



SPN8206

Common-Drain Dual N-Channel Enhancement Mode MOSFET

DESCRIPTION

The SPN8206 is the Common-Drain 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.

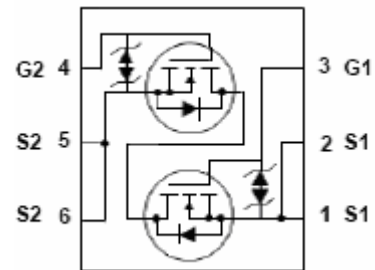
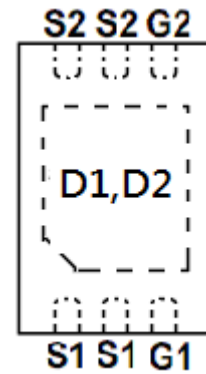
FEATURES

- ◆ 20V/5.0A, $R_{DS(ON)} = 8.2m\Omega @ V_{GS} = 4.5V$
- ◆ 20V/3.0A, $R_{DS(ON)} = 11.0m\Omega @ V_{GS} = 2.5V$
- ◆ Super high density cell design for extremely low RDS (ON)
- ◆ Exceptional on-resistance and maximum DC current capability
- ◆ ESD capability 2KV
- ◆ TDFN -6P package design

APPLICATIONS

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

PIN CONFIGURATION(TDFN- 6P)



PART MARKING





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PIN DESCRIPTION

Pin	Symbol	Description
1	S1	Source
2	S1	Source
3	G1	Gate
4	G2	Gate
5	S2	Source
6	S2	Source
Exposed Backside Metal	D1/D2	Drain

ORDERING INFORMATION

Part Number	Package	Part Marking
SPN8206TDN6RGB	TDFN- 6P	8206

※ SPN8206TDN6RGB : 7" 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	11
		TA=70°C	8.0
Pulsed Drain Current	I _{DM}	70	A
Power Dissipation	P _D	TA=25°C	1.5
		TA=70°C	1.0
Operating Junction Temperature	T _J	-55/150	°C
Storage Temperature Range	T _{STG}	-55/150	°C
Thermal Resistance-Junction to Ambient	R _{θJA}	80	°C/W



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ELECTRICAL CHARACTERISTICS

(TA=25°C Unless otherwise noted)

Parameter	Symbol	Conditions	Min.	Typ	Max.	Unit
Static						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS}=0V, I_D=250\mu A$	20			V
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=250\mu A$	0.5		1.5	
Gate Leakage Current	I_{GSS}	$V_{DS}=0V, V_{GS}=\pm 12V$			± 10	μA
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=16V, V_{GS}=0.0V$			1	μA
		$V_{DS}=16V, V_{GS}=0.0V$ $T_J=55^\circ C$			10	
Drain-Source On-Resistance	$R_{DS(on)}$	$V_{GS} = 4.5V, I_D=5.5A$			8.2	m Ω
		$V_{GS} = 4.0V, I_D=5.5A$			8.5	
		$V_{GS} = 3.7V, I_D=5.5A$			9.0	
		$V_{GS} = 3.1V, I_D=5.5A$			9.4	
		$V_{GS} = 2.5V, I_D=5.5A$			11.0	
Diode Forward Voltage	V_{SD}	$I_S=1A, V_{GS}=0V$			1.2	V
Dynamic						
Total Gate Charge	Q_g	$V_{DS}=16V, V_{GS}=4.5V$ $I_D=11A$		15		nC
Gate-Source Charge	Q_{gs}			3		
Gate-Drain Charge	Q_{gd}			7		
Input Capacitance	C_{iss}	$V_{DS}=10V, V_{GS}=0V$ $f=1MHz$		1310		pF
Output Capacitance	C_{oss}			264		
Reverse Transfer Capacitance	C_{rss}			235		
Turn-On Time	$t_{d(on)}$	$V_{DS}=16V, I_D=5.5A,$ $V_{GS}=4.5V, R_G=6.0\Omega$		31		ns
	t_r			87		
Turn-Off Time	$t_{d(off)}$			69		
	t_f			37		

