



# SPN1074

## N-Channel Enhancement Mode MOSFET

### DESCRIPTION

The SPN1074 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 and provide superior switching performance. These devices are particularly suited for low voltage applications such as notebook computer power management and other battery powered circuits where high-side switching , low in-line power loss, and resistance to transients are needed.

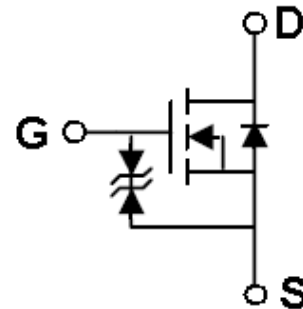
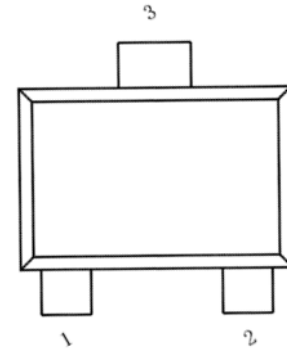
### FEATURES

- ◆ N-Channel  
30V/0.95A,  $R_{DS(ON)}=550m\Omega@V_{GS}=4.5V$   
30V/0.75A,  $R_{DS(ON)}=650m\Omega@V_{GS}=2.5V$   
30V/0.65A,  $R_{DS(ON)}=850m\Omega@V_{GS}=1.8V$
- ◆ Super high density cell design for extremely low  $R_{DS(ON)}$
- ◆ Exceptional on-resistance and maximum DC current capability
- ◆ ESD protected
- ◆ SOT-723 package design

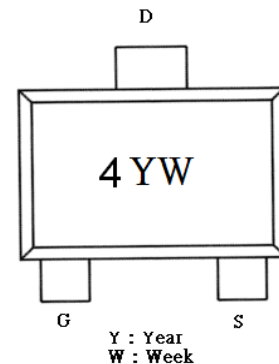
### APPLICATIONS

- Power Management in Note book
- Portable Equipment
- Battery Powered System
- DC/DC Converter
- Load Switch
- DSC
- LCD Display inverter

### PIN CONFIGURATION( SOT-723 )



### PART MARKING





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### PIN DESCRIPTION

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

### ORDERING INFORMATION

Part Number	Package	Part Marking
SPN1074S72RGB	SOT-723	4

※ SPN1074S72RGB : Tape Reel ; Pb – Free ; Halogen – Free

### ABSOLUTE MAXIMUM RATINGS

(TA=25°C Unless otherwise noted)

Parameter	Symbol	Typical	Unit
Drain-Source Voltage	V <sub>DSS</sub>	30	V
Gate –Source Voltage	V <sub>GSS</sub>	±12	V
Continuous Drain Current(T <sub>J</sub> =150°C)	I <sub>D</sub>	0.65	A
Pulsed Drain Current (*)	I <sub>DM</sub>	4	A
Thermal Resistance-Junction to Ambient	R <sub>θJA</sub>	375	°C/W
Power Dissipation	P <sub>D</sub>	0.15	W
Operating Junction Temperature	T <sub>J</sub>	-55/150	°C
Storage Temperature Range	T <sub>STG</sub>	-55/150	°C

(\*) Pulse width limited by safe operating area



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### ELECTRICAL CHARACTERISTICS

