

TN120P30DN

P-Channel Enhancement Mode Power MOSFET

Product Summary

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

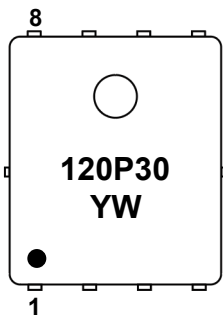
Features

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

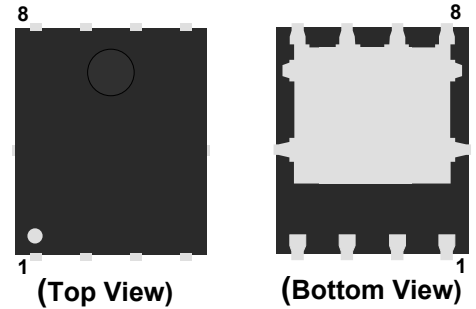
Application

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

Marking Code

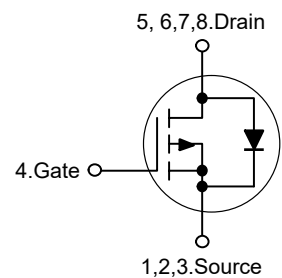


PDFN5x6-8L



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

Schematic Diagram



Absolute Maximum Ratings

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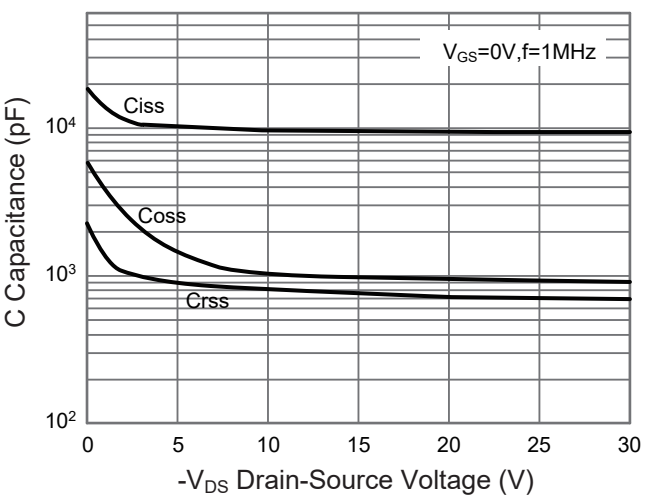
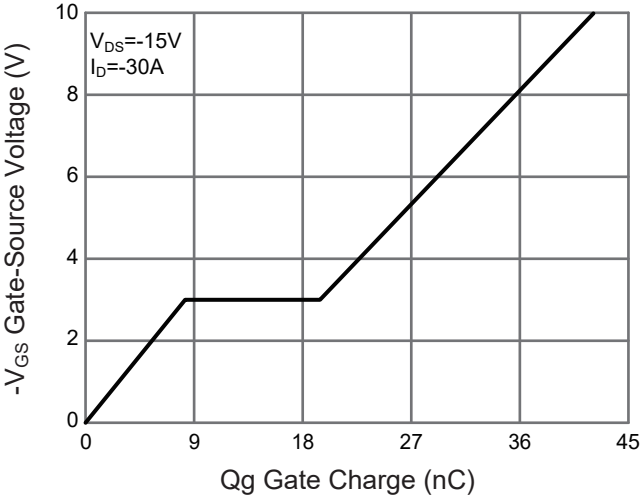
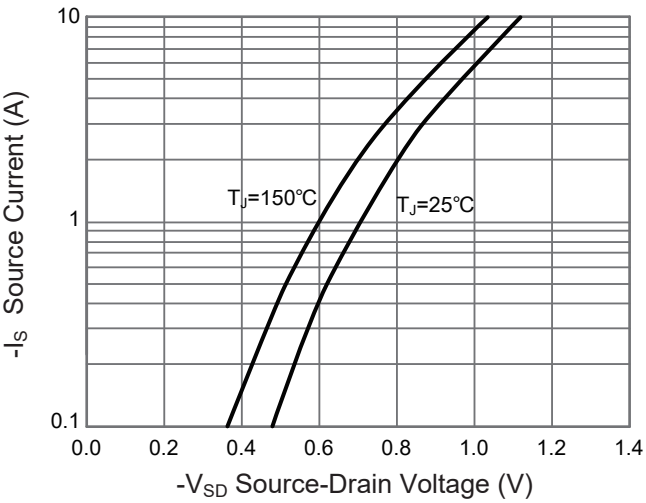
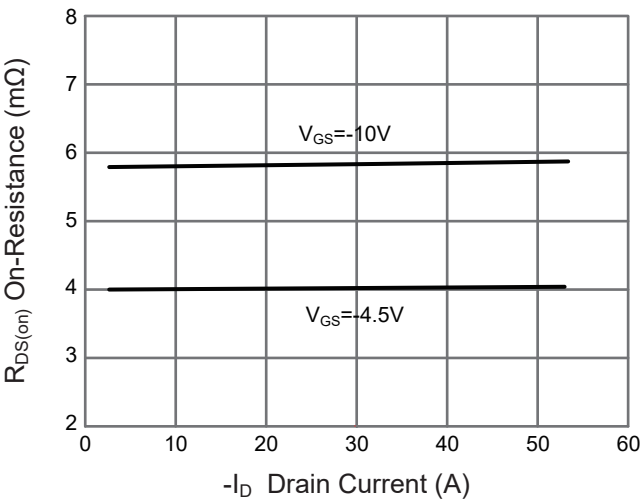
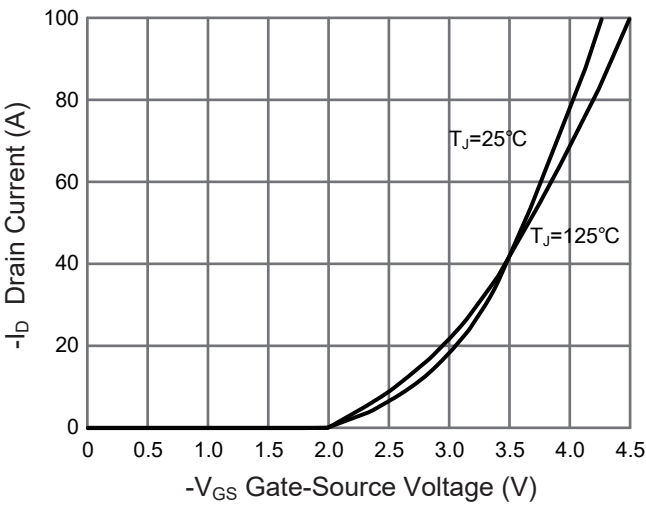
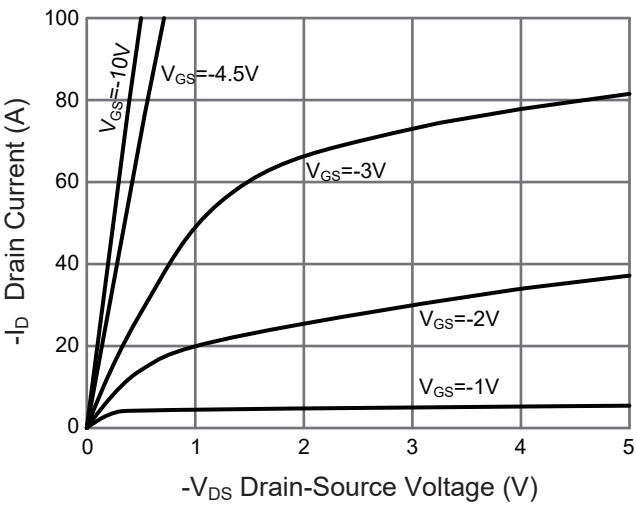
Electrical Characteristics(T_J=25°C unless otherwise specified)

