SPN3055
N-Channel Enhancement Mode MOSFET

DESCRIPTION

The SPN3055 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, such as DC/DC converter and Desktop computer power management.

The package is universally preferred for commercial industrial surface mount applications

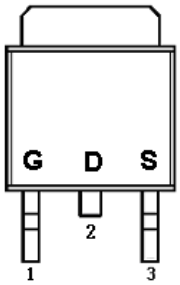
APPLICATIONS

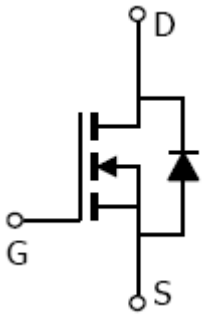
- Power Management in Desktop Computer
- DC/DC Converter
- LCD Display inverter

FEATURES

- 30V/12A,$R_{DS(ON)}$=60mΩ@V_{GS}=10V
- 30V/6A,$R_{DS(ON)}$=90mΩ@V_{GS}=4.5V
- Super high density cell design for extremely low $R_{DS\ (ON)}$
- Exceptional on-resistance and maximum DC current capability
- TO-252-2L package design

PIN CONFIGURATION (TO-252-2L)





PART MARKING

SPN3055
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
SPN3055T252RGB	TO-252-2L	SPN3055

※ SPN3055T252RGB : Tape Reel ; Pb – Free ; Halogen - Free

ABSOULTE MAXIMUM RATINGS

(T_A=25℃ Unless otherwise noted)

Parameter		Symbol	Typical	Unit
Drain-Source Voltage		V_{DSS}	30	V
Gate –Source Voltage		V_{GSS}	±20	V
Continuous Drain Current(T_J=150℃)	T_A=25℃	I_D	12	A
	T_A=70℃		8	
Pulsed Drain Current		I_{DM}	20	A
Continuous Source Current(Diode Conduction)		I_S	12	A
Power Dissipation	T_A=25℃	P_D	40	W
	T_A=70℃		20	
Avalanche Energy with Single Pulse (Tj=25℃, L = 0.14mH , I_{AS} = 10A , V_D = 20V.)		E_{AS}	7	mJ
Operating Junction Temperature		T_J	-55/175	℃
Storage Temperature Range		T_{STG}	-55/175	℃
Thermal Resistance-Junction to Ambient		$R_{\theta JA}$	100	℃/W

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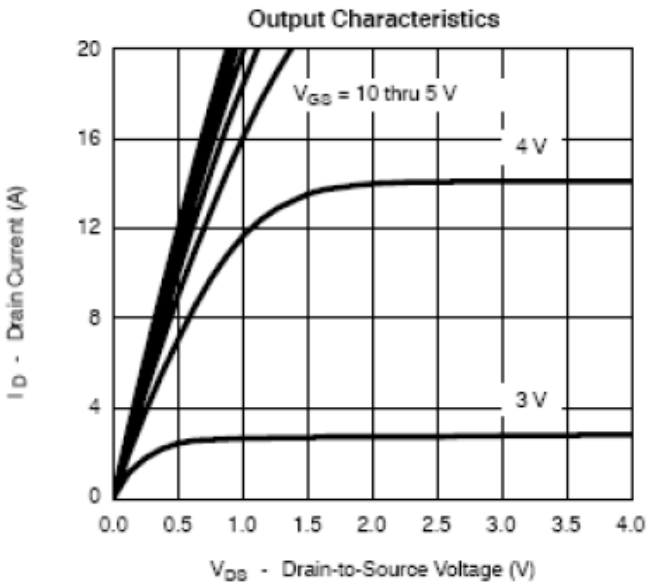
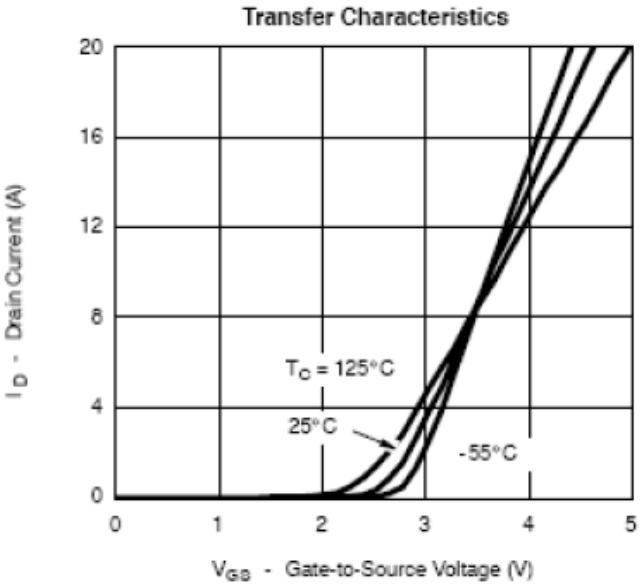
ELECTRICAL CHARACTERISTICS

