STN8822A

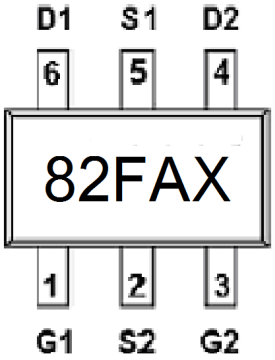
Dual N Channel Enhancement Mode MOSFET

6.0A

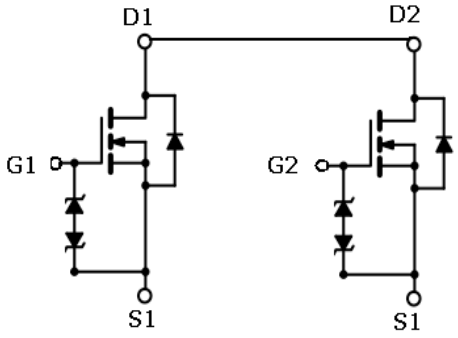
DESCRIPTION

STN8822A is the dual 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 notebook computer power management and other battery powered circuits, where high-side switching is required.

PIN CONFIGURATION
TSOP-6



F: Year Code
A: Produces Code
X: Wafer Code



FEATURE

- 20V/6.0A, $R_{DS(ON)}$ = 25m-ohm @V_{GS} =4.5V
- 20V/5.0A, $R_{DS(ON)}$ =42m-ohm @V_{GS} =2.5V
- Super high density cell design for extremely low $R_{DS(ON)}$
- Exceptional low on-resistance and maximum DC current capability
- TSOP-6 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}	+/-10	V
Continuous Drain Current (T_J=150℃)	T_A=25℃	I_D	6.0	A
	T_A=70℃		3.4	
Pulsed Drain Current		I_{DM}	15	A
Continuous Source Current (Diode Conduction)		I_S	1.5	A
Power Dissipation	T_A=25℃	P_D	2.0	W
	T_A=70℃		1.2	
Operation Junction Temperature		T_J	-40/140	℃
Storage Temperature Range		T_{STG}	-55/150	℃
Thermal Resistance-Junction to Ambient		$R_{\theta JA}$	105	℃/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	0.6		1.0	V
Gate Leakage Current	I_{GSS}	V_{DS}=0V,V_{GS}=+/-10V			±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=85℃			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=6.0A		0.020	0.025	Ω
		V_{GS}=2.5V,I_D=5.0A		0.032	0.042	
Forward Transconductance	g_{fs}	V_{DS}=5V,I_D=3.6A		30		S
Diode Forward Voltage	V_{SD}	I_S=1.7A,V_{GS}=0V		0.8	1.2	V
Dynamic						
Total Gate Charge	Q_g	V_{DS}=10V,V_{GS}=4.5V,I_D=6.0A		4		nC
Gate-Source Charge	Q_{gs}			2.5		
Gate-Drain Charge	Q_{gd}			2.1		
Input Capacitance	C_{iss}	V_{DS}=8V,V_{GS}=0V f=1MHz		575		pF
Output Capacitance	C_{oss}			330		
Reverse Transfer Capacitance	C_{rss}			140		
Turn-On Time	$T_{d(on)}$	V_{DD}=10V, RL=10Ω, I_D=1.0A, V_{GEN}=4.5V, RG=6Ω		14		nS
	t_r			16		
Turn-Off Time	$T_{d(off)}$			35		
	t_f			30		

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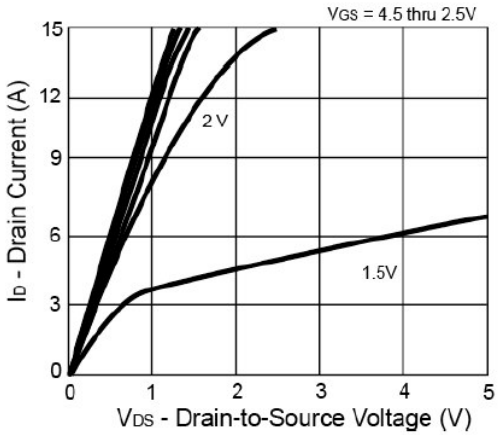
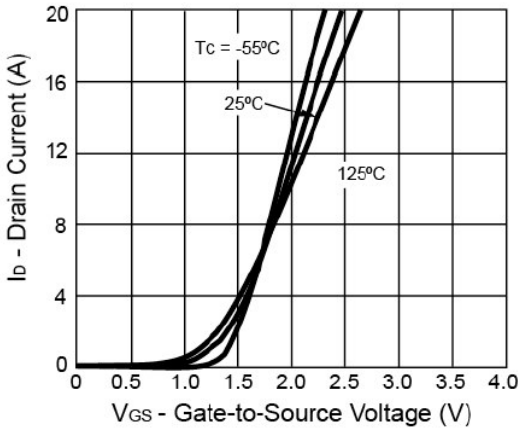
TYPICAL CHARACTERICTICS

