



# SPN6561

## Dual N-Channel Enhancement Mode MOSFET

### DESCRIPTION

The SPN6561 is the Dual 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.

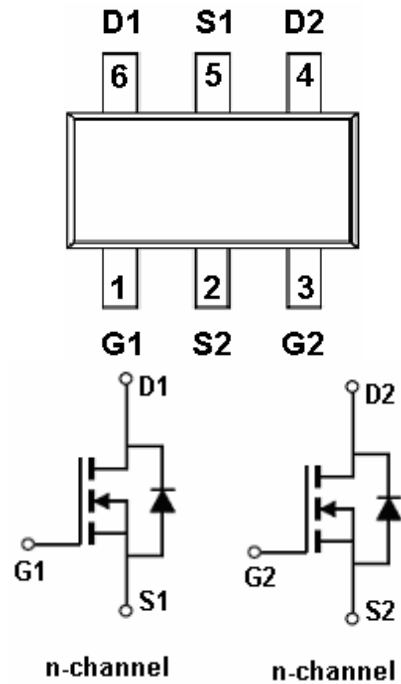
### FEATURES

- ◆ N-Channel  
30V/2.8A,  $R_{DS(ON)}=60m\Omega@V_{GS}=10V$   
30V/2.3A,  $R_{DS(ON)}=80m\Omega@V_{GS}=4.5V$
- ◆ Super high density cell design for extremely low  $R_{DS(ON)}$
- ◆ Exceptional on-resistance and maximum DC current capability
- ◆ SOT-23-6L package design

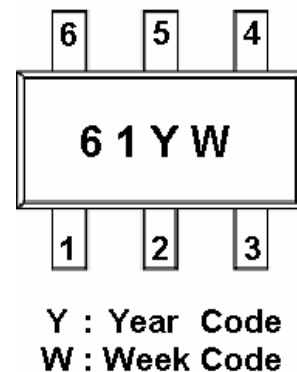
### APPLICATIONS

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

### PIN CONFIGURATION(SOT-23-6L)



### PART MARKING





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### PIN DESCRIPTION

Pin	Symbol	Description
1	G1	Gate 1
2	S2	Source 2
3	G2	Gate 2
4	D2	Drain 2
5	S1	Source 1
6	D1	Drain1

### ORDERING INFORMATION

Part Number	Package	Part Marking
SPN6561S26RGB	SOT-23-6L	61

※ Week Code : A ~ Z( 1 ~ 26 ) ; a ~ z( 27 ~ 52 )

※ SPN6561S26RGB : Tape Reel ; Pb – Free ; Halogen - Free

### ABSOLUTE MAXIMUM RATINGS

( $T_A=25^{\circ}\text{C}$  Unless otherwise noted)

Parameter	Symbol	Typical	Unit
Drain-Source Voltage	$V_{DSS}$	30	V
Gate –Source Voltage	$V_{GSS}$	$\pm 20$	V
Continuous Drain Current( $T_J=150^{\circ}\text{C}$ )	$I_D$	$T_A=25^{\circ}\text{C}$	A
		$T_A=70^{\circ}\text{C}$	
Pulsed Drain Current	$I_{DM}$	10	A
Continuous Source Current(Diode Conduction)	$I_S$	1.25	A
Power Dissipation	$P_D$	$T_A=25^{\circ}\text{C}$	W
		$T_A=70^{\circ}\text{C}$	
Operating Junction Temperature	$T_J$	-55/150	$^{\circ}\text{C}$
Storage Temperature Range	$T_{STG}$	-55/150	$^{\circ}\text{C}$
Thermal Resistance-Junction to Ambient	$R_{\theta JA}$	$T \leq 10\text{sec}$	$^{\circ}\text{C/W}$
		Steady State	



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### ELECTRICAL CHARACTERISTICS

(TA=25°C Unless otherwise noted)