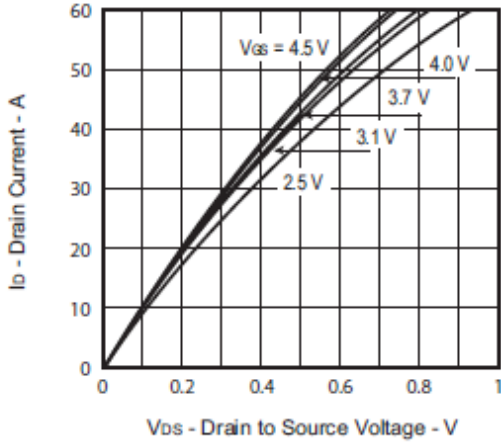


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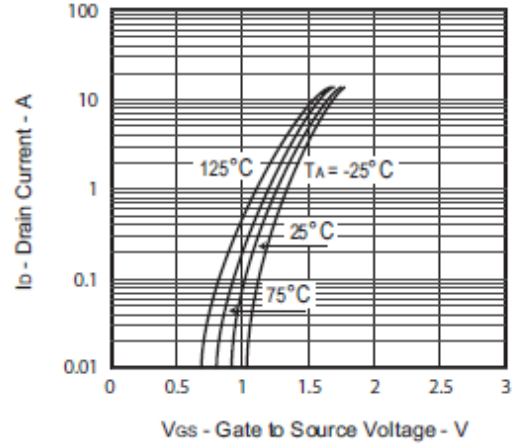
Common-Drain Dual N-Channel Enhancement Mode MOSFET

TYPICAL CHARACTERISTICS

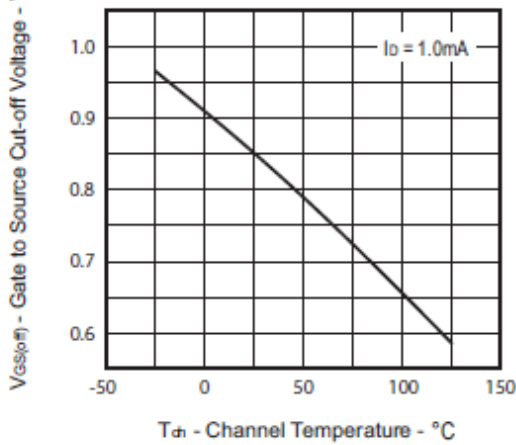
DRAIN CURRENT vs. DRAIN TO SOURCE VOLTAGE



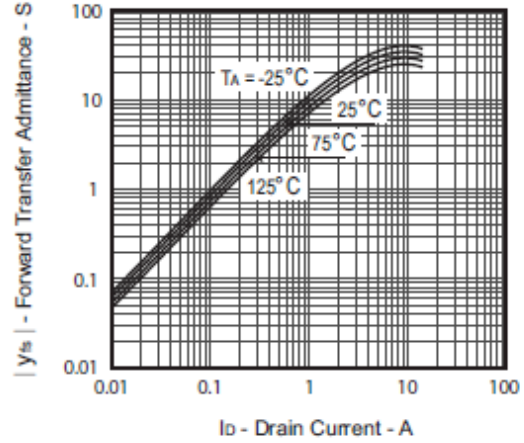
FORWARD TRANSFER CHARACTERISTICS



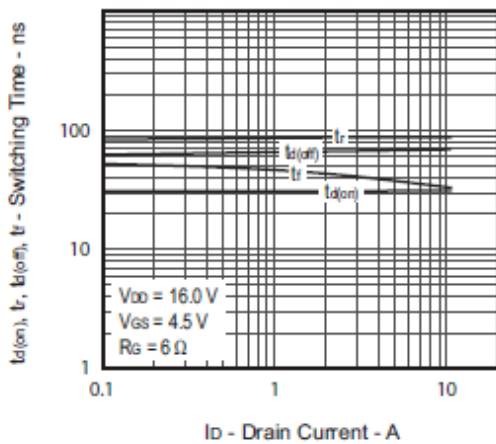
GATE TO SOURCE CUT-OFF VOLTAGE vs. CHANNEL TEMPERATURE



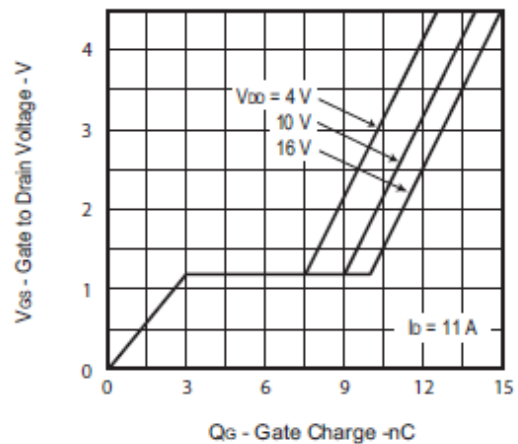
FORWARD TRANSFER ADMITTANCE vs. DRAIN CURRENT



