SPN6001
N-Channel Enhancement Mode MOSFET

DESCRIPTION

The SPN6001 is the N-Channel enhancement mode field effect transistors that are produced using high cell density DMOS technology.

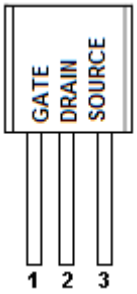
APPLICATIONS

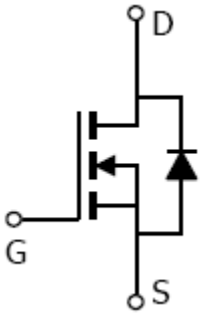
- High efficiency SMPS
- AC adapter
- Electronic Lamp Ballast

FEATURES

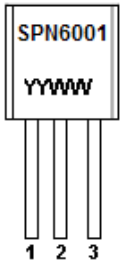
- 600V/1.0A , $R_{DS(ON)}$= 15Ω@V_{GS}=10V
- TO-92 package design
- Fast switch, Low Ciss, Low gate charge
-

PIN CONFIGURATION(TO-92)





PART MARKING



Y : Year Code
W: Weak Code

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PIN DESCRIPTION

Pin	Symbol	Description
1	G	Gate
2	D	Drain
3	S	Source

ORDERING INFORMATION

Part Number	Package	Part Marking
SPN6001T92AGB	TO-92	SPN6001

※ Week Code : 01~53
※ SPN6001T92AGB : Tape Ammo ; Pb – Free ; Halogen - Free

ABSOULTE MAXIMUM RATINGS (T_A=25℃ Unless otherwise noted)

Parameter		Symbol	Typical	Unit
Drain-Source Voltage		V_{DSS}	600	V
Gate –Source Voltage - Continuous		V_{GSS}	±20	V
Gate –Source Voltage - Non Repetitive (t_p < 50μs)		V_{GSS}	±40	V
Continuous Drain Current(T_J=150℃)	T_A=25℃	I_D	1	A
Pulsed Drain Current (*)		I_{DM}	2.5	A
Power Dissipation	T_A=25℃	P_D	3	W
Operating Junction Temperature		T_J	-55 ~ 150	℃
Storage Temperature Range		T_{STG}	-55 ~ 150	℃
Thermal Resistance-Junction to Ambient		$R_{\theta JA}$	120	℃/W

(*) Pulse width limited by safe operating area

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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	600			V
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS},I_D=250uA	2.0		4.0	
Gate Leakage Current	I_{GSS}	V_{DS}=0V,V_{GS}=±20V			±100	nA
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=480V, V_{GS}=0V			10	uA
Drain-Source On-Resistance	$R_{DS(on)}$	V_{GS}=10V, I_D=500mA			15	Ω
Forward On Voltage	V_{SD}	V_{GS}=0V, I_D=500mA			1	V
Forward Transconductance	Gfs	V_{DS} = 40 V, I_D = 500 mA		0.8		S
Dynamic						
Total Gate Charge	Q_g	V_{DD} = 480 V, I_D = 1 A, V_{GS} = 10 V		6.1	7.2	nC
Gate-Source Charge	Q_{gs}			1.0		
Gate-Drain Charge	Q_{gd}			3.0		
Input Capacitance	C_{iss}	V_{DS} = 25 V, f = 1 MHz, V_{GS} = 0		178	221	pF
Output Capacitance	C_{oss}			19	27	
Reverse Transfer Capacitance	C_{rss}			3.7	4.8	
Turn-On Time	$t_{d(on)}$	V_{DD} = 300 V, I_D = 1 A R_G = 25Ω		15		ns
	t_r			46		
Turn-Off Time	$t_{d(off)}$			26		
	t_f			37		

(1) Pulsed: Pulse duration = 300 μs, duty cycle 2 %.

(2) Pulse width limited by maximum junction temperature.

