STN3446

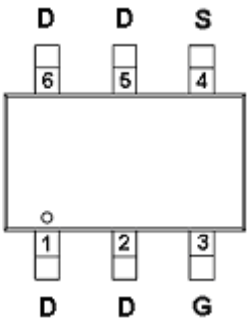
N Channel Enhancement Mode MOSFET

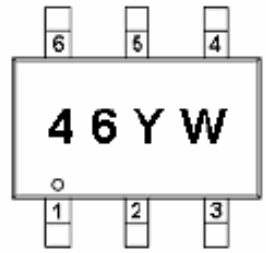
5.3A

DESCRIPTION

The STN3446 is the N-Channel enhancement mode power field effect transistor which is 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.

PIN CONFIGURATION
TSOP-6P

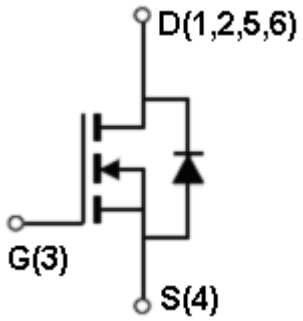




Y: Year Code
W: Week Code

FEATURE

- 20V/5.3A, $R_{DS(ON)}$=48mΩ@VGS=4.5V
- 20V/3.4A, $R_{DS(ON)}$=65mΩ@VGS=2.5V
- 20V/2.8A, $R_{DS(ON)}$=90mΩ@VGS=1.8V
- Super high density cell design for extremely low $R_{DS(ON)}$
- Exceptional an-resistance and maximum DC current capability
- TSOP-6P package design



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ABSOULTE MAXIMUM RATINGS (Ta = 25℃ 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℃)	T_A=25℃	I_D	5.3	A
	T_A=70℃		4.2	
Pulsed Drain Current		I_{DM}	25	A
Continuous Source Current (Diode Conduction)		I_S	1.7	A
Power Dissipation	T_A=25℃	P_D	2.0	W
	T_A=70℃		1.3	
Operation Junction Temperature		T_J	150	℃
Storage Temperature Range		T_{STG}	-55/150	℃
Thermal Resistance-Junction to Ambient		$R_{\theta JA}$	90	℃/W

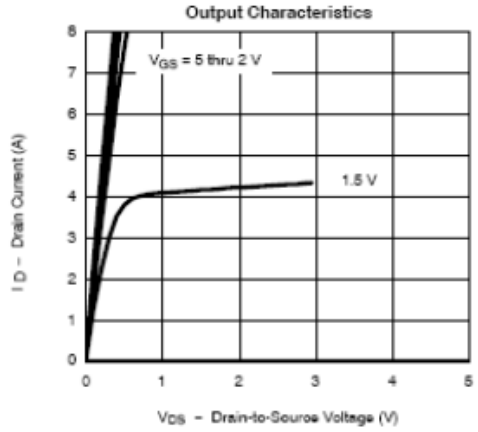
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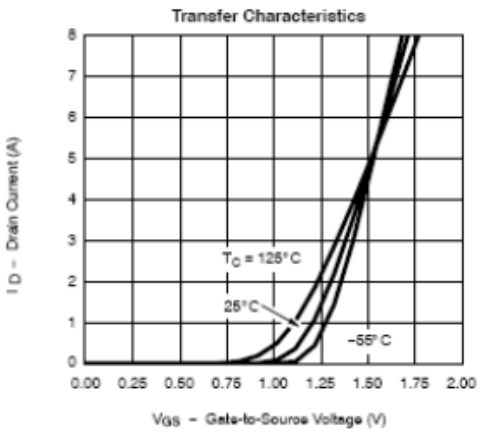
ELECTRICAL CHARACTERISTICS (Ta = 25℃ Unless otherwise noted)

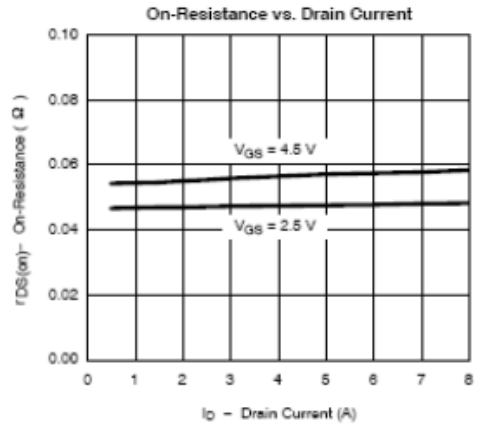
Parameter	Symbol	Condition	Min	Typ	Max	Unit
Static						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	V_{GS}=0V,I_D=-250uA	20			V
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=VGS,I_D=-250uA	0.4		1.0	V
Gate Leakage Current	I_{GSS}	V_{DS}=0V,V_{GS}=±20V			±100	nA
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=20V,V_{GS}=0V			1	uA
		V_{DS}=20V,V_{GS}=0V T_J=55℃			5	
On-State Drain Current	$I_{D(on)}$	V_{DS}≦5V,V_{GS}=4.5V	6			A
Drain-source On-Resistance	$R_{DS(on)}$	V_{GS}=4.5V,I_D=5.3A		0.030	0.040	Ω
		V_{GS}=2.5V,I_D=3.4A		0.040	0.050	
		V_{GS}=1.8V,I_D=2.8A		0.075	0.090	
Forward Transconductance	g_{fs}	V_{DS}=5V,I_D=3.6A		12		S
Diode Forward Voltage	V_{SD}	I_S=1.6A,V_{GS}=0V		0.8	1.2	V
Dynamic						
Total Gate Charge	Q_g	V_{DS}=6V,V_{GS}=4.5V, I_D=2.8A		4.8	8	nC
Gate-Source Charge	Q_{gs}			1.0		
Gate-Drain Charge	Q_{gd}			1.0		
Input Capacitance	Ciss	V_{DS}=6V,V_{GS}=0, f=1MHz		485		pF
Output Capacitance	Coss			85		
Reverse Transfer Capacitance	Crss			40		
Turn-On Time	$T_{d(on)}$	V_{DD}=6V,R_L=6Ω, I_D=1.0A,V_{GEN}=10V R_G=6Ω		8	14	ns
	t_r			10	18	
Turn-Off Time	$T_{d(off)}$			30	35	
	t_f			12	16	