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	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=250\mu A$	1.0		3.0	V
Gate Leakage Current	$I_{GSS}$	$V_{DS}=0V, V_{GS}=\pm 20V$			$\pm 100$	nA
Zero Gate Voltage Drain Current	$I_{DSS}$	$V_{DS}=30V, V_{GS}=1.0V$			1	uA
		$V_{DS}=30V, V_{GS}=0.0V$ $T_J=55^\circ C$			10	
On-State Drain Current	$I_{D(on)}$	$V_{DS} \geq 4.5V, V_{GS}=10V$	6			A
		$V_{DS} \geq 4.5V, V_{GS}=4.5V$	4			
Drain-Source On-Resistance	$R_{DS(on)}$	$V_{GS} = 10V, I_D=2.8A$		0.043	0.060	$\Omega$
		$V_{GS} = 4.5V, I_D=2.1A$		0.056	0.080	
Forward Transconductance	$g_{fs}$	$V_{DS}=4.5V, I_D=2.5A$		4.6		S
Diode Forward Voltage	$V_{SD}$	$I_S=1.25A, V_{GS}=0V$		0.8	1.2	V
<b>Dynamic</b>						
Total Gate Charge	$Q_g$	$V_{DS}=15V, V_{GS}=10V$ $I_D=2.5$		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	$t_{d(on)}$	$V_{DD}=15V, R_L=15$ $I_D=1.0A, V_{GEN}=10$ $R_G=6\Omega$		8	20	nS
	$t_r$			12	30	
Turn-Off Time	$t_{d(off)}$			17	35	
	$t_f$			8	20	

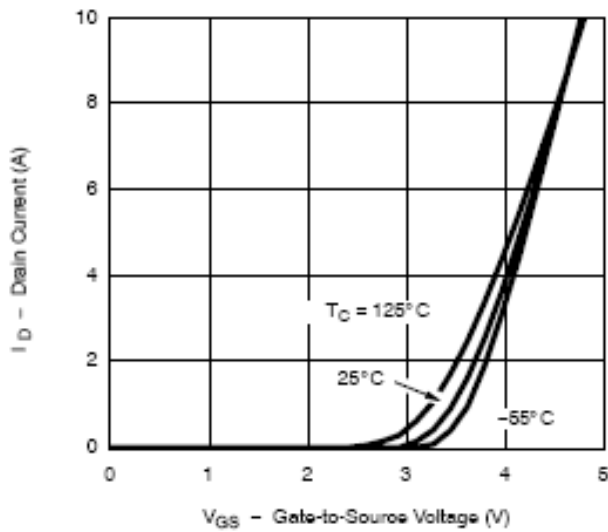


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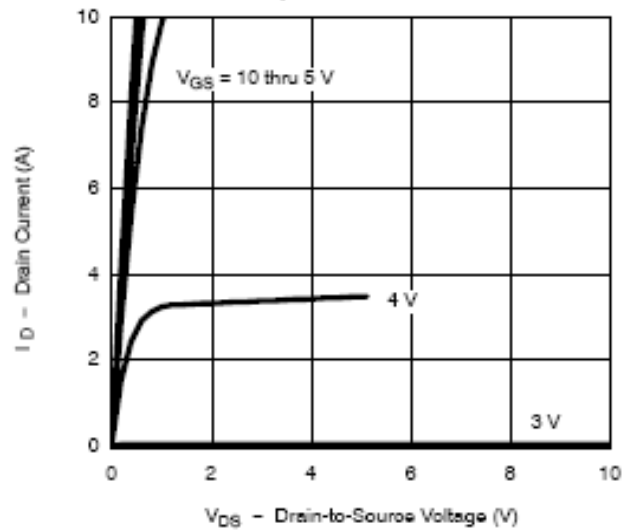
## Dual N-Channel Enhancement Mode MOSFET

