

DESCRIPTION

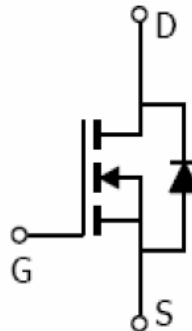
ST18ADN uses Trench MOSFET technology that is uniquely optimized to provide the most efficient high frequency switching performance. It has been optimized for low gate charge, low $R_{DS(ON)}$ and fast switching speed.

**PIN CONFIGURATION
POWER PACK 5x6 (1212-8L)**


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

FEATURE

- 30V/30A, $R_{DS(ON)} = 6m\Omega$ (Typ.)
@ $V_{GS} = 10V$
- 30V/15A, $R_{DS(ON)} = 7m\Omega$
@ $V_{GS} = 4.5V$
- Super high density cell design for extremely low $R_{DS(ON)}$
- Exceptional on-resistance and maximum DC current capability
- PPAK5x6 (1212-8L) package design





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°C)	ID	35 17	A
Pulsed Drain Current	IDM	70	A
Continuous Source Current (Diode Conduction)	IS	110	A
Power Dissipation	PD	87	W
Operation Junction Temperature	TJ	150	°C
Storage Temperature Range	TSTG	-55/150	°C
Thermal Resistance-Junction to Ambient	RθJA	62	°C/W



ST18ADN



N Channel Enhancement Mode MOSFET

70A

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	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=250\mu A$	1.2		2.5	V
Gate Leakage Current	I_{GSS}	$V_{DS}=0V, V_{GS}=\pm 20V$			± 100	nA
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=24V, V_{GS}=0V$			1	uA
		$V_{DS}=24V, V_{GS}=0V$ $T_J=55^\circ C$			5	
Drain-source On-Resistance	$R_{DS(on)}$	$V_{GS}=10V, I_D=30A$ $V_{GS}=4.5V, I_D=15A$		6.5 8.0	6.5 9.0	mΩ
Forward Transconductance	g_{fs}	$V_{DS}=5V, I_D=30A$		43		S
Diode Forward Voltage	V_{SD}	$I_S=1.0A, V_{GS}=0V$			1.0	V
Dynamic						
Total Gate Charge	Q_g	$V_{DS}=20V, V_{GS}=4.5V$ $I_D=12A$		32		nC
Gate-Source Charge	Q_{gs}			6.1		
Gate-Drain Charge	Q_{gd}			13.8		
Input Capacitance	C_{iss}	$V_{DS}=15V, V_{GS}=0V$ $F=1MHz$		3100		pF
Output Capacitance	C_{oss}			400		
Reverse Transfer Capacitance	C_{rss}			315		
Turn-On Time	$t_{d(on)}$ t_r	$V_{DD}=15V, I_D=20A$ $V_{GS}=10V, R_G=1.5\Omega$		11.8		nS
				49		
Turn-Off Time	$t_{d(off)}$ t_f			35		
				7.8		

TYPICAL CHARACTERISTICS ($T_j=25^\circ\text{C}$ unless otherwise noted)

