SPN2322
Dual N-Channel Enhancement Mode MOSFET

DESCRIPTION

The SPN2322 is the Dual 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 notebook computer power management and other battery powered circuits where high-side switching, low in-line power loss, and resistance to transients are needed .

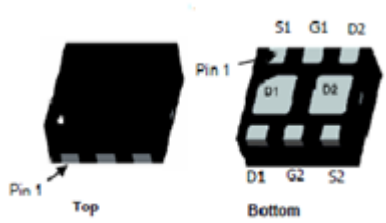
APPLICATIONS

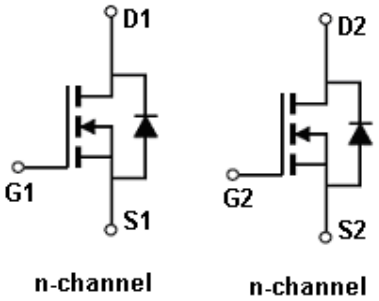
- Power Management in Note book
- Portable Equipment
- Battery Powered System
- DC/DC Converter
- Load Switch
- DSC
- LCD Display inverter

FEATURES

- 20V/4.0A,$R_{DS(ON)}$=26mΩ@V_{GS}=4.5V
- 20V/3.0A,$R_{DS(ON)}$=35mΩ@V_{GS}=2.5V
- 20V/2.0A,$R_{DS(ON)}$=50mΩ@V_{GS}=1.8V
- Super high density cell design for extremely low RDS (ON)
- Exceptional on-resistance and maximum DC current capability
- TDFN2X2-6L package design

PIN CONFIGURATION(TDFN2X2 –6L)





PART MARKING

Y : Year Code
W: Week Code

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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	Drain 1
Exposed Backside Metal	D1/D2	Drain

ORDERING INFORMATION

Part Number	Package	Part Marking
SPN2322TDN6RGB	TDFN6-2X2	2322YW

※ SPN2322TDN6RGB : Tape Reel ; Pb – Free ; Halogen – Free

ABSOULTE MAXIMUM RATINGS

(T_A=25℃ Unless otherwise noted)

Parameter		Symbol	Typical	Unit
Drain-Source Voltage		V_{DSS}	20	V
Gate –Source Voltage		V_{GSS}	±12	V
Continuous Drain Current(T_J=150℃)	T_A=25℃	I_D	4.5	A
	T_A=70℃		4.5	
Pulsed Drain Current		I_{DM}	20	A
Continuous Source Current(Diode Conduction)		I_S	1.6	A
Power Dissipation	T_A=25℃	P_D	1.9	W
	T_A=70℃		1.2	
Operating Junction Temperature		T_J	-55/150	℃
Storage Temperature Range		T_{STG}	-55/150	℃
Thermal Resistance-Junction to Ambient	T≦5sec	$R_{\theta JA}$	65	℃/W
	Steady State		95	

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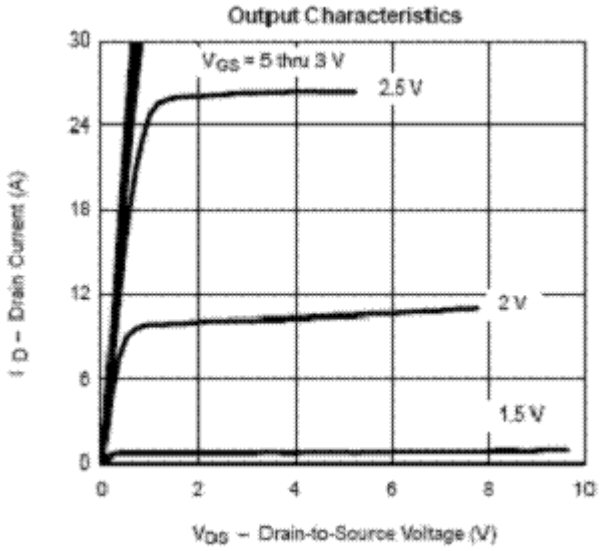
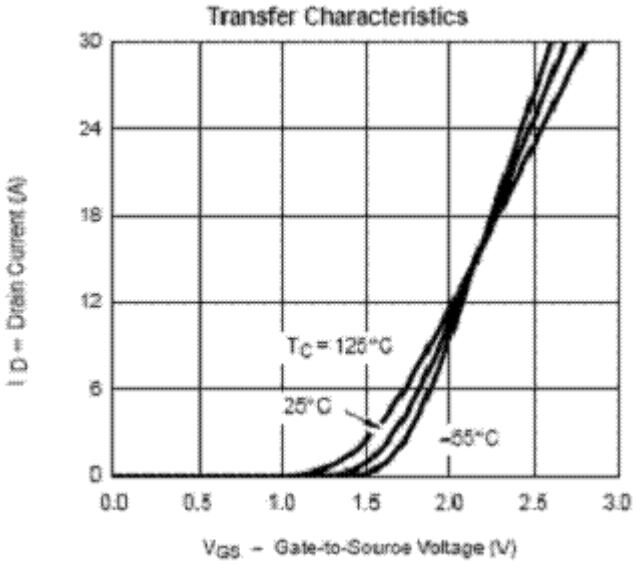
ELECTRICAL CHARACTERISTICS

