



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 .

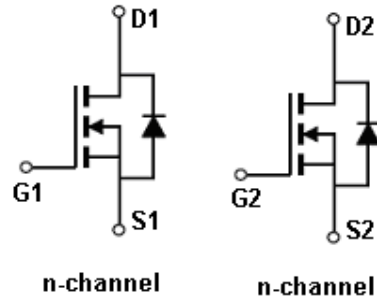
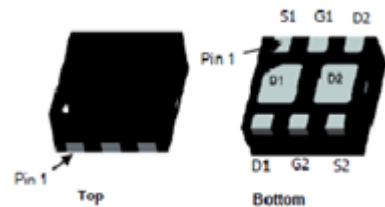
FEATURES

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

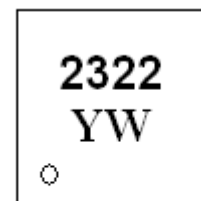
APPLICATIONS

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

PIN CONFIGURATION(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

ABSOLUTE MAXIMUM RATINGS

(TA=25°C 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°C)	I _D	TA=25°C	4.5
		TA=70°C	4.5
Pulsed Drain Current	I _{DM}	20	A
Continuous Source Current(Diode Conduction)	I _S	1.6	A
Power Dissipation	P _D	TA=25°C	1.9
		TA=70°C	1.2
Operating Junction Temperature	T _J	-55/150	°C
Storage Temperature Range	T _{STG}	-55/150	°C
Thermal Resistance-Junction to Ambient	R _{θJA}	T ≤ 5sec	65
		Steady State	95



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ELECTRICAL CHARACTERISTICS

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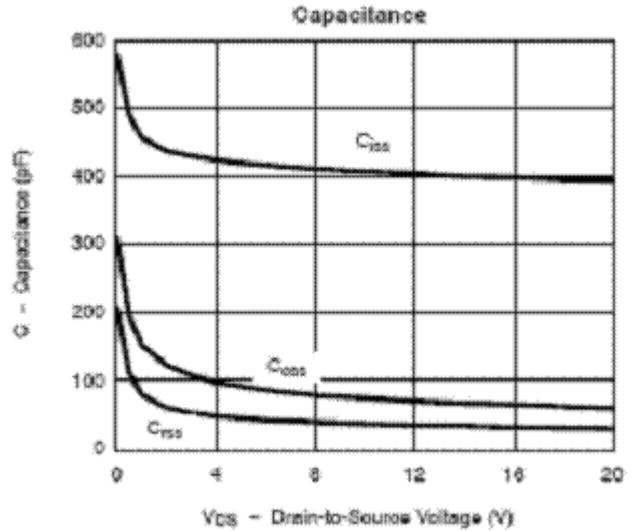
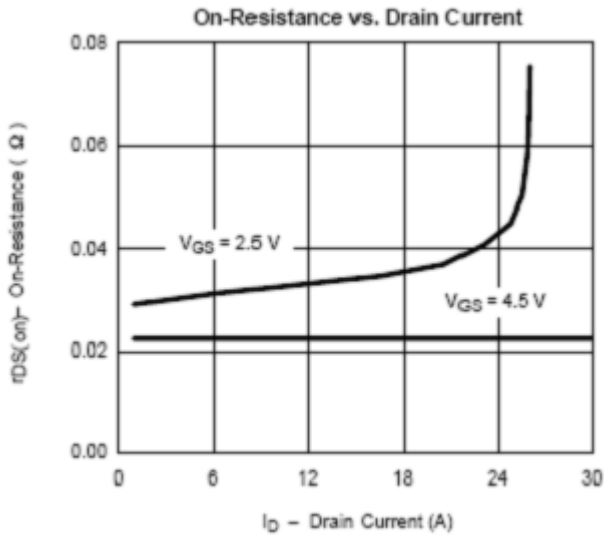
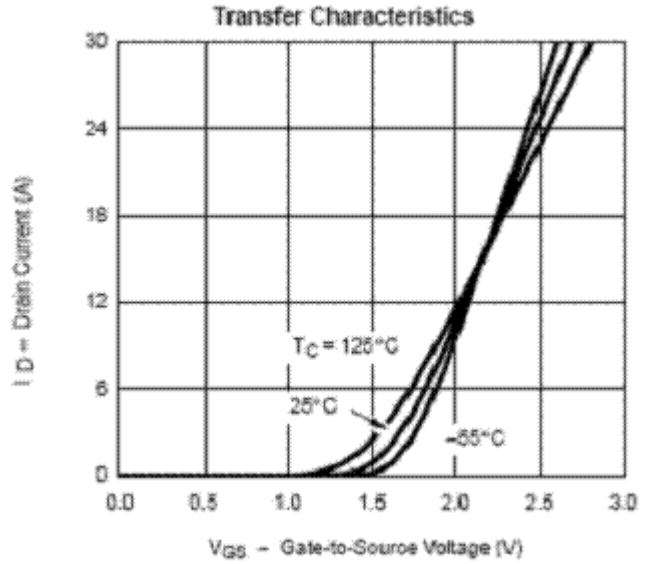
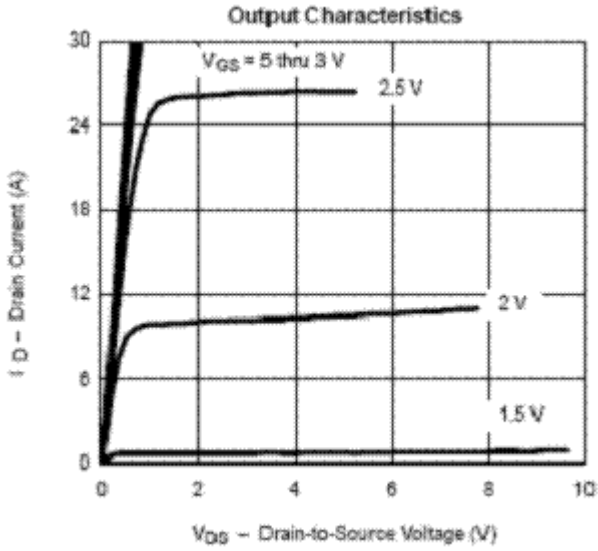
Parameter	Symbol	Conditions	Min.	Typ	Max.	Unit
Static						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS}=0V, I_D=250\mu A$	20			V
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=250\mu A$	0.4		1.0	V
Gate Leakage Current	I_{GSS}	$V_{DS}=0V, V_{GS}=\pm 12V$			100	nA
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=20V, V_{GS}=0V$			1	uA
		$V_{DS}=20V, V_{GS}=0V$ $T_J=55^\circ C$			10	
On-State Drain Current	$I_{D(on)}$	$V_{DS} \leq 4.5V, V_{GS}=5V$	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	g_{fs}	$V_{DS}=5V, I_D=-3.5A$		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	$t_{d(on)}$	$V_{DD}=10V, I_D=3.0A,$ $V_{GEN}=4.5V, R_G=3.3\Omega$		5.2		ns
	t_r			34		
Turn-Off Time	$t_{d(off)}$			23		
	t_f			9.2		