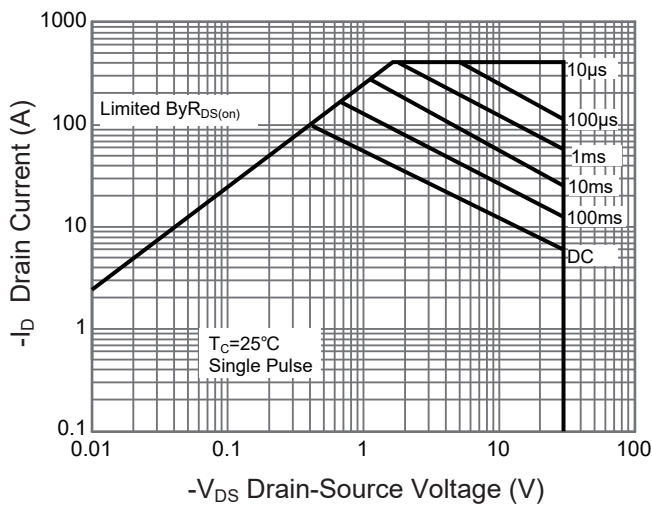
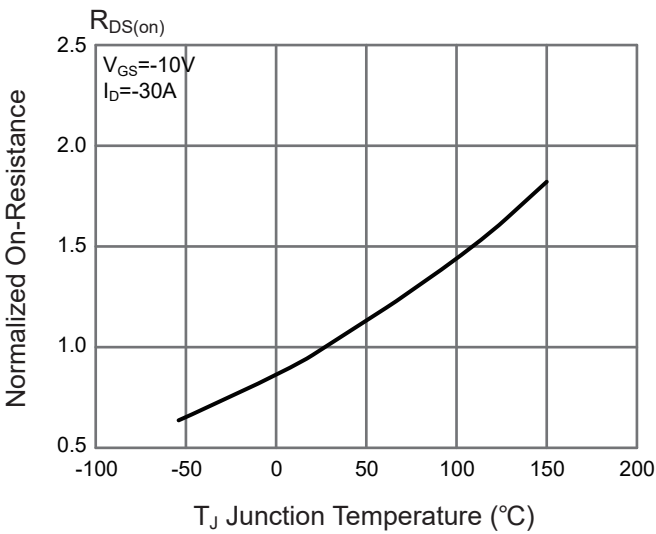
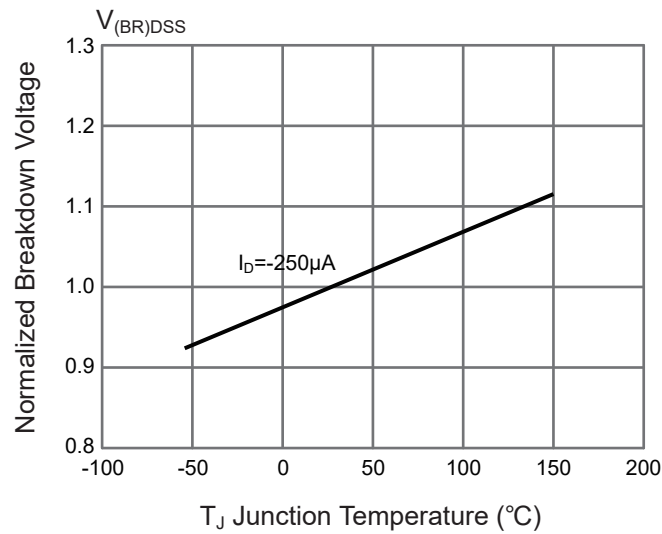
Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Static Characteristics						
Drain-Source Breakdown Voltage	-V _{(BR)DSS}	V _{GS} =0V,I _D =-250μA	30	--	--	V
Zero Gate Voltage Drain Current	-I _{DSS}	V _{DS} =-30V,V _{GS} =0V	--	--	1	μA
Gate-Body Leakage Current	I _{GSS}	V _{GS} =±20V,V _{DS} =0V	--	--	±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 $\leq 300\mu s$, duty cycle $\leq 2\%$.

