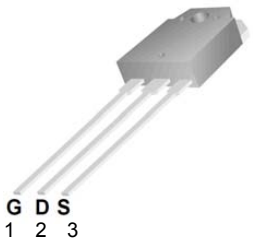
LX3P11N900
900V N-Channel MOSFET

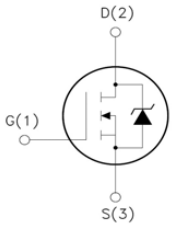
Features

- Low Intrinsic Capacitances.
- Excellent Switching Characteristics.
- Extended Safe Operating Area.
- Unrivalled Gate Charge: Qg= 60nC (Typ.).
- BVDSS=900V,I_D=11A
- R_{DS}(on) : 1.1Ω (Max) @V_G=10V
- 100% Avalanche Tested

Package

TO-3P





1.Gate (G)
2.Drain (D)
3.Source (S)

Absolute Maximum Ratings (Ta=25℃ unless otherwise noted)

Symbol	Parameter		Value	Unit
V_{DSS}	Drain-Source Voltage		900	V
I_D	Drain Current	T_C=25℃	11	A
		T_C=100℃	6.9	
$V_{GS(TH)}$	Gate Threshold Voltage		±30	V
E_{AS}	Single Pulse Avalanche Energy (note1)		960	mJ
I_{AR}	Avalanche Current (note2)		11	A
P_D	Power Dissipation (Tj=25℃)		300	W
T_j	Junction Temperature(MAX)		150	℃
T_{stg}	Storage Temperature		-55~+150	℃
TL	Maximum lead temperature for soldering purpose,1/8" from case for 5 seconds		300	℃

Thermal Characteristics

Symbol	Parameter	Typ.	Max.	Unit
$R_{\theta JC}$	Thermal Resistance, Junction to Case	-	0.42	℃/W
$R_{\theta JA}$	Thermal Resistance, Junction to Ambient	-	62.5	℃/W

Electrical Characteristics T_C = 25°C unless otherwise noted

Symbol	Parameter	Test Conditions	Min	Typ	Max	Units
Off Characteristics						
BV_{DSS}	Drain-Source Breakdown Voltage	V_{GS}=0V, I_D=250 μA	900	--	--	V
ΔBV_{DSS} /ΔT_J	Breakdown Voltage Temperature Coefficient	I_D=250μA, Referenced to 25°C	--	1.02	--	V/℃
I_{DSS}	Zero Gate Voltage Drain Current	V_{DS}=900 V, V_{GS}=0V	--	--	10	μA
		V_{DS}=720 V, T_C=125°C	--	--	100	μA
I_{GSSF}	Gate-Body Leakage Current, Forward	V_{GS}=30 V, V_{DS}=0V	--	--	100	nA
I_{GSSR}	Gate-Body Leakage Current, Reverse	V_{GS}=-30 V, V_{DS}=0V	--	--	-100	nA
On Characteristics						
$V_{GS(th)}$	Gate Threshold Voltage	V_{DS} = V_{GS}, I_D = 250 μA	3.0	--	5.0	V
$R_{DS(on)}$	Static Drain-Source On-Resistance	V_{GS} = 10 V, I_D = 5.5 A	--	0.91	1.1	Ω
g_{FS}	Forward Trans conductance	V_{DS} = 50 V, I_D = 5.5 A (Note4)	--		--	S
Dynamic Characteristics						
C_{iss}	Input Capacitance	V_{DS}= 25 V, V_{GS} = 0 V, f=1.0MHz	--	2530	3290	pF
C_{oss}	Output Capacitance		--	215	280	pF
C_{rss}	Reverse Transfer Capacitance		--	23	30	pF
Switching Characteristics						
$t_{d(on)}$	Turn-On Delay Time	V_{DD} = 450 V, I_D = 11.0 A, R_G = 25 Ω (Note 4, 5)	--	60	130	ns
t_r	Turn-On Rise Time		--	130	270	ns
$t_{d(off)}$	Turn-Off Delay Time		--	130	270	ns
t_f	Turn-Off Fall Time		--	85	180	ns
Q_g	Total Gate Charge	V_{DS} = 720 V, I_D = 11.0 A, V_{GS} = 10 V (Note 4, 5)	--	60	80	nC
Q_{gs}	Gate-Source Charge		--	13	--	nC
Q_{gd}	Gate-Drain Charge		--	25	--	nC
Drain-Source Diode Characteristics and Maximum Ratings						
I_S	Maximum Continuous Drain-Source Diode Forward Current		--	--	11.0	A
I_{SM}	Maximum Pulsed Drain-Source Diode Forward Current		--	--	44.0	A
V_{SD}	Drain-Source Diode Forward Voltage	V_{GS} = 0 V, I_S = 11.0 A	--	--	1.4	V
t_{rr}	Reverse Recovery Time	V_{GS} = 0 V, I_S = 11.0 A,	--	1000	--	ns
Q_{rr}	Reverse Recovery Charge	dI_F/dt=100A/μs	--	17.0	--	μC

