



STN444DN
N Channel Enhancement Mode MOSFET



100A

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.

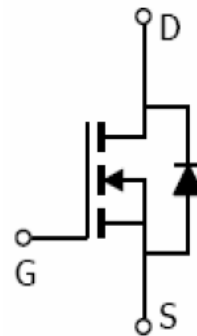
PIN CONFIGURATION
PowerPAK 5x6L(1212-8)



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





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

Parameter		Symbol	Typical	Unit
Drain-Source Voltage		VDSS	30	V
Gate-Source Voltage		VGSS	±20	V
Continuous Drain Current (TJ=150℃)	TA=25℃ TA=70℃	ID	35 20	A
Pulsed Drain Current	T=300us	IDM	100	A
Single Pulse Avalanche Current Single Pulse Avalanche Energy	L=0.1mH	IAS	20	A
		EAS	20	mJ
Continuous Source Current (Diode Conduction)		IS	35	A
Power Dissipation	TA=25℃ TC=70℃	PD	52 33	W
Operation Junction Temperature		TJ	150	℃
Storgae Temperature Range		TSTG	-55/150	℃
Maximum Junction to Ambient	T ≤ 10s	RθJA	33	℃/W


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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	$t_{d(on)}$	$I_D=1A, V_{DD}=15V,$ $V_{GS}=10V, R_G=3.3V$		20		nS
	t_r			6.3		
Turn-Off Time	$t_{d(off)}$			125		
	t_f			15.8		

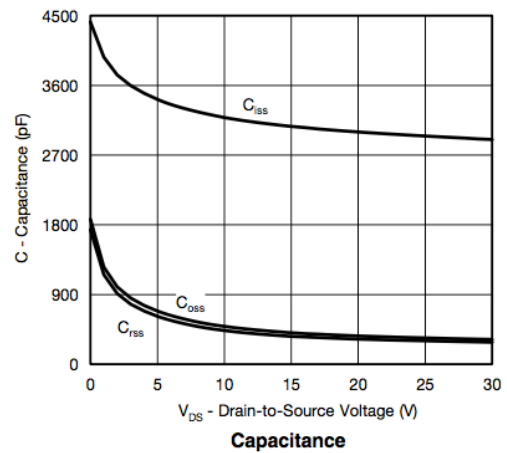
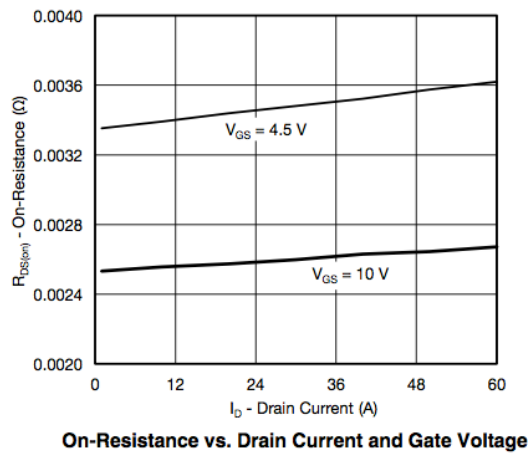
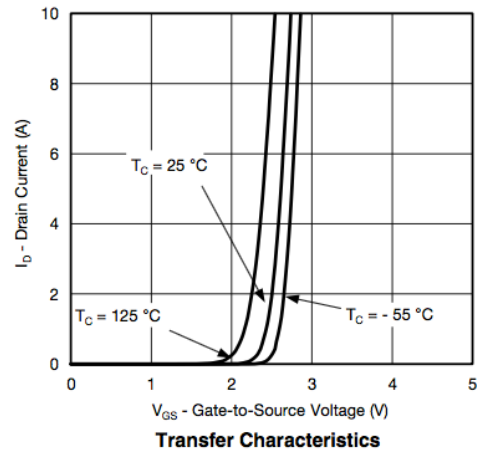
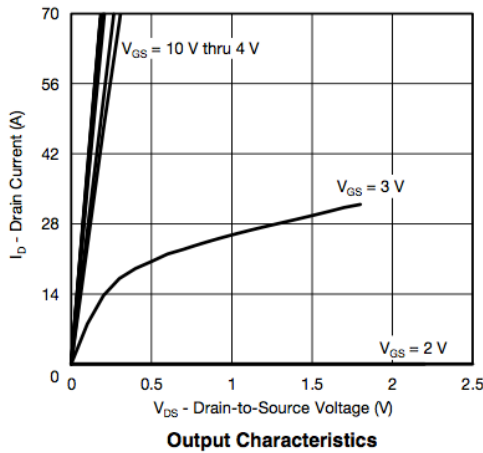


