



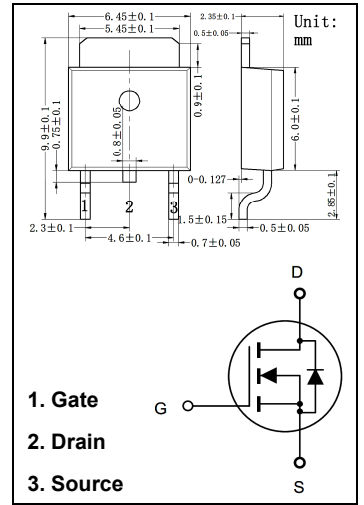
TO-252 Plastic-Encapsulate MOSFETS

LJU630N

N-Channel Enhancement Mode Field Effect Transistor

Features

- 200V, 7.5A, $R_{DS(ON)} = 0.35 \Omega @ V_{GS} = 10V$.
- Super high dense cell design for extremely low $R_{DS(ON)}$.
- High power and current handing capability.
- Lead free product is acquired.



Maximum Ratings ($T_a=25^\circ\text{C}$ unless otherwise specified)

Symbol	Parameter	Value	Unit
V_{DS}	Drain-Source voltage	200	V
V_{GS}	Gate-Source voltage	± 20	
I_D	Drain Current	7.5	A
I_{DM}	Pulsed Drain Current ¹⁾	30	
P_D	Maximum Power Dissipation @ $T_C = 25^\circ\text{C}$ - Derate above 25°C	54	W
		0.43	W/ $^\circ\text{C}$
T_J, T_{STG}	Operating Junction and Storage Temperature Range	-55 to +150	$^\circ\text{C}$

Thermal Characteristics

Symbol	Parameter	Value	Unit
$R_{\theta JA}$	Thermal Resistance, Junction-to-Case	2.3	$^\circ\text{C/W}$
$R_{\theta JC}$	Thermal Resistance, Junction-to-Ambient	50	$^\circ\text{C/W}$

Electrical Characteristics (T_J=25°C unless otherwise specified)

Symbol	Parameter	Test Conditions	Min	Typ	Max	Unit
Off Characteristics						
V _{(BR)DSS}	Drain-Source Breakdown Voltage	V _{GS} = 0V, I _D = 250μA	200			V
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} = 160V, V _{GS} = 0V			25	μA
I _{GSS}	Gate-body Leakage current	V _{DS} = 0V, V _{GS} = ±20V			±100	nA
On Characteristics ²⁾						
V _{GS(th)}	Gate-Threshold Voltage	V _{DS} = V _{GS} , I _D = 250μA	1.5	1.9	3	V
R _{DS(on)}	Drain-Source On-Resistance	V _{GS} = 10V, I _D = 3.5A		0.28	0.35	Ω
Dynamic Characteristics ³⁾						
g _{FS}	Forward Transconductance	V _{DS} = 10V, I _D = 3.5A		4		S
C _{iss}	Input Capacitance	V _{GS} = 0V V _{DS} = 25V f = 1.0MHz		930		pF
C _{oss}	Output Capacitance			130		
C _{rss}	Reverse Transfer Capacitance			25		
Switching Characteristics ³⁾						
Q _g	Total Gate Charge	V _{GS} = 10V, I _D = 5.9A, V _{DS} = 160V		19	24.7	nC
Q _{gs}	Gate-Source Charge			3		
Q _{gd}	Gate-Drain Charge			5		
t _{d(on)}	Turn-On Delay Time	V _{DD} = 100V, I _D = 5A, R _G = 50Ω, V _{GS} = 10V		24	48	ns
t _r	Rise Time			15	30	
t _{d(off)}	Turn-Off Delay Time			116	232	
t _f	Fall Time			25	50	
Drain-Source Diode Characteristics and Maximum Ratings						
I _S	Drain-Source Diode Forward Current				7.5	A
V _{SD}	Drain-Source Diode Forward Voltage ²⁾	V _{GS} = 0V, I _S = 7.5A			1.5	V

Note:

1. Repetitive Rating: Pulse width limited by maximum junction temperature.
2. Device Mounted on FR4 Board, t < 10 sec.
3. Pulse Test: Pulse Width < 300μs, Duty Cycle < 2%.
4. Guaranteed by design, not subject to production testing.