Notes:
1. Repetitive Rating : Pulse width limited by maximum junction temperature
2. L = 15mH, I_{AS} = 11.0A, V_{DD} = 50V, R_G = 25 Ω, Starting T_J = 25°C
3. I_{SD} ≤ 11.0A, di/dt ≤ 200A/μs, V_{DD} ≤ BV_{DSS}, Starting T_J = 25°C
4. Pulse Test : Pulse width ≤ 300μs, Duty cycle ≤ 2%
5. Essentially independent of operating temperature

Typical Characteristics

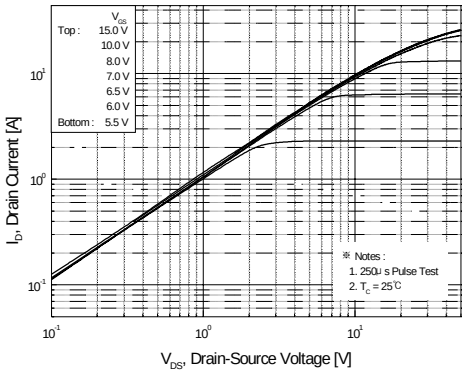


Figure 1. On-Region Characteristics

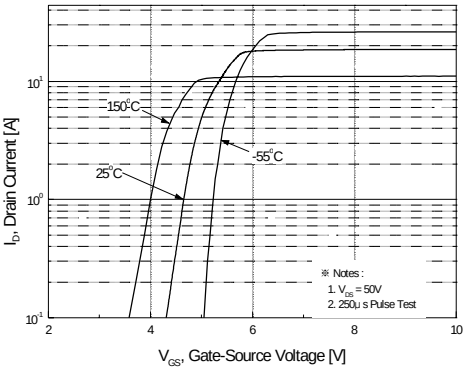


Figure 2. Transfer Characteristics

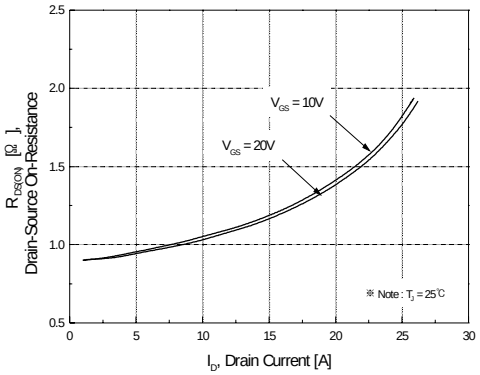


Figure 3. On-Resistance Variation vs Drain Current and Gate Voltage

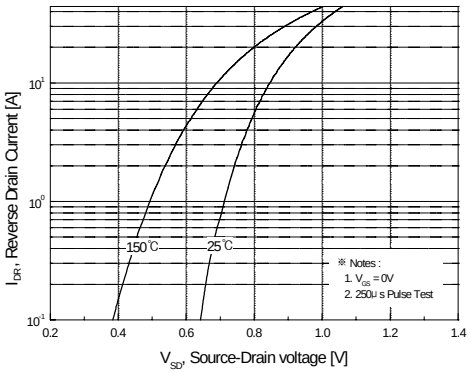


Figure 4. Body Diode Forward Voltage Variation with Source Current

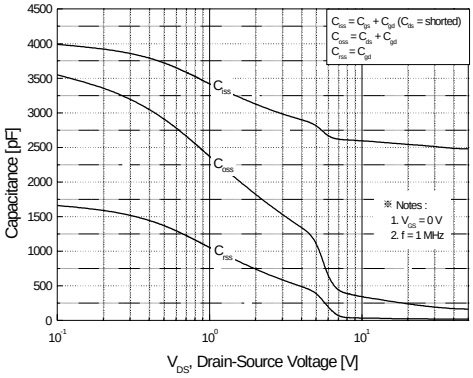


Figure 5. Capacitance Characteristics

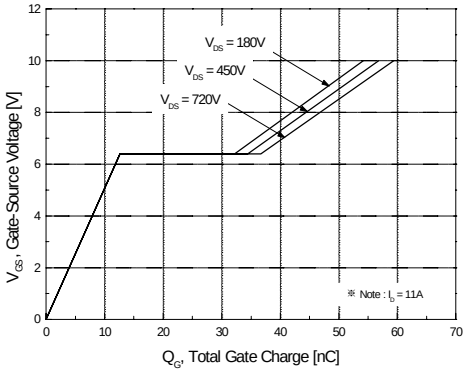


Figure 6. Gate Charge Characteristics

Typical Characteristics (Continued)