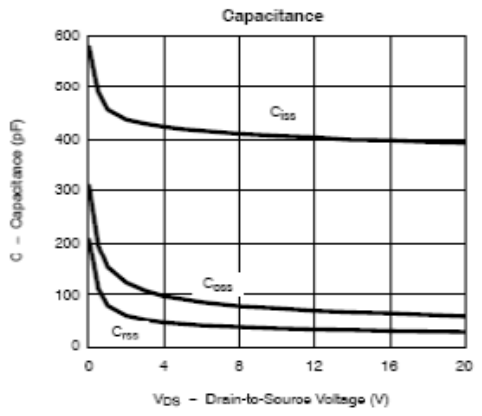
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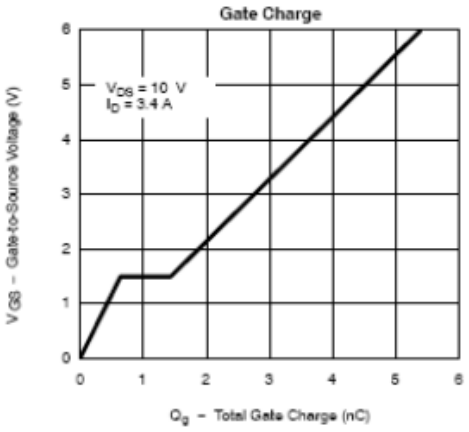
TYPICAL CHARACTERICTICS

