



# SPN6338A

## Dual N-Channel Enhancement Mode MOSFET

### DESCRIPTION

The SPN6338A 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.

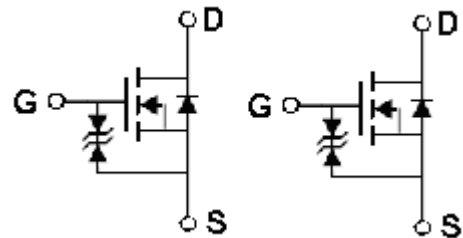
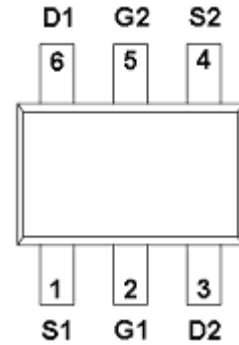
### FEATURES

- ◆ N-Channel  
20V/0.95A,  $R_{DS(ON)}=380m\Omega@V_{GS}=4.5V$   
20V/0.75A,  $R_{DS(ON)}=450m\Omega@V_{GS}=2.5V$   
20V/0.65A,  $R_{DS(ON)}=800m\Omega@V_{GS}=1.8V$
- ◆ Super high density cell design for extremely low  $R_{DS(ON)}$
- ◆ Exceptional on-resistance and maximum DC current capability
- ◆ ESD protected
- ◆ SOT-363 (SC-70-6L) 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-363/SC-70-6L)



### PART MARKING





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### PIN DESCRIPTION

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

### ORDERING INFORMATION

Part Number	Package	Part Marking
SPN6338AS36RGB	SOT-363	38A

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

※ SPN6338AS36RGB : 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	$V_{DSS}$	20	V
Gate –Source Voltage	$V_{GSS}$	$\pm 12$	V
Continuous Drain Current( $T_J=150^{\circ}\text{C}$ )	$I_D$	$T_A=25^{\circ}\text{C}$	1.2
		$T_A=80^{\circ}\text{C}$	0.9
Pulsed Drain Current	$I_{DM}$	4	A
Continuous Source Current(Diode Conduction)	$I_S$	0.6	A
Power Dissipation	$P_D$	$T_A=25^{\circ}\text{C}$	0.35
		$T_A=70^{\circ}\text{C}$	0.19
Operating Junction Temperature	$T_J$	-55/150	$^{\circ}\text{C}$
Storage Temperature Range	$T_{STG}$	-55/150	$^{\circ}\text{C}$



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### ELECTRICAL CHARACTERISTICS

(TA=25°C Unless otherwise noted)

