H11N70D
N-Channel Power MOSFET

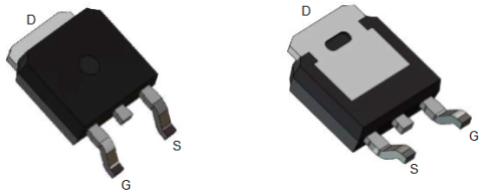
Features

- New technology for high voltage device
- Low on-resistance and low conduction losses
- Small package
- Ultra Low Gate Charge cause lower driving requirements
- 100% Avalanche Tested

Product Summary

V_{DS}	700V
$R_{DS(on)\_max}$	380mΩ
I_D	11A

View and Internal Schematic Diagram



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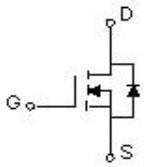


Schematic diagram

Package Marking and Ordering Information

Part Number	Package	Marking	Packing	Qty
H11N70D	TO-252	H11N70D	Tape & Reel	2500pcs

Absolute Maximum Ratings (T_C=25℃)

Parameter	Symbol	Value	Unit
Drain-Source Voltage (V_{GS}=0V)	V_{DS}	700	V
Gate-Source Voltage (V_{DS}=0V) AC (f>1 Hz)	V_{GS}	±30	V
Continuous Drain Current at T_C =25°C	$I_{D\ (DC)}$	11	A
Continuous Drain Current at T_C=100°C	$I_{D\ (DC)}$	7	A
Pulsed drain current **(Note 1)**	$I_{DM\ (pluse)}$	46	A
Maximum Power Dissipation(T_C =25℃) Derate above 25°C	P_D	101 0.97	W W/°C
Single pulse avalanche energy **(Note2)**	E_{AS}	144	mJ
Avalanche current**(Note 1)**	I_{AR}	6	A
Repetitive Avalanche energy ,t_{AR} limited by T_{jmax} **(Note 1)**	E_{AR}	0.5	mJ
Drain Source voltage slope, V_{DS} ≤480 V,	dv/dt	50	V/ns
Reverse diode dv/dt, V_{DS} ≤480 V,I_{SD}<I_D	dv/dt	15	V/ns
Operating Junction and Storage Temperature Range	T_J,T_{STG}	-55...+150	°C

Thermal Characteristic

Parameter	Symbol	Value	Unit
Thermal Resistance，Junction-to-Case（Maximum）	R_{thJC}	1.24	°C /W
Thermal Resistance，Junction-to-Ambient （Maximum）	R_{thJA}	62	°C /W

Electrical Characteristics (TA=25℃unless otherwise noted)

Parameter	Symbol	Condition	Min	Typ	Max	Unit
On/off states						
Drain-Source Breakdown Voltage	BV_{DSS}	V_{GS}=0V I_D=250μA	700			V
Zero Gate Voltage Drain Current(Tc=25℃)	I_{DSS}	V_{DS}=700V,V_{GS}=0V			1	μA
Zero Gate Voltage Drain Current(Tc=125℃)	I_{DSS}	V_{DS}=700V,V_{GS}=0V			100	μA
Gate-Body Leakage Current	I_{GSS}	V_{GS}=±20V,V_{DS}=0V			±100	nA
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS},I_D=250μA	2	3	4	V
Drain-Source On-State Resistance	$R_{DS(ON)}$	V_{GS}=10V, I_D=6A		330	380	mΩ
Dynamic Characteristics						
Input Capacitance	C_{lss}	V_{DS}=50V,V_{GS}=0V, F=1.0MHz		870		pF
Output Capacitance	C_{oss}			54		pF
Reverse Transfer Capacitance	C_{rss}			1.8		pF
Total Gate Charge	Q_g	V_{DS}=480V,I_D=11.5A, V_{GS}=10V		19		nC
Gate-Source Charge	Q_{gs}			6		nC
Gate-Drain Charge	Q_{gd}			6.5		nC
Switching times						
Turn-on Delay Time	$t_{d(on)}$	V_{DD}=420V,I_D=5.5A, R_G=3Ω,V_{GS}=10V		12		nS
Turn-on Rise Time	t_r			9		nS
Turn-Off Delay Time	$t_{d(off)}$			61		nS
Turn-Off Fall Time	t_f			11		nS
Source- Drain Diode Characteristics						
Source-drain current(Body Diode)	I_{SD}	T_C=25°C			11.5	A
Pulsed Source-drain current(Body Diode)	I_{SDM}				46	A
Forward on voltage	V_{SD}	Tj=25°C,I_{SD}=11.5A,V_{GS}=0V		0.9		V
Reverse Recovery Time	t_{rr}	Tj=25°C,I_F=5.8A, di/dt=100A/μs		220		nS
Reverse Recovery Charge	Q_{rr}			2.2		uC
Peak Reverse Recovery Current	I_{rrm}			19		A