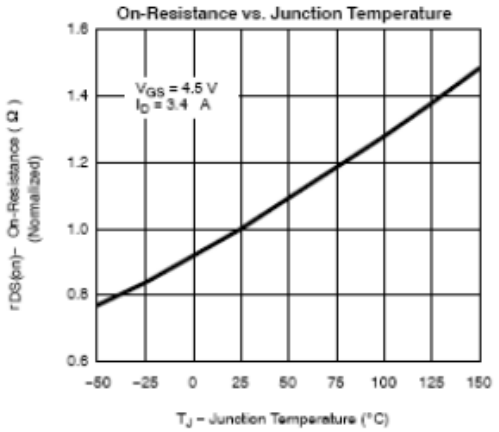






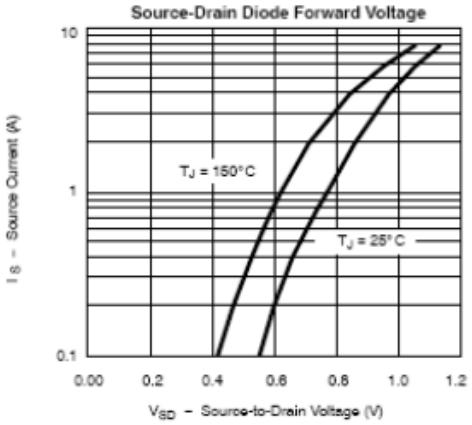


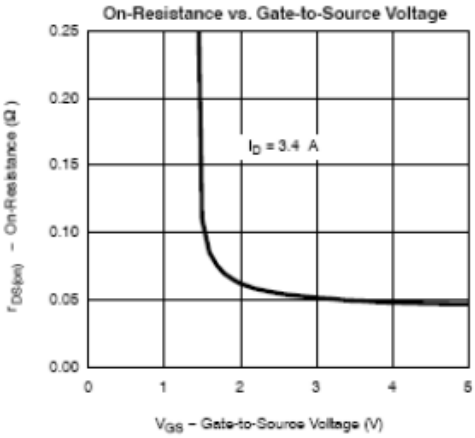


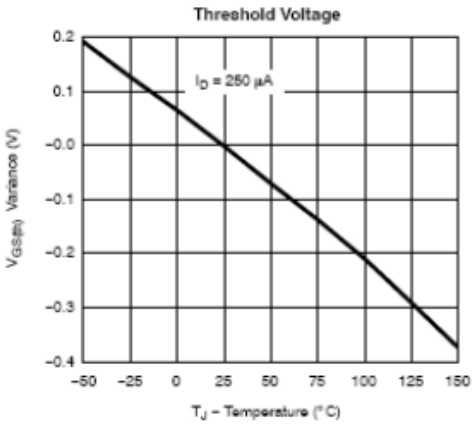


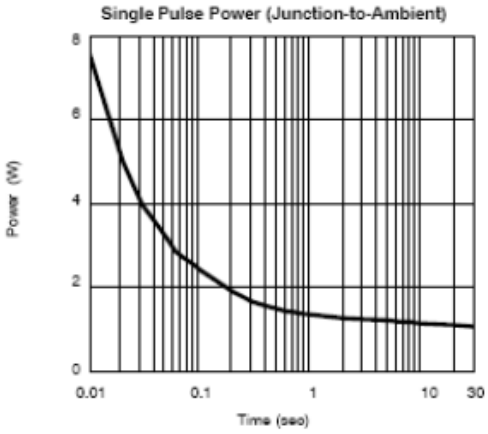
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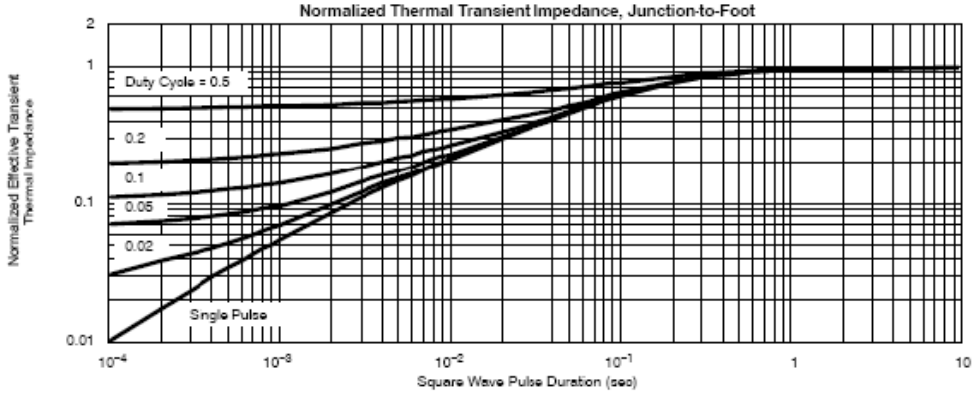
TYPICAL CHARACTERICTICS





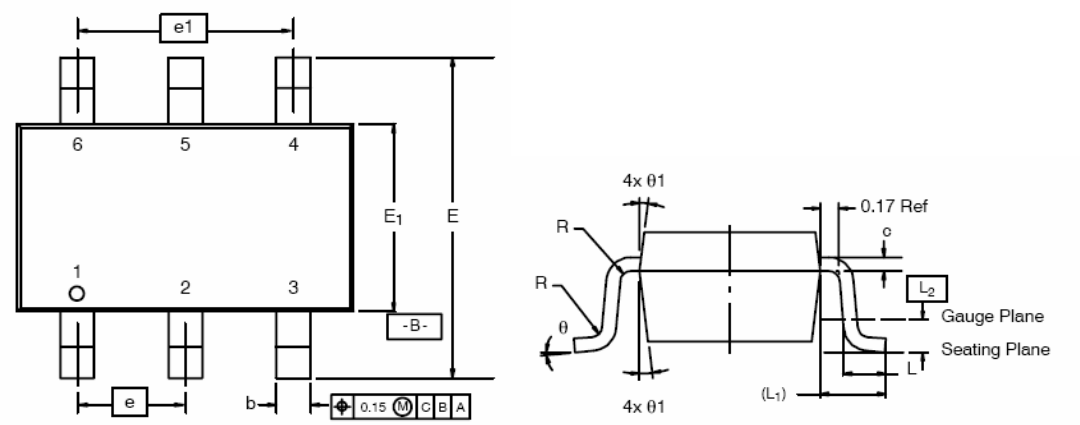






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TSOP-6 PACKAGE OUTLINE



Dim	MILLIMETERS			INCHES		
	Min	Nom	Max	Min	Nom	Max
A	0.91	-	1.10	0.036	-	0.043
A_1	0.01	-	0.10	0.0004	-	0.004
A_2	0.90	-	1.00	0.035	0.038	0.039
b	0.30	0.32	0.45	0.012	0.013	0.018
c	0.10	0.15	0.20	0.004	0.006	0.008
D	2.95	3.05	3.10	0.116	0.120	0.122
E	2.70	2.85	2.98	0.106	0.112	0.117
E_1	1.55	1.65	1.70	0.061	0.065	0.067
e	1.00 BSC			0.0394 BSC		
e_1	1.90	2.00	2.10	0.075	0.080	0.085
L	0.35	-	0.50	0.014	-	0.020
L_1	0.60 Ref			0.024 Ref		
L_2	0.25 BSC			0.010 BSC		
R	0.10	-	-	0.004	-	-
θ	0°	4°	8°	0°	4°	8°
θ_1	7° Nom			7° Nom		

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