



DESCRIPTION

STN444DN uses Trench MOSFET technology that is uniquely optimized to provide the most efficient high frequency switching performance. It has been optimized for low gate charge, low $R_{DS(ON)}$ and fast switching speed.

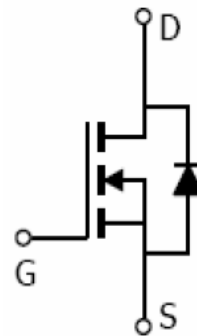
PIN CONFIGURATION
PowerPAK 5x6L(1212-8)





Y : Year Code
A : Date Code
B : Package Code
C : Wafer Code

FEATURE

- 30V/30A, $R_{DS(ON)} = 2.6m\Omega$ (Typ.)
@ $V_{GS} = 10V$
- 30V/15A, $R_{DS(ON)} = 3.4m\Omega$
@ $V_{GS} = 4.5V$
- Super high density cell design for extremely low $R_{DS(ON)}$
- Exceptional on-resistance and maximum DC current capability
- PowerPAK 5x6L(1212-8) package design





STN444DN  
N Channel Enhancement Mode MOSFET

100A

ABSOLUTE MAXIMUM RATINGS (Ta = 25°C Unless otherwise noted)

Parameter	Symbol	Typical	Unit
Drain-Source Voltage	V _{DSS}	30	V
Gate-Source Voltage	V _{GSS}	±20	V
Continuous Drain Current (T _J =150°C)	I _D	T _A =25°C 35	A
		T _A =70°C 20	
Pulsed Drain Current	T=300us I _{DM}	100	A
Single Pulse Avalanche Current Single Pulse Avalanche Energy	L=0.1mH	I _{AS}	20 A
		E _{AS}	20 mJ
Continuous Source Current (Diode Conduction)	I _S	35	A
Power Dissipation	P _D	T _A =25°C 52	W
		T _C =70°C 33	
Operation Junction Temperature	T _J	150	°C
Storage Temperature Range	T _{STG}	-55/150	°C
Maximum Junction to Ambient	T ≤ 10s R _{θJA}	33	°C/W



STN444DN



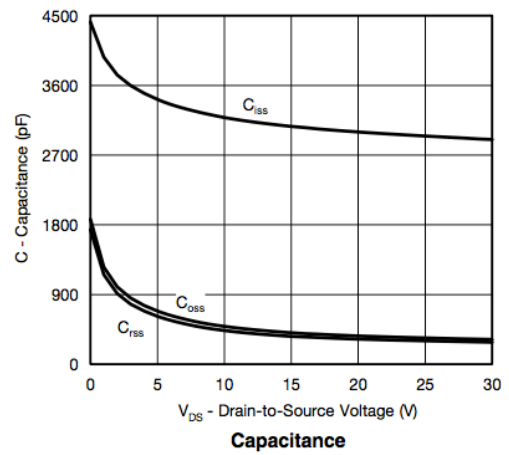
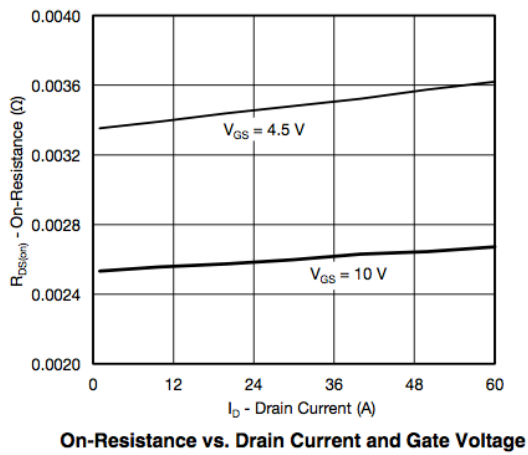
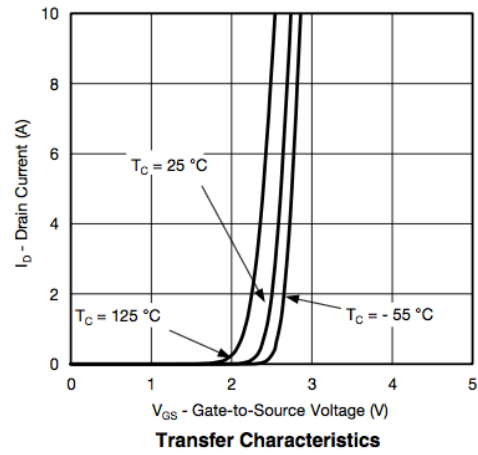
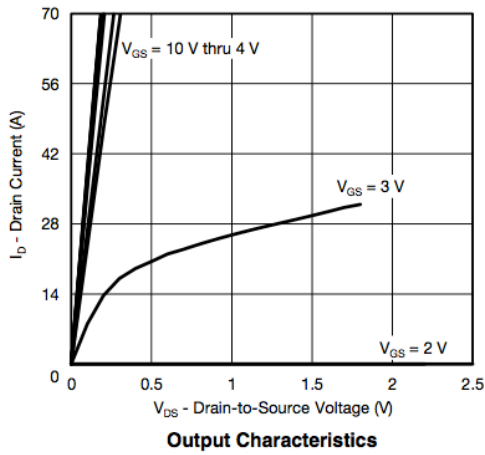
N Channel Enhancement Mode MOSFET