Notes: 1.Repetitive Rating: Pulse width limited by maximum junction temperature

2. Tj=25℃,VDD=50V,VG=10V, R_G=25Ω

Typical Characteristics Curves

Figure1. Safe operating area

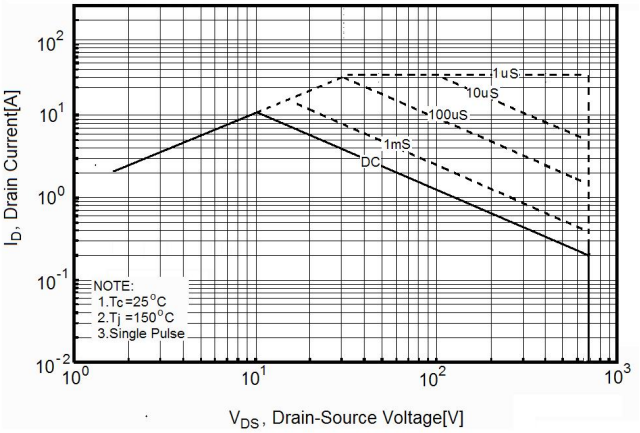


Figure2. Transient Thermal Impedance

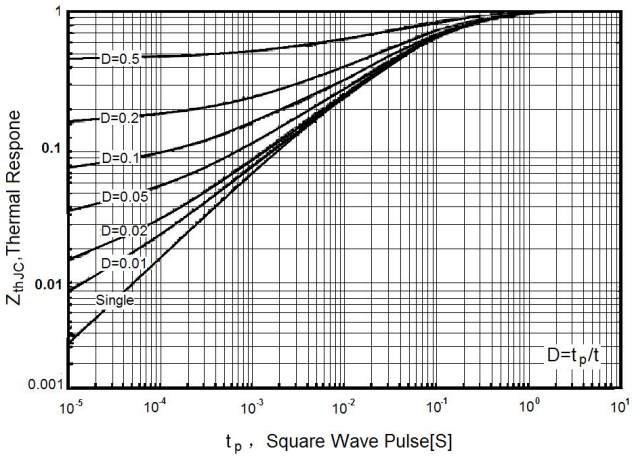


Figure3. Source-Drain Diode Forward Voltage

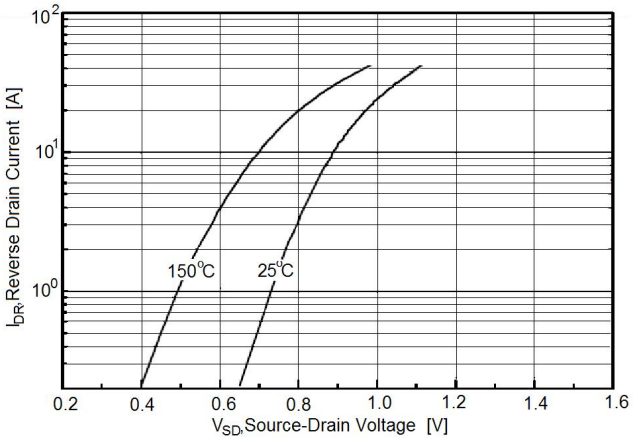


Figure4. Output characteristics

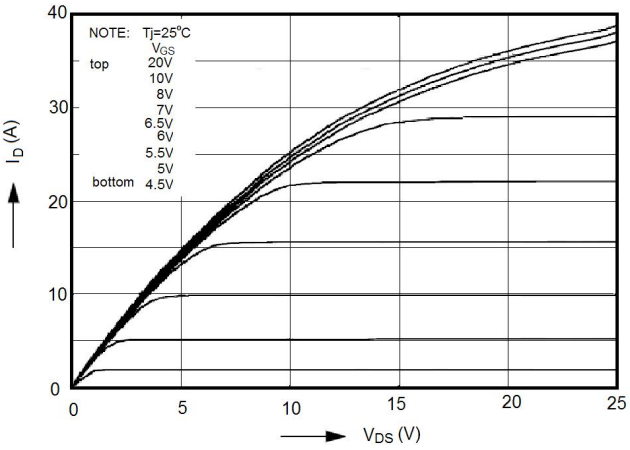


Figure5. Transfer characteristics

