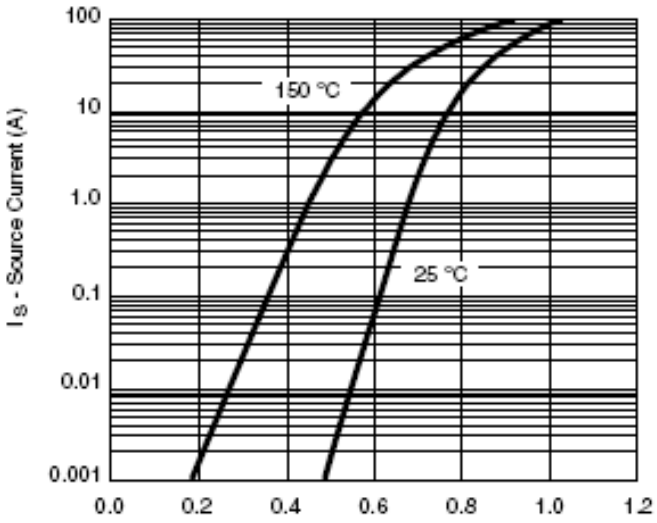


Gate Charge

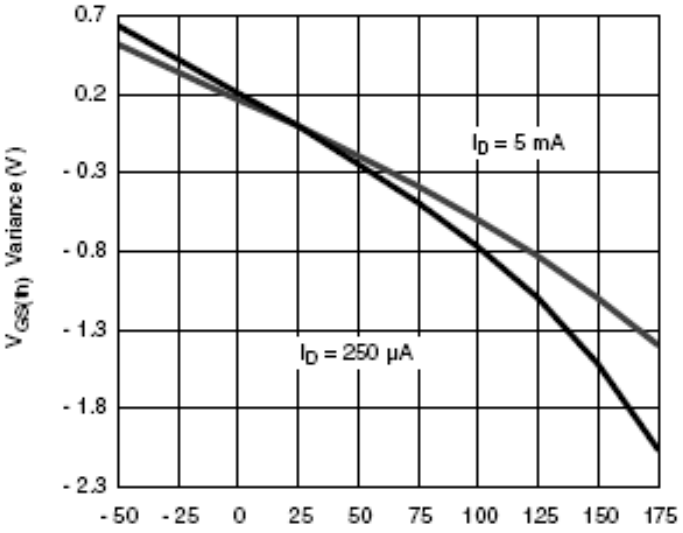


On-Resistance vs. Junction Temperature

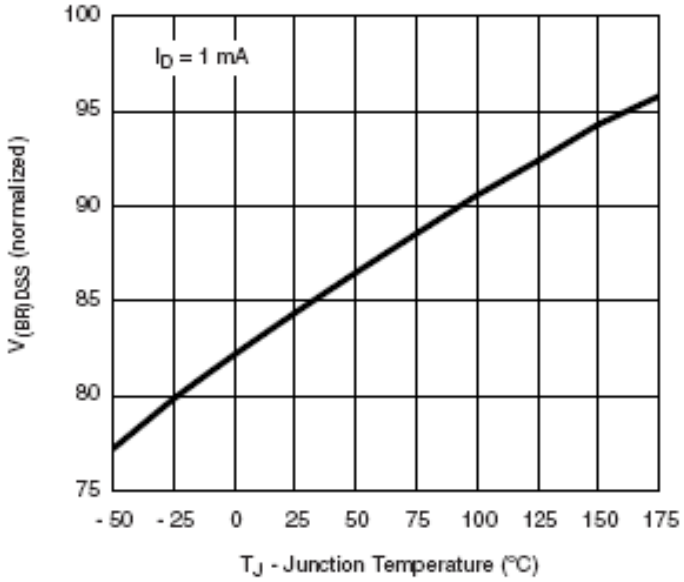
TYPICAL CHARACTERISTICS



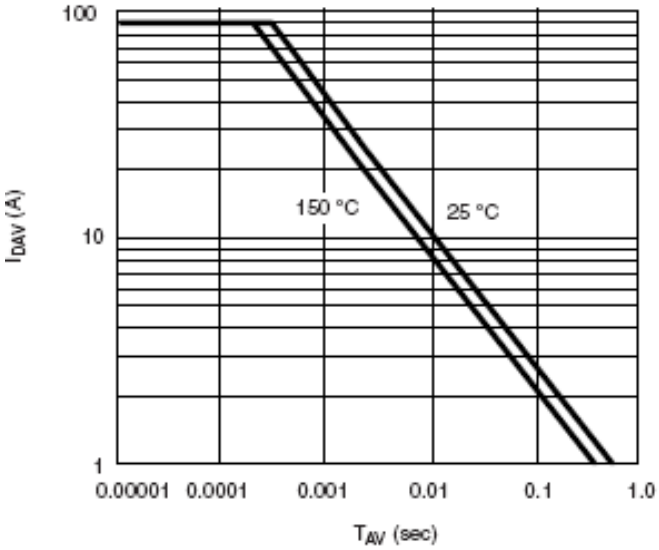
Source-Drain Diode Forward Voltage



Threshold Voltage

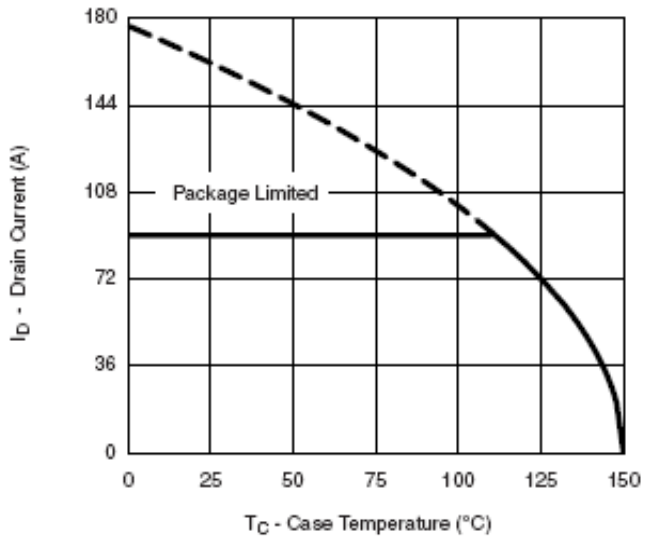