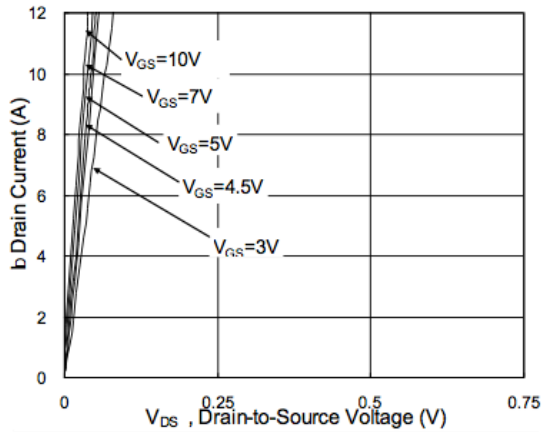


Fig.1 Typical Output Characteristics

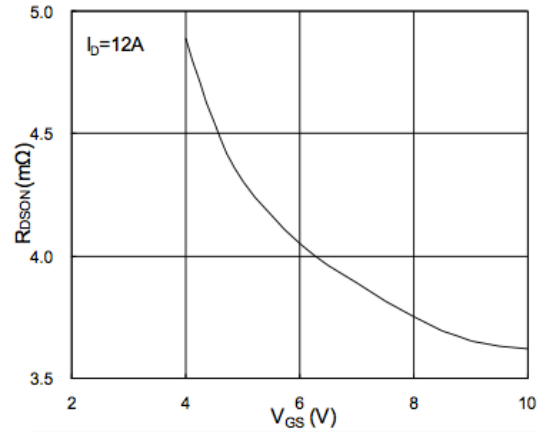


Fig.2 On-Resistance vs. G-S Voltage

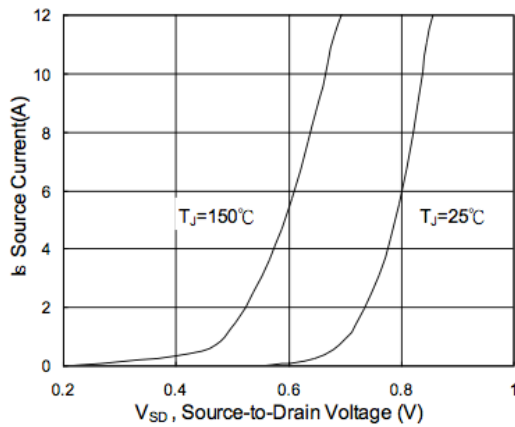


Fig.3 Forward Characteristics of Reverse

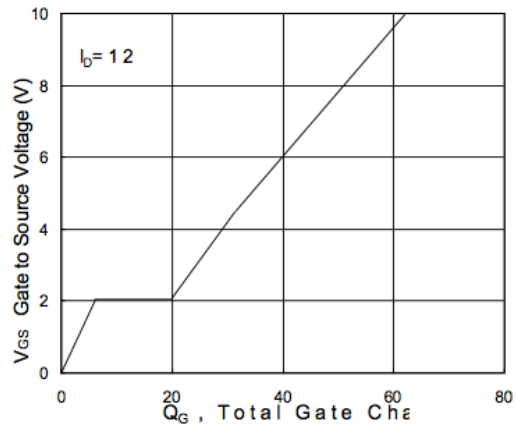


Fig.4 Gate-Charge Characteristics

TYPICAL CHARACTERISTICS (T_J=25°C unless otherwise noted)

