TN120P30DN

P-Channel Enhancement Mode Power MOSFET

Product Summary

- V_{DS}= -30V,I_D= -120A
- $R_{DS(on)}$< 5mΩ @V_{GS}= -10V
- $R_{DS(on)}$< 8.2mΩ @V_{GS}= -4.5V

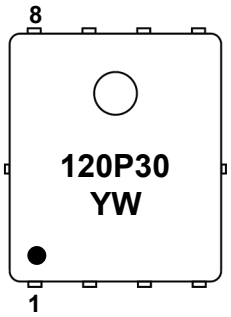
Features

- Advanced Trench Technology
- 100% Avalanche Tested
- RoHS Compliant
- Halogen and Antimony Free
- Moisture Sensitivity Level 3

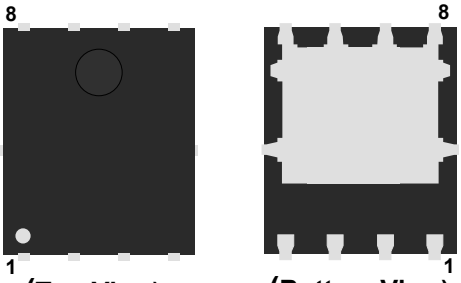
Application

- Lithium Battery Protection
- Wireless Impact
- Mobile Phone Fast Charging

Marking Code

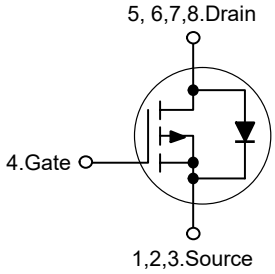


PDFN5x6-8L



Pin	Description
1,2,3	Source
4	Gate
5,6,7,8	Drain

Schematic Diagram



Absolute Maximum Ratings

Ratings at 25℃ case temperature unless otherwise specified.

Parameter	Symbol	Value	Unit
Drain-Source Voltage	$-V_{DS}$	30	V
Gate-Source Voltage	V_{GS}	±20	V
Drain Current-Continuous	$-I_D$	120	A
Drain Current-Pulsed Note1	$-I_{DM}$	360	A
Maximum Power Dissipation	P_D	103	W
Junction Temperature	T_J	150	°C
Storage Temperature Range	T_{STG}	-55 to +150	°C

Thermal Characteristics

Thermal Resistance, Junction-to-Case	$R_{\theta JC}$	1.21	°C/W

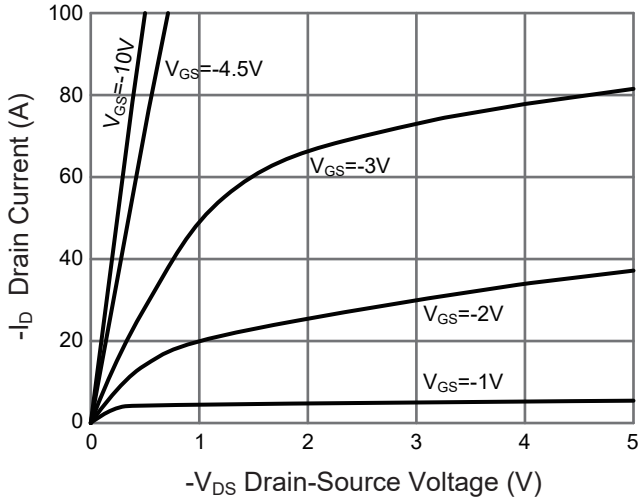
Electrical Characteristics

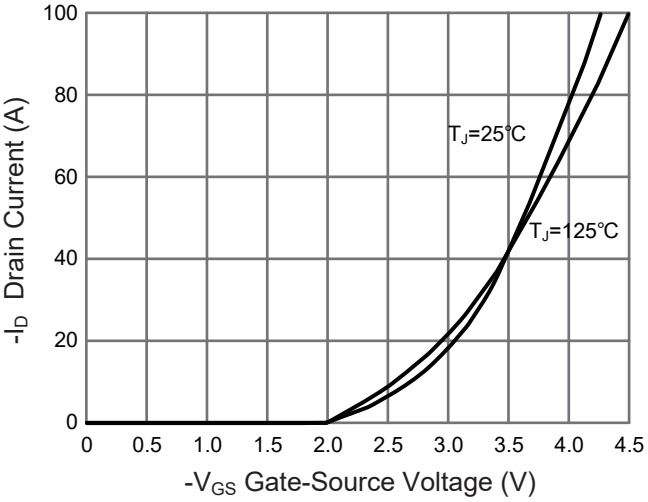
(T_J=25℃ unless otherwise specified)