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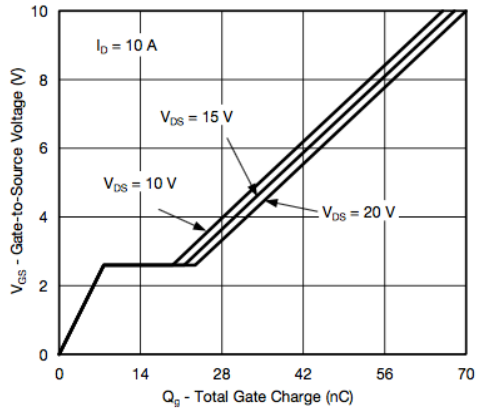
ELECTRICAL CHARACTERISTICS (Ta = 25°C Unless otherwise noted)

Parameter	Symbol	Condition	Min	Typ	Max	Unit
Static						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS}=0V, I_D=250\mu A$	30			V
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=250\mu A$	1.3		2.5	V
Gate Leakage Current	I_{GSS}	$V_{DS}=0V, V_{GS}=\pm 20V$			± 100	nA
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=30V, V_{GS}=0V$			1	uA
		$V_{DS}=30V, V_{GS}=0V$ $T_J=55^\circ C$			10	
Drain-source On-Resistance	$R_{DS(on)}$	$V_{GS}=10V, I_D=10A$ $V_{GS}=4.5V, I_D=20A$		2.6 3.4	3.3 4.3	mΩ
Forward Transconductance	g_{fs}	$V_{DS}=15V, I_D=10A$		65		S
Diode Forward Voltage	V_{SD}	$I_S=1.0A, V_{GS}=0V$			1.0	V
Dynamic						
Total Gate Charge	Q_g	$V_{DS}=15V, V_{GS}=10V$ $I_D=15A$		60		nC
Gate-Source Charge	Q_{gs}			14		
Gate-Drain Charge	Q_{gd}			23.5		
Input Capacitance	C_{iss}	$V_{DS}=15V, V_{GS}=0V$ $F=1MHz$		5850		pF
Output Capacitance	C_{oss}			720		
Reverse Transfer Capacitance	C_{rss}			525		
Turn-On Time	$t_{d(on)}$ t_r	$I_D=1A, V_{DD}=15V,$ $V_{GS}=10V, R_G=3.3V$		20		nS
				6.3		
Turn-Off Time	$t_{d(off)}$ t_f			125		
				15.8		

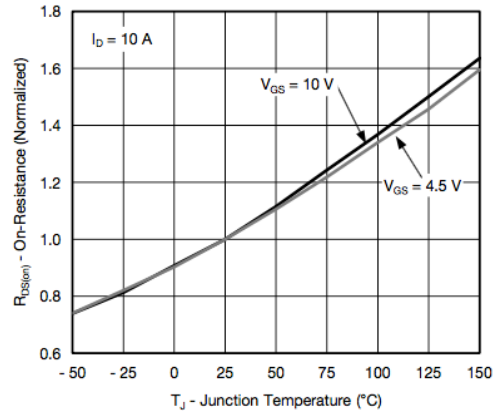
TYPICAL CHARACTERISTICS (25°C unless otherwise noted)



