



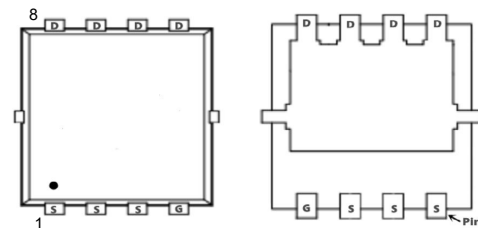
# PJM120N30DN

## N-Channel Enhancement Mode Power MOSFET

### Features

- Excellent  $R_{DS(ON)}$  and Low Gate Charge
- $V_{DS}=30V, I_D=120A$   
 $R_{DS(on)} < 2.4m\Omega @ V_{GS}=10V$

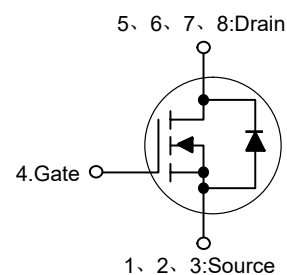
### PDFN5x6-8L



### Applications

- Lithium battery protection
- Wireless impact
- Mobile phone fast charging

### 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	$V_{GS}$	$\pm 20$	V
Drain Current-Continuous at $V_{GS}=10V$ <small>Note1</small>	$I_D$	120	A
Drain Current-Pulsed <small>Note2</small>	$I_{DM}$	320	A
Single Pulse Avalanche Energy <small>Note3</small>	$E_{AS}$	180	mJ
Avalanche Current	$I_{AS}$	60	A
Maximum Power Dissipation <small>Note4</small>	$P_D$	187	W
Junction Temperature	$T_J$	150	°C
Storage Temperature Range	$T_{STG}$	-55 to +150	°C

### Thermal Characteristics

Thermal Resistance, Junction-to-Ambient <small>Note1</small>	$R_{\theta JA}$	62	°C/W
Maximum Junction-to-Case <small>Note1</small>	$R_{\theta JC}$	1.1	°C/W



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### Electrical Characteristics

(T<sub>J</sub>=25°C unless otherwise specified)

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
<b>Static Characteristics</b>						
Drain-Source Breakdown Voltage	V <sub>(BR)DSS</sub>	V <sub>GS</sub> =0V, I <sub>D</sub> =250μA	30	32	--	V
Zero Gate Voltage Drain Current	I <sub>DSS</sub>	V <sub>DS</sub> =24V, V <sub>GS</sub> =0V	--	--	1	μA
Gate-Body Leakage Current	I <sub>GSS</sub>	V <sub>GS</sub> =±20V, V <sub>DS</sub> =0V	--	--	±100	nA
Gate Threshold Voltage <sup>Note2</sup>	V <sub>GS(th)</sub>	V <sub>DS</sub> =V <sub>GS</sub> , I <sub>D</sub> =250μA	1.2	1.5	2.5	V
Drain-Source On-Resistance <sup>Note2</sup>	R <sub>DS(on)</sub>	V <sub>GS</sub> =10V, I <sub>D</sub> =30A	--	2.0	2.4	mΩ
		V <sub>GS</sub> =4.5V, I <sub>D</sub> =15A	--	3.5	4.5	mΩ
Forward Transconductance <sup>Note2</sup>	g <sub>FS</sub>	V <sub>DS</sub> =5V, I <sub>D</sub> =30A	--	50	--	S
<b>Dynamic Characteristics</b>						
Input Capacitance	C <sub>iss</sub>	V <sub>DS</sub> =15V, V <sub>GS</sub> =0V, f=1MHz	--	4345	--	pF
Output Capacitance	C <sub>oss</sub>		--	340	--	pF
Reverse Transfer Capacitance	C <sub>rss</sub>		--	225	--	pF
<b>Switching Characteristics</b>						
Turn-on Delay Time	t <sub>d(on)</sub>	V <sub>DD</sub> =15V, I <sub>D</sub> =1A V <sub>GS</sub> =10V, R <sub>G</sub> =3.3Ω	--	20.1	--	nS
Turn-on Rise Time	t <sub>r</sub>		--	6.3	--	nS
Turn-off Delay Time	t <sub>d(off)</sub>		--	124.6	--	nS
Turn-off Fall Time	t <sub>f</sub>		--	15.8	--	nS
Total Gate Charge	Q <sub>g</sub>	V <sub>DS</sub> =15V, I <sub>D</sub> =15A, V <sub>GS</sub> =10V	--	56.9	--	nC
Gate-Source Charge	Q <sub>gs</sub>		--	13.8	--	nC
Gate-Drain Charge	Q <sub>gd</sub>		--	23.5	--	nC
<b>Source-Drain Diode Characteristics</b>						
Diode Forward Voltage <sup>Note2</sup>	V <sub>SD</sub>	V <sub>GS</sub> =0V, I <sub>S</sub> =1A	--	--	1.2	V
Diode Forward Current <sup>Note1,5</sup>	I <sub>S</sub>		--	--	85	A