Typical Characteristics

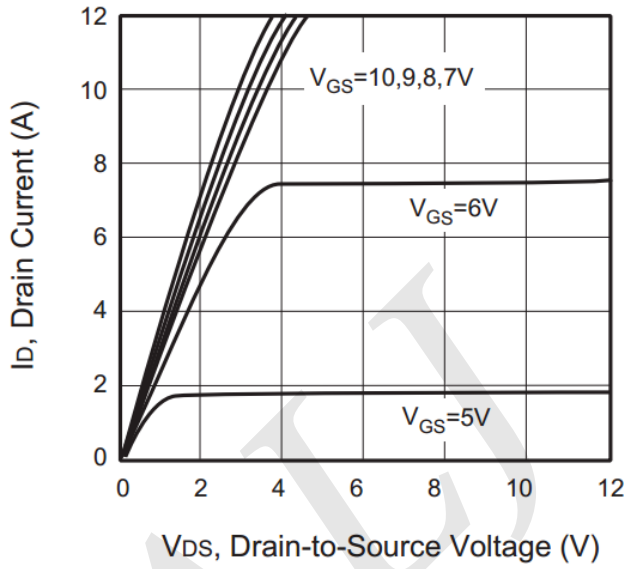


Figure 1. Output Characteristics

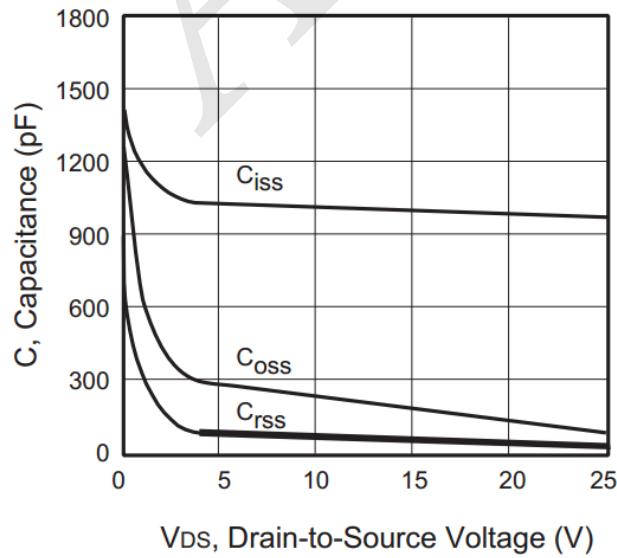


Figure 3. Capacitance

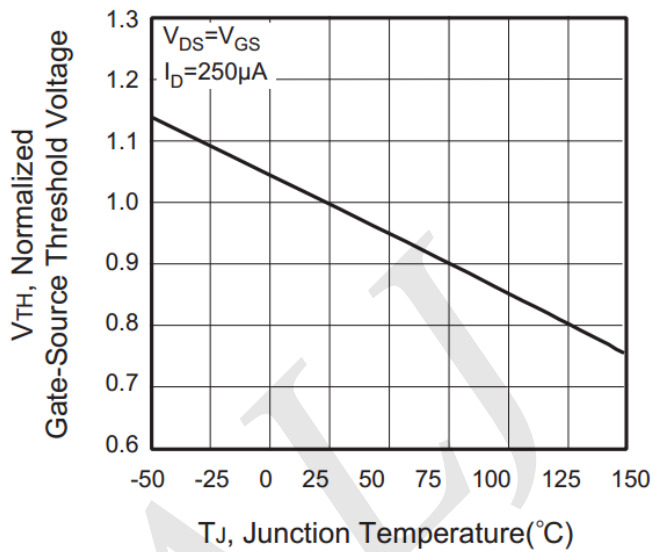


Figure 5. Gate Threshold Variation with Temperature

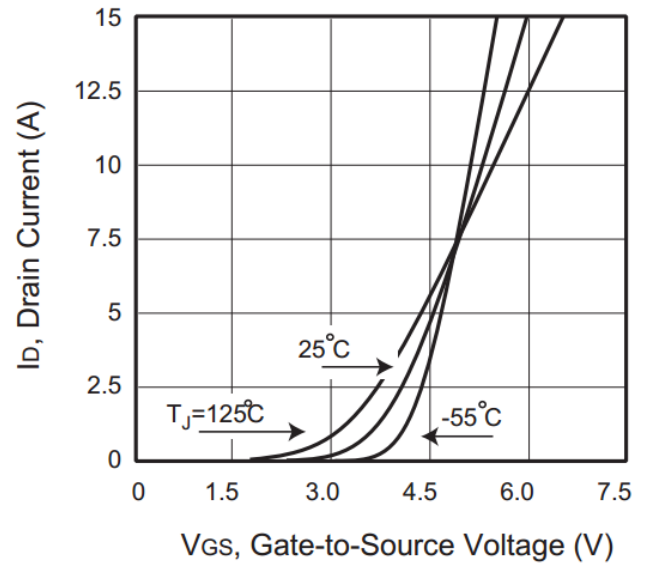