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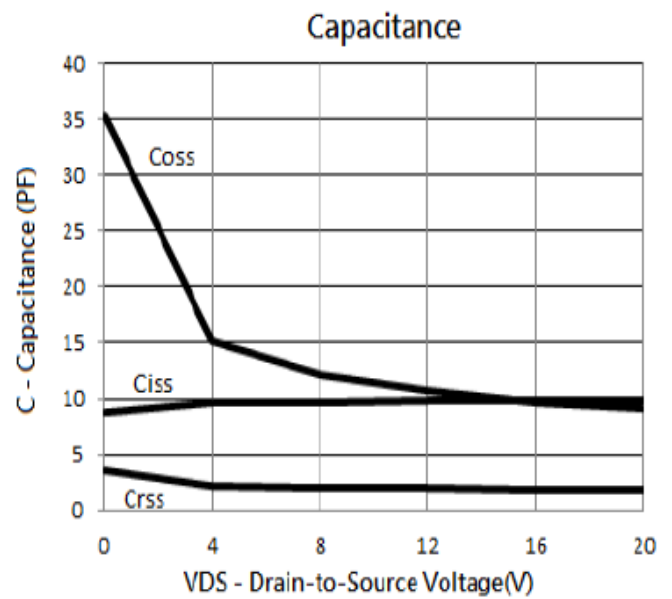
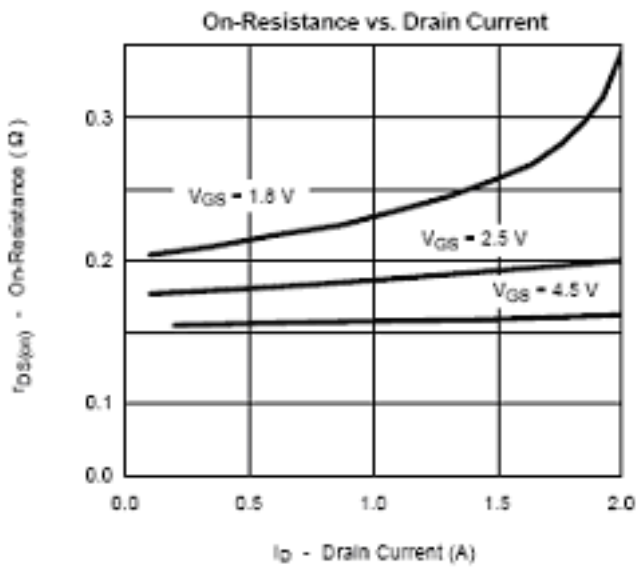
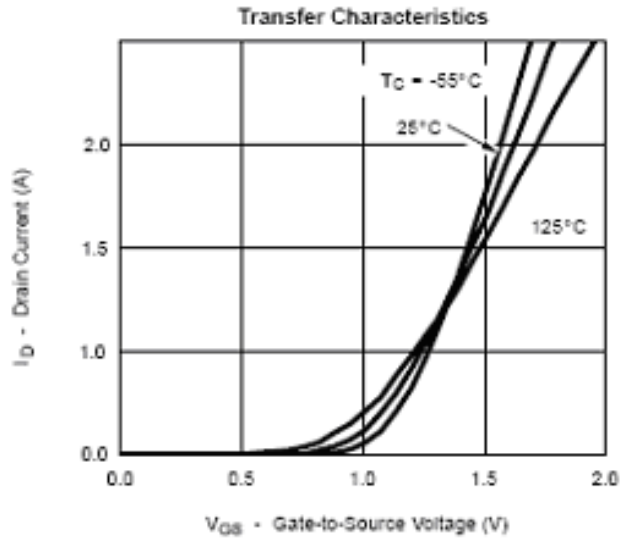
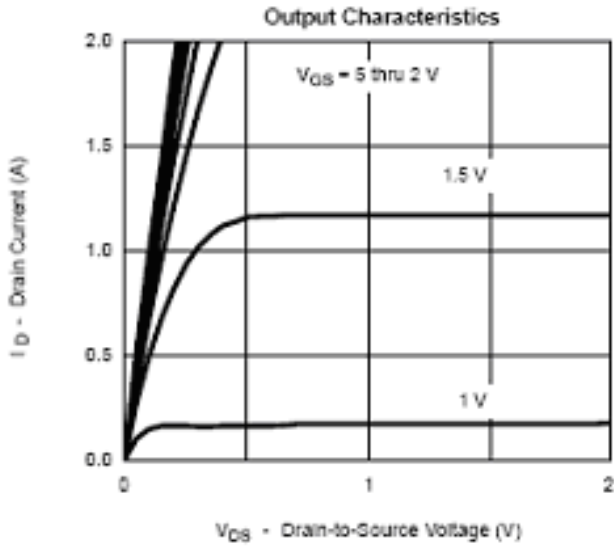
Parameter	Symbol	Conditions	Min.	Typ	Max.	Unit
<b>Static</b>						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS}=0V, I_D=250\mu A$	30			V
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=250\mu A$	0.35		1.0	
Gate Leakage Current	$I_{GSS}$	$V_{DS}=0V, V_{GS}=\pm 12V$			$\pm 10$	$\mu A$
Zero Gate Voltage Drain Current	$I_{DSS}$	$V_{DS}=24V, V_{GS}=0V$ $T_J=25^\circ C$			1	$\mu A$
		$V_{DS}=24V, V_{GS}=0V$ $T_J=55^\circ C$			100	
On-State Drain Current	$I_{D(on)}$	$V_{DS}\geq 4.5V, V_{GS}=5V$	0.7			A