Note :

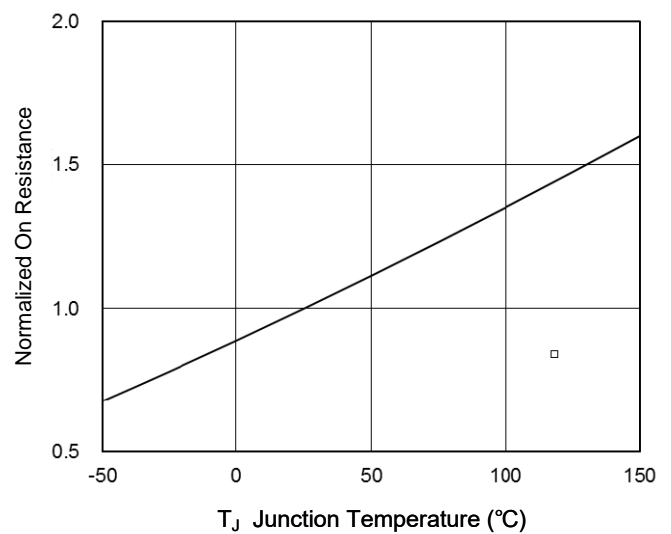
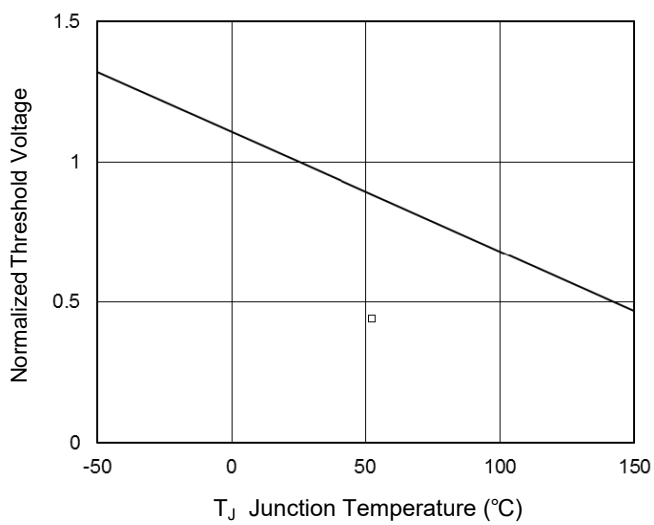
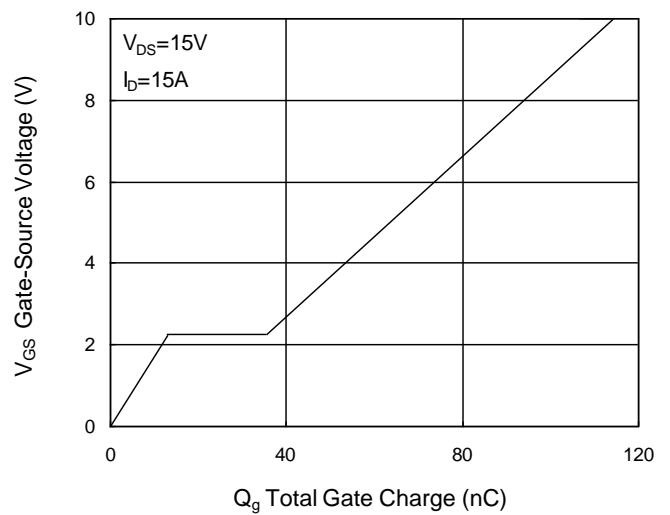
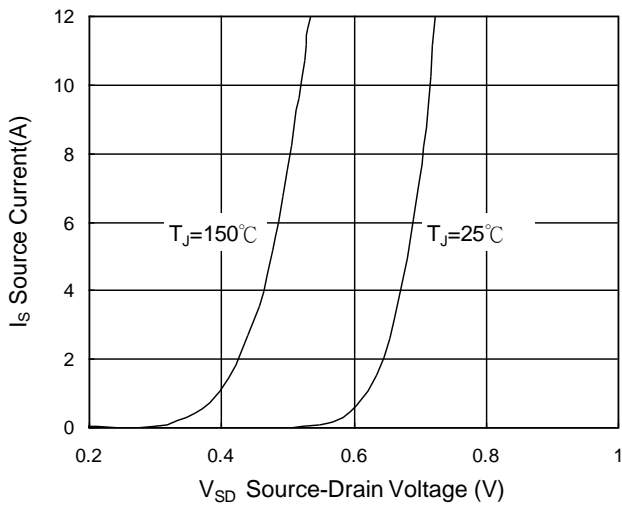
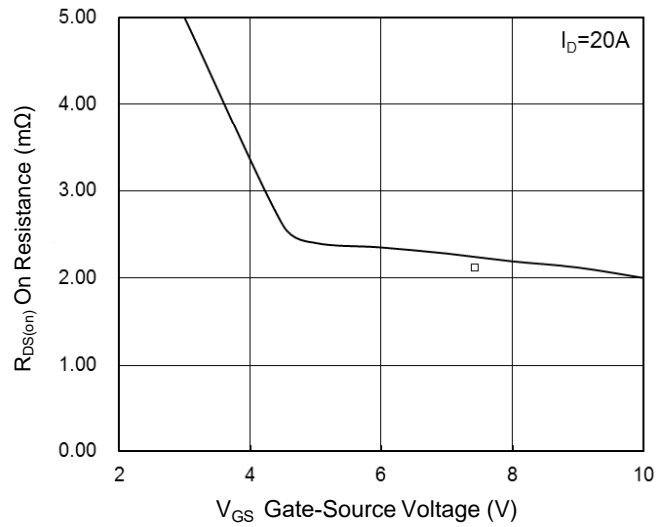
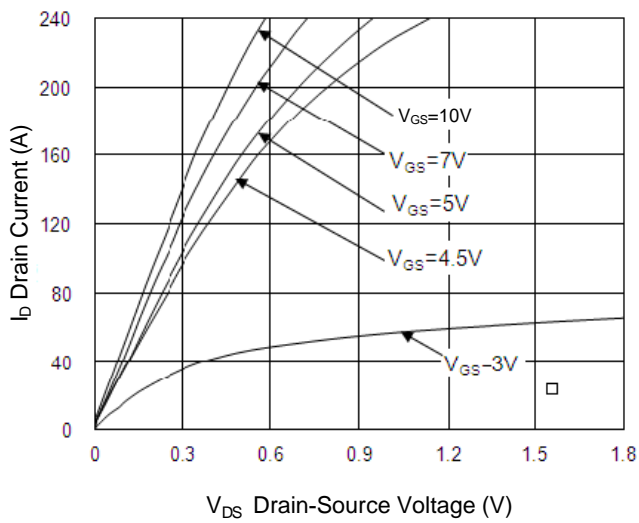
- 1.The data tested by surface mounted on a 1 inch<sup>2</sup> FR-4 board with 2OZ copper.
- 2.The data tested by pulsed , pulse width ≤ 300us , duty cycle ≤ 2%
- 3.The E<sub>AS</sub> data shows Max. rating . The test condition is V<sub>DD</sub>=25V, V<sub>GS</sub>=10V, L=0.1mH, I<sub>AS</sub>=60A
- 4.The power dissipation is limited by 150°C junction temperature
- 5.The data is theoretically the same as I<sub>D</sub> and I<sub>DM</sub> , in real applications , should be limited by total power dissipation.