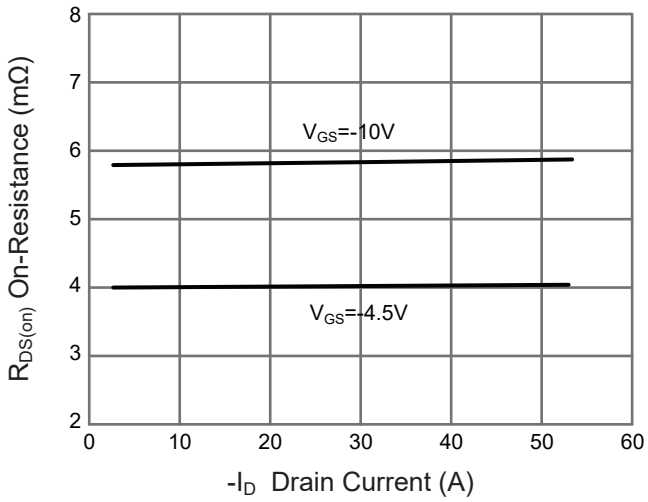
Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Static Characteristics						
Drain-Source Breakdown Voltage	$-V_{(BR)DSS}$	V_{GS}=0V,I_D=-250μA	30	--	--	V
Zero Gate Voltage Drain Current	$-I_{DSS}$	V_{DS}=-30V,V_{GS}=0V	--	--	1	μA
Gate-Body Leakage Current	I_{GSS}	V_{GS}=±20V,V_{DS}=0V	--	--	±100	nA
Gate Threshold Voltage Note2	$-V_{GS(th)}$	V_{DS}=V_{GS},I_D=-250μA	1	1.6	2.5	V
Drain-Source On-Resistance Note2	$R_{DS(on)}$	V_{GS}=-10V,I_D=-30A	--	--	5	mΩ
		V_{GS}=-4.5V,I_D=-20A	--	--	8.2	mΩ
Dynamic Characteristics						
Input Capacitance	C_{iss}	V_{DS}=-15V,V_{GS}=0V,f=1MHz	--	9400	--	pF
Output Capacitance	C_{oss}		--	1000	--	pF
Reverse Transfer Capacitance	C_{rss}		--	767	--	pF
Total Gate Charge	Q_g	V_{DS}=-15V,I_D=-30A, V_{GS}=-10V	--	42	--	nC
Gate-Source Charge	Q_{gs}		--	8.4	--	nC
Gate-Drain Charge	Q_{gd}		--	11.2	--	nC
Switching Characteristics						
Turn-on Delay Time	$t_{d(on)}$	V_{DD}=-15V, I_D=-30A, V_{GS}=-10V, R_{GEN}=2.5Ω	--	15	--	nS
Turn-on Rise Time	t_r		--	16	--	nS
Turn-off Delay Time	$t_{d(off)}$		--	69	--	nS
Turn-off Fall Time	t_f		--	27	--	nS
Source-Drain Diode Characteristics						
Diode Forward Voltage Note2	$-V_{SD}$	V_{GS}=0V,I_S=-30A	--	--	1.2	V
Diode Forward Current	$-I_S$		--	--	120	A

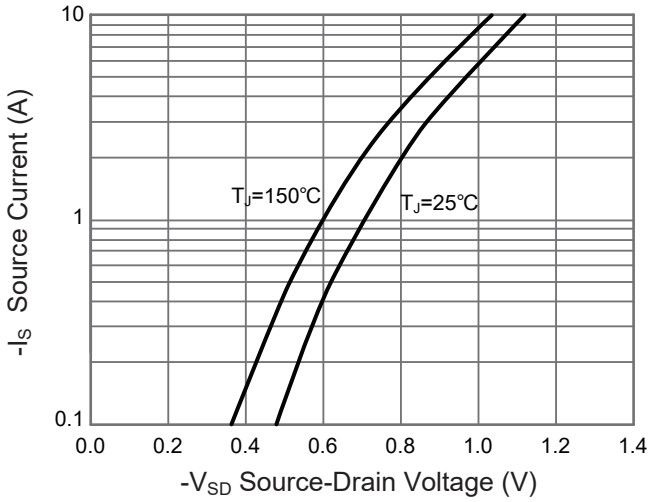
Note: 1. Repetitive Rating: Pulse width limited by maximum junction temperature.
2. Pulse Test: Pulse width≤300μs, duty cycle≤2%.

