JMPL1050PU

Features

- Excellent $R_{DS(ON)}$ and Low Gate Charge
- 100% UIS Tested
- 100% Vds Tested
- Halogen-free; RoHS-compliant
- Pb-free plating

Applications

- Load Switch
- PWM Application
- Power Management

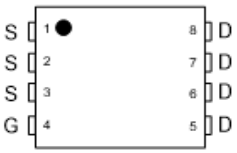
Product Summary

Parameters	Value	Unit
V_{DSS}	-100	V
$V_{GS(th)_Typ}$	-1.7	V
I_D(@V_{GS}=-10V)	-17	A
$R_{DS(ON)_Typ}$(@V_{GS}=-10V	39	mΩ
$R_{DS(ON)_Typ}$(@V_{GS}=-4.5V	51	mΩ

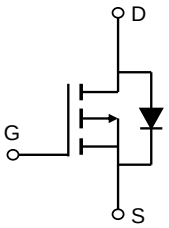




PDFN3x3-8L



Pin Assignment



Schematic Diagram

Ordering Information

Device	Marking	MSL	Form	Package	Reel(pcs)	Per Carton (pcs)
JMPL1050PU-13	PL1050P	1	Tape&Reel	PDFN3x3-8L	5000	50000

Absolute Maximum Ratings (@ T_C = 25°C unless otherwise specified)

Symbol	Parameter		Value	Unit
V_{DS}	Drain-to-Source Voltage		-100	V
V_{GS}	Gate-to-Source Voltage		±20	V
I_D	Continuous Drain Current	T_C = 25°C	-17	A
		T_C = 100°C	-11	
I_{DM}	Pulsed Drain Current [1]		Refer to Fig.4	A
E_{AS}	Single Pulsed Avalanche Energy [2]		165	mJ
P_D	Power Dissipation	T_C = 25°C	30	W
		T_C = 100°C	12	
T_J, T_{STG}	Junction & Storage Temperature Range		-55 to 150	°C

Thermal Characteristics

Symbol	Parameter	Max	Unit
R	Thermal Resistance, Junction to Ambient[3]	48	°C/W
R	Thermal Resistance, Junction to Case	4.2	

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

Symbol	Conditions	Min.	Typ.	Max.	Unit
Off Characteristics					
$V_{(BR)DSS}$		-100	-	-	V
I_{DSS}		-	-	-1.0	μA
I_{GSS}		-	-	±100	nA
$V_{GS(th)}$		-1.2	-1.7	-2.2	V
		-	39	51	mΩ
		-	51	67	mΩ
R_g		-	7.5	-	Ω
C_{iss}		1261	1765	2383	pF
C_{oss}		147	205	277	pF
C_{rss}		12	17	24	pF
Q_g		19	27	36	nC
Q_{gs}		-	7.4	-	nC
Q_{gd}		-	4.1	-	nC
$t_{d(on)}$		-	7	-	ns
t_r		-	6.5	-	ns
$t_{d(off)}$		-	38	-	ns
t_f		-	9.4	-	ns
I_S		-	-	-17	A
I_{SM}		-	-	-69	A
V_{SD}		-		-1.2	V
trr		35	49	67	ns
Qrr		-	128	-	nC

Notes: 1. Repetitive Rating: Pulse Width Limited by Maximum Junction Temperature.

2. E_{AS} condition: Starting T_J=25C, V_{DD}=-50V, V_{GS}=-10V, R_G=25ohm, L=3mH, I_{AS}=-10.5A, V_{DD}=0V during time in avalanche.