Typical Characteristic Curves

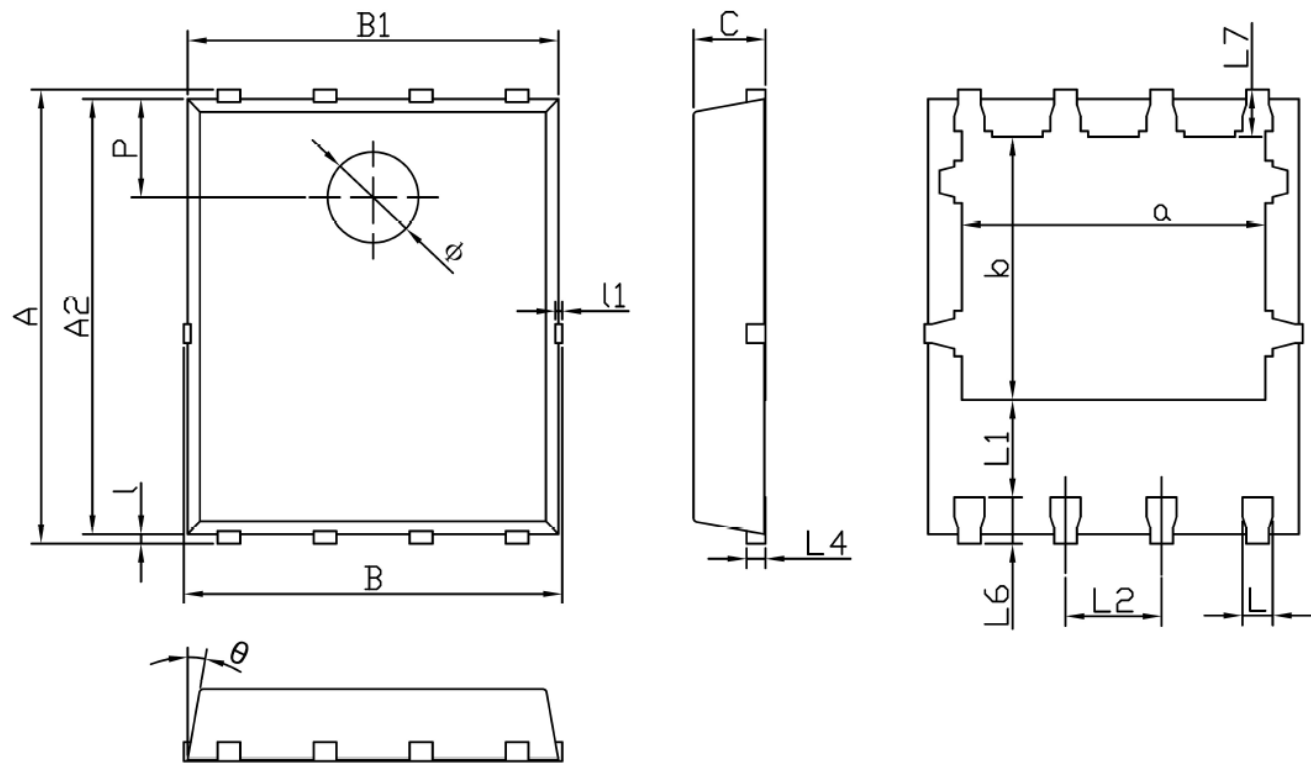




Package Outline

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

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For additional information, please contact your local Sales Representative.



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