### TYPICAL CHARACTERISTICS

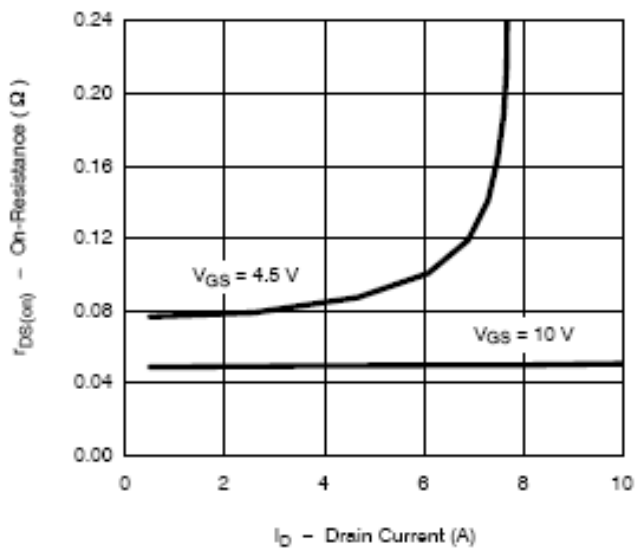
Transfer Characteristics



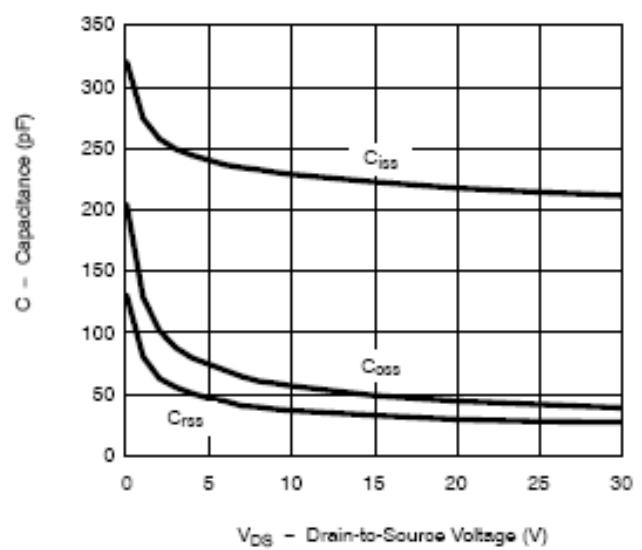
Output Characteristics



On-Resistance vs. Drain Current



Capacitance



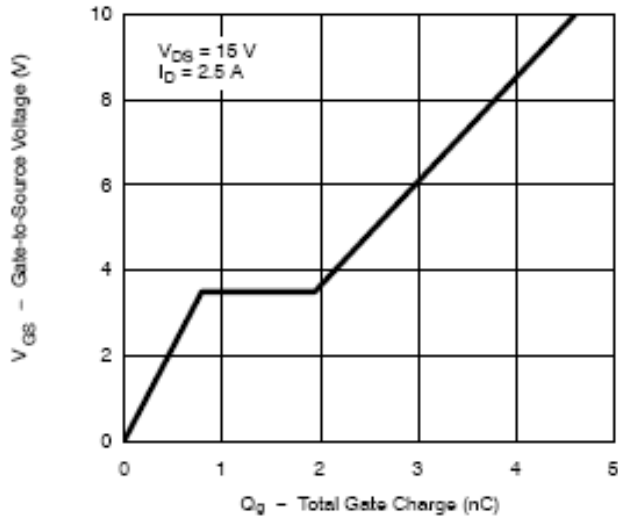


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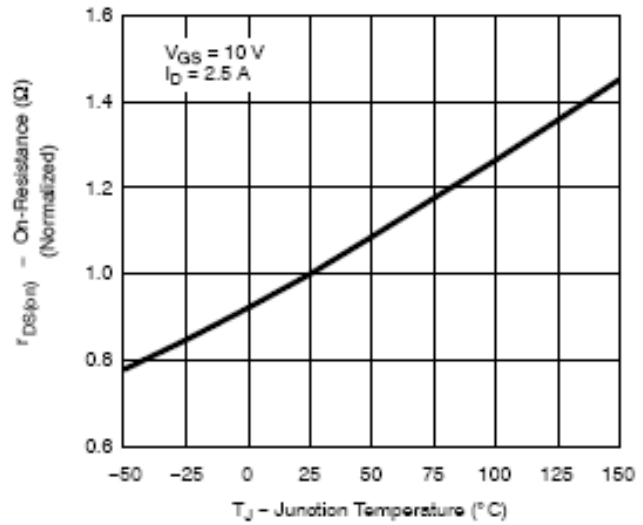
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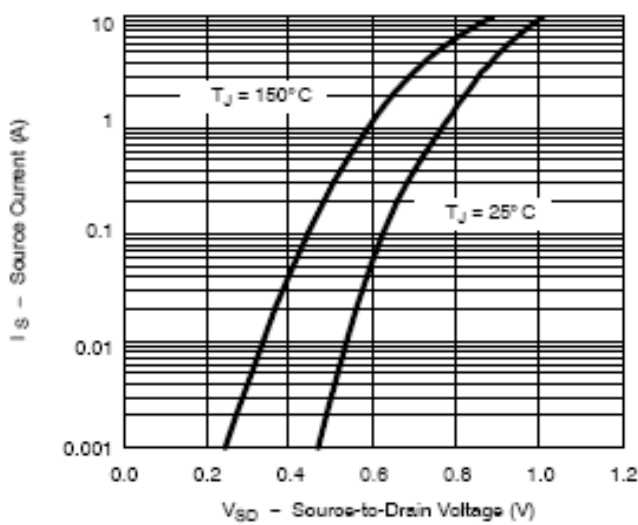
Gate Charge