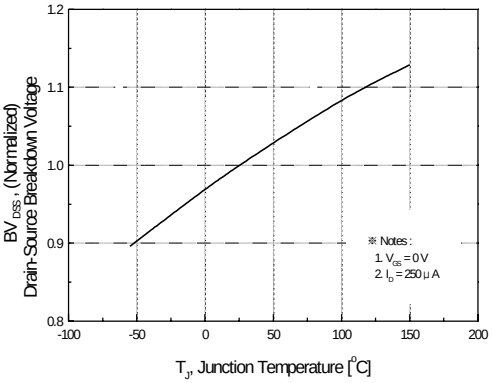


Figure 7. Breakdown Voltage Variation

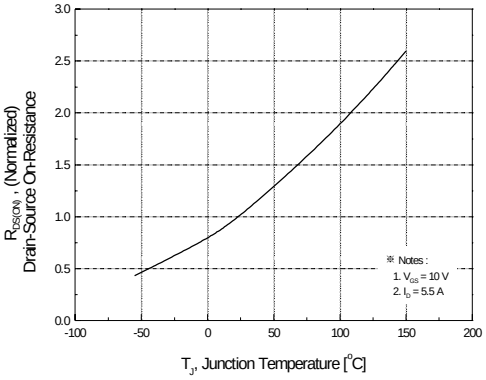


Figure 8. On-Resistance Variation

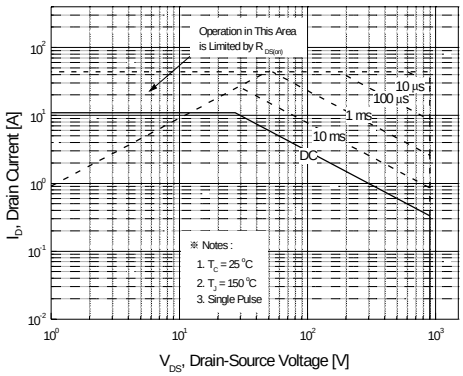


Figure 9. Maximum Safe Operating Area