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TYPICAL CHARACTERISTICS

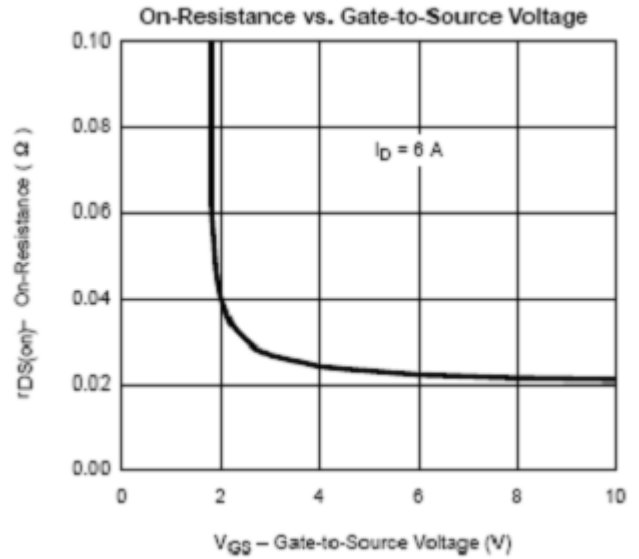
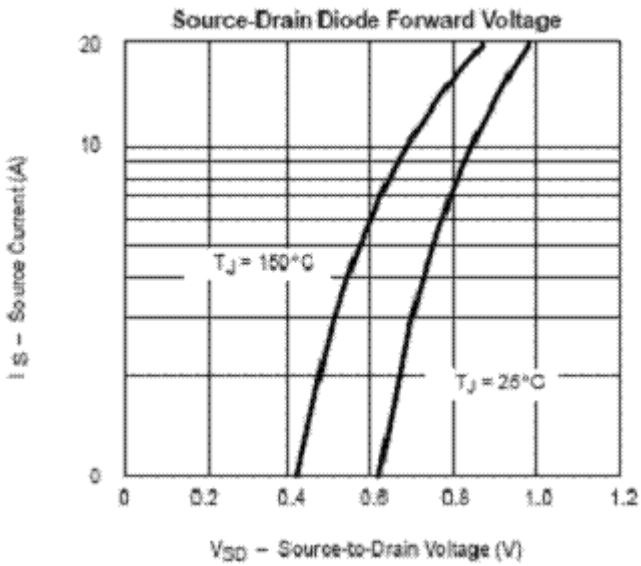
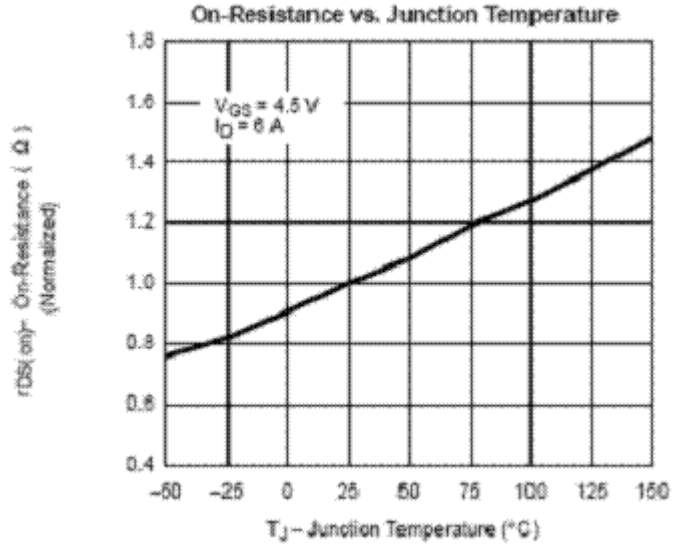
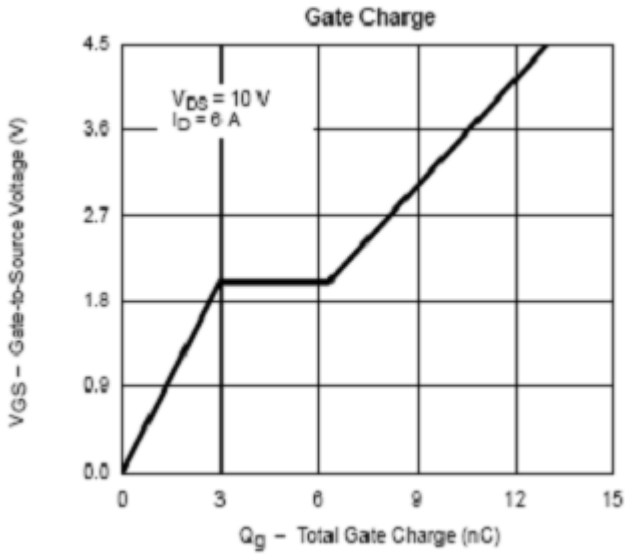