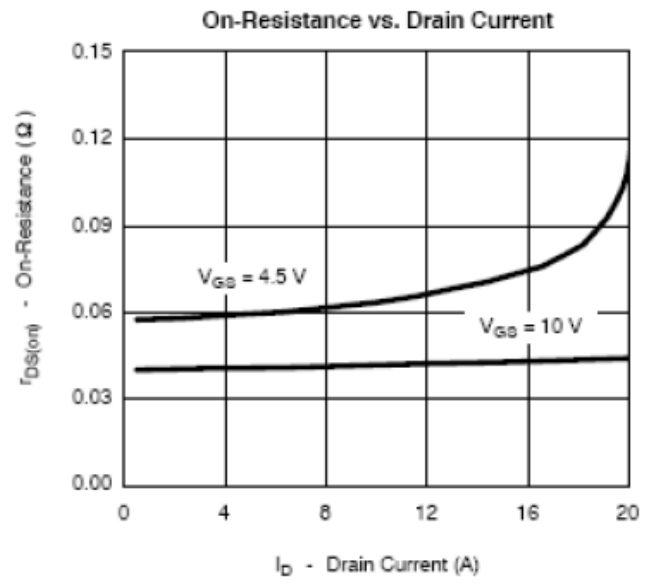
(T_A=25℃ Unless otherwise noted)

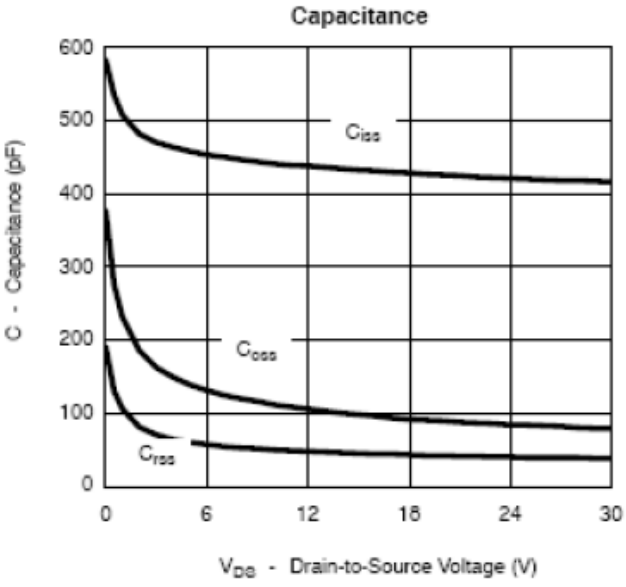
Parameter	Symbol	Conditions	Min.	Typ	Max.	Unit
Static						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	V_{GS}=0V,I_D=-250uA	30			V
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS},I_D=-250uA	1.0		3.0	
Gate Leakage Current	I_{GSS}	V_{DS}=0V,V_{GS}=±20V			±100	nA
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=24V,V_{GS}=0V			1	uA
		V_{DS}=24V,V_{GS}=0V T_J=55℃			10	
Drain-Source On-Resistance	$R_{DS(on)}$	V_{GS}=10V,I_D=12A		0.050	0.060	Ω
		V_{GS}=4.5V,I_D=6A		0.067	0.090	
Forward Transconductance	gfs	V_{DS}=10V,I_D=12A		20		S
Diode Forward Voltage	V_{SD}	I_S=6A,V_{GS}=0V		1.0	1.2	V
Dynamic						
Total Gate Charge	Q_g	V_{DS}=15V,V_{GS}=10V I_D=12A		4.5	10	nC
Gate-Source Charge	Q_{gs}			0.8		
Gate-Drain Charge	Q_{gd}			1.0		
Input Capacitance	C_{iss}	V_{DS}=15V,V_{GS}=0V f=1MHz		240		pF
Output Capacitance	C_{oss}			110		
Reverse Transfer Capacitance	C_{rss}			17		
Turn-On Time	$t_{d(on)}$	V_{DD}=15V,R_L=15Ω I_D=1.0A,V_{GEN}=10V R_G=6Ω		8	20	nS
	t_r			12	30	
Turn-Off Time	$t_{d(off)}$			17	35	
	t_f			8	20	