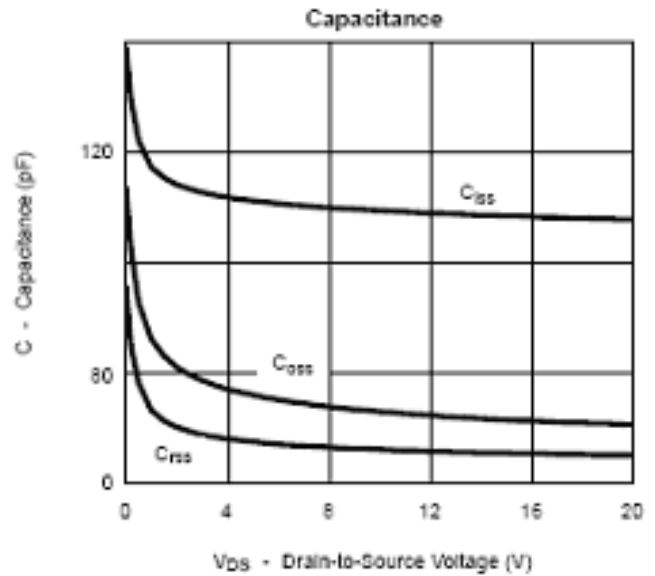
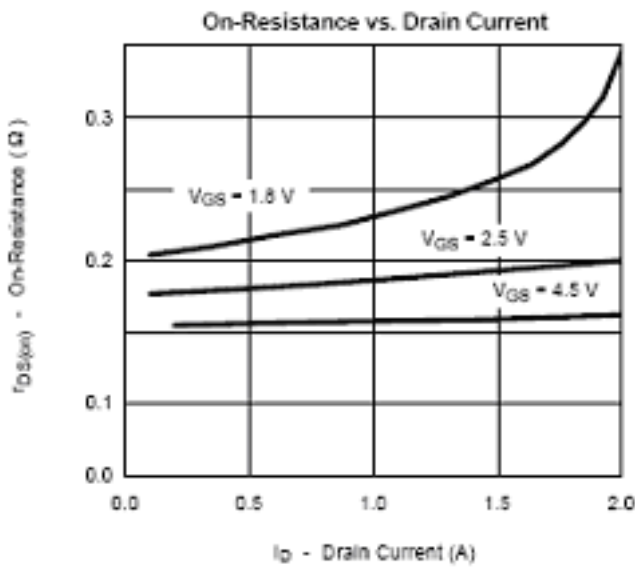
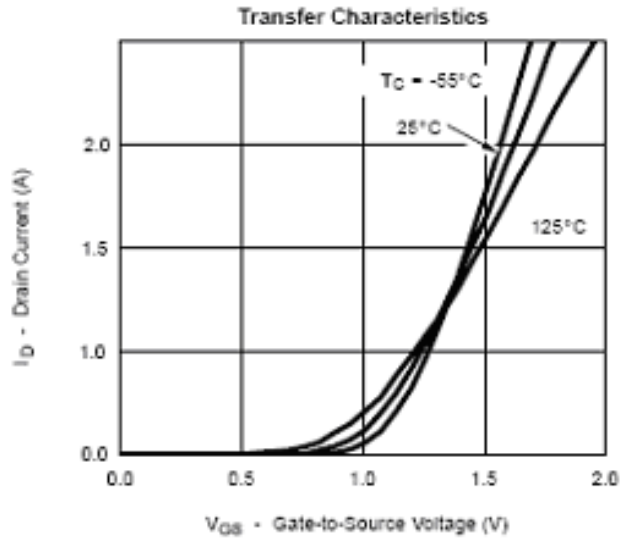
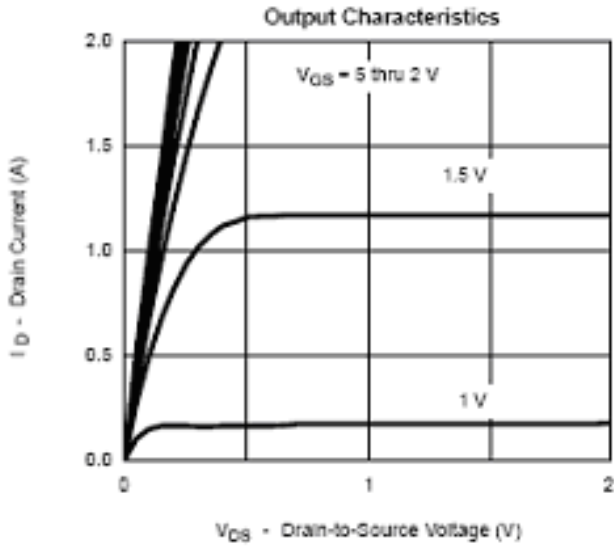
Parameter	Symbol	Conditions	Min.	Typ	Max.	Unit
<b>Static</b>						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS}=0V, I_D=250\mu A$	20			V
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=250\mu A$	0.35		1.0	
Gate Leakage Current	$I_{GSS}$	$V_{DS}=0V, V_{GS}=\pm 12V$			10	$\mu A$
Zero Gate Voltage Drain Current	$I_{DSS}$	$V_{DS}=16V, V_{GS}=0V$			1	$\mu A$
		$V_{DS}=16V, V_{GS}=0V$ $T_J=55^\circ C$			5	
On-State Drain Current	$I_{D(on)}$	$V_{DS} \geq 4.5V, V_{GS}=5V$	0.7			A
Drain-Source On-Resistance	$R_{DS(on)}$	$V_{GS}=4.5V, I_D=0.95A$		0.26	0.38	$\Omega$
		$V_{GS}=2.5V, I_D=0.75A$		0.32	0.45	
		$V_{GS}=1.8V, I_D=0.65A$		0.42	0.80	
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	$C_{iss}$	$V_{DS}=16V, f=1MHz,$ $V_{GS}=0V$		110		pF
Output Capacitance	$C_{oss}$			60		
Reverse Transfer Capacitance	$C_{rss}$			38		
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