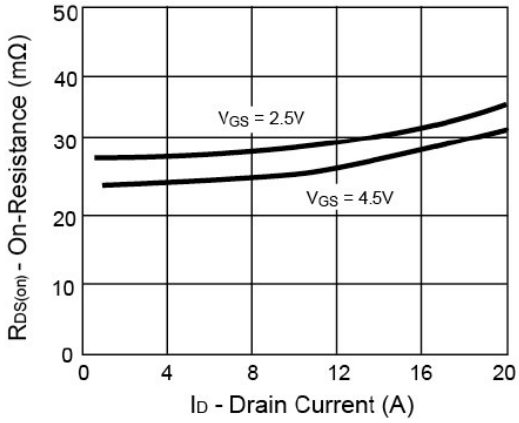
Output Characteristics



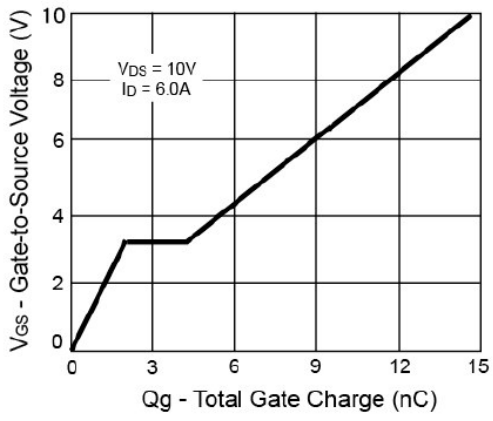
Transfer Characteristics



On-Resistance vs. Drain Current



Gate Charge



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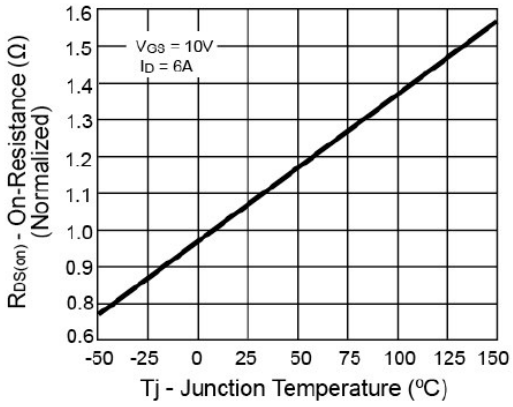
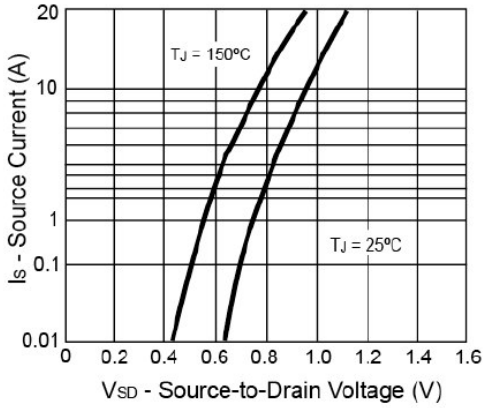
TYPICAL CHARACTERICTICS

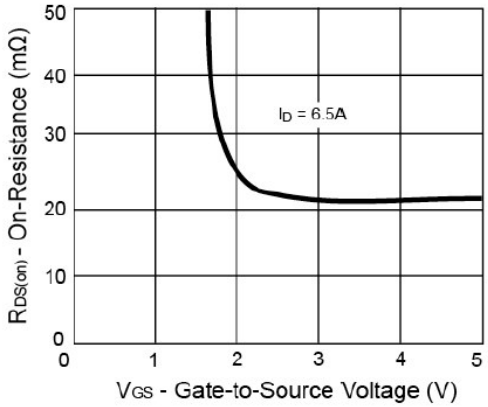
On-Resistance vs. Junction Temperature



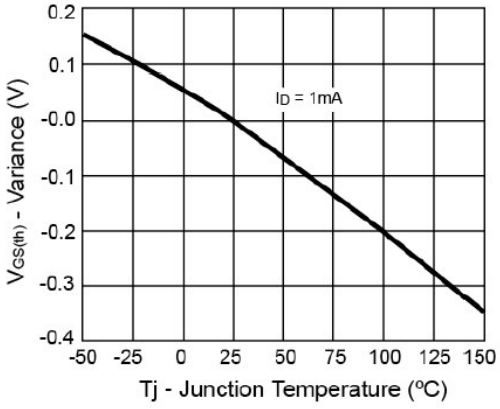
Source-Drain Diode Forward Voltage



On-Resistance vs. Gate-Source Voltage



Threshold Voltage



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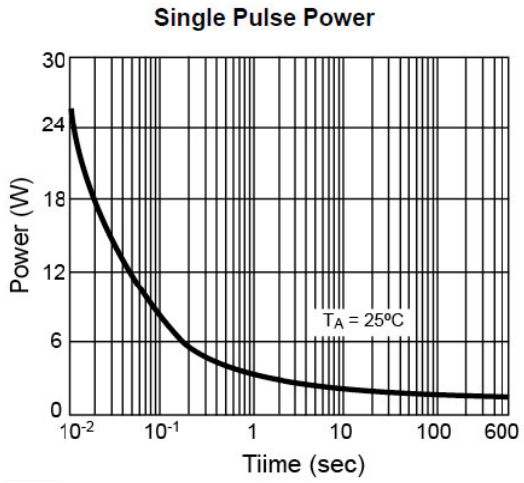