TYPICAL CHARACTERISTICS









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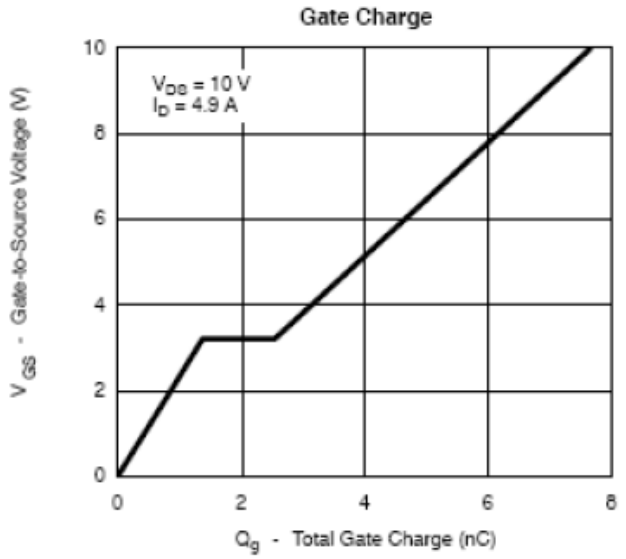

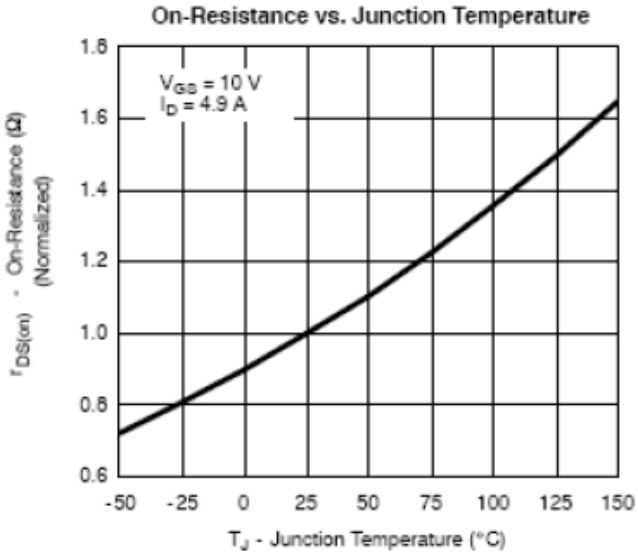

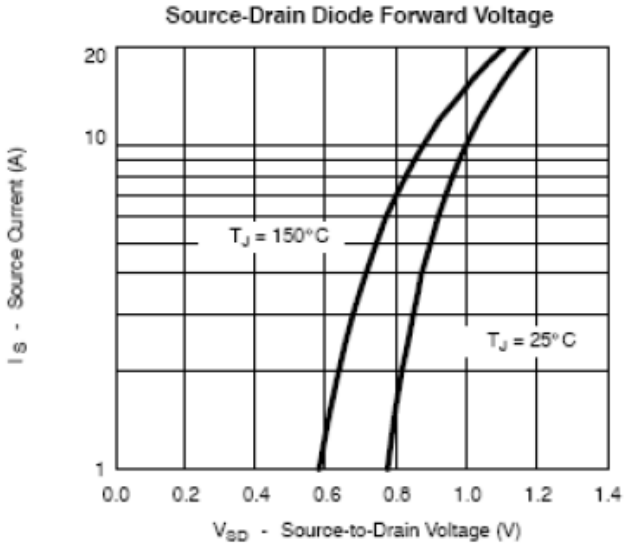

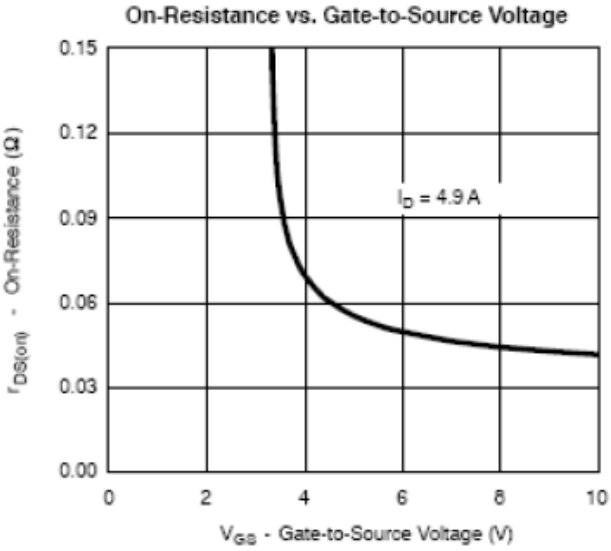