Drain-Source On-Resistance	$R_{DS(on)}$	$V_{GS}=4.5V, I_D=0.95A$		0.45	0.55	$\Omega$
		$V_{GS}=2.5V, I_D=0.75A$		0.50	0.65	
		$V_{GS}=1.8V, I_D=0.65A$		0.70	0.85	
Forward Transconductance	$g_{fs}$	$V_{DS}=10V, I_D=0.4A$		1.0		S
Diode Forward Voltage	$V_{SD}$	$I_S=0.15A, V_{GS}=0V$		0.8	1.2	V
<b>Dynamic</b>						
Total Gate Charge	$Q_g$	$V_{DS}=10V, V_{GS}=4.5V,$ $I_D=0.6A$		1.2	1.5	nC
Gate-Source Charge	$Q_{gs}$			0.2		
Gate-Drain Charge	$Q_{gd}$			0.3		
Input Capacitance	$C_{iss}$	$V_{DS}=10V, f=1MHz,$ $V_{GS}=0V$		7.2		pF
Output Capacitance	$C_{oss}$			13.5		
Reverse Transfer Capacitance	$C_{rss}$			1.6		
Turn-On Time	$t_{d(on)}$	$V_{DD}=10V, R_L=10\Omega,$ $I_D=0.5A$ $V_{GEN}=4.5V, R_G=6\Omega$		5	10	nS
	$t_r$			8	15	
Turn-Off Time	$t_{d(off)}$			10	18	
	$t_f$			1.2	2.8	