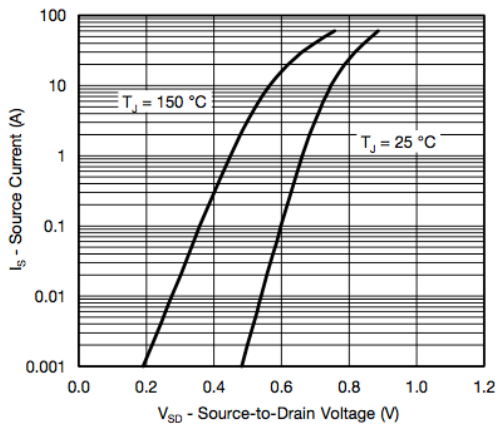
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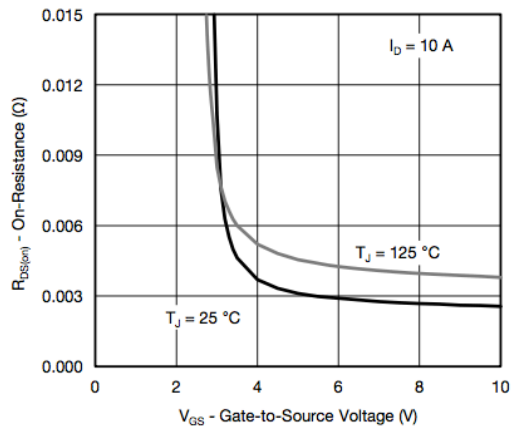
Gate Charge



On-Resistance vs. Junction Temperature



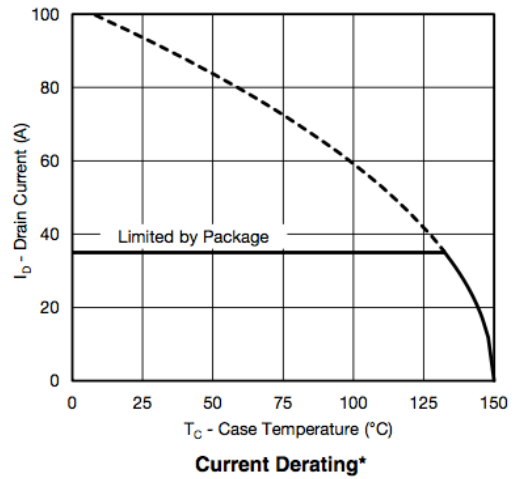
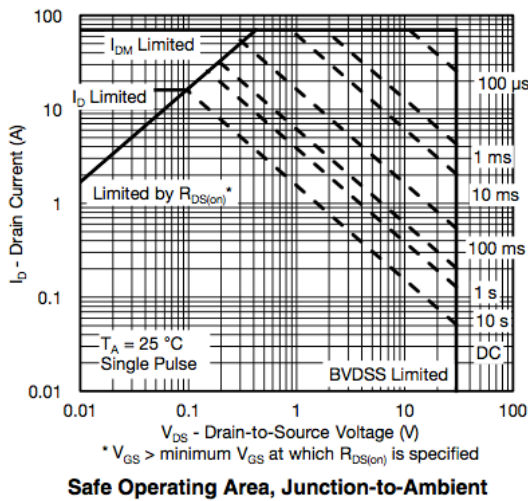
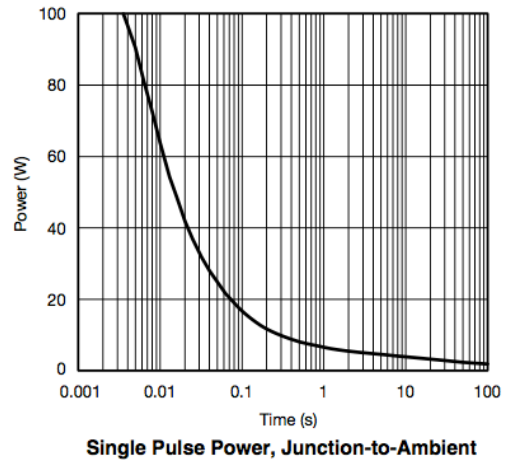
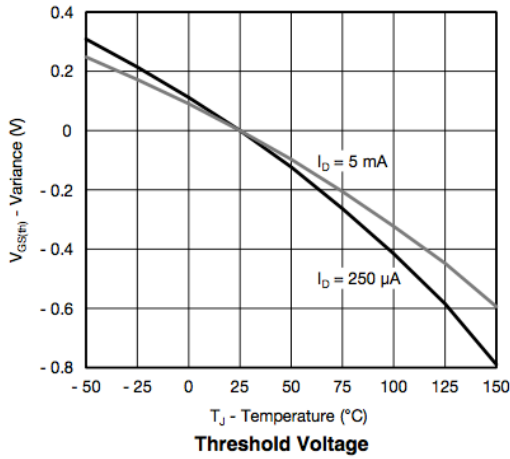
Source-Drain Diode Forward Voltage