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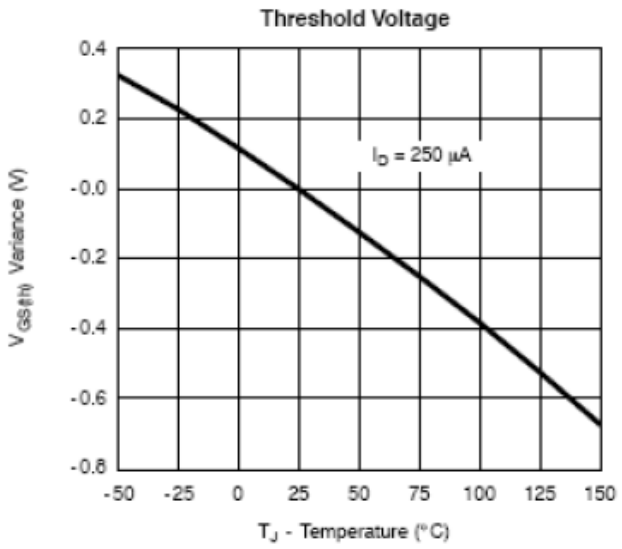

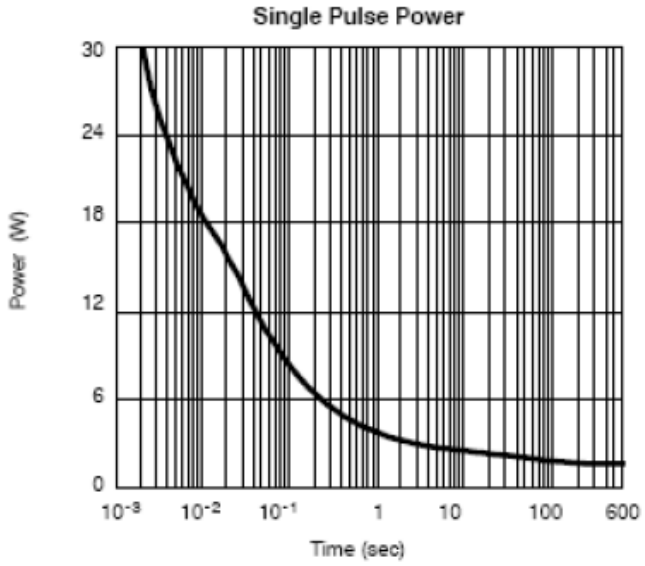

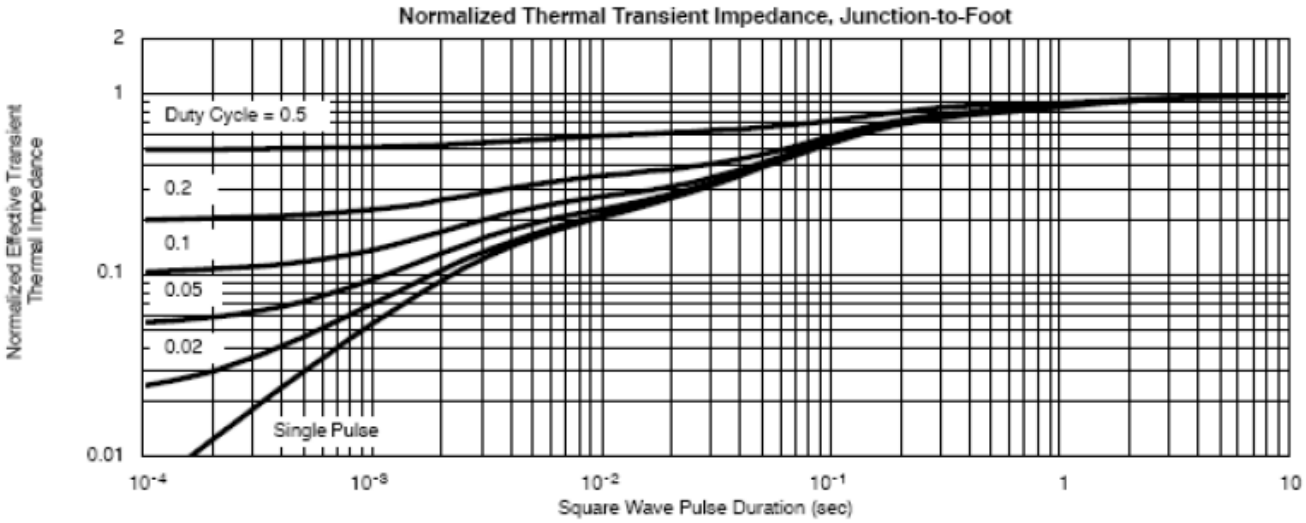

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