3. R is measured with the device mounted on a 1inch^2 pad of 2oz copper FR4 PCB.

4. Pulse Test: Pulse Width

Typical Performance Characteristics

Figure 5: Output Characteristics

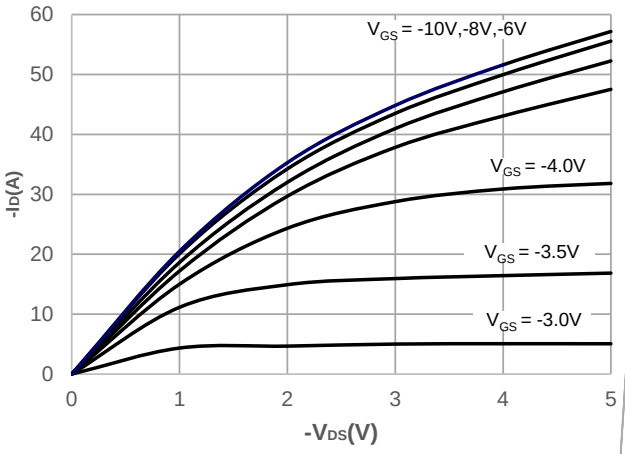


Figure 6: Typical Transfer Characteristics

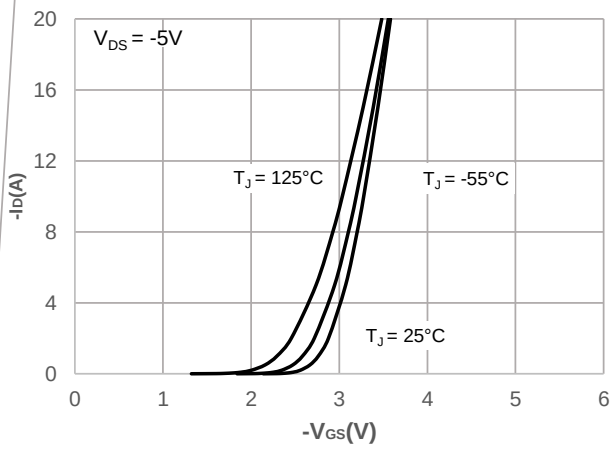


Figure 7: On-resistance vs. Drain Current

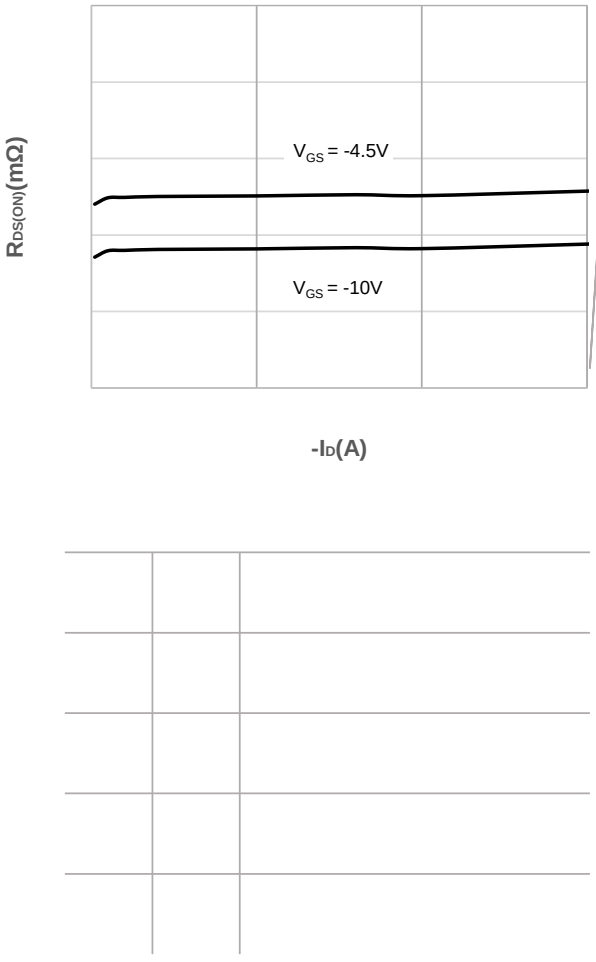
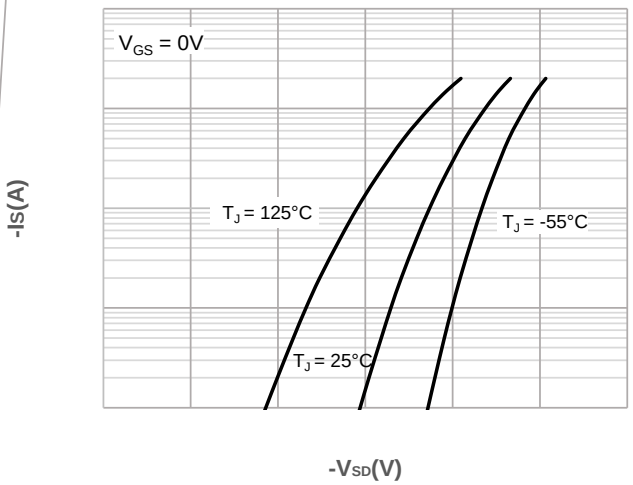