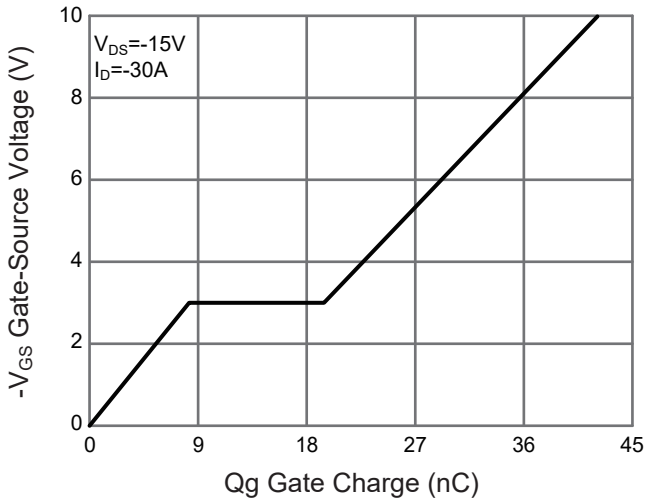
Typical Characteristic Curves

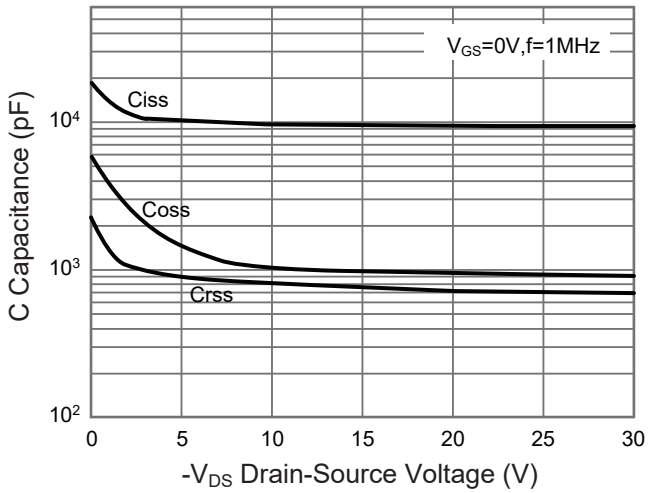


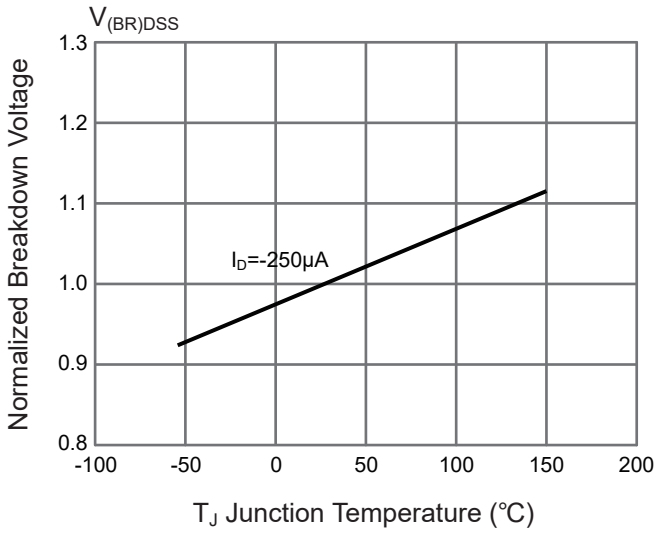


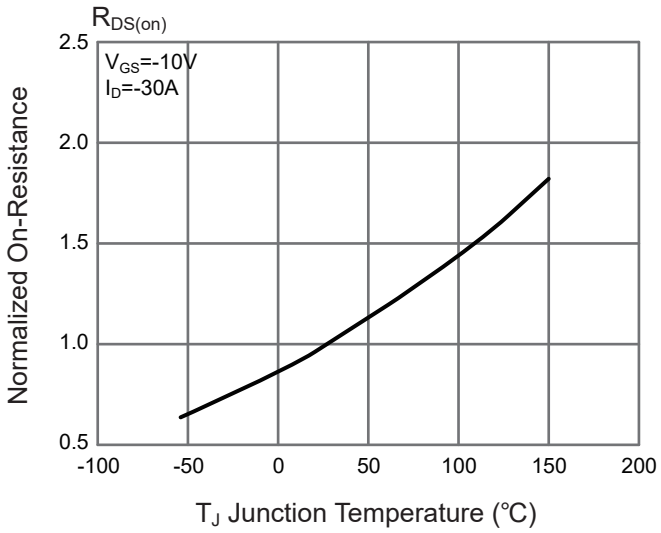


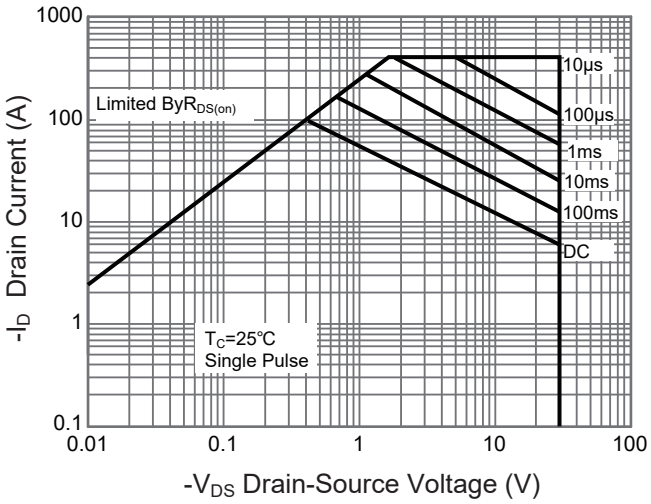








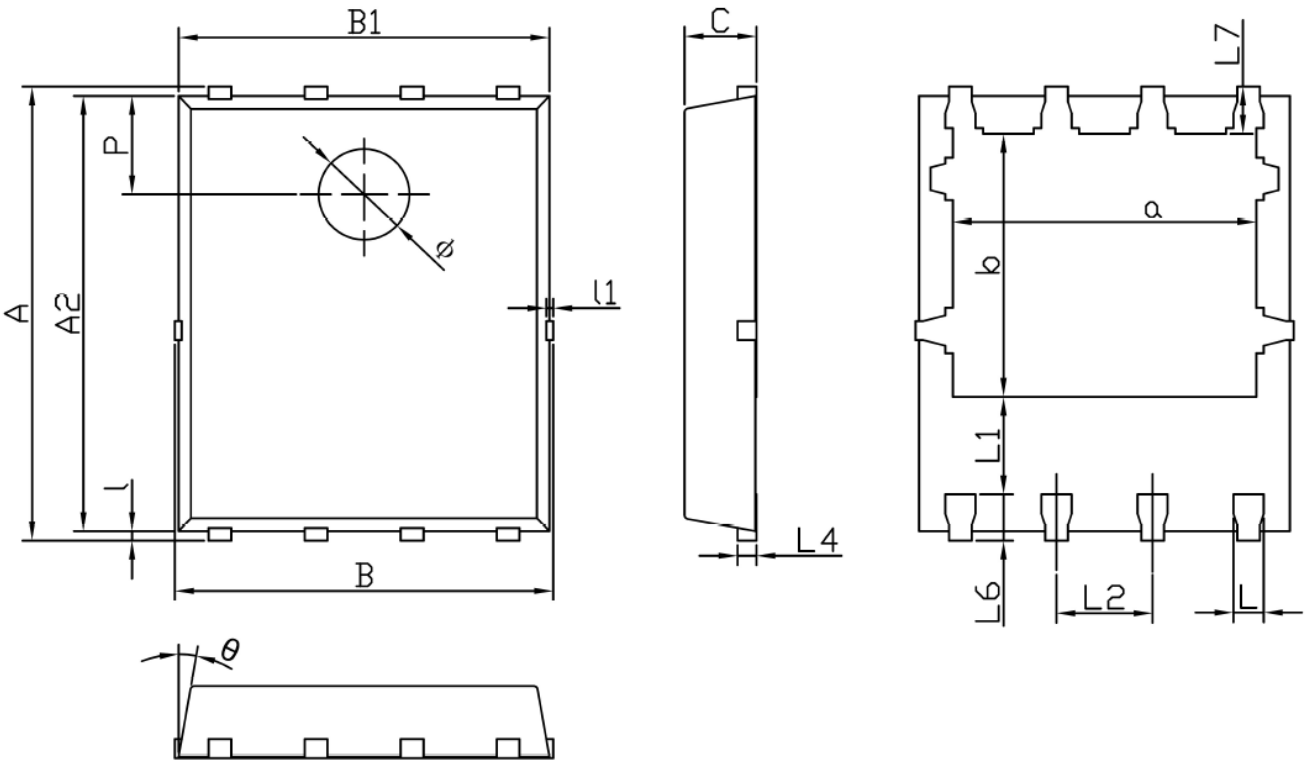




Package Outline

PDFN5x6-8L

Dimensions in mm



Symbol	Dimensions		Symbol	Dimensions	
	Min.	Max.		Min.	Max.
A	5.90	6.10	L1	1.10	-
a	3.91	4.11	l1	-	0.10
A2	5.70	5.80	L2	1.17	1.37
B	4.90	5.10	L4	0.21	0.34
b	3.375	3.575	L6	0.51	0.71
B1	4.80	5.00	L7	0.51	0.71
C	0.90	1.00	P	1.15	1.45
L	0.30	0.50	θ	8°	12°
l	0.06	0.20	Φ	1.10	1.30

Contact Information

TANI website: **http://www.tanisemi.com** Email:tani@tanisemi.com

For additional information, please contact your local Sales Representative.