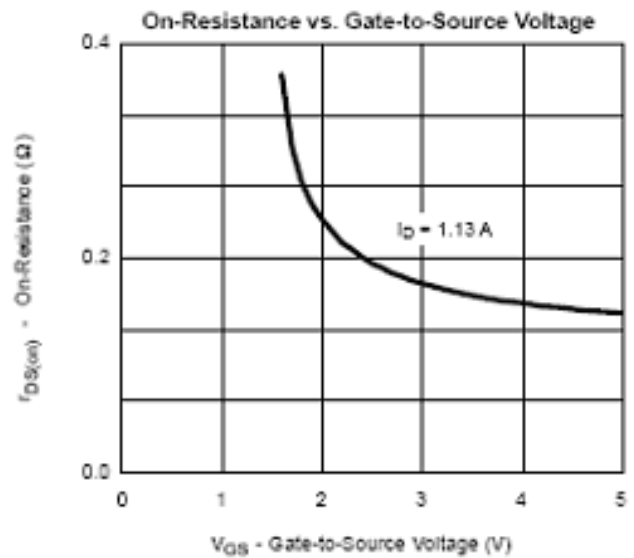
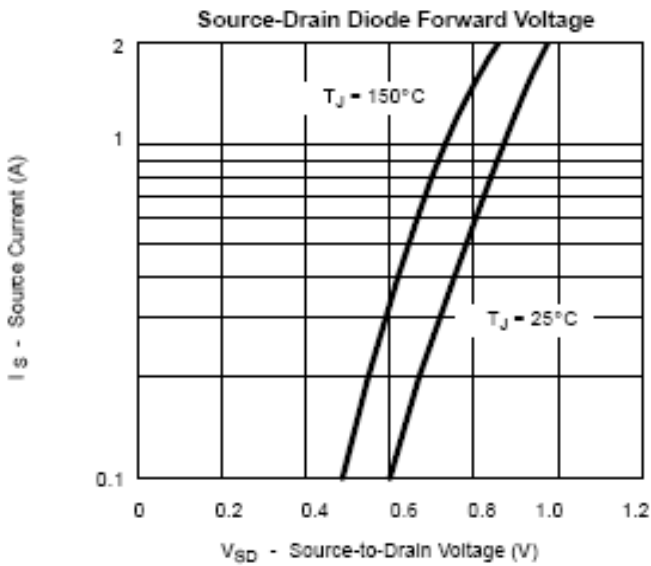
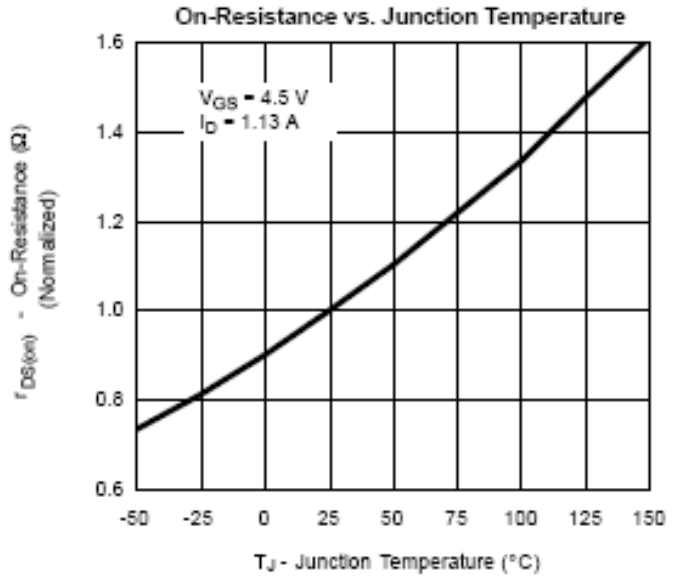
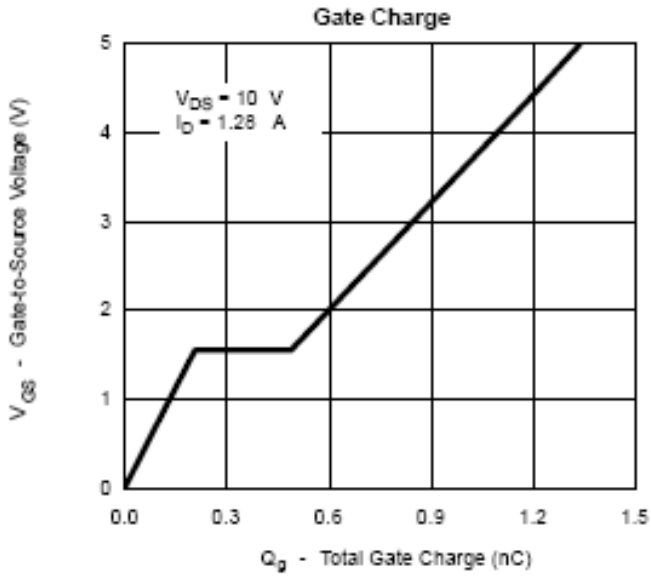