Figure 8: Body Diode Characteristics



Typical Performance Characteristics

Figure 11: Normalized Breakdown voltage vs. Junction Temperature

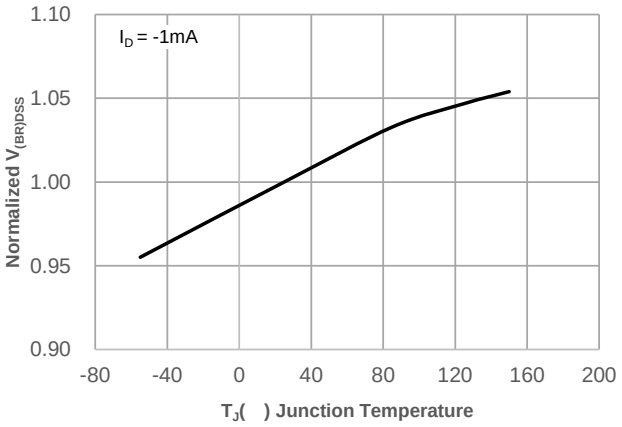
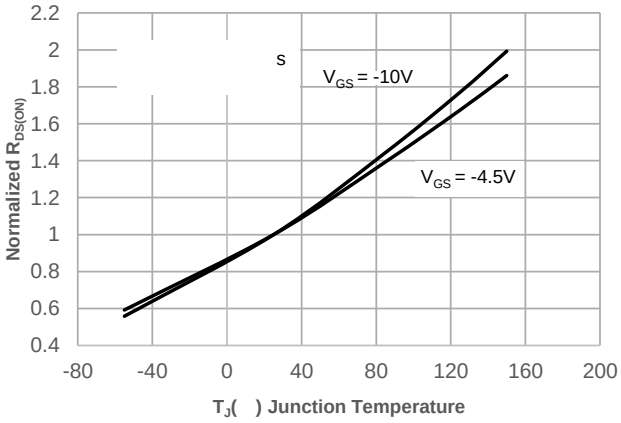