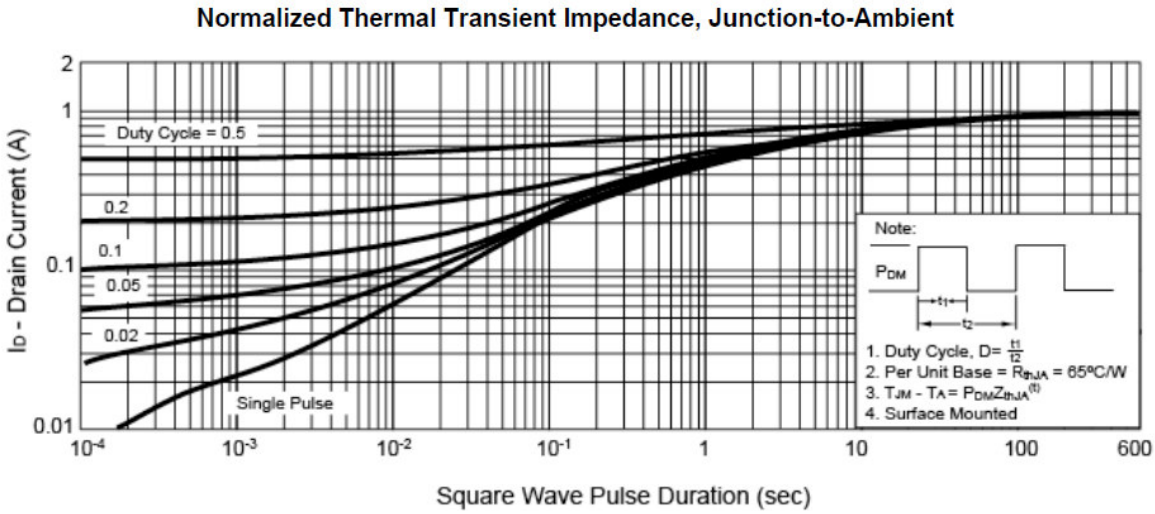

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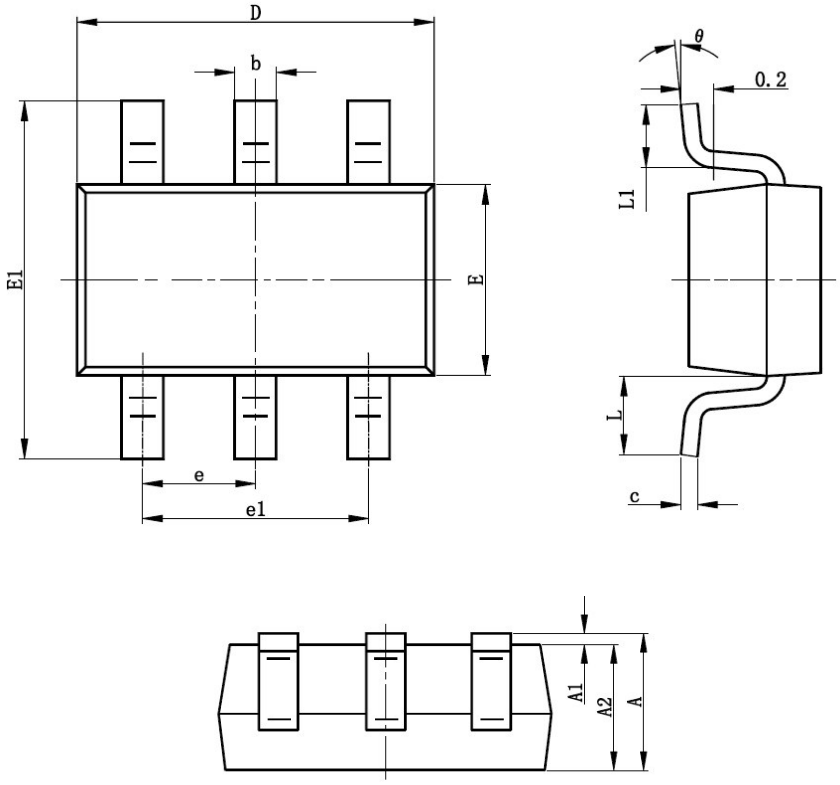
TSOP-6 PACKAGE OUTLINE



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	1.050	1.250	0.041	0.049
A1	0.000	0.100	0.000	0.004
A2	1.050	1.150	0.041	0.045
b	0.300	0.400	0.012	0.016
c	0.100	0.200	0.004	0.008
D	2.820	3.020	0.111	0.119
E	1.500	1.700	0.059	0.067
E1	2.650	2.950	0.104	0.116
e	0.950TYP		0.037TYP	
e1	1.800	2.000	0.071	0.079
L	0.700REF		0.028REF	
L1	0.300	0.600	0.012	0.024
θ	0°	8°	0°	8°

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