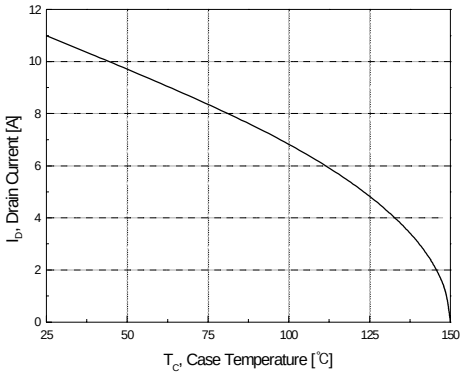


Figure 10. Maximum Drain Current vs Case Temperature

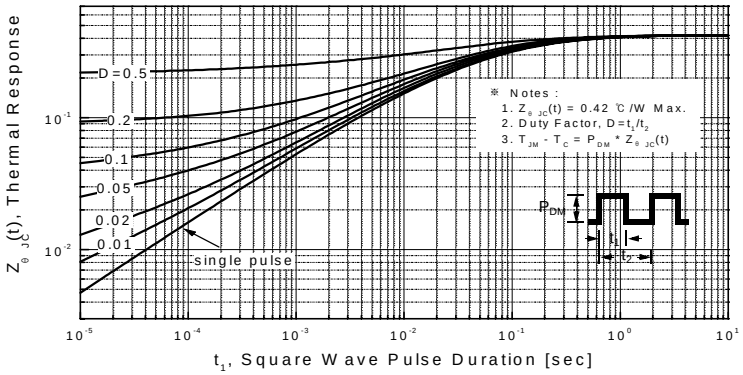
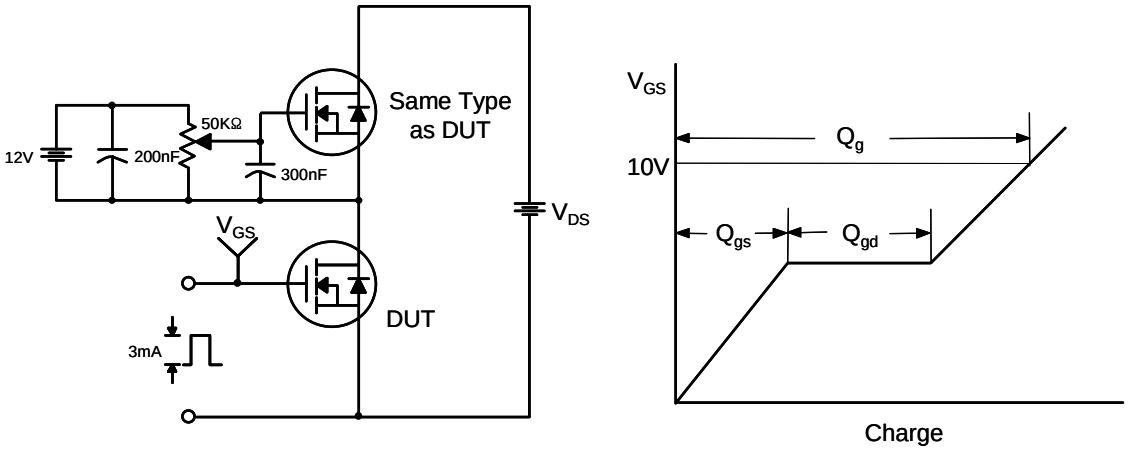
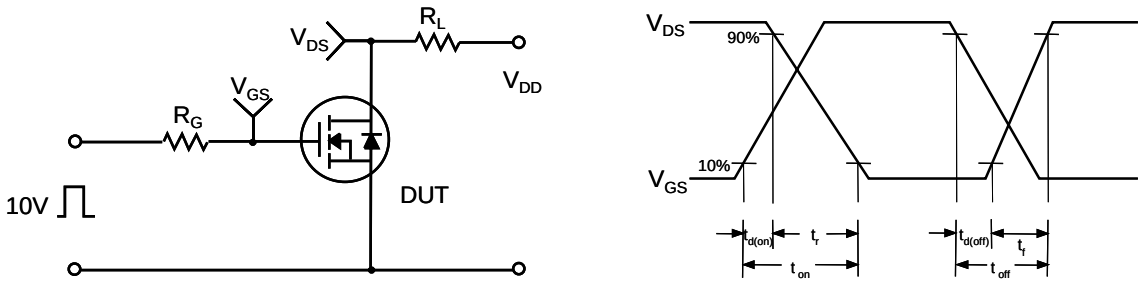