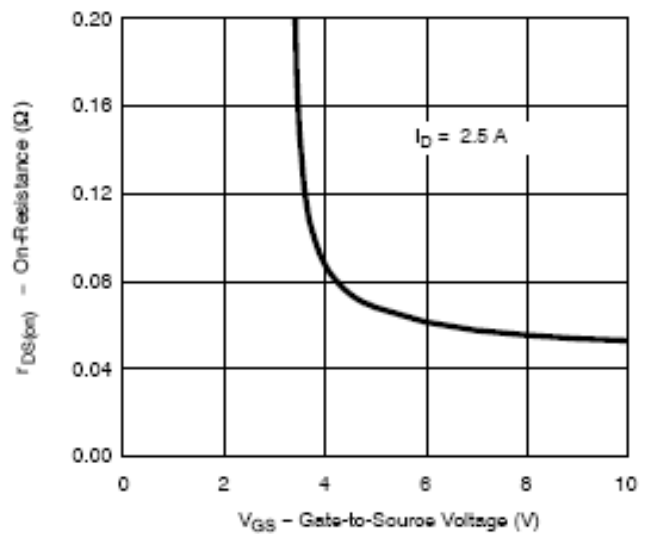
On-Resistance vs. Junction Temperature



Source-Drain Diode Forward Voltage



On-Resistance vs. Gate-to-Source Voltage

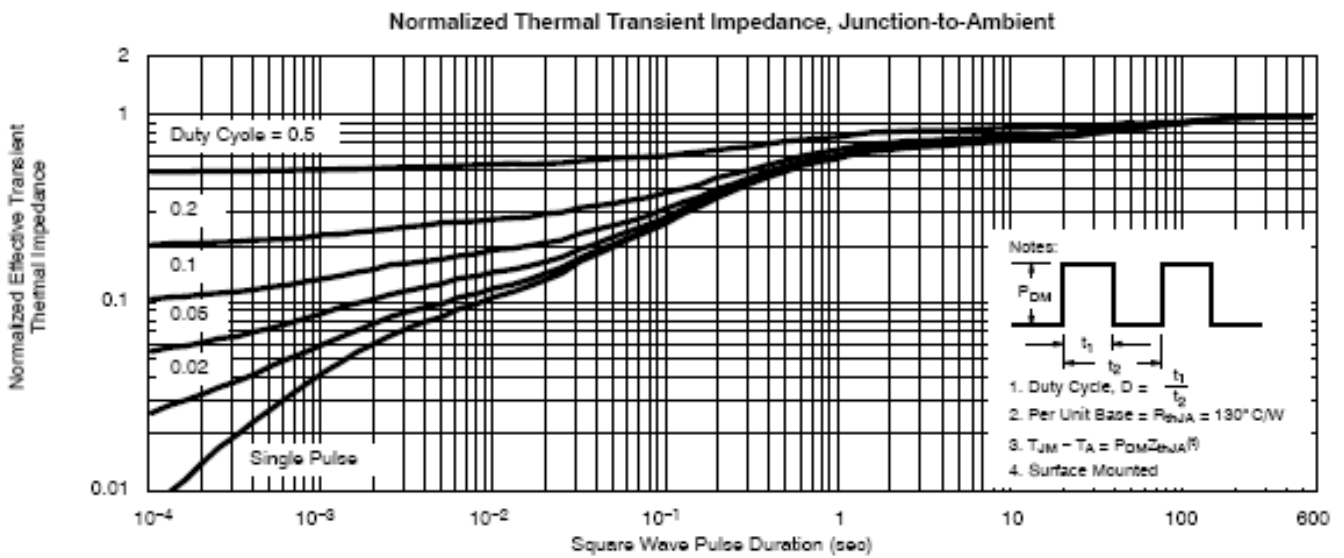