SWITCHING CHARACTERISTICS



DYNAMIC INPUT CHARACTERISTICS

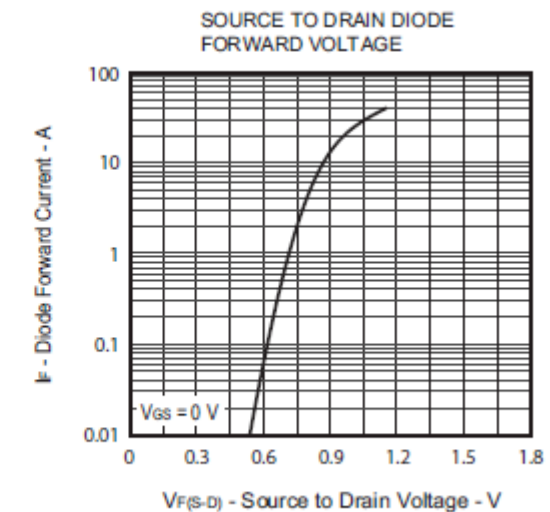
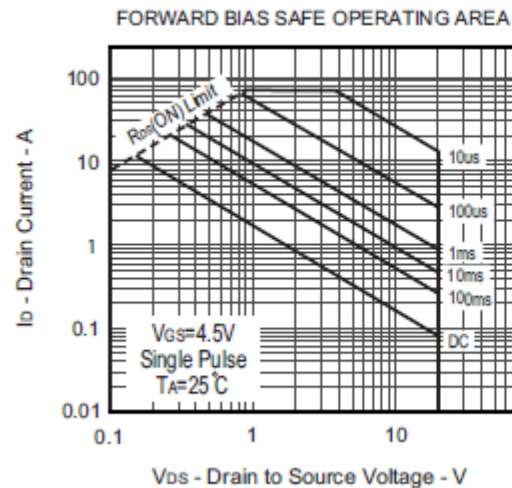
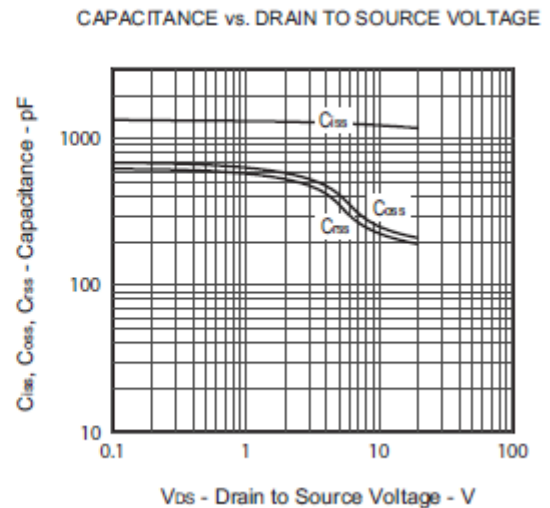
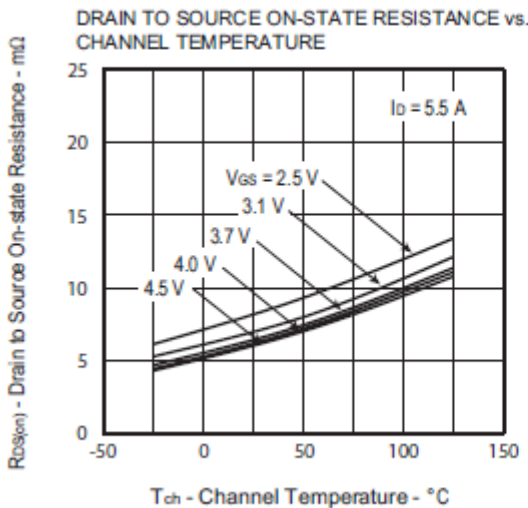
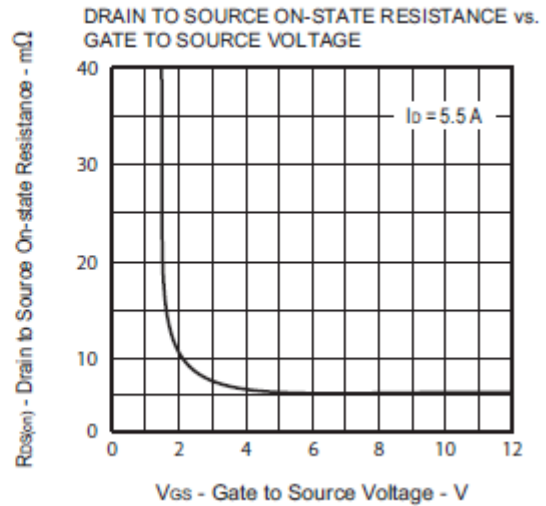
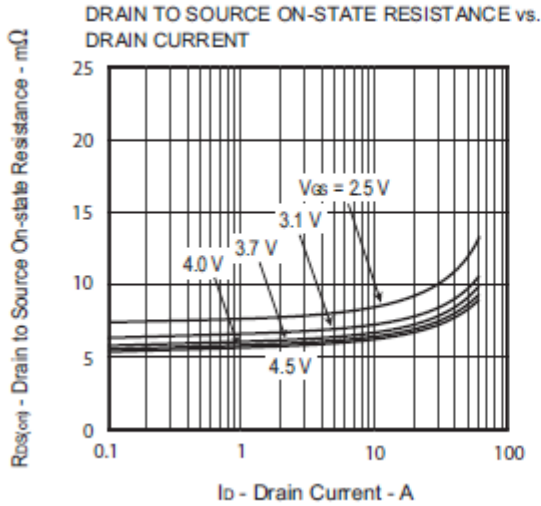




