



SPN2302D

N-Channel Enhancement Mode MOSFET

DESCRIPTION

The SPN2302D is the 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 such as cellular phone and notebook computer power management and other battery powered circuits, and low in-line power loss are needed in a very small outline surface mount package.

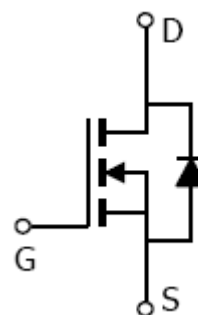
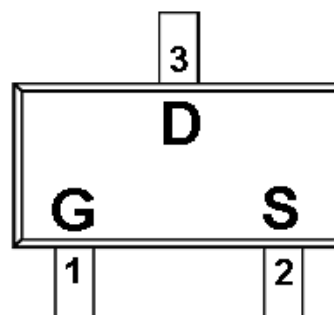
FEATURES

- ◆ 20V/3.6A, $R_{DS(ON)}=97m\Omega@V_{GS}=4.5V$
- ◆ 20V/3.1A, $R_{DS(ON)}=113m\Omega@V_{GS}=2.5V$
- ◆ 20V/2.8A, $R_{DS(ON)}=140m\Omega@V_{GS}=1.8V$
- ◆ Super high density cell design for extremely low $R_{DS(ON)}$
- ◆ Exceptional on-resistance and maximum DC current capability
- ◆ SOT-23 package design

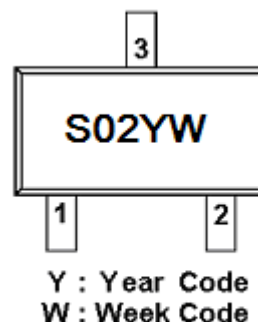
APPLICATIONS

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

PIN CONFIGURATION(SOT-23)



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
SPN2302DS23RGB	SOT-23	S02

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

※ SPN2302DS23RGB : 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)	T _A =25°C	I _D	3.2	A
	T _A =70°C		2.6	
Pulsed Drain Current		I _{DM}	10	A
Continuous Source Current(Diode Conduction)		I _S	1.6	A
Power Dissipation	T _A =25°C	P _D	1.25	W
	T _A =70°C		0.8	
Operating Junction Temperature		T _J	-55/150	°C
Storage Temperature Range		T _{STG}	-55/150	°C
Thermal Resistance-Junction to Ambient		R _{θJA}	100	°C/W



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ELECTRICAL CHARACTERISTICS

(T_A=25°C Unless otherwise noted)