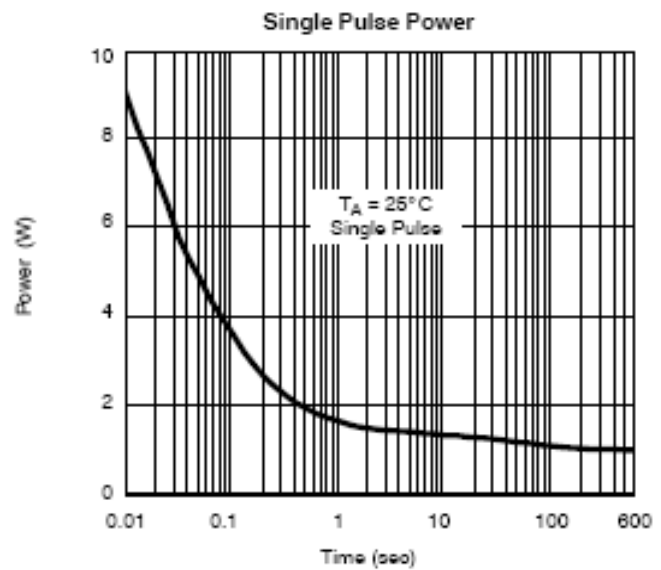
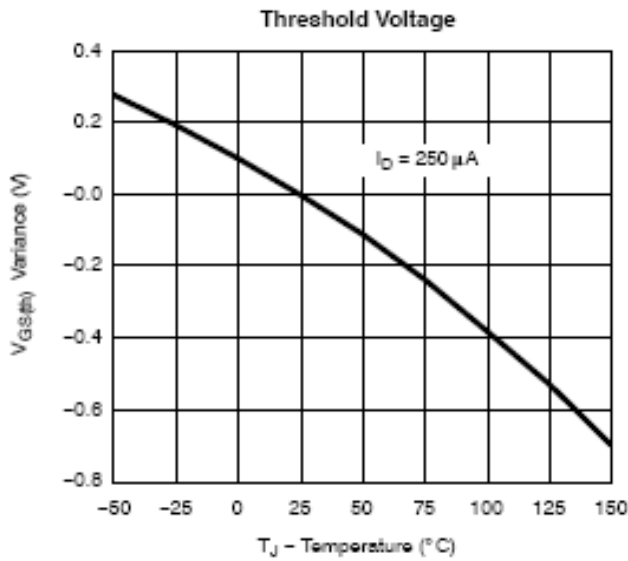




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### TYPICAL CHARACTERISTICS





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