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### TYPICAL CHARACTERISTICS

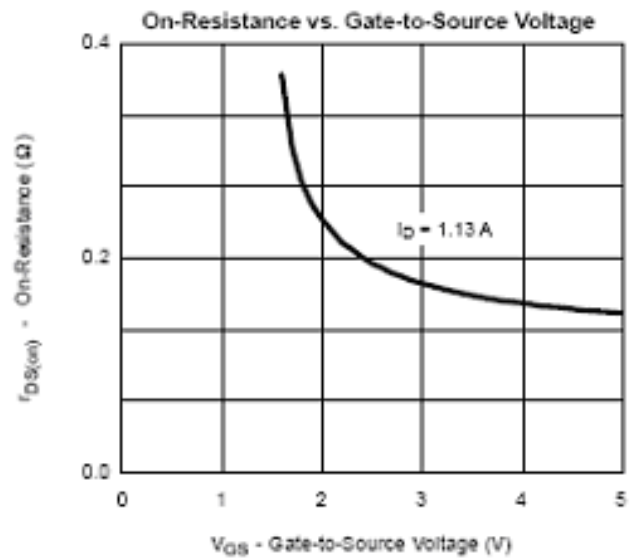
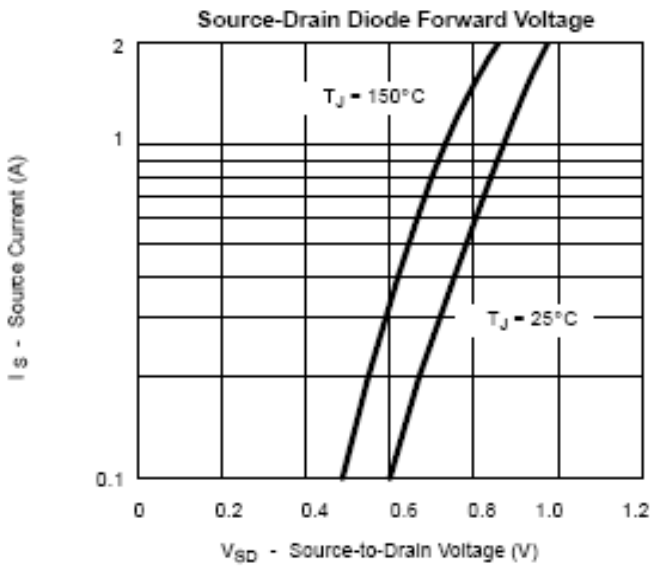
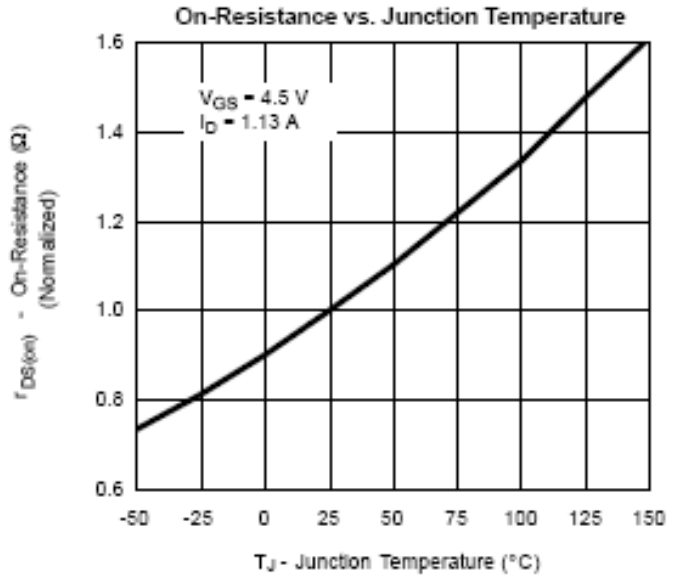
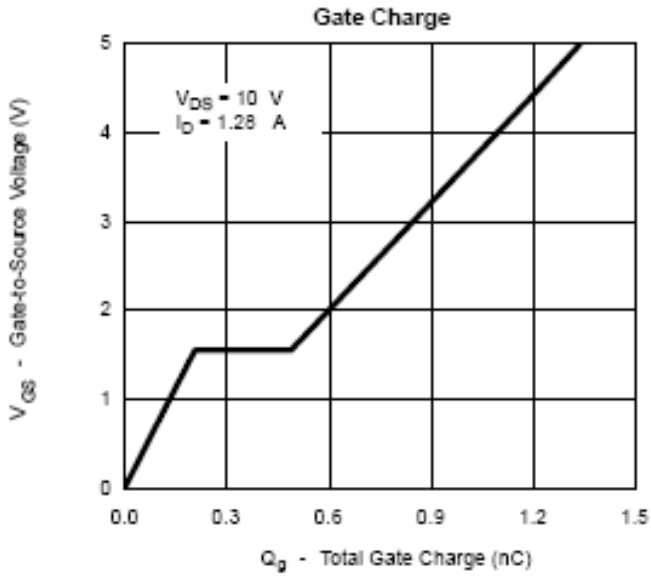