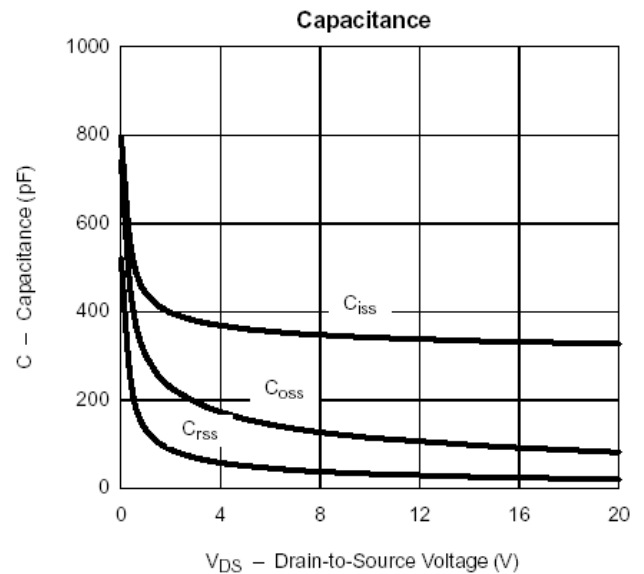
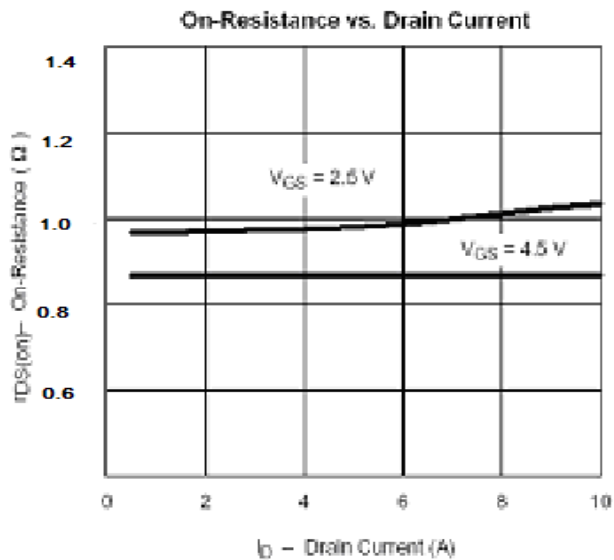
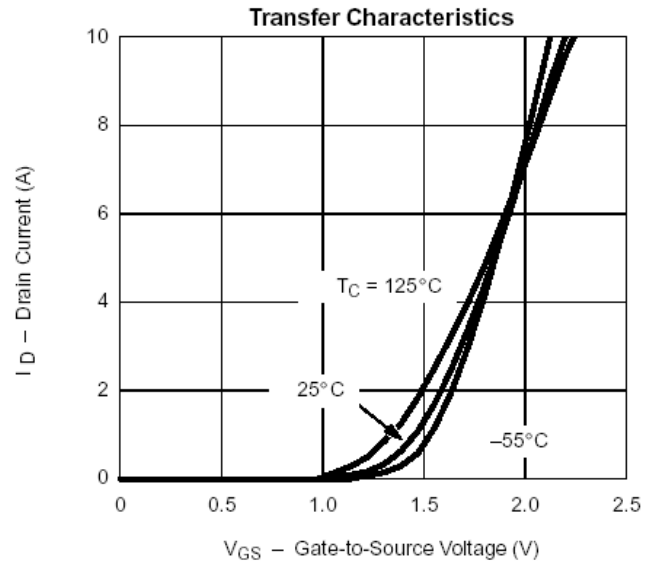
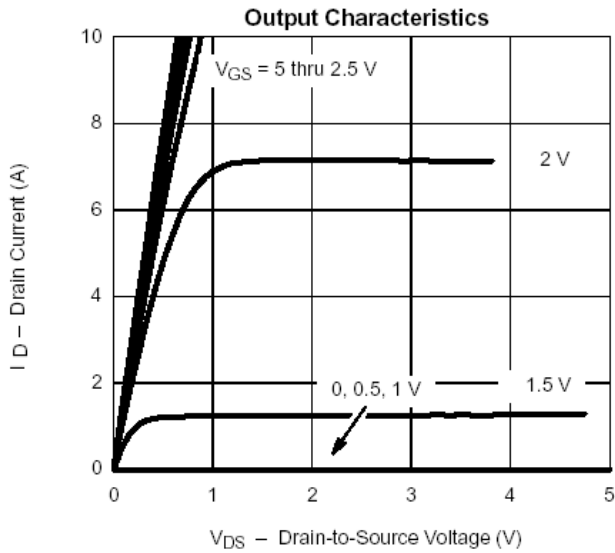
Parameter	Symbol	Conditions	Min.	Typ	Max.	Unit
Static						
Drain-Source Breakdown Voltage	V _{(BR)DSS}	V _{GS} =0V, I _D =250μA	20			V
Gate Threshold Voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =250μA	0.45		1.2	
Gate Leakage Current	I _{GSS}	V _{DS} =0V, V _{GS} =±12V			±100	nA
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =20V, V _{GS} =0V			1	μA
		V _{DS} =20V, V _{GS} =0V T _J =55°C			10	
On-State Drain Current	I _{D(on)}	V _{DS} ≥ 5V, V _{GS} =4.5V	6			A
		V _{DS} ≥ 5V, V _{GS} =2.5V	4			
Drain-Source On-Resistance	R _{DS(on)}	V _{GS} =4.5V, I _D =3.6A		0.085	0.097	Ω
		V _{GS} =2.5V, I _D =3.1A		0.100	0.113	
		V _{GS} =1.8V, I _D =2.8A		0.132	0.140	
Forward Transconductance	g _{fs}	V _{DS} =5V, I _D =3.6A		10		S
Diode Forward Voltage	V _{SD}	I _S =1.6A, V _{GS} =0V		0.85	1.2	V
Dynamic						
Total Gate Charge	Q _g	V _{DS} =10V, V _{GS} =4.5V I _D =3.6A		5.4	10	nC
Gate-Source Charge	Q _{gs}			0.65		
Gate-Drain Charge	Q _{gd}			1.4		
Input Capacitance	C _{iss}	V _{DS} =10V, V _{GS} =0V f=1MHz		340		pF
Output Capacitance	C _{oss}			115		
Reverse Transfer Capacitance	C _{rss}			33		
Turn-On Time	t _{d(on)}	V _{DD} =10V, R _L =5.5Ω I _D =3.6A, V _{GEN} =4.5V R _G =6Ω		12	25	nS
	t _r			36	60	
Turn-Off Time	t _{d(off)}			34	60	
	t _f			10	25	