Drain Source Breakdown vs. Junction Temperature

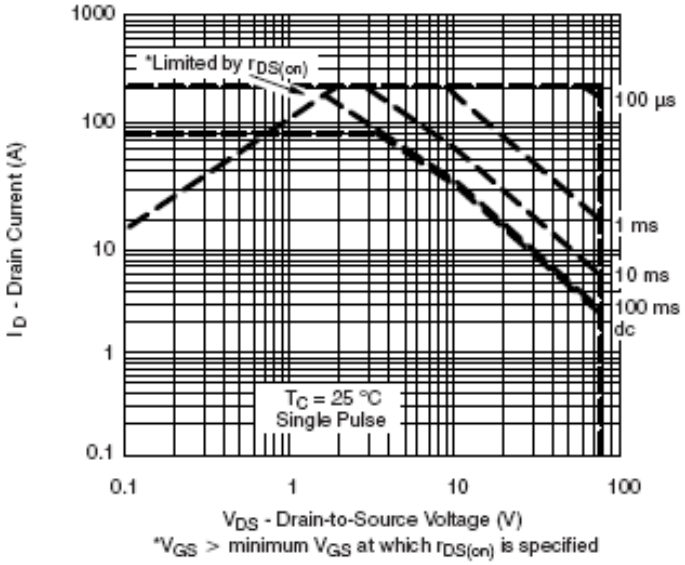


Single Pulse Avalanche Current Capability vs. Time

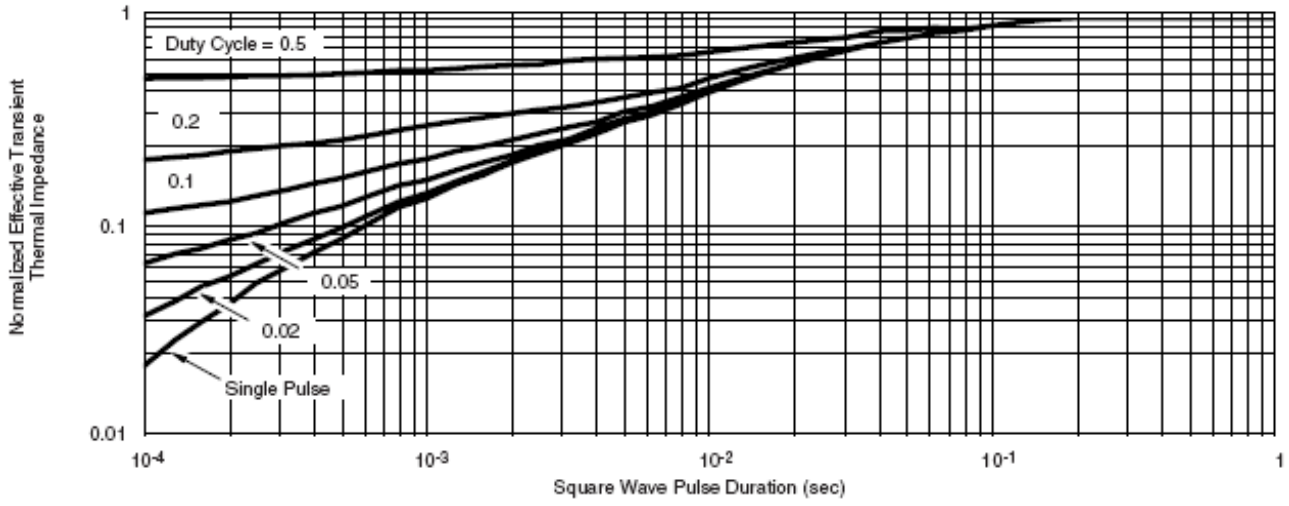
TYPICAL CHARACTERISTICS



Maximum Drain Current vs. Case Temperature



Safe Operating Area



Normalized Thermal Transient Impedance, Junction-to-Case

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