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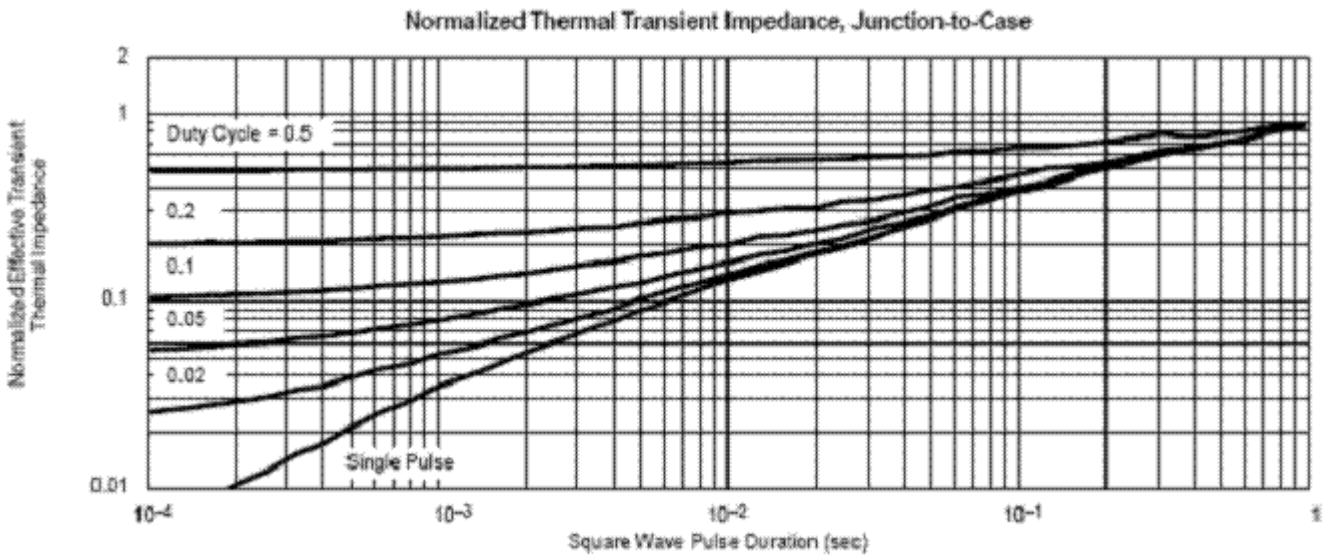
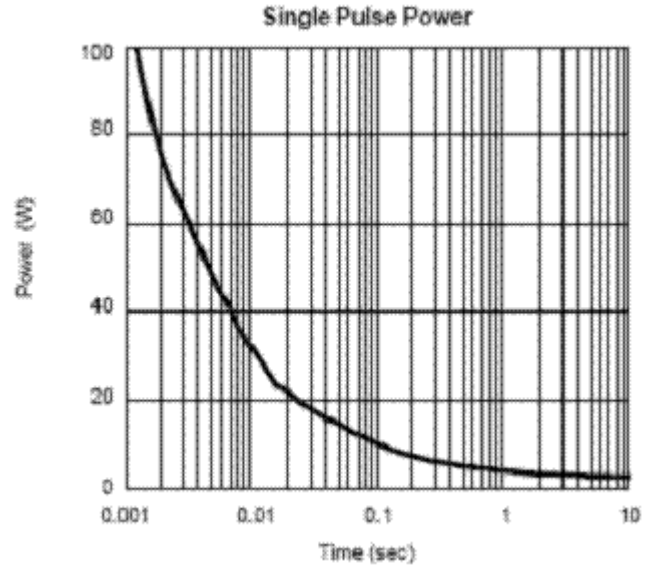
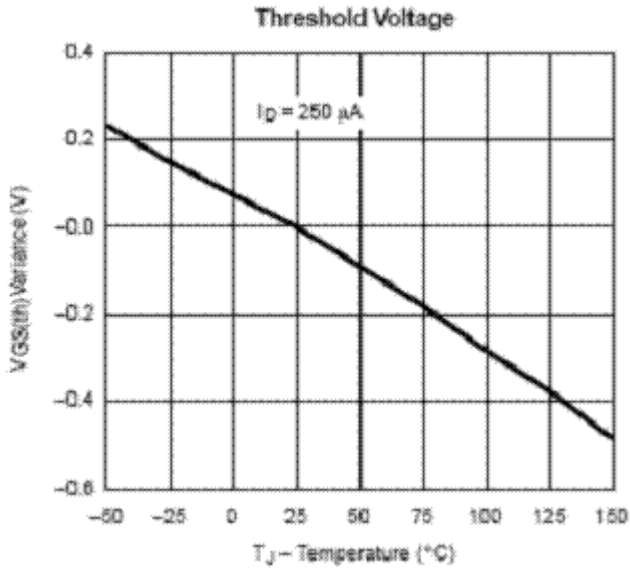