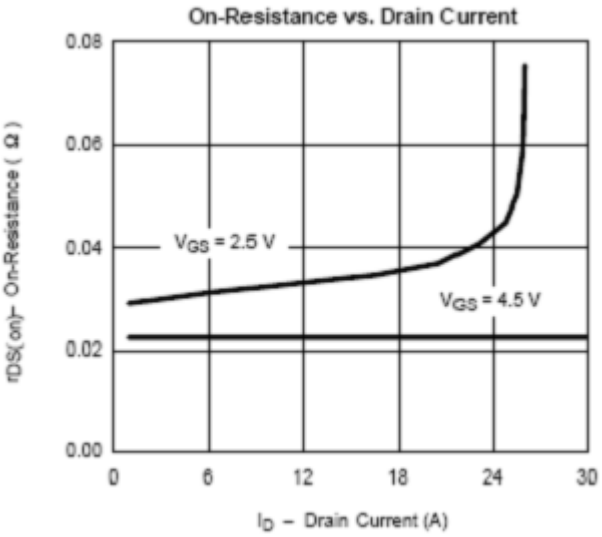
(T_A=25℃ Unless otherwise noted)

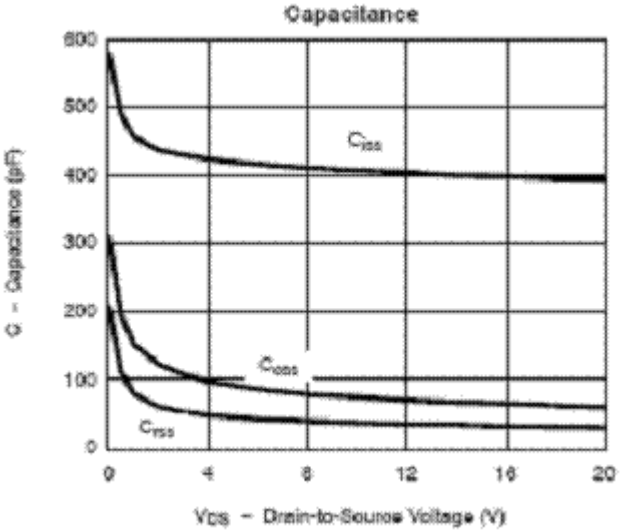
Parameter	Symbol	Conditions	Min.	Typ	Max.	Unit
Static						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	V_{GS}=0V,I_D=250uA	20			V
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS},I_D=250uA	0.4		1.0	
Gate Leakage Current	I_{GSS}	V_{DS}=0V,V_{GS}=±12V			100	nA
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=20V,V_{GS}=0V			1	uA
		V_{DS}=20V,V_{GS}=0V T_J=55℃			10	
On-State Drain Current	$I_{D(on)}$	V_{DS}≦4.5V,V_{GS}=5V	15			A
Drain-Source On-Resistance	$R_{DS(on)}$	V_{GS}=4.5V,I_D=4.0A			26	mΩ
		V_{GS}=2.5V,I_D=3.0A			35	
		V_{GS}=1.8V,I_D=2.0A			50	
Forward Transconductance	gfs	V_{DS}=5V,I_D=-3.5A		10		S
Diode Forward Voltage	V_{SD}	I_S=1A,V_{GS}=0V			1.0	V
Dynamic						
Total Gate Charge	Q_g	V_{DS}=15V, V_{GS}=4.5V, I_D=4.0A		8.6		nC
Gate-Source Charge	Q_{gs}			1.37		
Gate-Drain Charge	Q_{gd}			2.3		
Input Capacitance	C_{iss}	V_{DS}=8V,V_{GS}=0V f=1MHz		575		pF
Output Capacitance	C_{oss}			84		
Reverse Transfer Capacitance	C_{rss}			22		
Turn-On Time	$t_{d(on)}$	V_{DD}=10V, I_D≡3.0A, V_{GEN}=4.5V, R_G=3.3Ω		5.2		ns
	t_r			34		
Turn-Off Time	$t_{d(off)}$			23		
	t_f			9.2		