TYPICAL CHARACTERISTICS

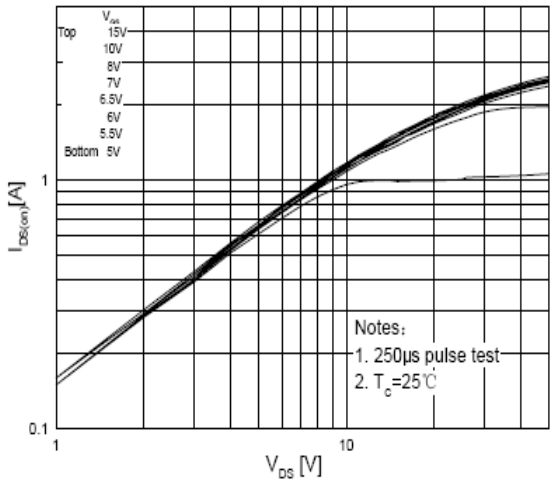


Fig. 1 Typical Output Characteristics

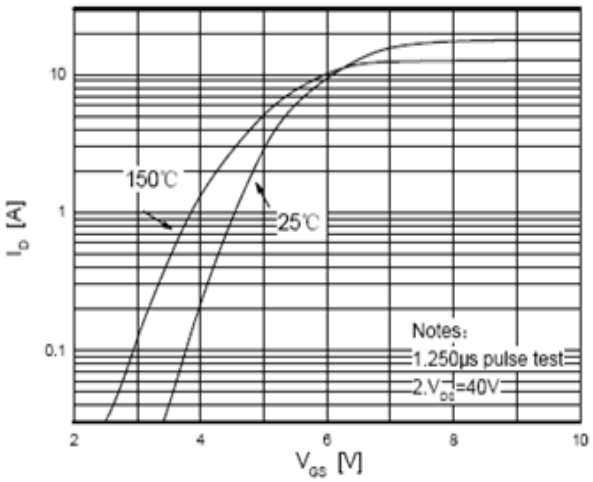


Fig. 2 Transfer Characteristics

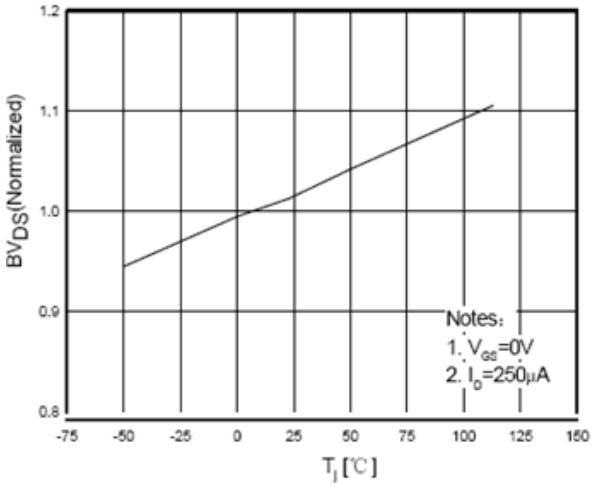


Fig. 3 BVdss vs Junction Temperature

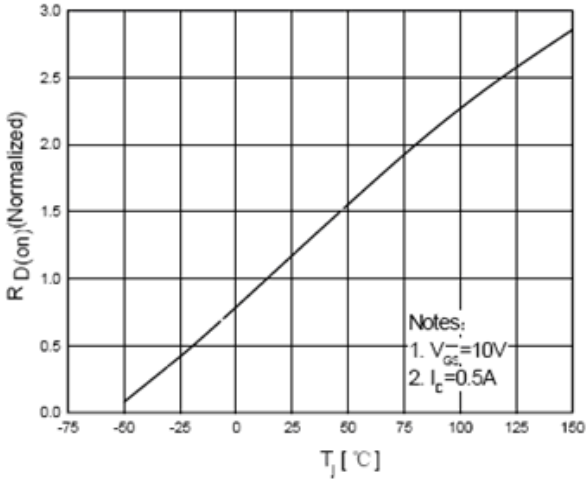


Fig. 4 On-Resistance vs Junction Temperature

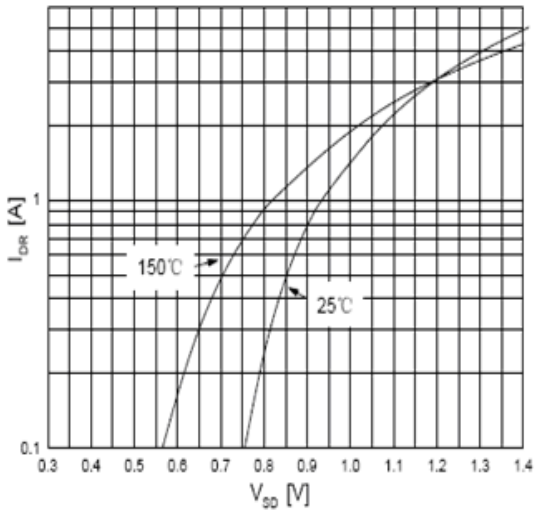