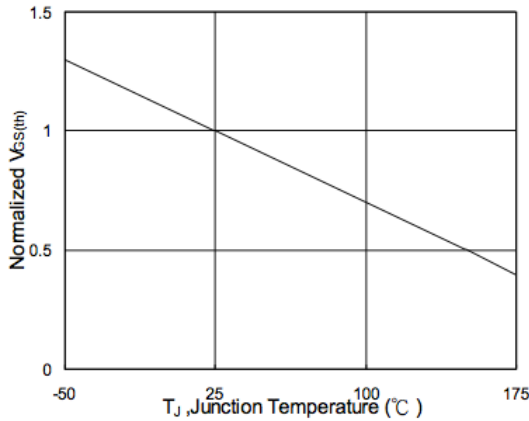


Fig.5 Normalized V_{GS(th)} vs. T_J

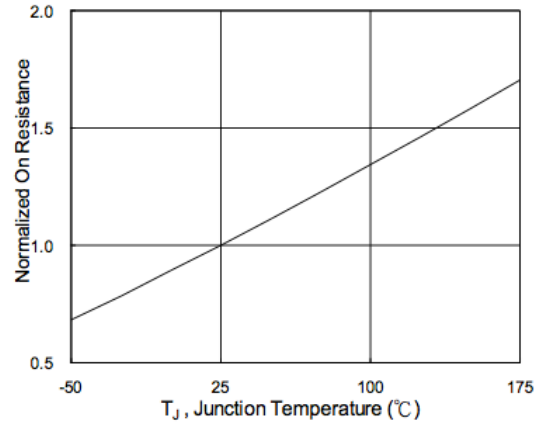


Fig.6 Normalized R_{DS(on)} vs. T_J

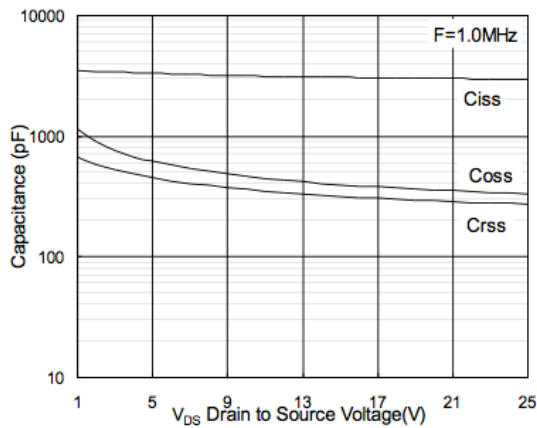


Fig.7 Capacitance

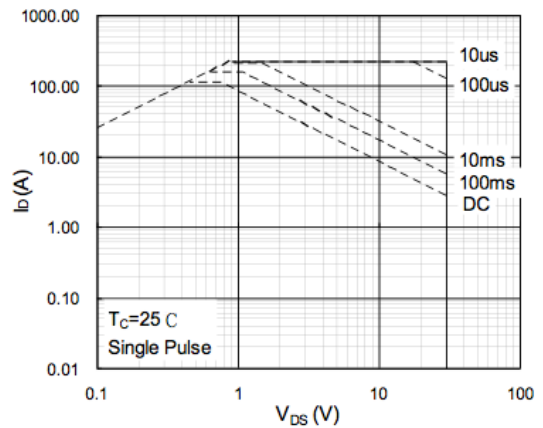


Fig.8 Safe Operating Area

TYPICAL CHARACTERISTICS ($T_j=25^\circ\text{C}$ unless otherwise noted)