TYPICAL CHARACTERISTICS









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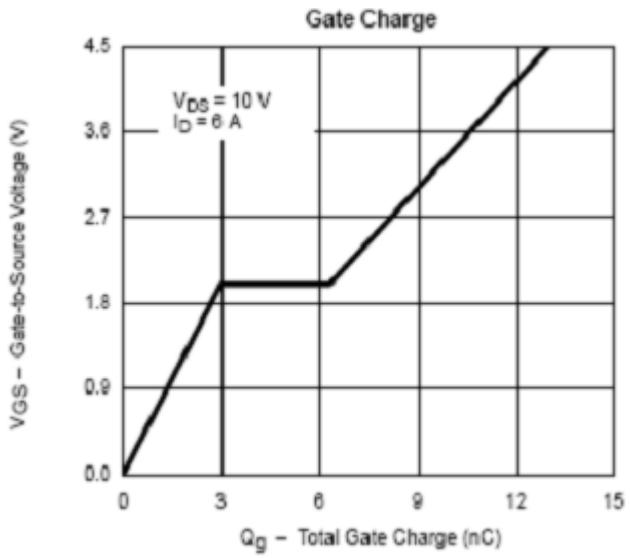

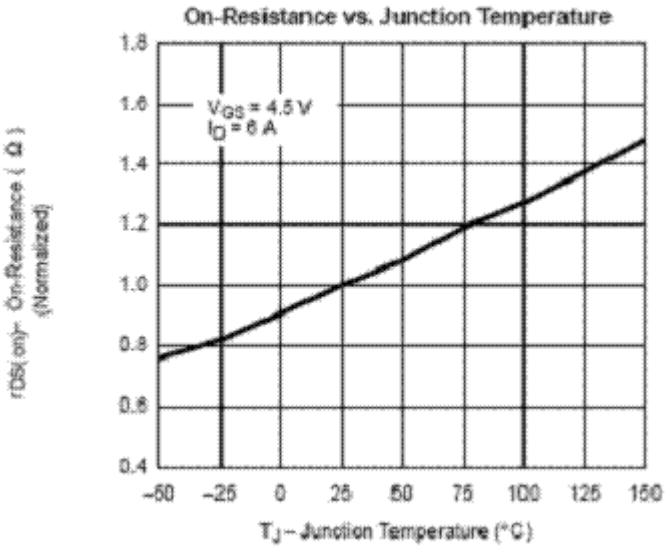

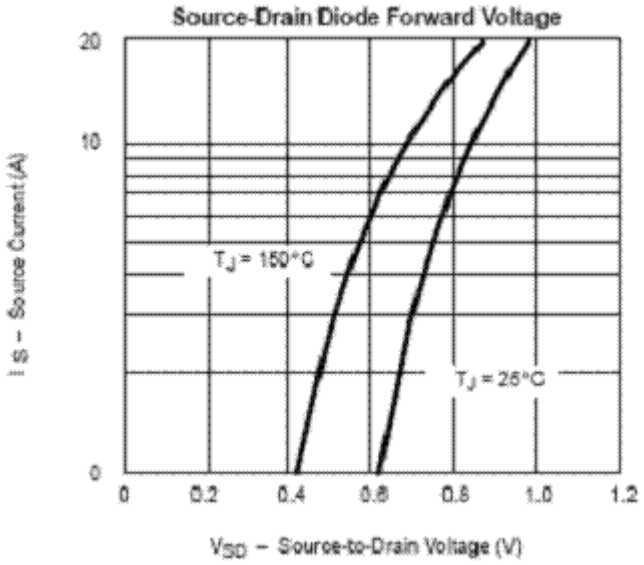

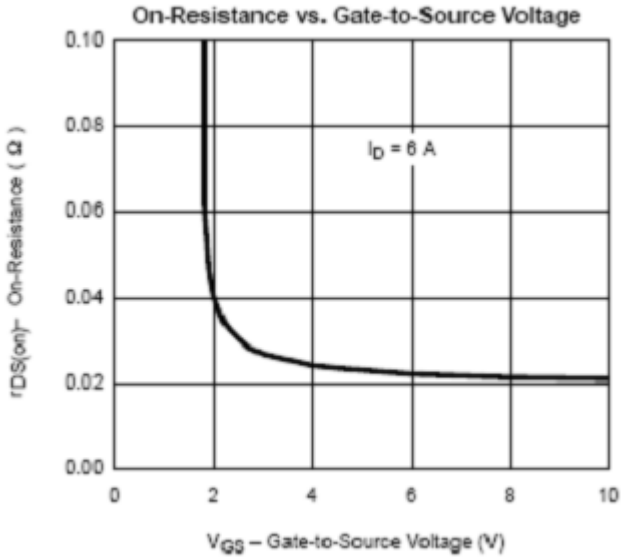