Fig. 5 Forward Characteristic of Reverse Diode

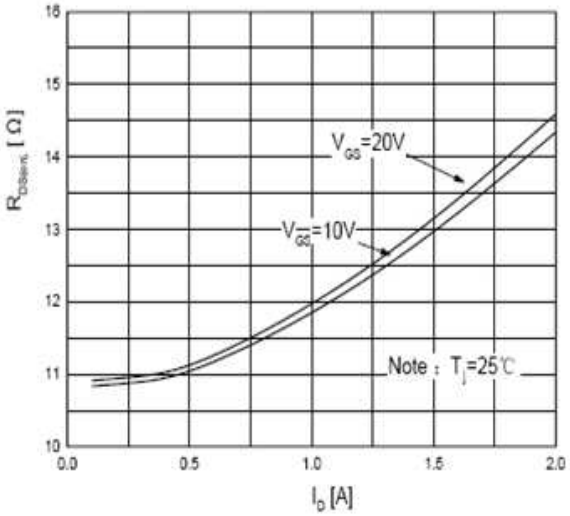


Fig. 6 On-Resistance vs Drain Current

TYPICAL CHARACTERISTICS

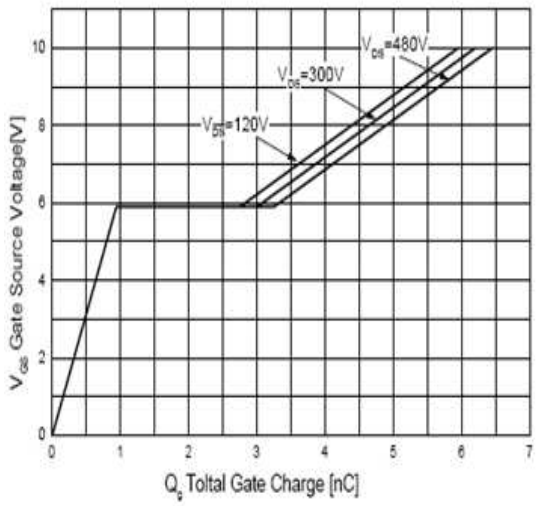


Fig. 7 Gate Charge Characteristics

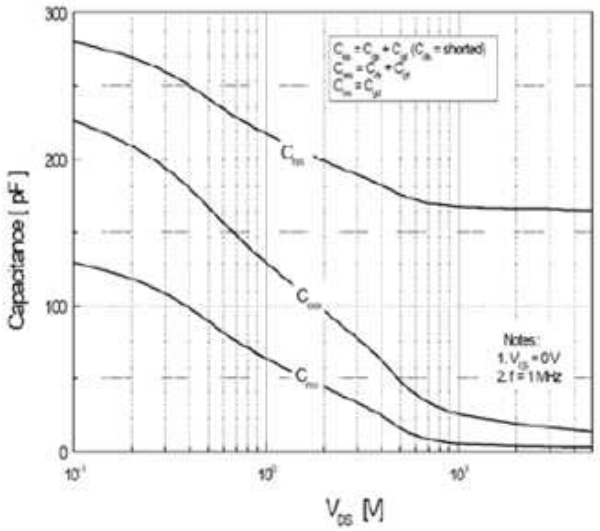


Fig. 8 Typical Capacitance Characteristics

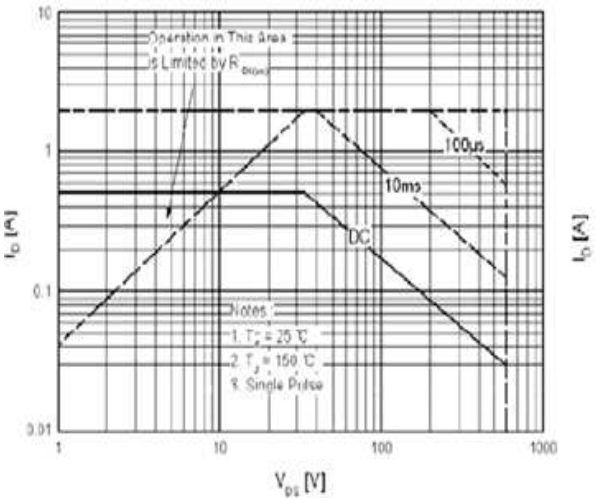


