STN4260

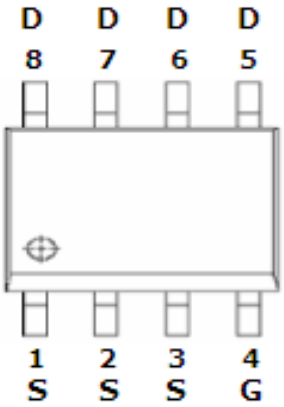
N Channel Enhancement Mode MOSFET

18A

DESCRIPTION

STN4260 is the N-Channel logic enhancement mode power field effect transistor which is produced using high cell density. This high density process is especially tailored to minimize on-state resistance. These devices are particularly suited for low voltage application such as power management and other battery powered circuits where high-side switching.

PIN CONFIGURATION
SOP-8

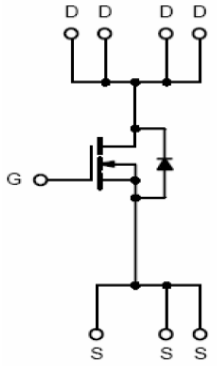


PART MARKING

Y: Year Code
A: Porduce Code
P: Process Code

FEATURE

- 60V/10A, $R_{DS(ON)}$ = 11.5mΩ (Typ.) @V_{GS} = 10V
- 60V/8A, $R_{DS(ON)}$ = 12.5mΩ @V_{GS} = 4.5V
- Super high density cell design for extremely low $R_{DS(ON)}$
- Exceptional on-resistance and maximum DC current capability
- SOP-8 package design



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

Parameter		Symbol	Typical	Unit
Drain-Source Voltage		VDSS	60	V
Gate-Source Voltage		VGSS	±20	V
Continuous Drain Current (TJ=150℃)	TA=25℃ TA=70℃	ID	20 14	A
Pulsed Drain Current		IDM	110	A
Continuous Source Current (Diode Conduction)		IS	4.5	A
Power Dissipation	TA=25℃ TA=70℃	PD	3.1 2.0	W
Operation Junction Temperature		TJ	150	℃
Storgae Temperature Range		TSTG	-55/150	℃
Thermal Resistance-Junction to Ambient		RθJA	70	℃/W

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ELECTRICAL CHARACTERISTICS (Ta = 25℃ Unless otherwise noted)

Parameter	Symbol	Condition	Min	Typ	Max	Unit
Static						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	V_{GS}=0V,ID=250uA	60			V
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS},ID=250uA	1.0		2.5	V
Gate Leakage Current	I_{GSS}	V_{DS}=0V,V_{GS}=±20V			±100	nA
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=60V,V_{GS}=0V			1	uA
		V_{DS}=60V,V_{GS}=0V T_J=25℃			5	
Drain-source On-Resistance	$R_{DS(on)}$	V_{GS}=10V,I_D=10A V_{GS}=4.5V,I_D=8A		11.5 12.5	13 14	mΩ
Forward Transconductance	gfs	V_{DS}=10V,I_D=6A		11.7		S
Diode Forward Voltage	V_{SD}	I_S=1A,V_{GS}=0V		0.8	1.0	V
Dynamic						
Total Gate Charge	Q_g	V_{DS}=30V,V_{GS}=10V I_D≡10A		40	58	nC
Gate-Source Charge	Q_{gs}			6	9	
Gate-Drain Charge	Q_{gd}			8.8	14	
Input Capacitance	C_{iss}	V_{DS} =25V,V_{GS}=0V F=1MHz		2100		pF
Output Capacitance	C_{oss}			165		
Reverse TransferCapacitance	C_{rss}			80		
Turn-On Time	$t_{d(on)}$	V_{DD}=15V, V_{GS}=10V,R_G=6Ω I_D=1A		9.5	18	nS
	tr			28	54	
Turn-Off Time	$t_{d(off)}$			45.3	86	
	tf			80	120	