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TYPICAL CHARACTERISTICS



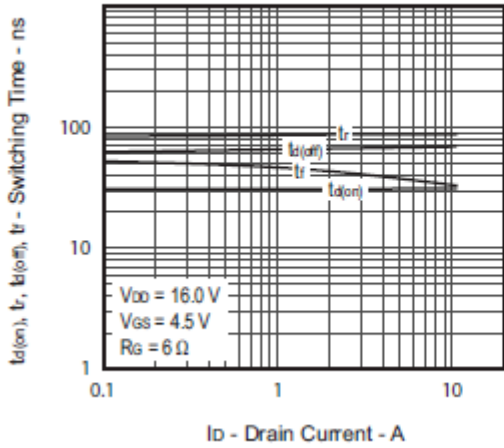


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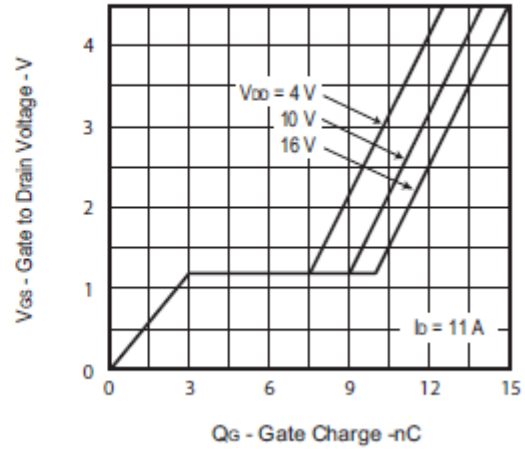
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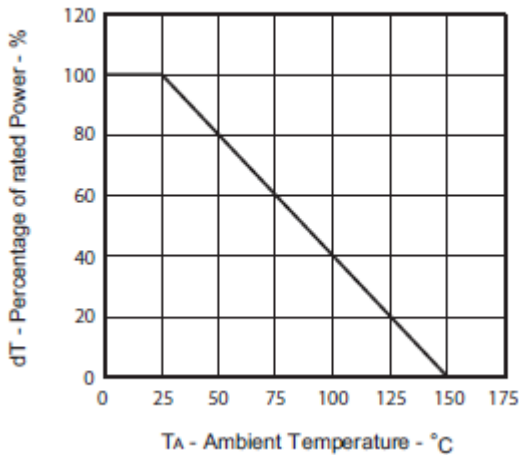
SWITCHING CHARACTERISTICS