Figure 2. Transfer Characteristics

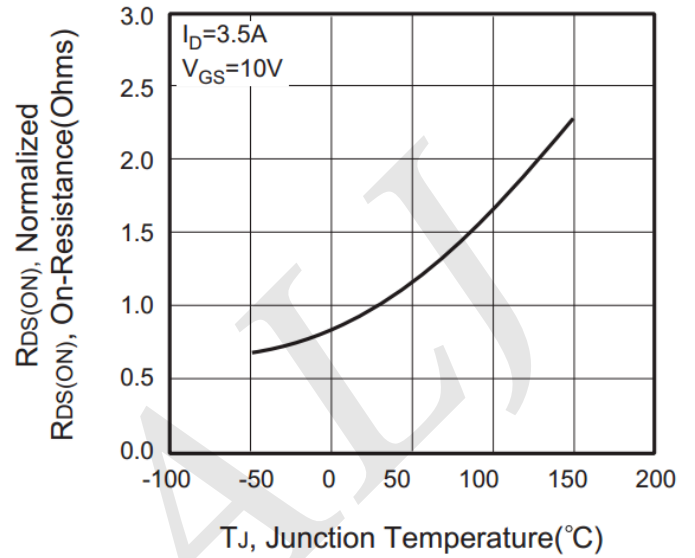


Figure 4. On-Resistance Variation with Temperature

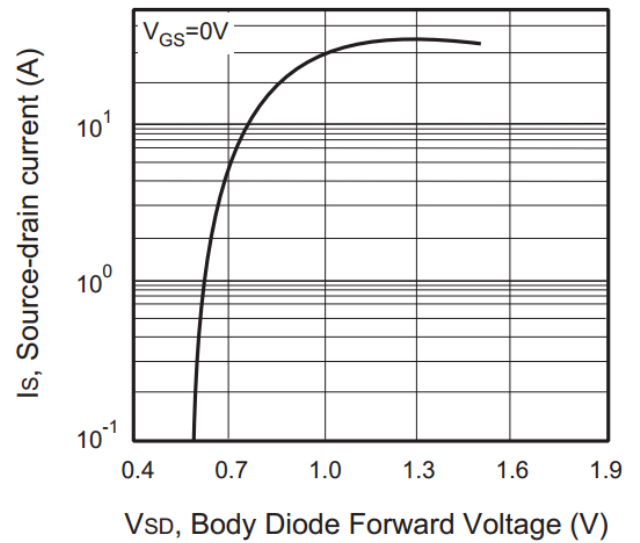


Figure 6. Body Diode Forward Voltage Variation with Source Current

Typical Characteristics (Cont.)

