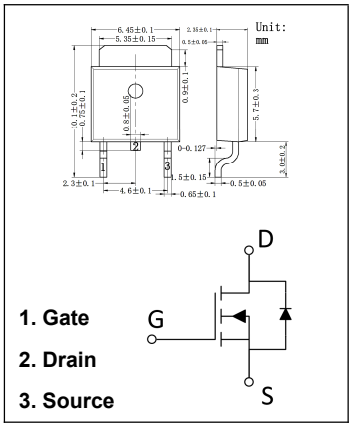
TO-252 Plastic-Encapsulate MOSFETS

LJ2N80

N-Channel Enhancement Mode MOSFET



Features

- Low Intrinsic Capacitances.
- Excellent Switching Characteristics.
- Extended Safe Operating Area.
- Unrivalled Gate Charge:Qg=12nC (Typ.).
- B_{VDSS}=800V, I_D=2A
- $R_{DS(on)}$: 6.3Ω (Max) @V_G=10V
- 100% Avalanche Tested

Maximum Ratings (T_a=25°C unless otherwise specified)

Symbol	Parameter		Value	Unit
V_{DS}	Drain-Source voltage		800	V
I_D	Continuous Drain Current	T_J = 25 °C	2	A
		T_J = 100 °C	1.25	
$V_{GS(th)}$	Gate Threshold Voltage		±30	V
E_{AS}	Single Pulse Avalanche Energy [1)]		180	mJ
I_{AR}	Avalanche Current [2)]		2.0	A
P_D	Maximum Power Dissipation		25	W
T_J	Junction Temperature		150	°C
T_{STG}	Storage Temperature		-55~+150	°C
TL	Maximum lead temperature for soldering purpose,1/8” from case for 5 seconds		300	°C
$R_{\theta JC}$	Thermal Resistance,Junction to Case		2.5	°C/W
$R_{\theta JA}$	Thermal Resistance,Junction to Ambient		45	°C/W

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

Symbol	Parameter	Test Conditions	Min	Typ	Max	Unit
$V_{(BR)DSS}$	Drain-Source Breakdown Voltage	V_{GS} = 0V, I_D = 250μA	800			V
$\triangle B_{VDSS}$ /$\triangle T_J$	Breakdown Voltage Temperature Coefficient	I_D=250μA ,Reference to 25°C		0.9		V/°C
I_{GSSF}	Gate-body leakage Current (Forward)	V_{DS} = 0 V, V_{GS} = 30 V			100	nA
I_{GSSR}	Gate-body leakage Current (Reverse)	V_{DS} = 0 V, V_{GS} = -30 V			-100	nA
I_{DSS}	Zero Gate Voltage Drain Current	V_{DS} = 800V, V_{GS} = 0V			10	μA
		V_{DS} = 640V, T_j = 125°C			100	
$V_{GS(TH)}$	Date Threshold Voltage	I_D = 250μA,V_{DS} = V_{GS}	3		5	V
$R_{DS(on)}$	Drain-Source On-Resistance	V_{GS} = 10V, I_D = 1A			6.3	Ω
C_{iss}	Input Capacitance	V_{DS} = 25V， V_{GS} = 0， f = 1.0MHz		425	550	pF
C_{oss}	Output Capacitance			45	60	
C_{rss}	Reverse Transfer Capacitance			5.5	7.0	
Q_g	Total Gate Charge	V_{GS}=10V V_{DS} = 640 V I_D = 2 A		12	15	nC
Q_{gs}	Gate-Source Charge			2.6		
Q_{gd}	Gate-Drain Charge			6.0		
$t_{d(on)}$	Turn-On Delay Time	V_{DD} = 400 V I_D = 2 A R_G = 25Ω [3) 4)]		12	35	nS
t_r	Rise Time			30	70	
$t_{d(off)}$	Turn-Off Delay Time			25	60	
t_f	Fall Time			28	65	
I_s	Max. Diode Forward Current				1.8	A
I_{SM}	Max. Pulsed Forward Current				7.2	A
V_{SD}	Diode Forward Voltage	I_D = 2A			1.4	V
T_{rr}	Reverse Recovery Time	I_S = 2A,V_{GS} = 0V diF/dt = 100A/μs [3)]		480		nS
Q_{rr}	Reverse Recovery Charge			2.0		μC