Fig. 9 Maximum Safe Operation Area

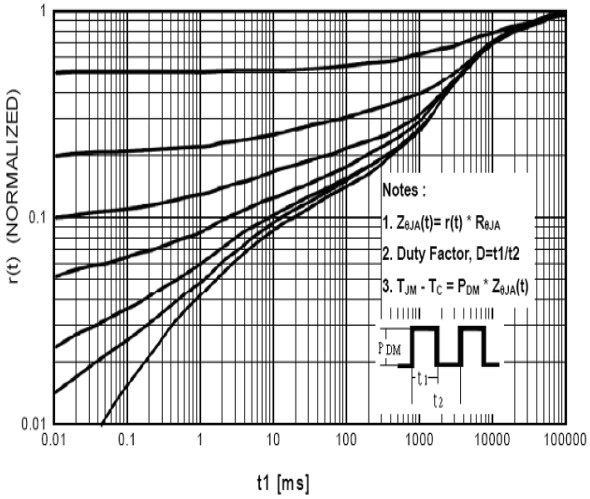
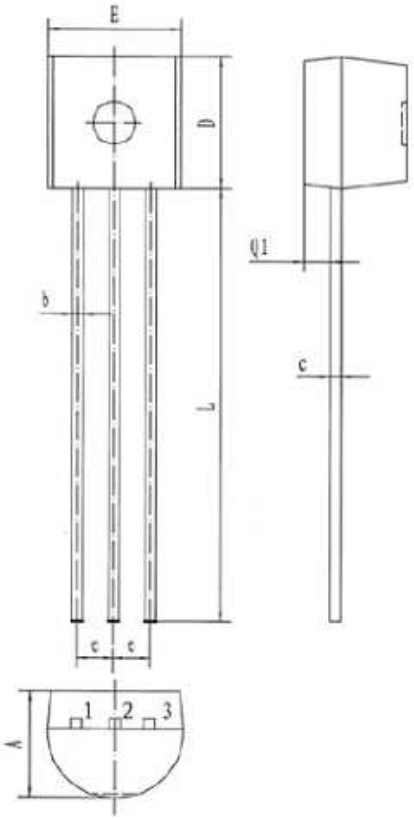


Fig. 10 Effective Transient Thermal Impedance

TO-92 PACKAGE OUTLINE



Dimension in mm

symbol	MIN	MAX
A	3.30	3.90
b	0.35	0.55
c	0.31	0.51
D	4.30	4.90
E	4.30	4.90
e	1.17	1.37
L	12.50	15.50
Q1	0.74	0.89

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