# PJM120N30DN

## N-Channel Enhancement Mode Power MOSFET

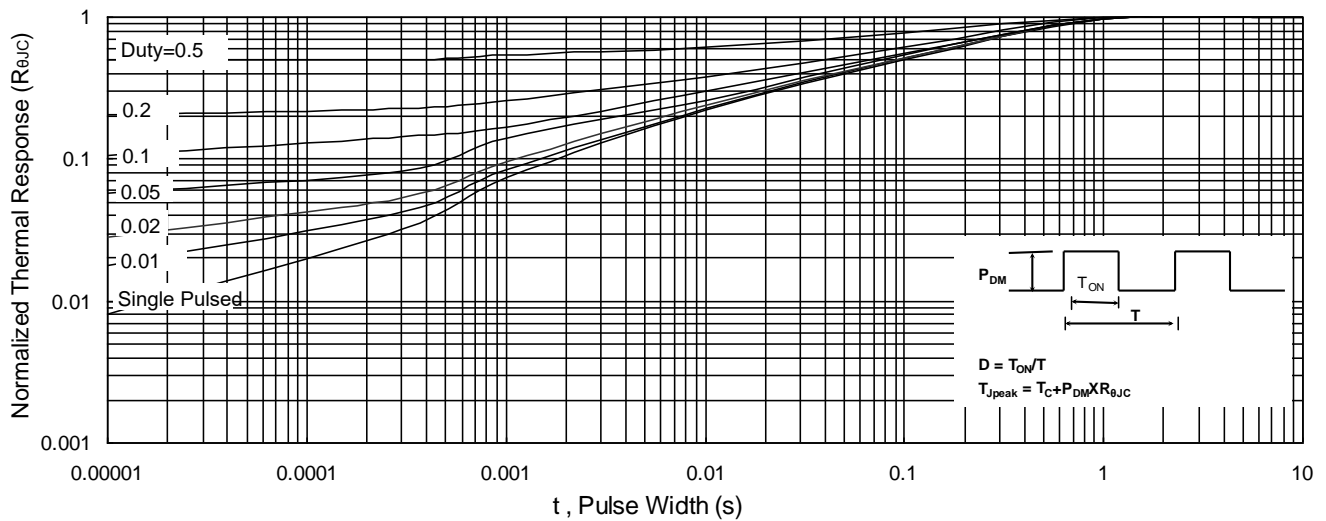
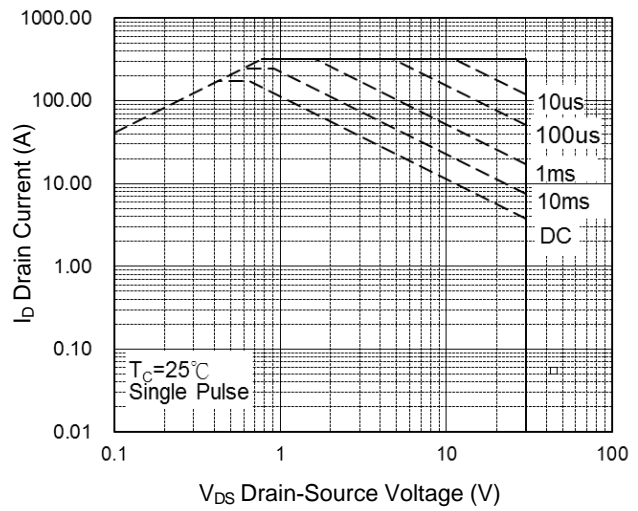
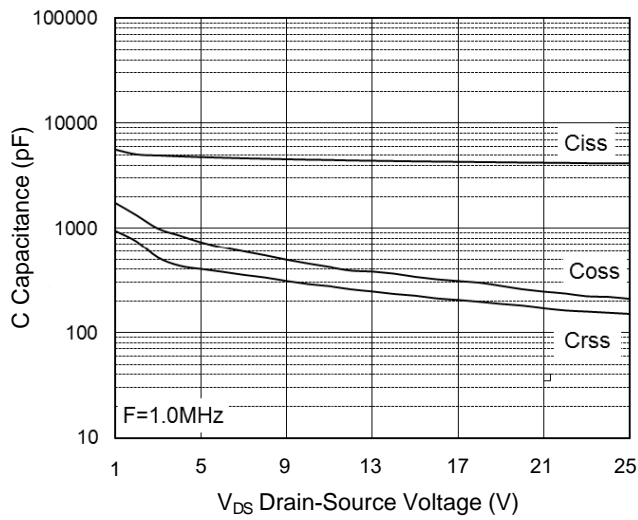
### Typical Characteristic Curves