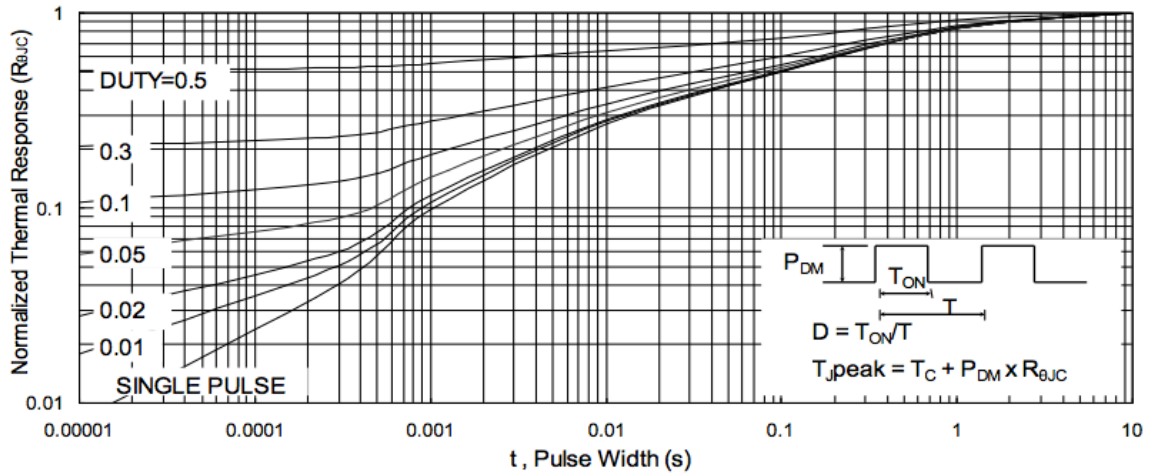


Fig.9 Normalized Maximum Transient Thermal Impedance

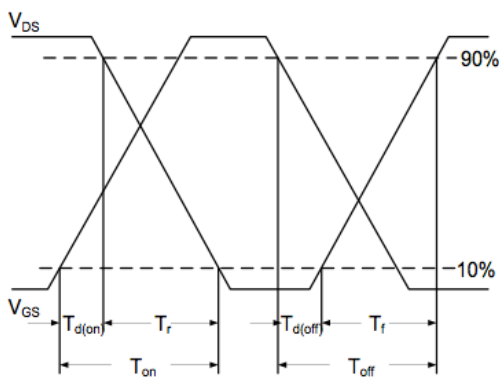


Fig.10 Switching Time Waveform

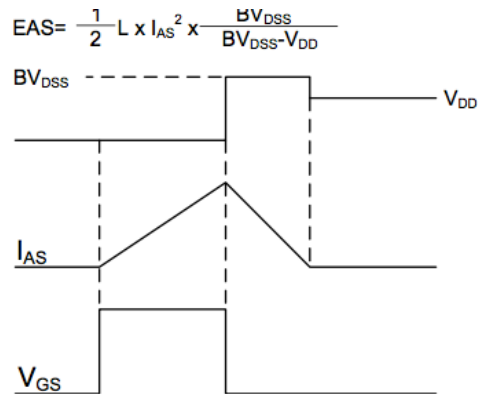
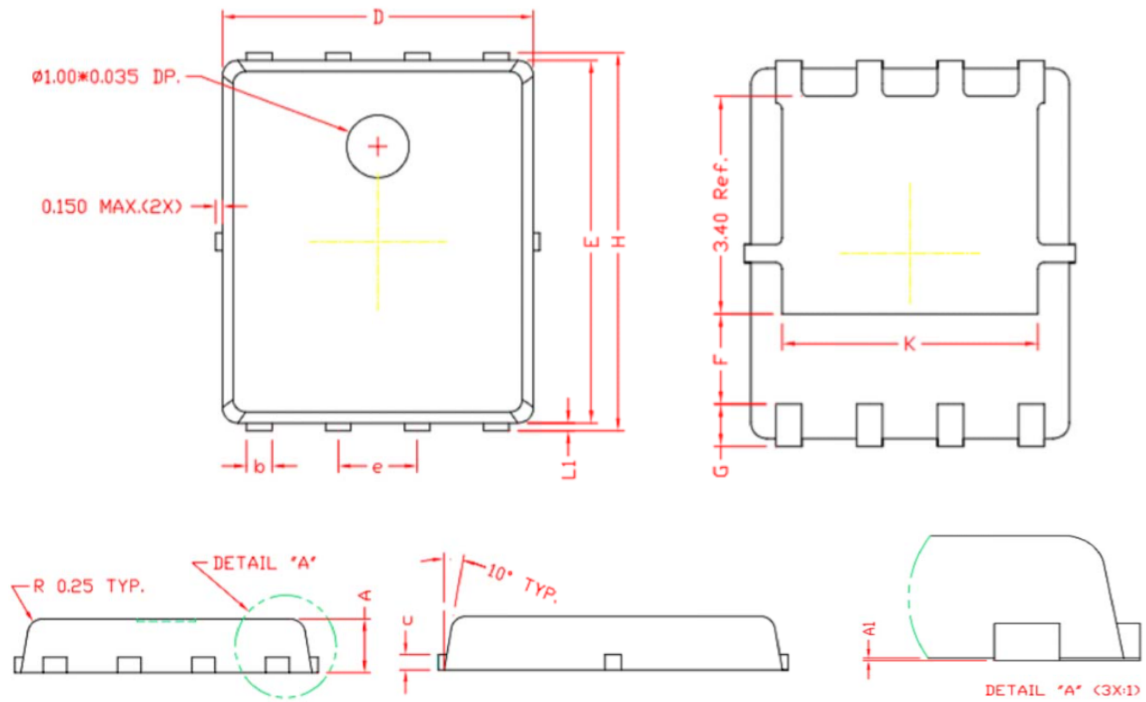


Fig.11 Unclamped Inductive Switching Waveform

POWER PACKAGE 5x6 OUTLINE



(UNITS OF MEASURE=MILLIMETER)

SYMBOL	MIN	NOM	MAX
A	0.80	0.90	1.00
A1	0.00	0.03	0.05
b	0.35	0.42	0.49
c	0.254 REF.		
D	4.90	5.00	5.10
F	1.40 REF.		
E	5.70	5.80	5.90
e	1.27 BSC.		
H	5.95	6.08	6.20
L1	0.10	0.14	0.18
G	0.60 REF.		
K	4.00 REF.		