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TYPICAL CHARACTERISTICS (25°C unless otherwise noted)



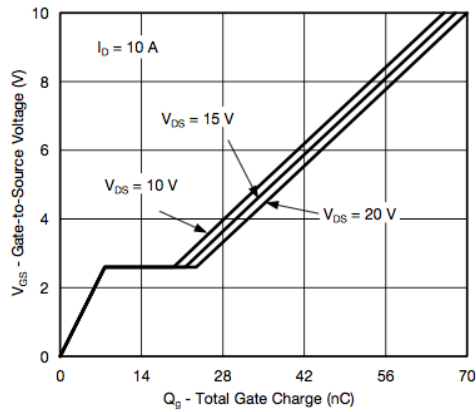


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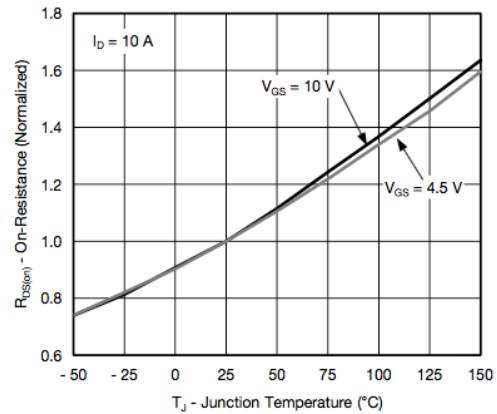


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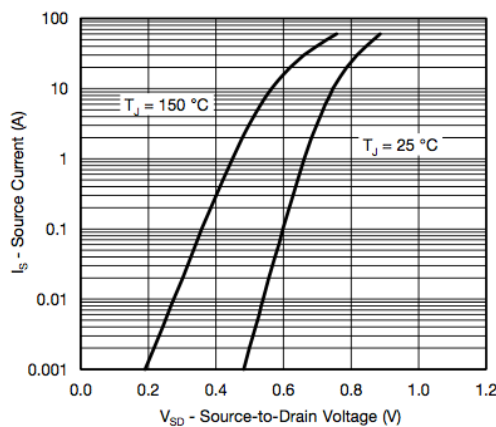
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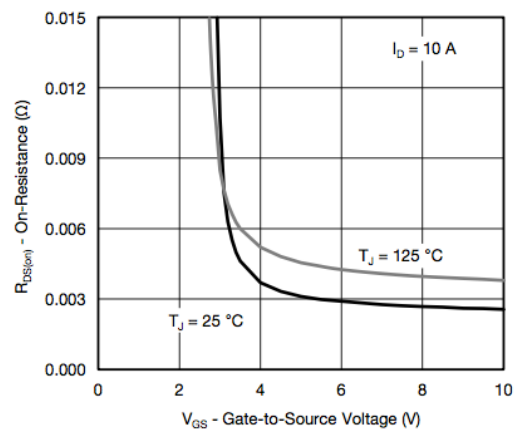
Gate Charge