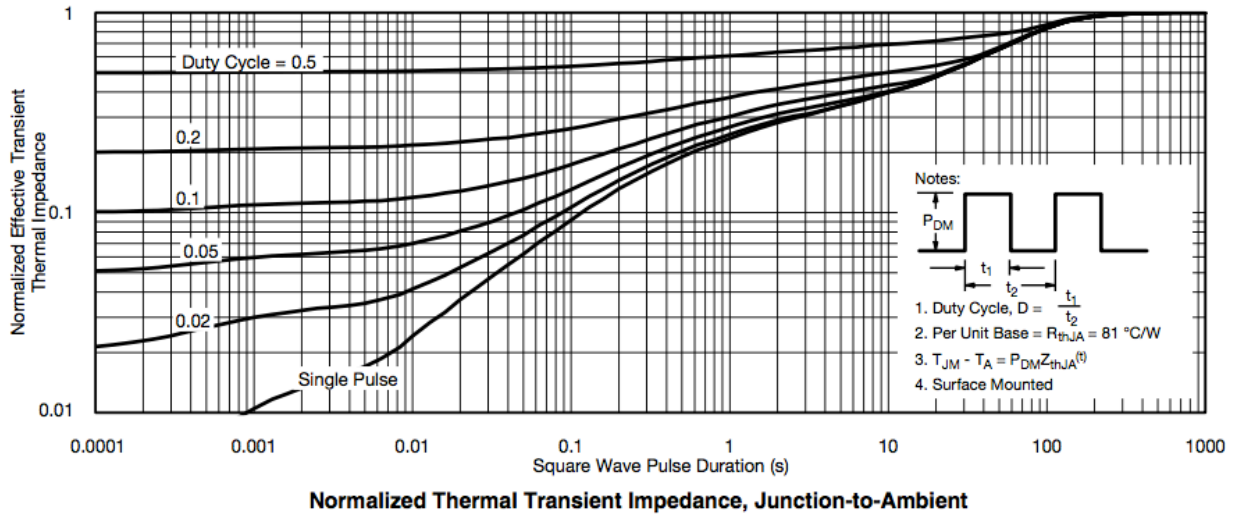
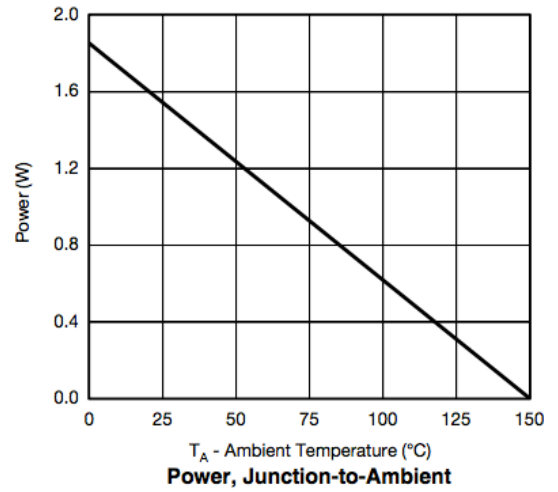
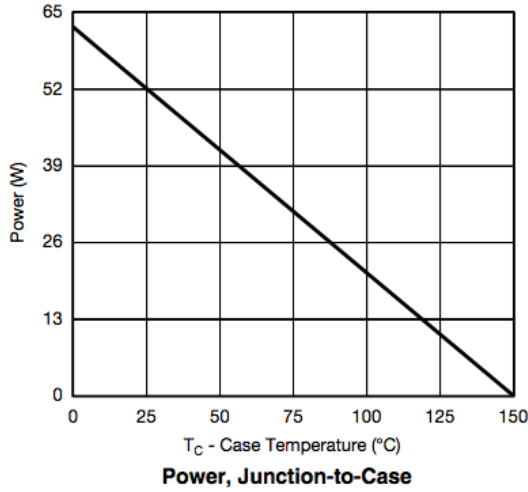
On-Resistance vs. Gate-to-Source Voltage