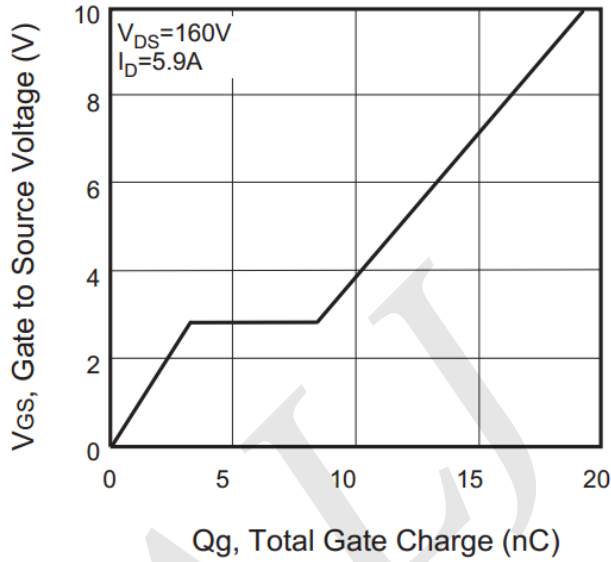


Figure 7. Gate Charge

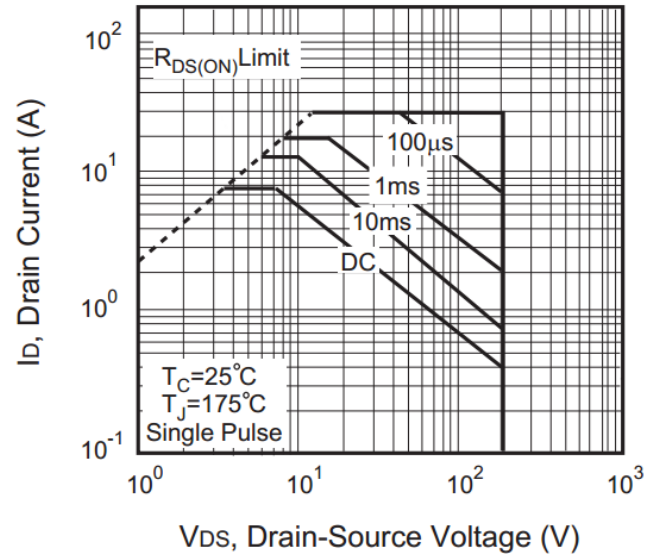


Figure 8. Maximum Safe Operating Area

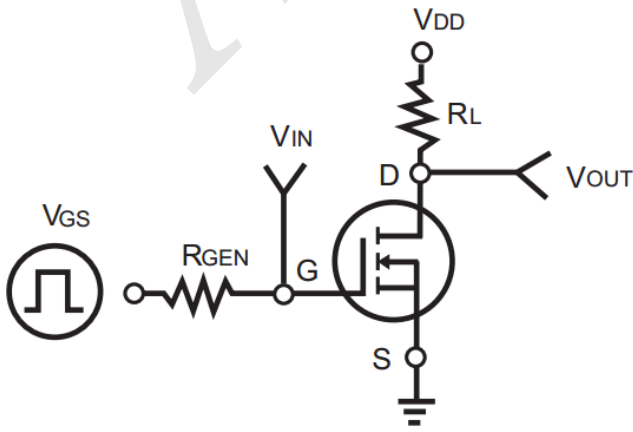