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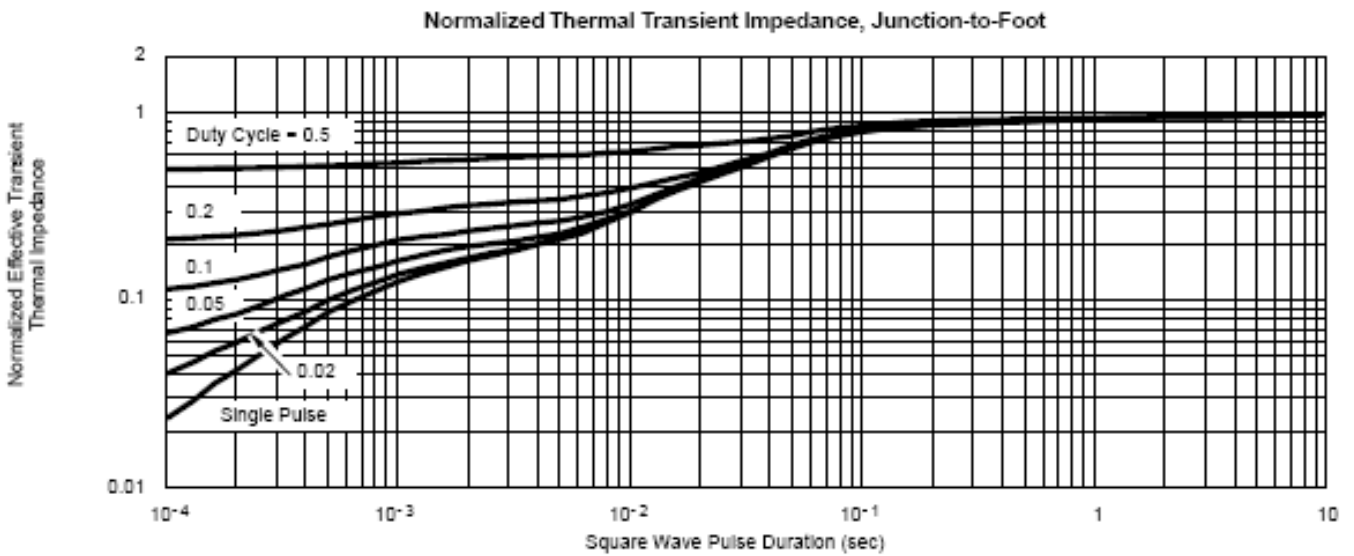
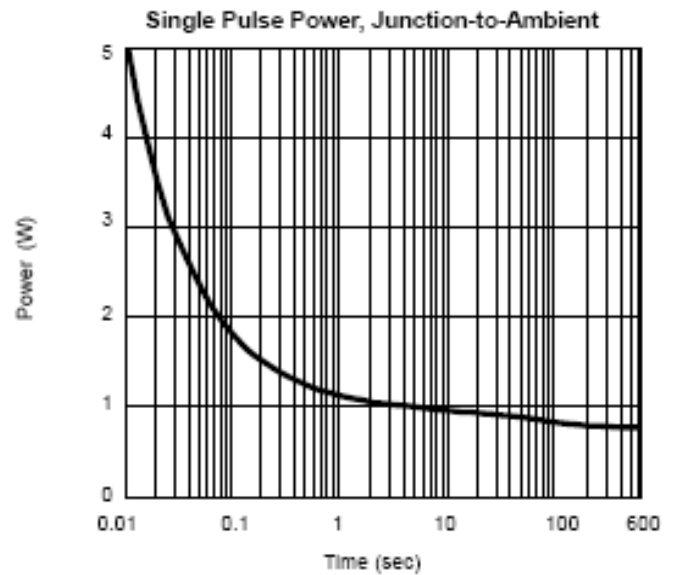
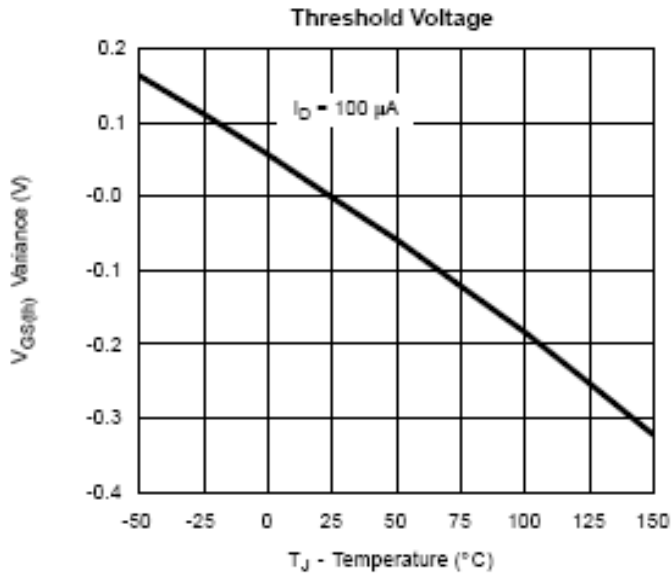




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### TYPICAL CHARACTERISTICS





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