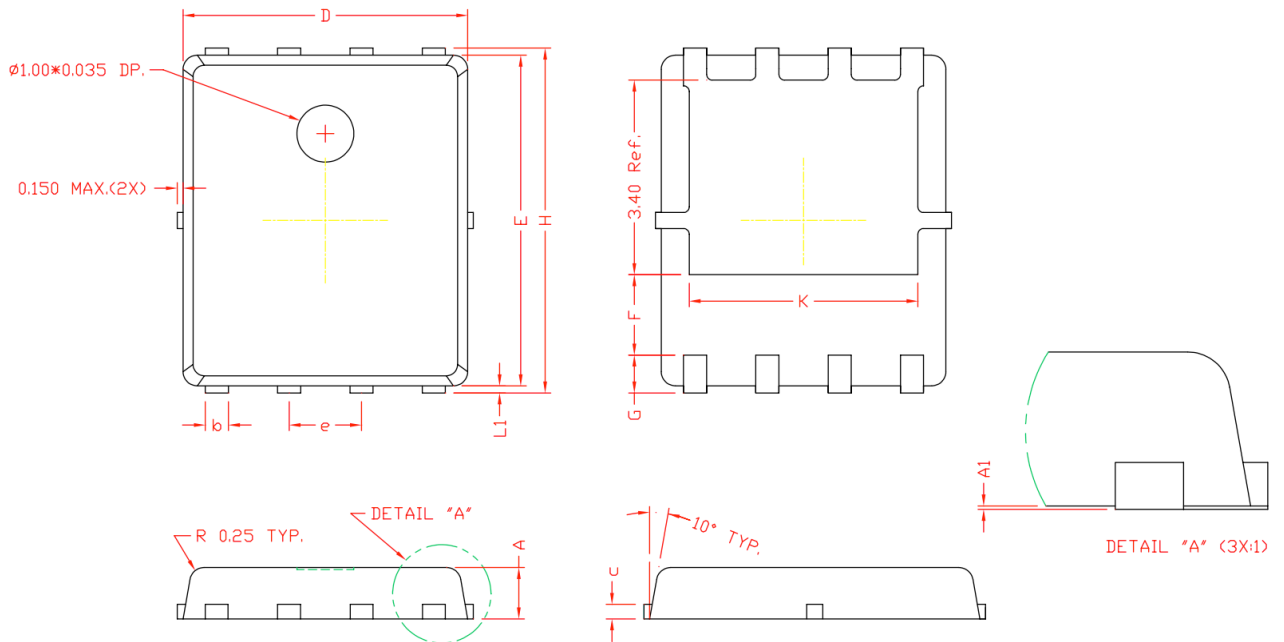
TYPICAL CHARACTERISTICS (25°C unless otherwise noted)



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PACKAGE OUTLINE PowerPAK 5X6L (1212-8)



REF.	Millimeters		REF.	Millimeters	
	Min.	Max.		Min.	Max.
A	0.80	1.00	E	5.70	5.90
A1	0.00	0.05	e	1.27 BSC.	
b	0.35	0.49	H	5.95	6.20
c	0.254 Ref.		L1	0.10	0.18
D	4.90	5.10	G	0.60 Ref.	
F	1.40 Ref.		K	4.00 Ref.	