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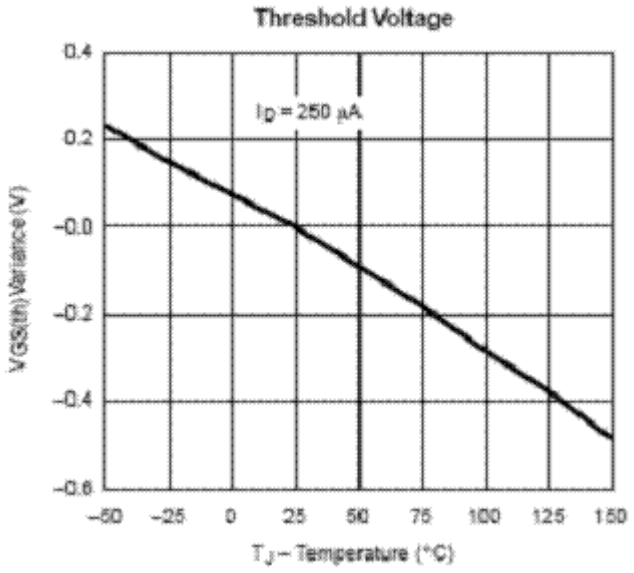
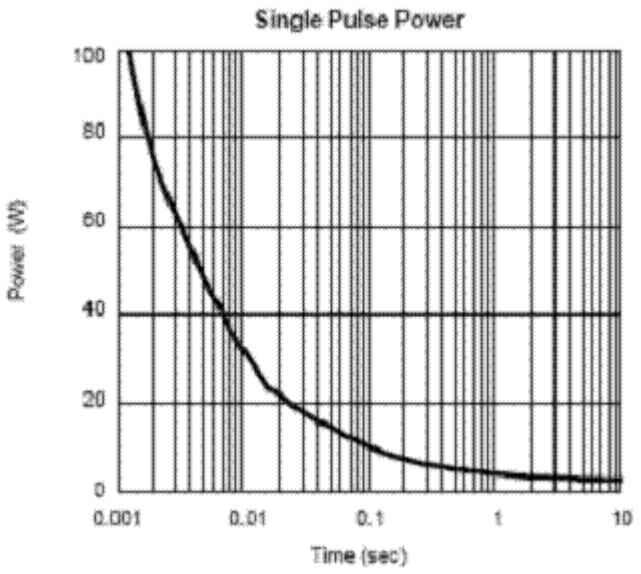
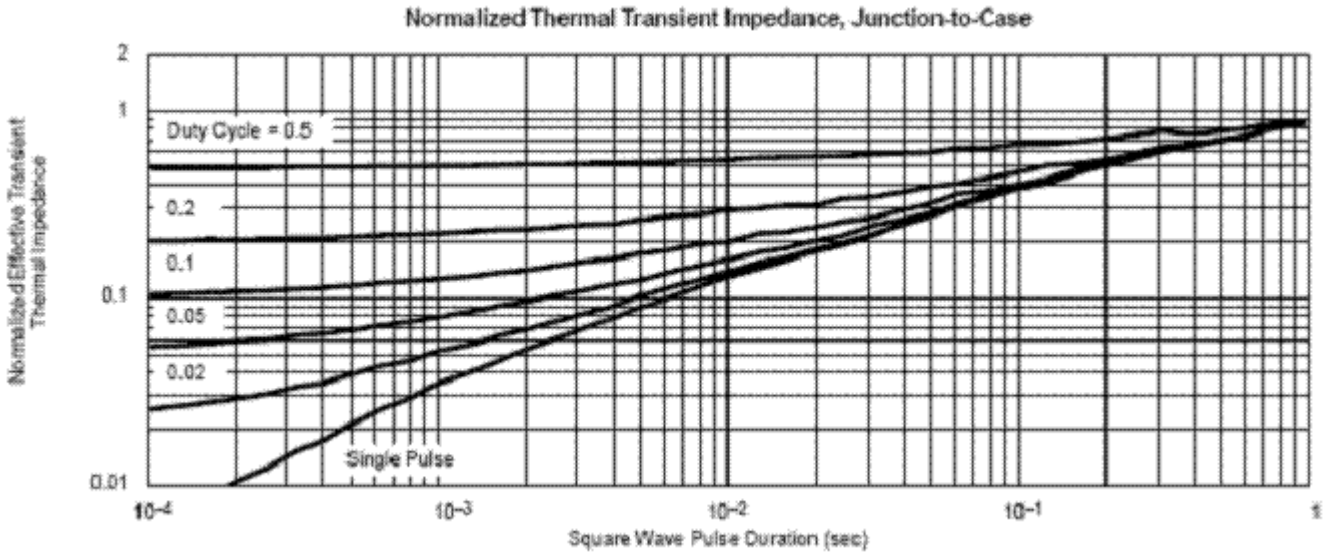
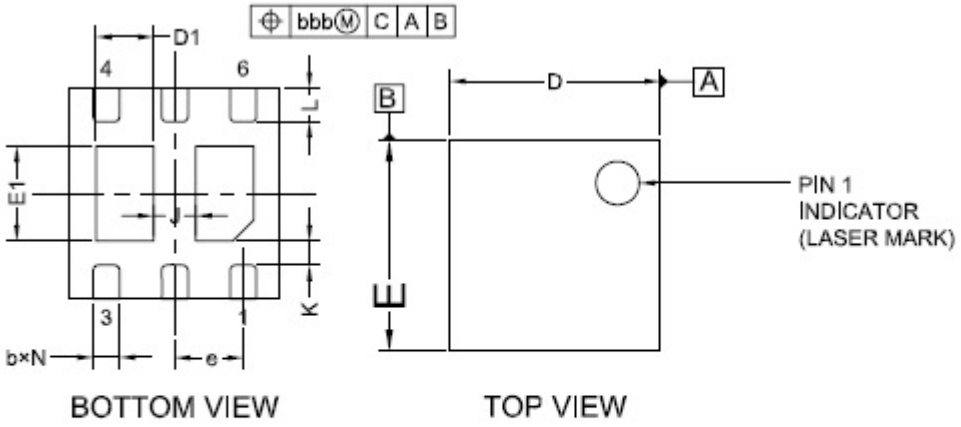
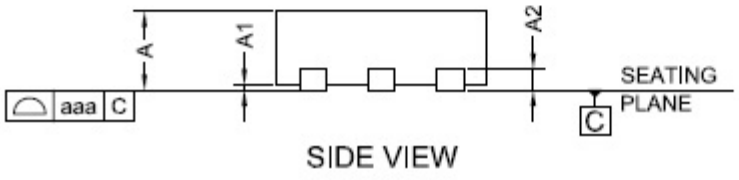






TDFN2X2-6L PACKAGE OUTLINE





COMMON DIMENSIONS

(UNITS OF MEASURE=MILLIMETER)

SYMBOL	MIN	TYP	MAX
A	0.70	0.75	0.80
A1	0.00	0.02	0.05
A2		0.203	
b	0.20	0.25	0.30
D	1.95	2.00	2.05
D1	0.50	0.55	0.60
E	1.95	2.00	2.05
E1	0.85	0.90	0.95
e		0.65BSC	
L	0.27	0.32	0.37
J		0.40BSC	
K		0.20MIN	
N		6	
aaa		0.08	
bbb		0.10	

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