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TYPICAL CHARACTERISTICS

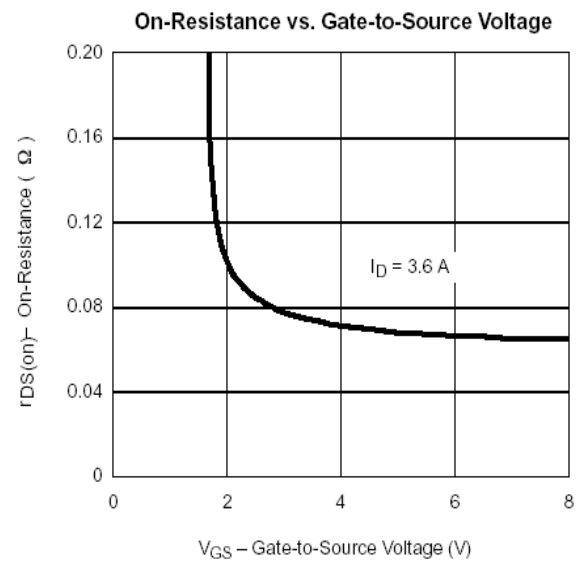
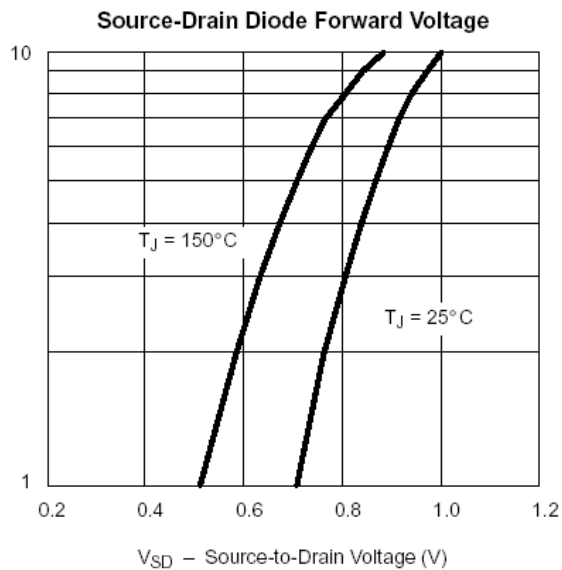
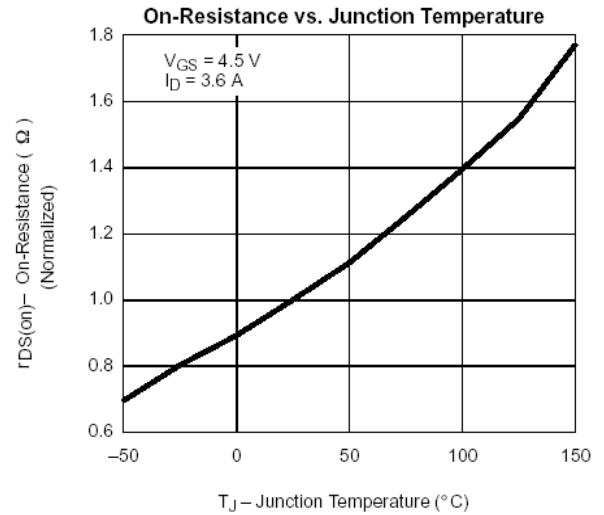
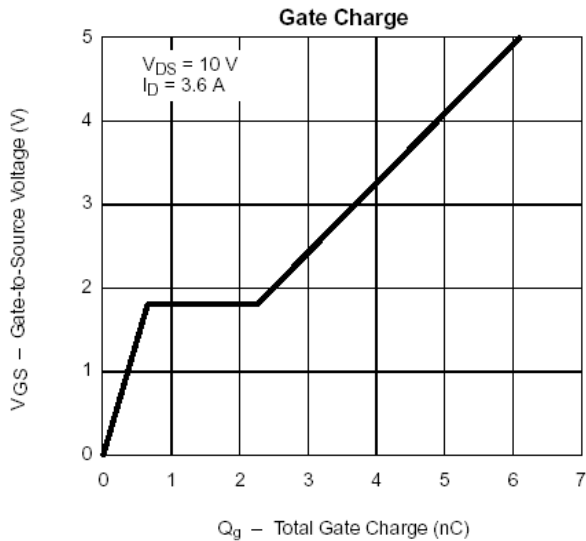