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TYPICAL ELECTRICAL AND THERMAL CHARACTERISTICS

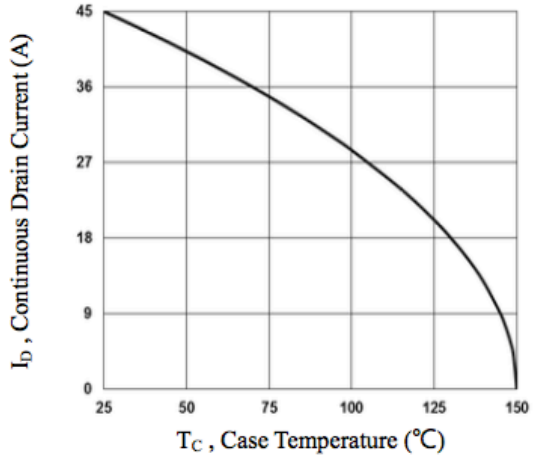

Fig.1 Continuous Drain Current vs. T_C

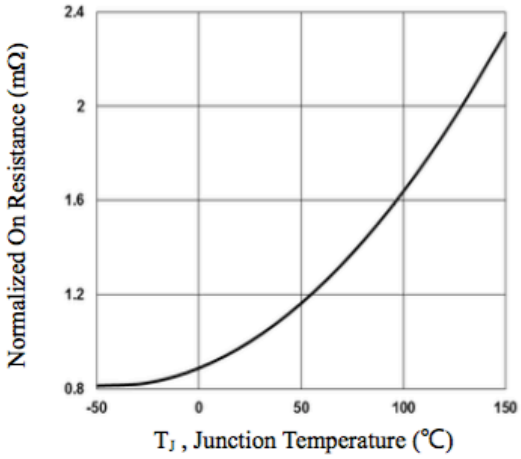

Fig.2 Normalized RDSON vs. T_J

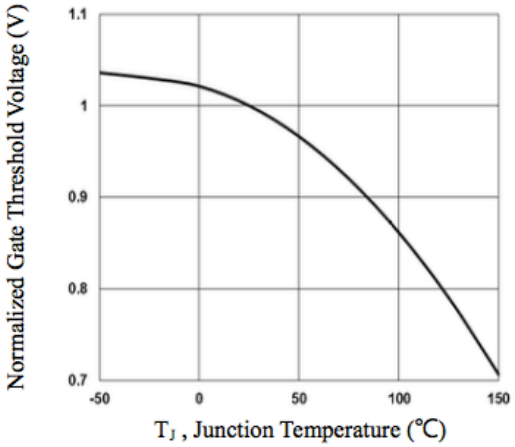

Fig.3 Normalized V_{th} vs. T_J

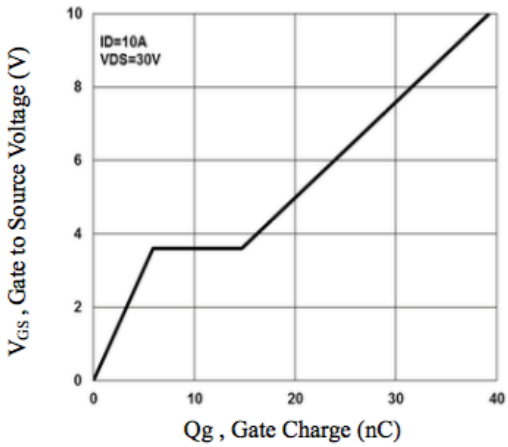

Fig.4 Gate Charge Waveform

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TYPICAL ELECTRICAL AND THERMAL CHARACTERISTICS

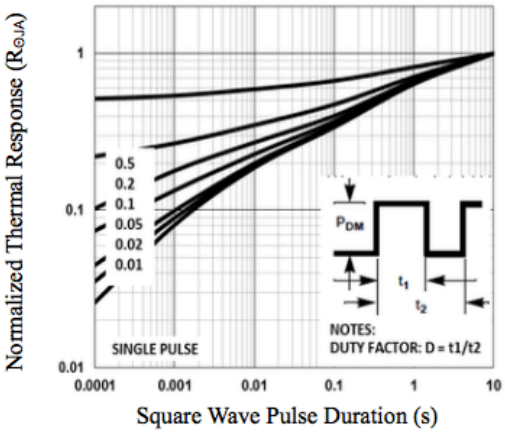

Fig.5 Normalized Transient Response

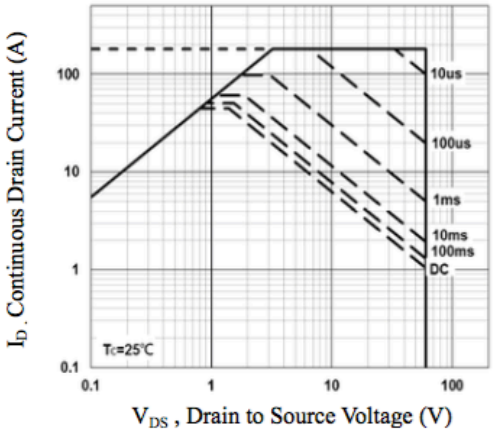

Fig.6 Maximum Safe Operation Area

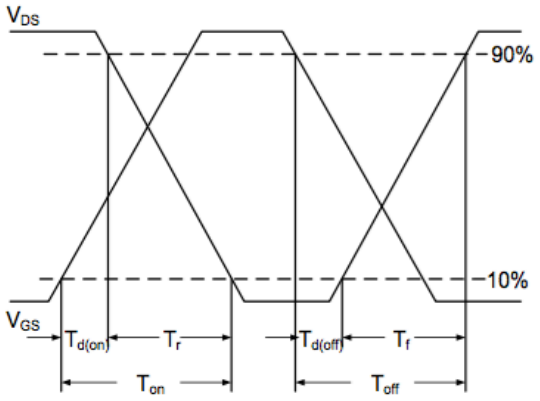

Fig.7 Switching Time Waveform

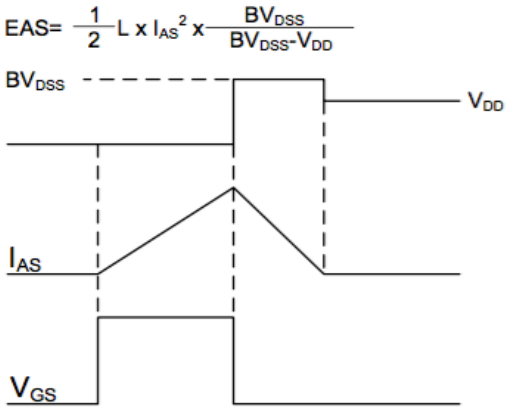