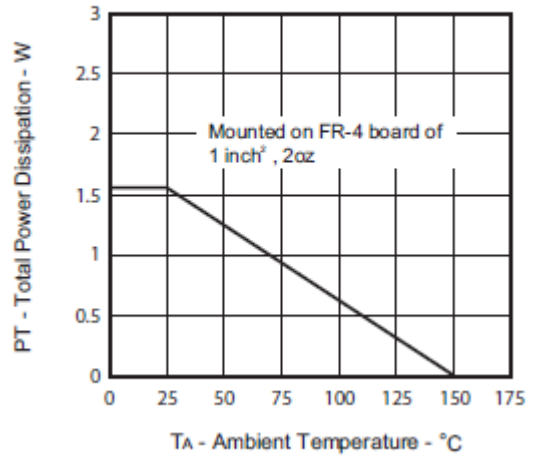
DYNAMIC INPUT CHARACTERISTICS



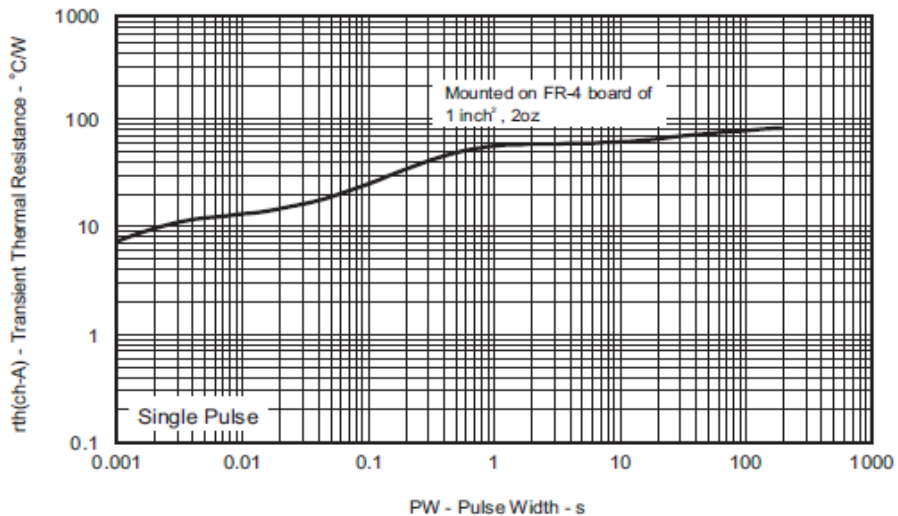
DERATING FACTOR OF FORWARD BIAS SAFE OPERATING AREA



TOTAL POWER DISSIPATION vs. AMBIENT TEMPERATURE



TRANSIENT THERMAL RESISTANCE vs. PULSE WIDTH

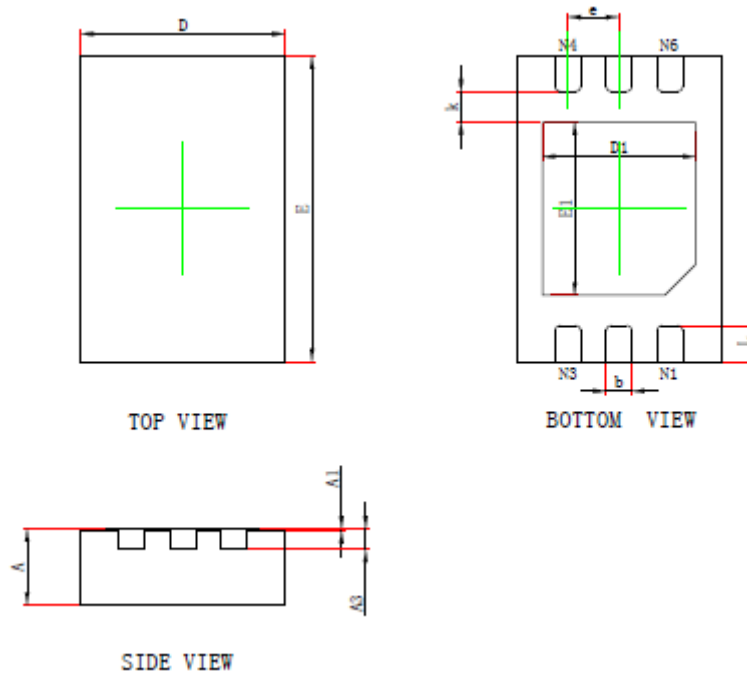




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TDFN- 6P PACKAGE OUTLINE



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.700	0.800	0.028	0.031
A1	0.000	0.050	0.000	0.002
A3	0.203REF.		0.008REF.	
D	1.950	2.050	0.077	0.081
E	2.950	3.050	0.116	0.120
D1	1.450	1.550	0.057	0.061
E1	1.650	1.750	0.065	0.069
k	0.200MIN.		0.008MIN.	
b	0.200	0.300	0.008	0.012
e	0.500TYP.		0.020TYP.	
L	0.300	0.400	0.012	0.016



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