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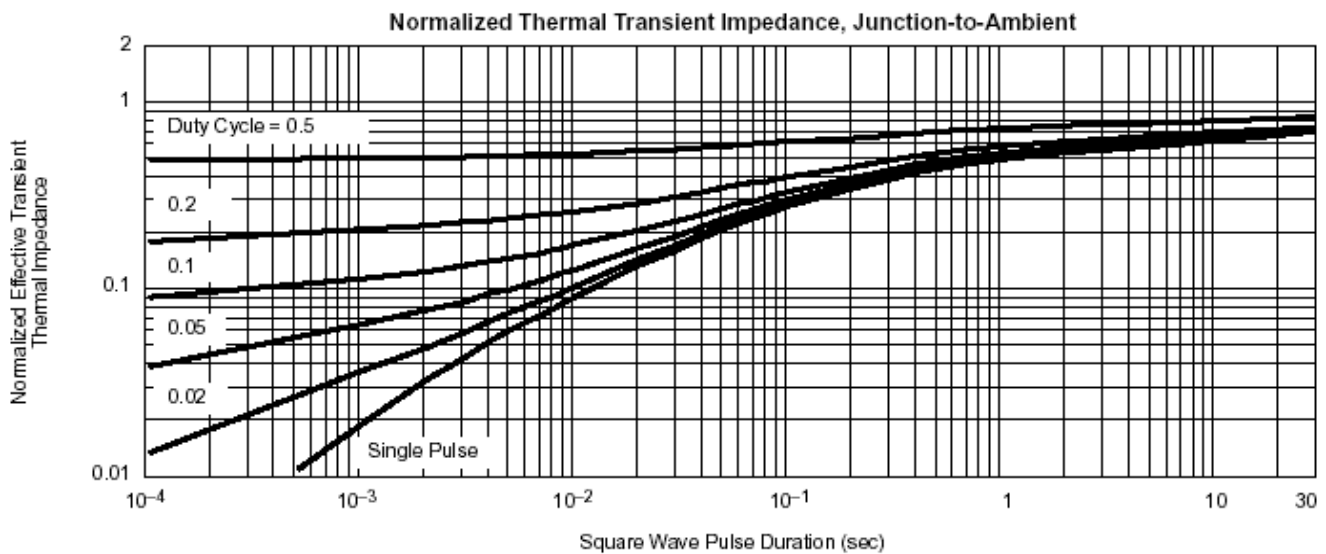
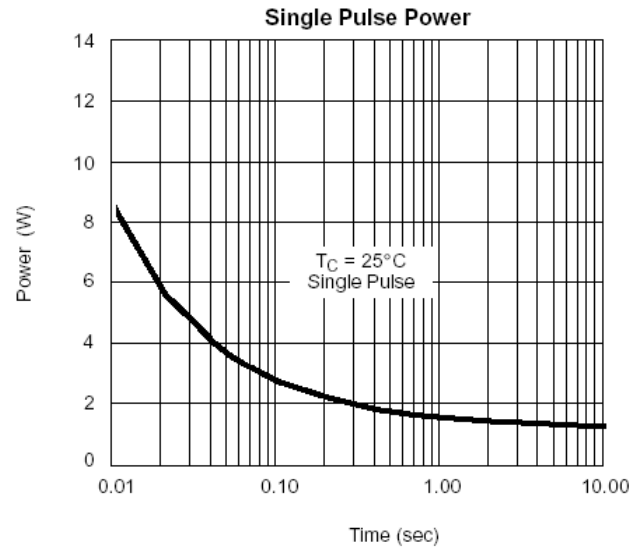
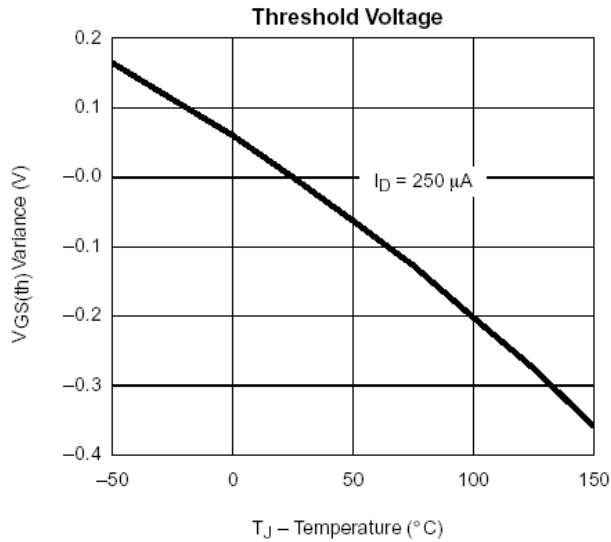




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TYPICAL CHARACTERISTICS





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SYNC Power Corporation

7F-2, No.3-1, Park Street

NanKang District (NKSP), Taipei, Taiwan, 115, R.O.C

Phone: 886-2-2655-8178

Fax: 886-2-2655-8468

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