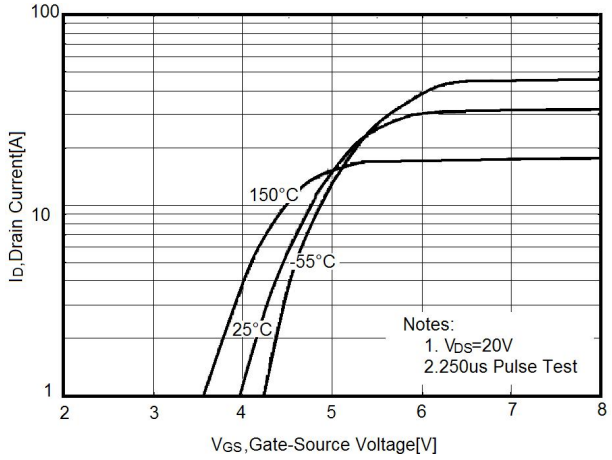


Figure6. Static drain-source on resistance

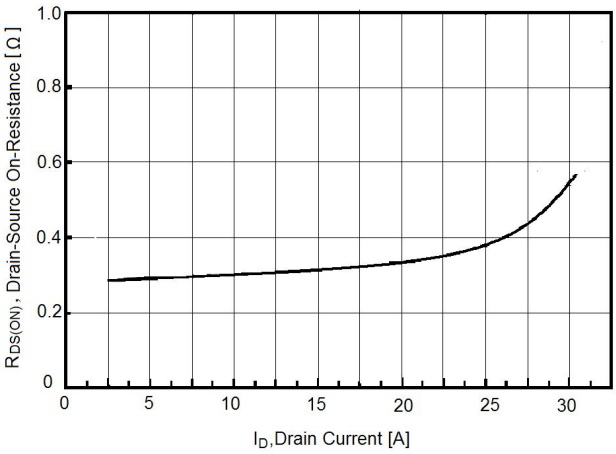


Figure7. $R_{DS(ON)}$ vs Junction Temperature

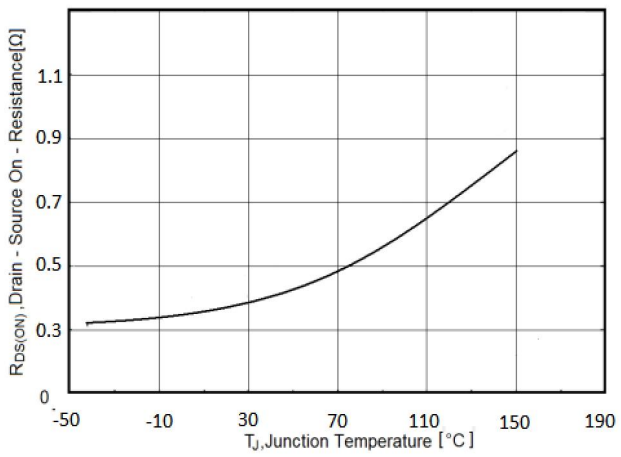


Figure8. BV_{DSS} vs Junction Temperature

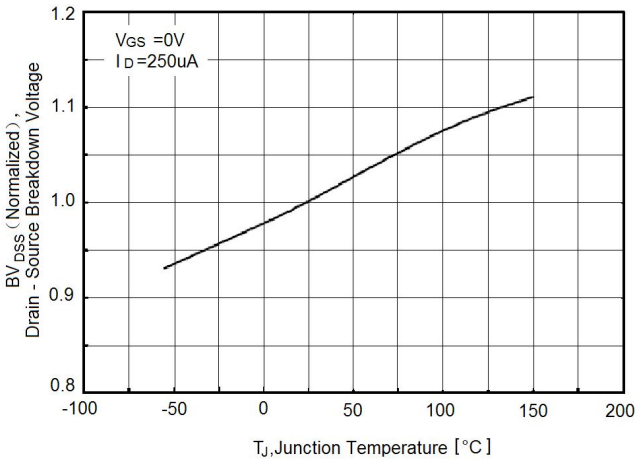


Figure9. Maximum I_D vs Junction Temperature

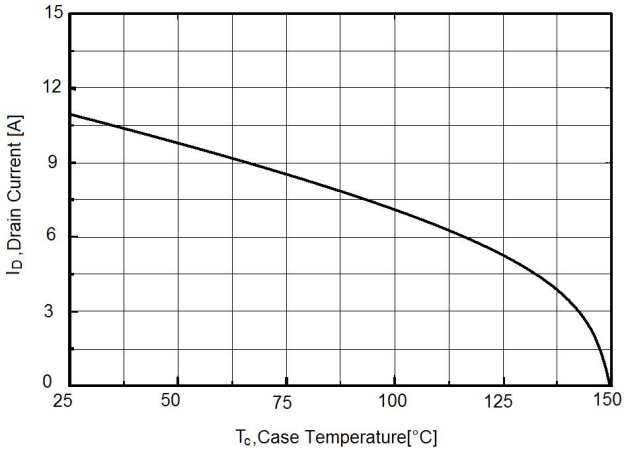


Figure10. Gate charge waveforms

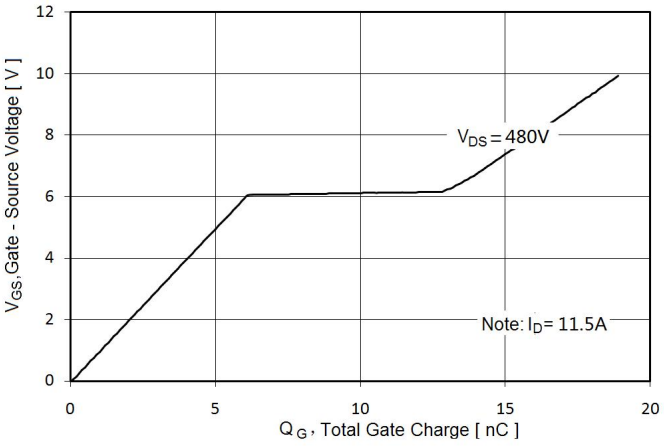
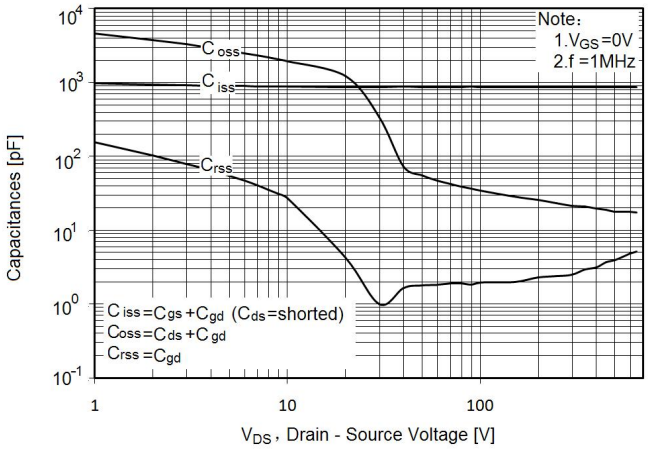
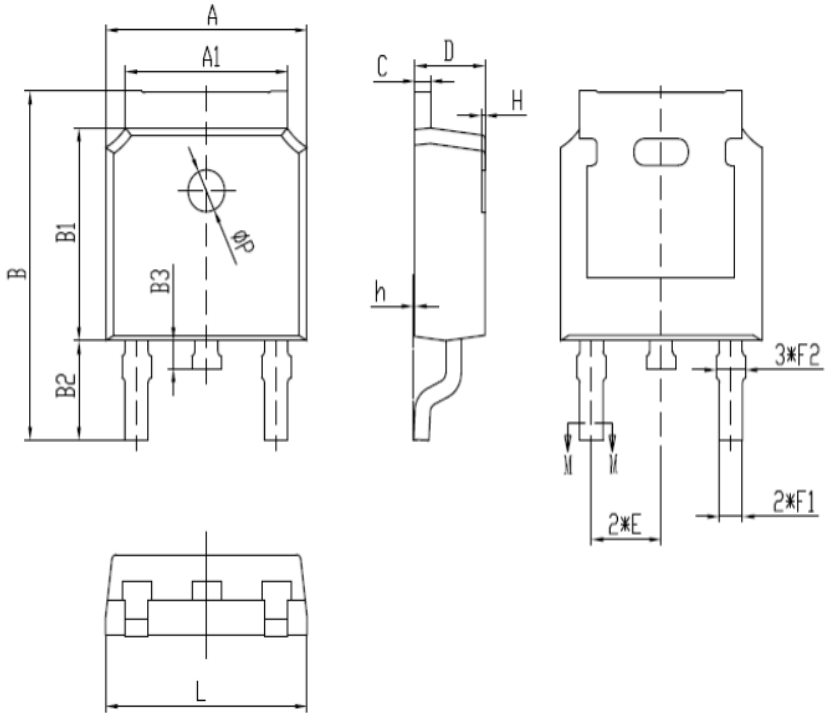


Figure11. Capacitance



Package Information



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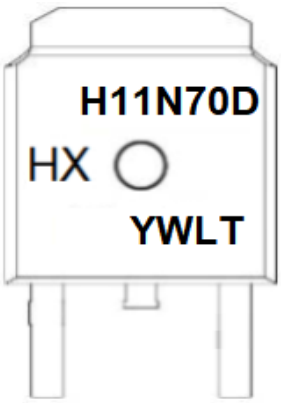
Symbol	Dimensions in Millimeters	
	MIN	MAX
A	6.50	6.70
A1	5.16	5.46
B	9.77	10.17
B1	6.00	6.20
B2	2.60	3.00
B3	0.70	0.90
C	0.45	0.61
D	2.20	2.40
E	2.186	2.386
F1	0.67	0.87
F2	0.76	0.96
H	0.00	0.30
h	0.00	0.127
L	6.50	6.70
Φ P	1.10	1.30

Marking Information



NOTE:

LOGO - HX

H11N70D- Part number coder

Y - Year code

W - Week code

L&T - Assembly lot code