Figure 9. Switching Test Circuit

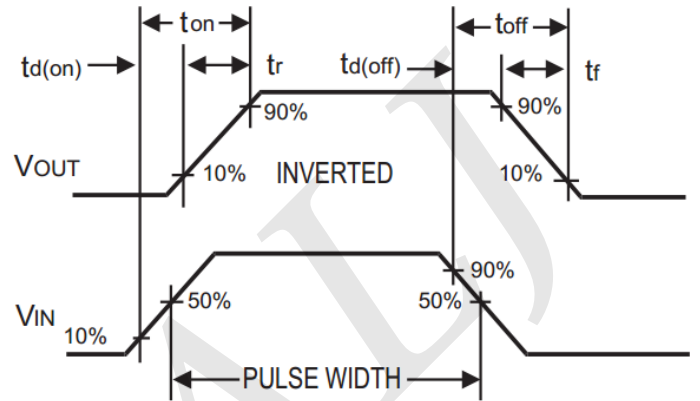


Figure 10. Switching Waveforms

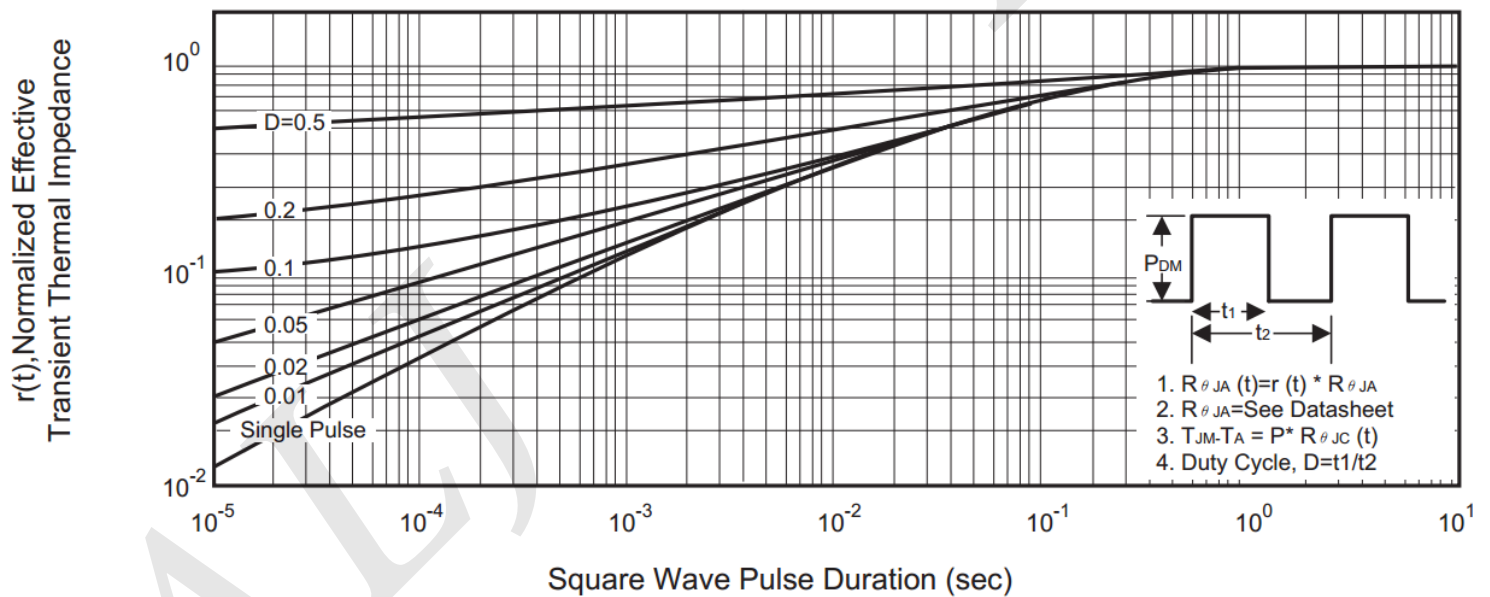


Figure 11. Normalized Thermal Transient Impedance Curve