Figure 12: Normalized on Resistance vs. Junction Temperature



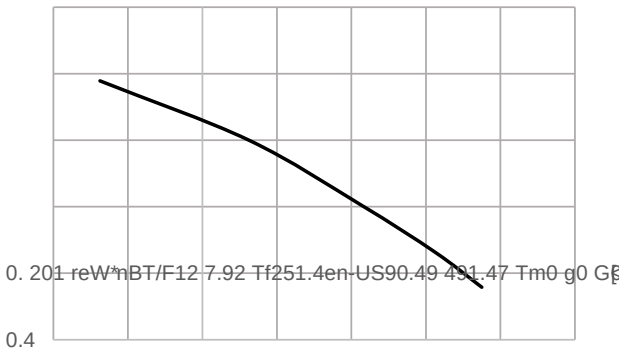


Figure 14: $R_{DS(ON)}$ vs. V_{GS}

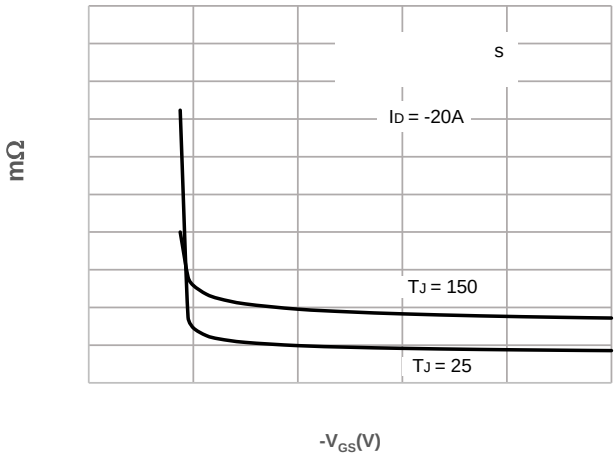
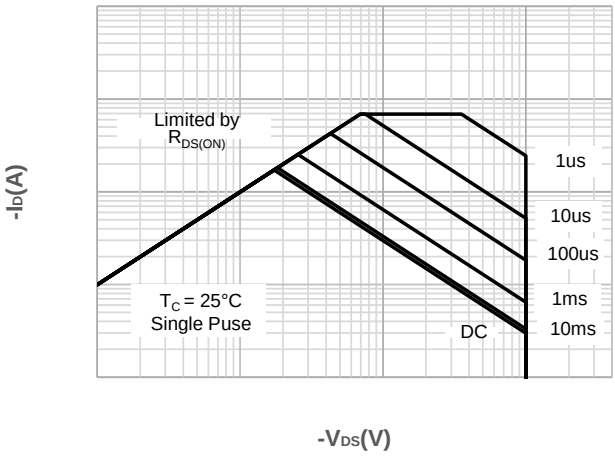
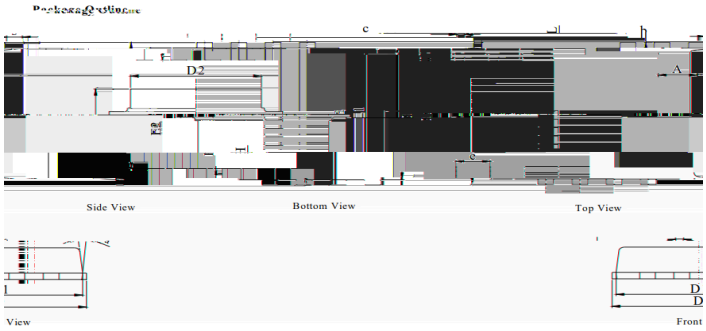


Figure 15: Maximum Safe Operating Area

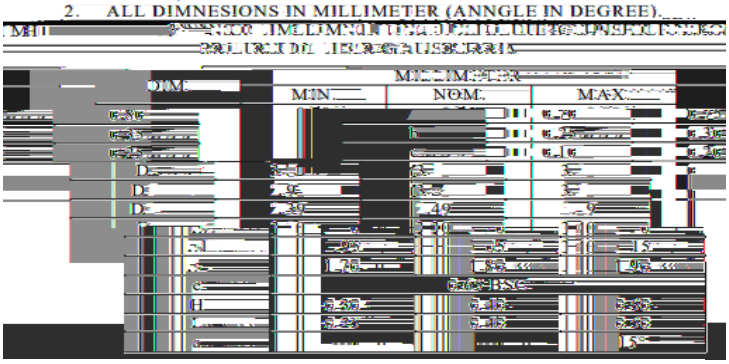


Test Circuit

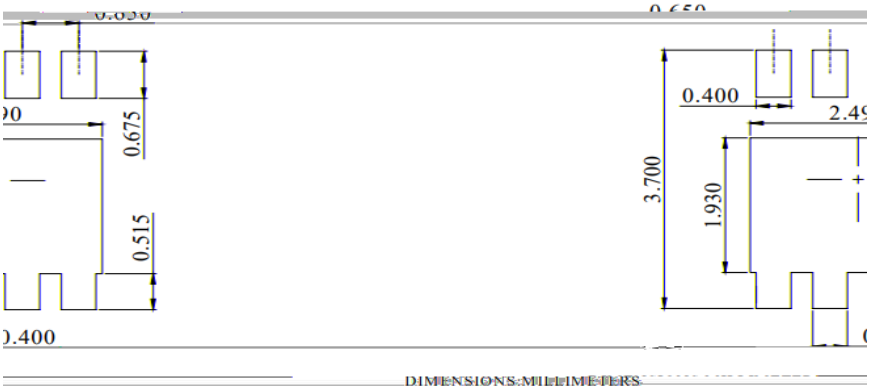
Package Mechanical Data(PDFN3X3-8L)



NOTES:
1. DIMENSIONING AND TOLERANCING PER ASME Y14.5M,1994.
2. ALL DIMNESIONS IN MILLIMETER (ANNGLE IN DEGREE).



Recommended Soldering Footprint



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