On-Resistance vs. Junction Temperature



Source-Drain Diode Forward Voltage



On-Resistance vs. Gate-to-Source Voltage

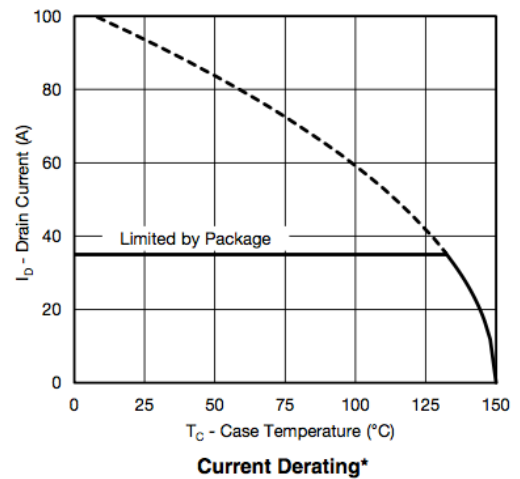
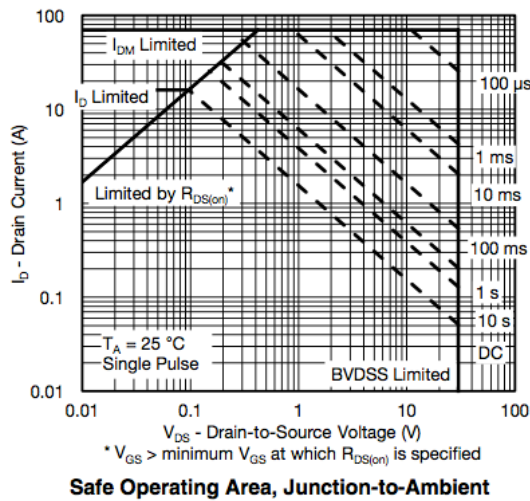
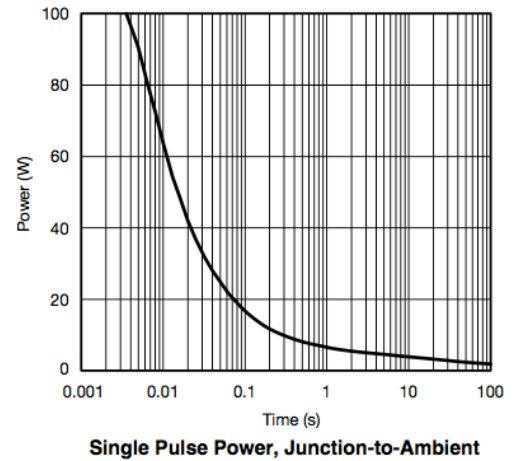
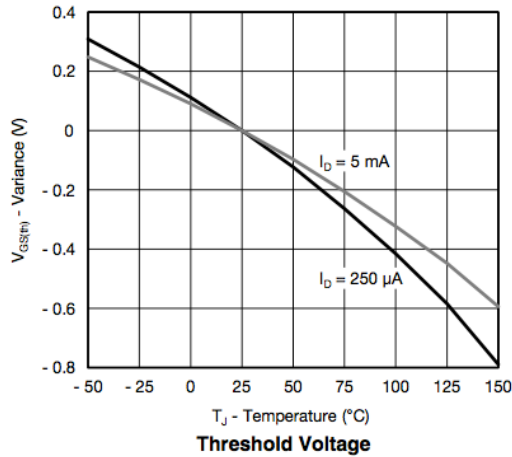


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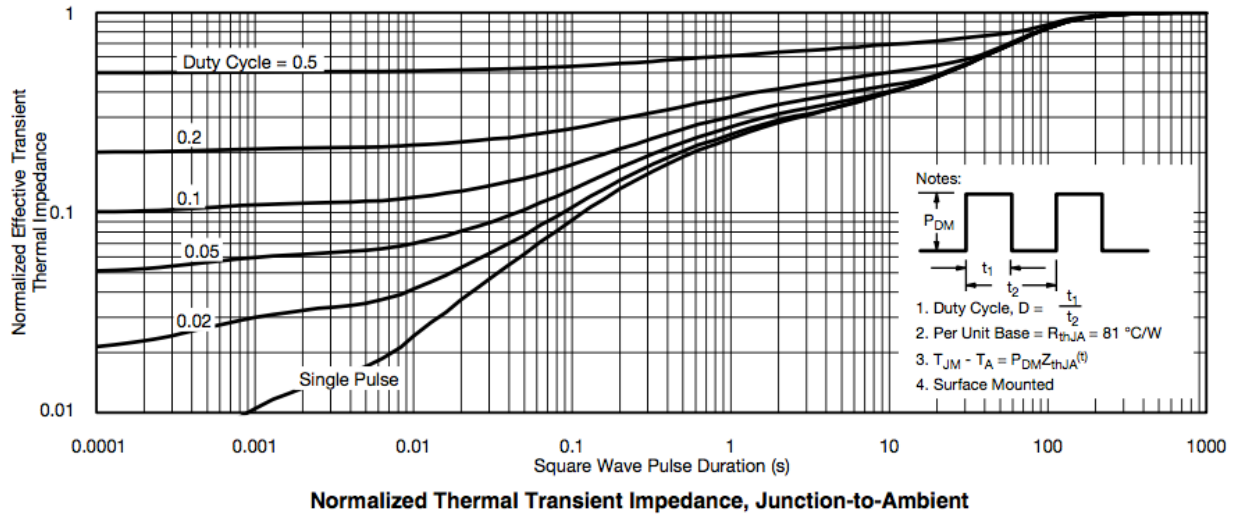
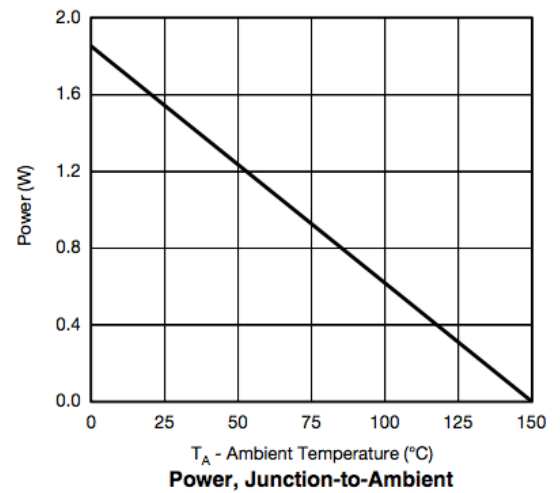
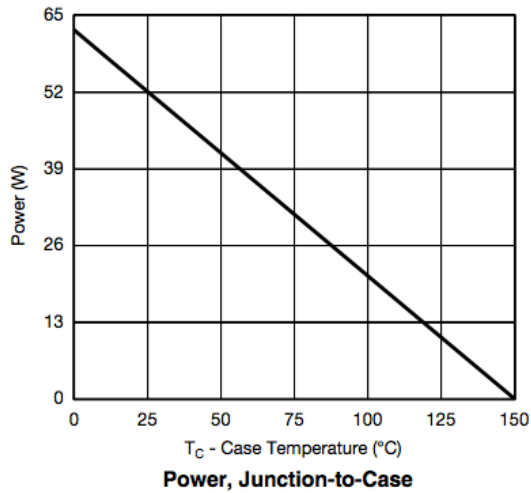