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### TYPICAL CHARACTERISTICS

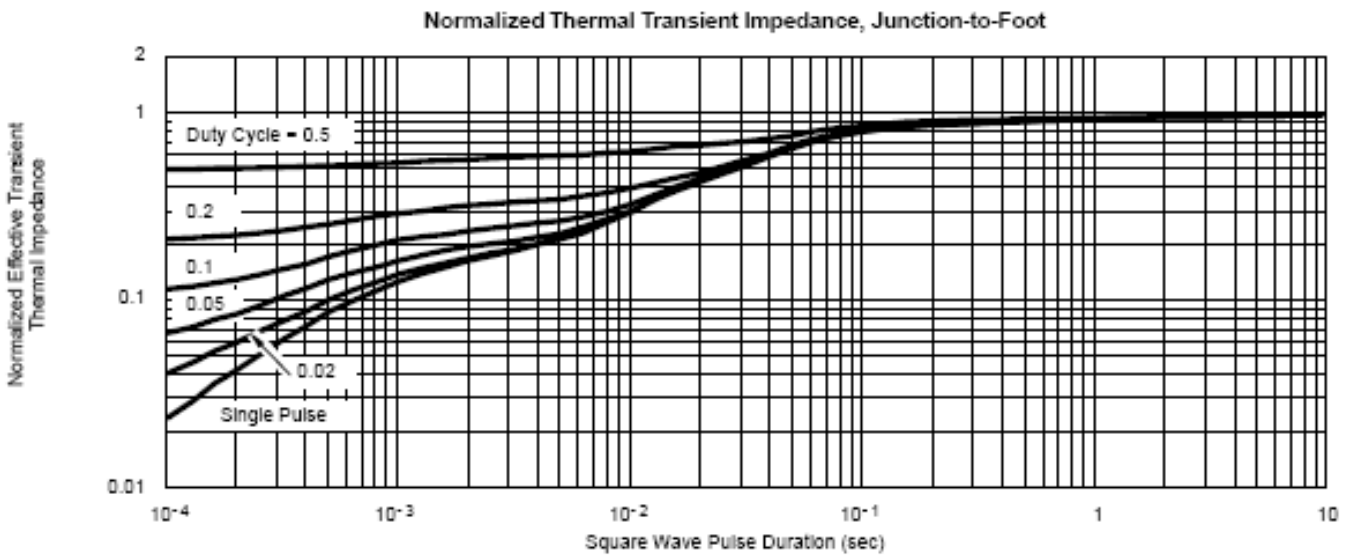
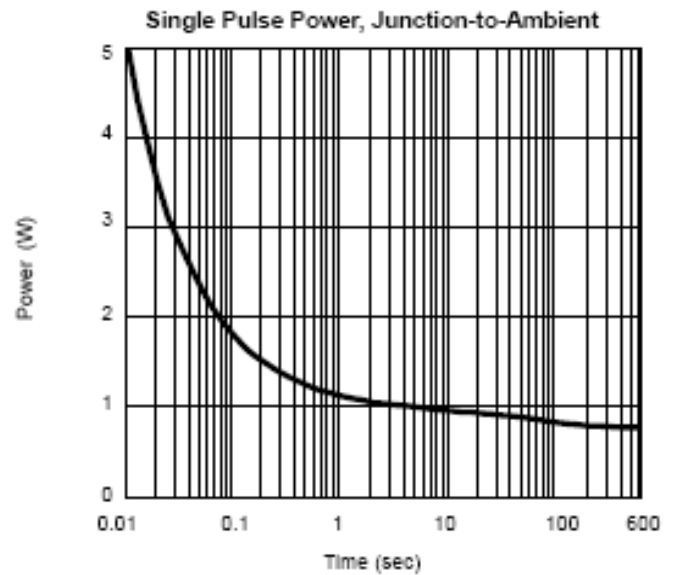
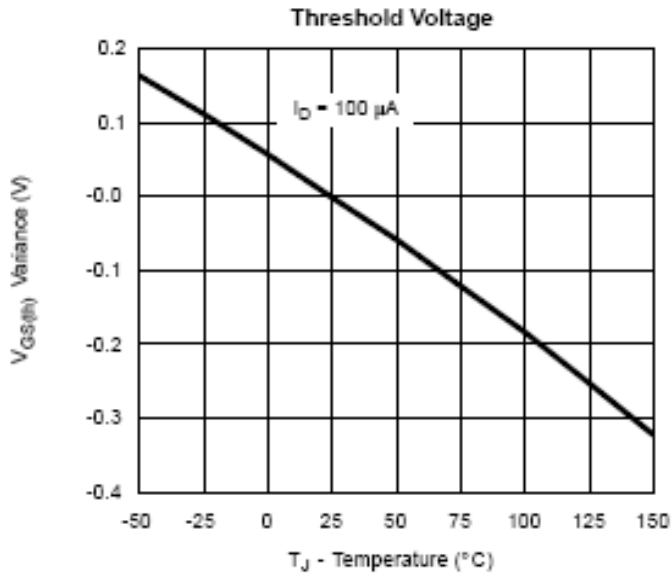




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### TYPICAL CHARACTERISTICS





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