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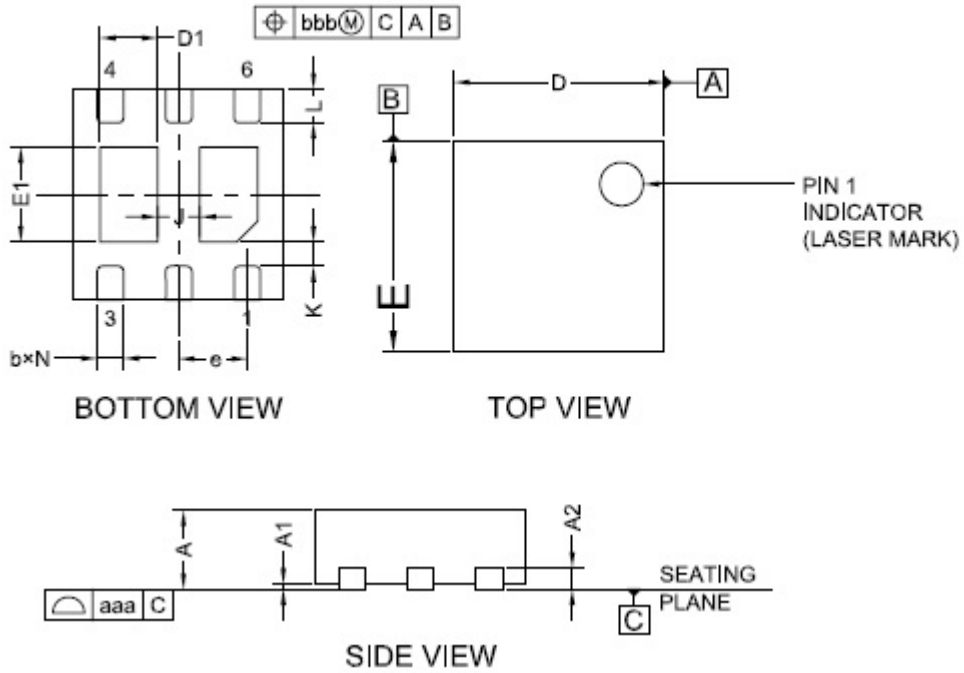




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TDFN2X2-6L PACKAGE OUTLINE



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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