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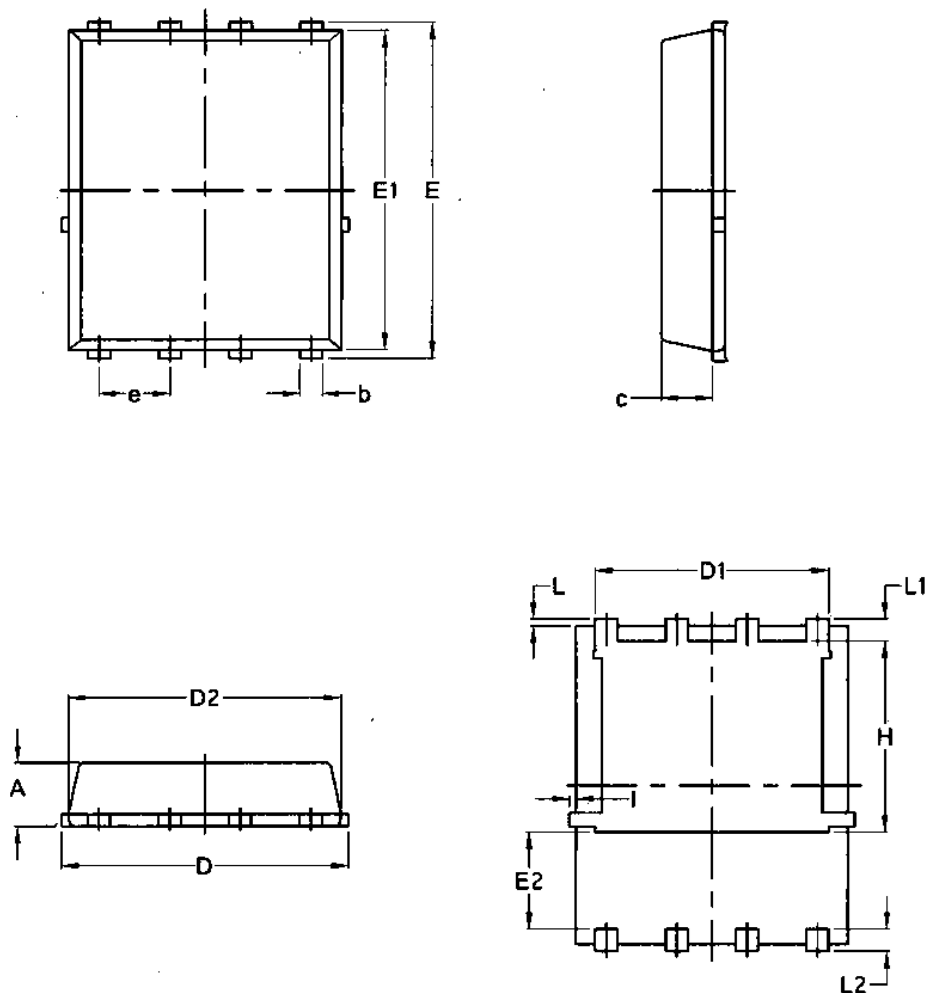
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## N-Channel Enhancement Mode Power MOSFET

### Package Outline

PDFN5x6-8L

Dimensions in mm



Symbol	Common			
	mm		Inch	
	Min	Max	Min	Max
A	1.03	1.17	0.0406	0.0461
b	0.34	0.48	0.0134	0.0189
c	0.824	0.970	0.0324	0.082
D	4.80	5.40	0.1890	0.2126
D1	4.11	4.31	0.1618	0.1697
D2	4.80	5.00	0.1890	0.1969
E	5.95	6.15	0.2343	0.2421
E1	5.65	5.85	0.2224	0.2303
E2	1.60	/	0.0630	/
e	1.27 BSC		0.05 BSC	
L	0.05	0.25	0.0020	0.0098
L1	0.38	0.50	0.0150	0.0197
L2	0.38	0.50	0.0150	0.0197
H	3.30	3.50	0.1299	0.1378
I	/	0.18	/	0.0070