Notes

1. L=105mH, IAS=2A, VDD=50V, RG=25Ω, Starting T_J = 25°C
2. Repetitive Rating : Pulse width limited by maximum junction temperature
3. Pulse Test : Pulse Width ≤ 300μs, Duty Cycle ≤ 2%
4. Essentially Independent of Operating Temperature

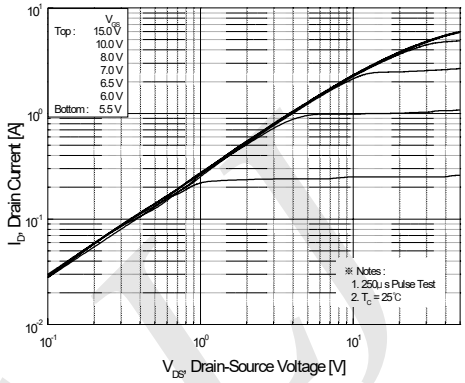


Figure 1. On-Region Characteristics

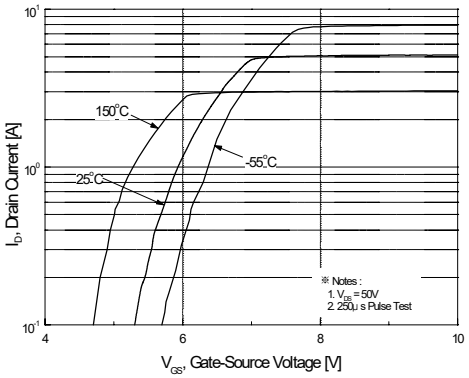


Figure 2. Transfer Characteristics

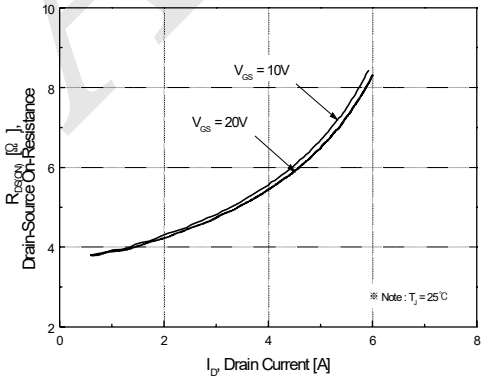


Figure 3. On-Resistance Variation vs Drain Current and Gate Voltage

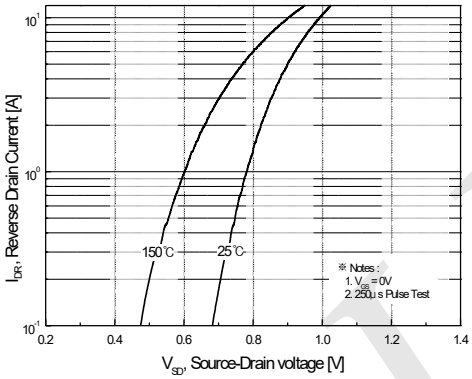


Figure 4. Body Diode Forward Voltage Variation with Source Current and Temperature