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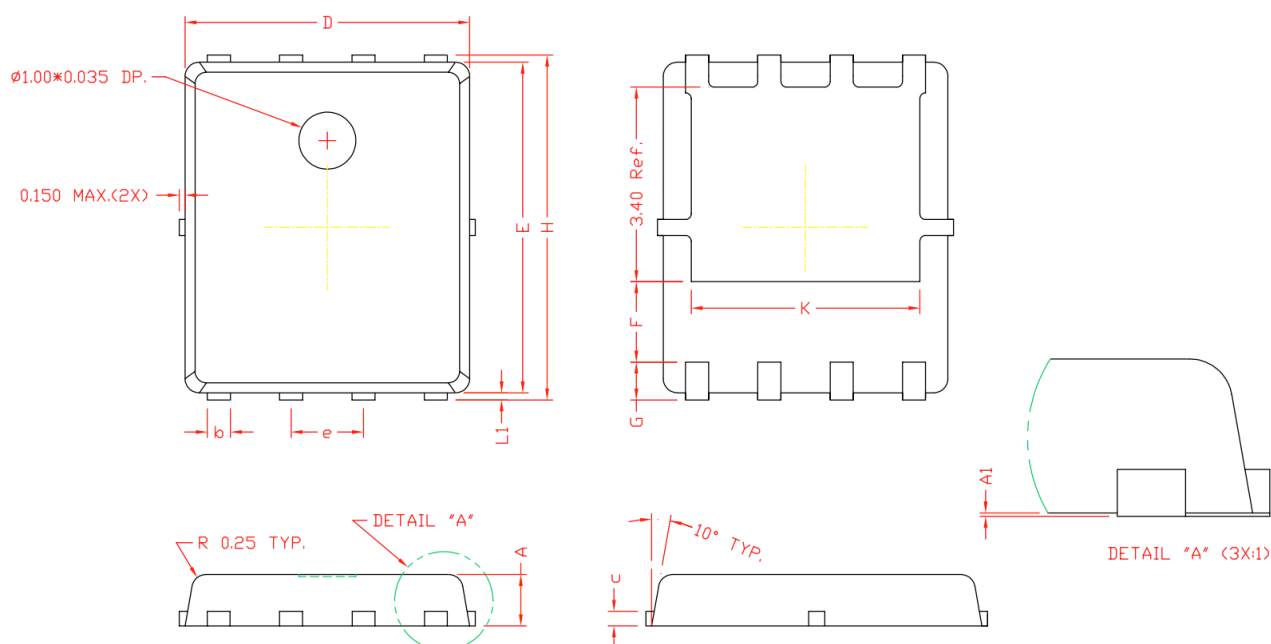


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PACKAGE OUTLINE PowerPAK 5X6L (1212-8)



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.	