Figure 11. Transient Thermal Response Curve

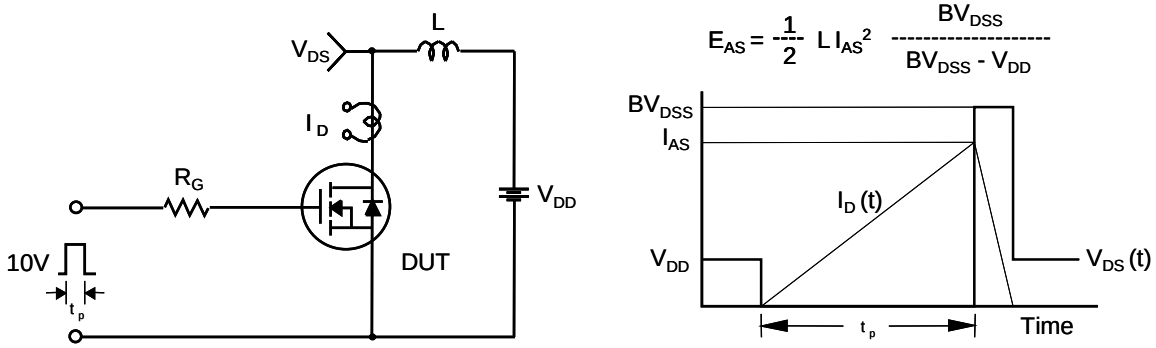
Gate Charge Test Circuit & Waveform



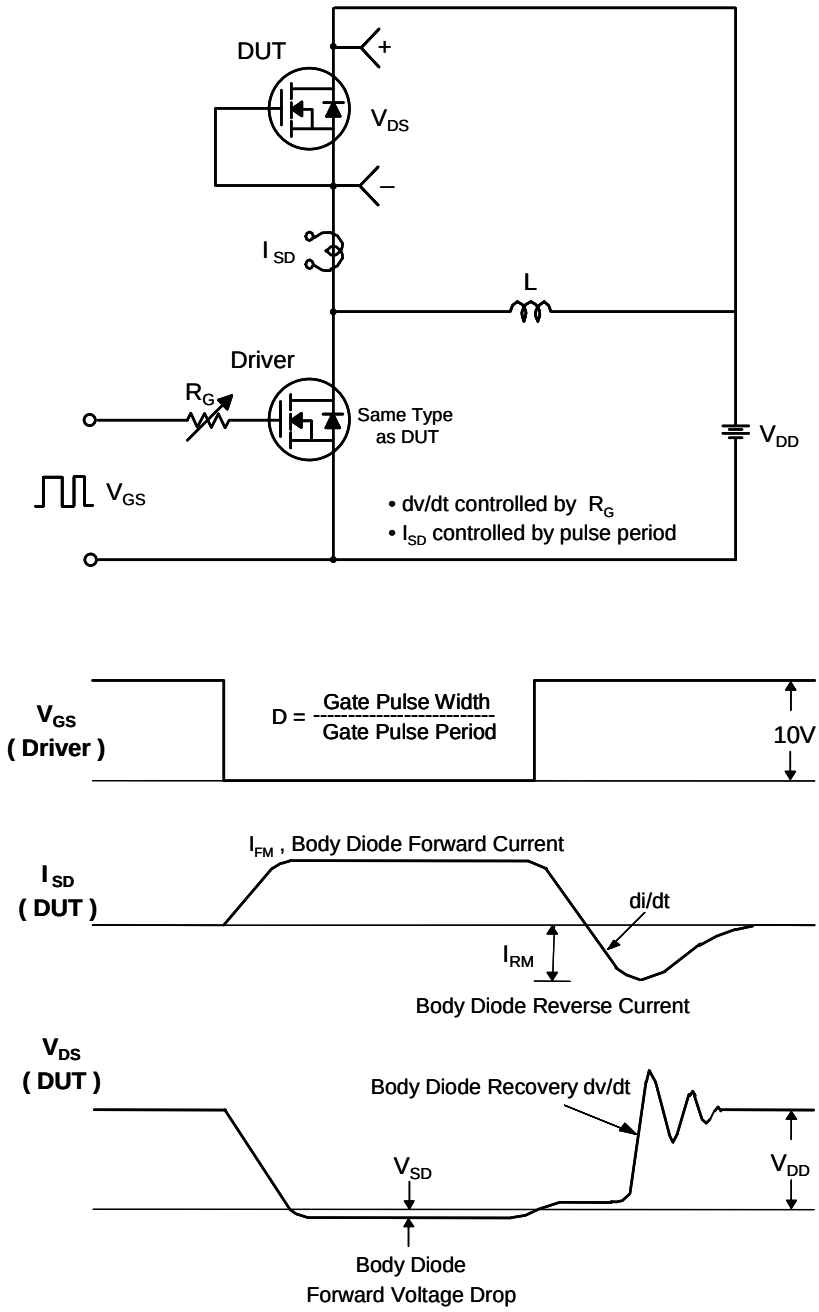
Resistive Switching Test Circuit & Waveforms



Unclamped Inductive Switching Test Circuit & Waveforms



Peak Diode Recovery dv/dt Test Circuit & Waveforms



Package Dimension

TO-3P

Unit: mm