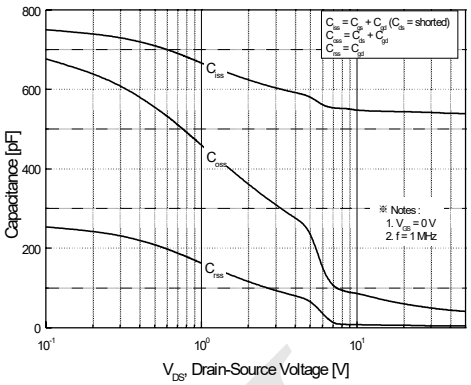


Figure 5. Capacitance Characteristics

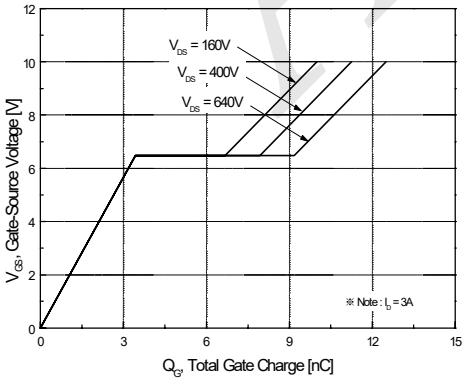


Figure 6. Gate Charge Characteristics

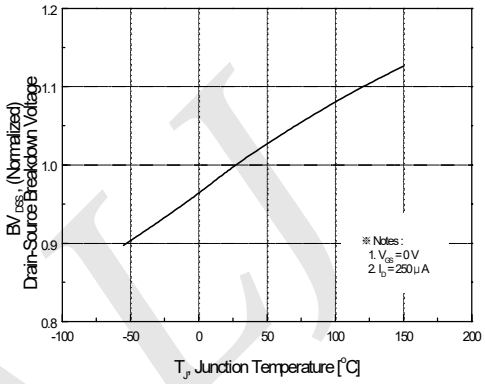


Figure 7. Breakdown Voltage Variation vs Temperature

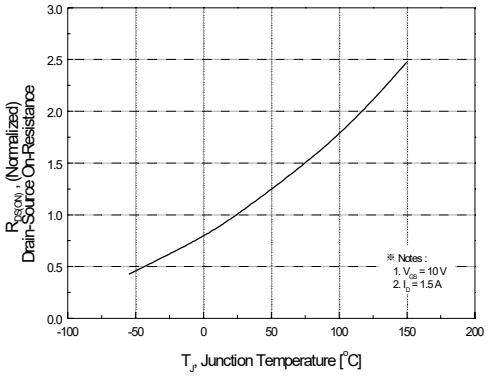


Figure 8. On-Resistance Variation vs Temperature

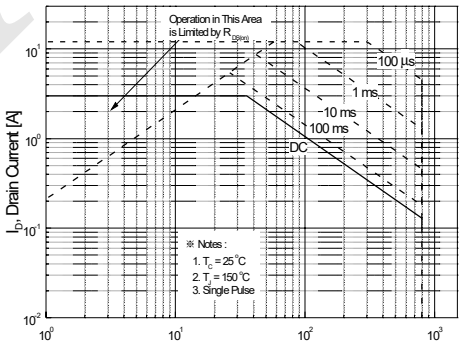


Figure 9-1. Maximum Safe Operating Area

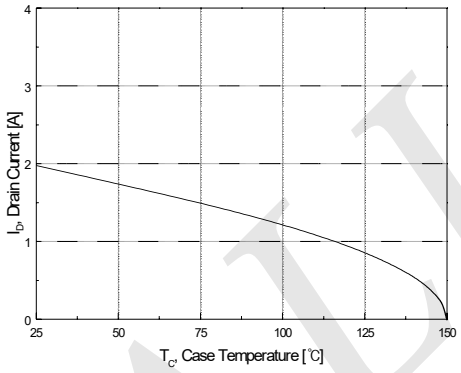


Figure 10. Maximum Drain Current vs Case Temperature

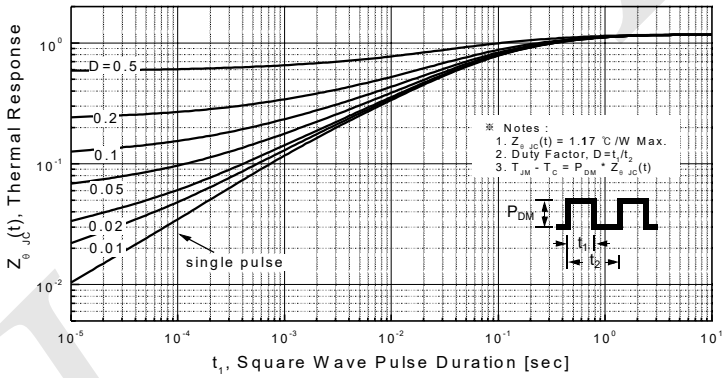


Figure 11-1. Transient Thermal Response Curve