Fig.8 EAS Waveform

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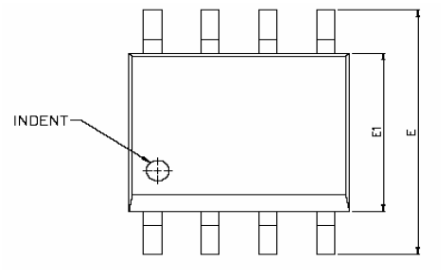
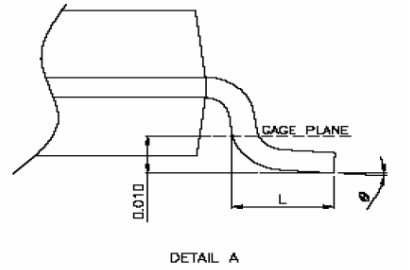
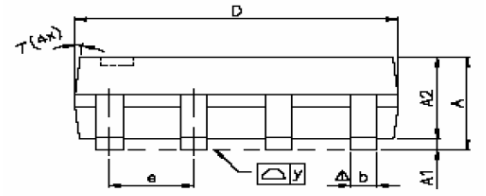
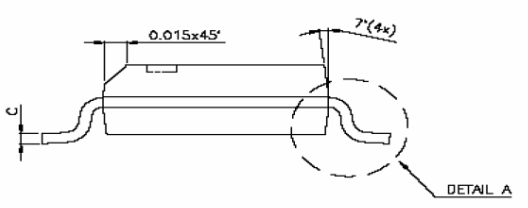
PACKAGE OUTLINE SOP-8P









SYMBOLS	DIMENSIONS IN MILLIMETERS			DIMENSIONS IN INCHES		
	MIN	NOM	MAX	MIN	NOM	MAX
A	1.47	1.60	1.73	0.058	0.063	0.068
A1	0.10	——	0.25	0.004	——	0.010
A2	——	1.45	——	——	0.057	——
b	0.33	0.41	0.51	0.013	0.016	0.020
C	0.19	0.20	0.25	0.0075	0.008	0.0098
D	4.80	4.85	4.95	0.189	0.191	0.195
E	5.80	6.00	6.20	0.228	0.236	0.244
E1	3.80	3.90	4.00	0.150	0.154	0.157
e	——	1.27	——	——	0.050	——
L	0.38	0.71	1.27	0.015	0.028	0.050
② y	——	——	0.076	——	——	0.003
θ	0°	——	8°	0°	——	8°

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