



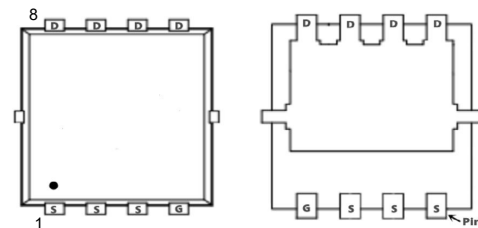
PJM50N60DN

N-Channel Enhancement Mode Power MOSFET

Features

- Excellent $R_{DS(ON)}$ and Low Gate Charge
- $V_{DS} = 60V, I_D = 50A$
 $R_{DS(on)} < 16m\Omega @ V_{GS} = 10V$

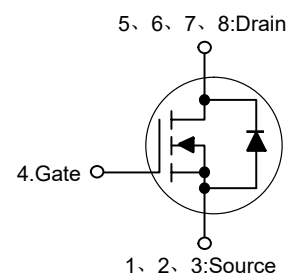
PDFN5x6-8L



Applications

- Battery protection
- Load Switch
- Uninterruptible power supply

Schematic Diagram



Absolute Maximum Ratings

Ratings at 25°C Case temperature unless otherwise specified.

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	60	V
Gate-Source Voltage	V_{GS}	± 20	V
Drain Current-Continuous at $V_{GS}=10V$ ^{Note1}	I_D	50	A
Drain Current-Continuous at $V_{GS}=10V$ ^{Note1} ($T_A=25^\circ C$)	I_D	7.4	A
Drain Current-Pulsed ^{Note2}	I_{DM}	90	A
Single Pulse Avalanche Energy ^{Note3}	E_{AS}	39.2	mJ
Avalanche Current	I_{AS}	28	A
Maximum Power Dissipation ^{Note4}	P_D	45	W
Maximum Power Dissipation ^{Note4} ($T_A=25^\circ C$)	P_D	2	W
Junction Temperature	T_J	150	$^\circ C$
Storage Temperature Range	T_{STG}	-55 to +150	$^\circ C$

Thermal Characteristics

Thermal Resistance,Junction-to-Ambient ^{Note1}	$R_{\theta JA}$	62	$^\circ C/W$
Thermal Resistance,Junction-to-Case ^{Note1}	$R_{\theta JC}$	2.8	$^\circ C/W$



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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	60	65	--	V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =48V, 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	1.2	1.8	2.5	V
Drain-Source On-Resistance ^{Note2}	R _{DS(on)}	V _{GS} =10V, I _D =20A	--	11.5	16	mΩ
		V _{GS} =4.5V, I _D =10A	--	16.3	20	mΩ
Forward Transconductance ^{Note2}	g _{FS}	V _{DS} =5V, I _D =15A	--	45	--	S
Dynamic Characteristics						
Input Capacitance	C _{iss}	V _{DS} =15V, V _{GS} =0V, f=1MHz	--	2423	--	pF
Output Capacitance	C _{oss}		--	145	--	pF
Reverse Transfer Capacitance	C _{rss}		--	97	--	pF
Gate Resistance	R _g	V _{DS} =0V, V _{GS} =0V, f=1MHz	--	1.7	--	Ω
Switching Characteristics						
Turn-on Delay Time	t _{d(on)}	V _{DD} =30V, I _D =15A, V _{GS} =10V, R _G =3.3Ω	--	7.2	--	nS
Turn-on Rise Time	t _r		--	50	--	nS
Turn-off Delay Time	t _{d(off)}		--	36.4	--	nS
Turn-off Fall Time	t _f		--	7.6	--	nS
Total Gate Charge	Q _g	V _{DS} =48V, I _D =15A, V _{GS} =4.5V	--	19.3	--	nC
Gate-Source Charge	Q _{gs}		--	7.1	--	nC
Gate-Drain Charge	Q _{gd}		--	7.6	--	nC
Source-Drain Diode Characteristics						
Diode Forward Voltage ^{Note2}	V _{SD}	V _{GS} =0V, I _S =1A	--	--	1.0	V
Diode Forward Current ^{Note1,5}	I _S		--	--	35	A

Note :

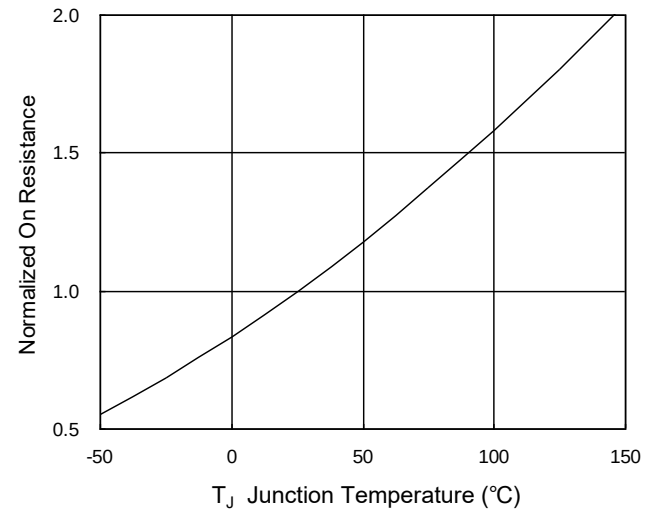
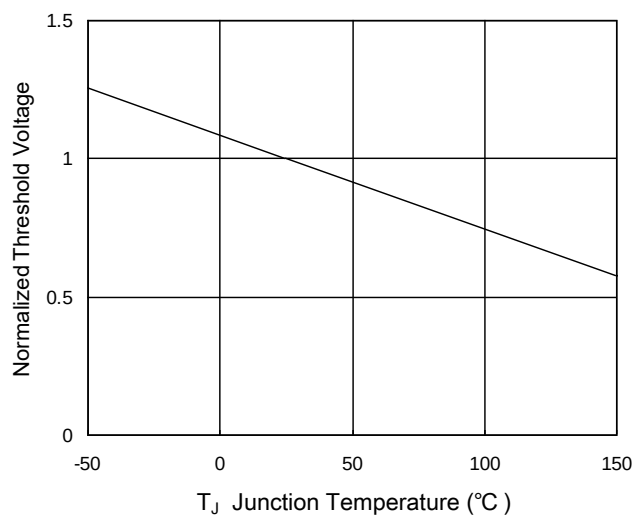
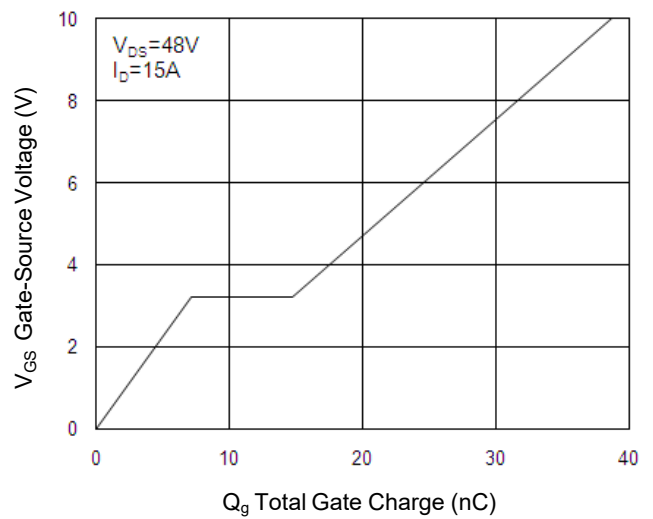
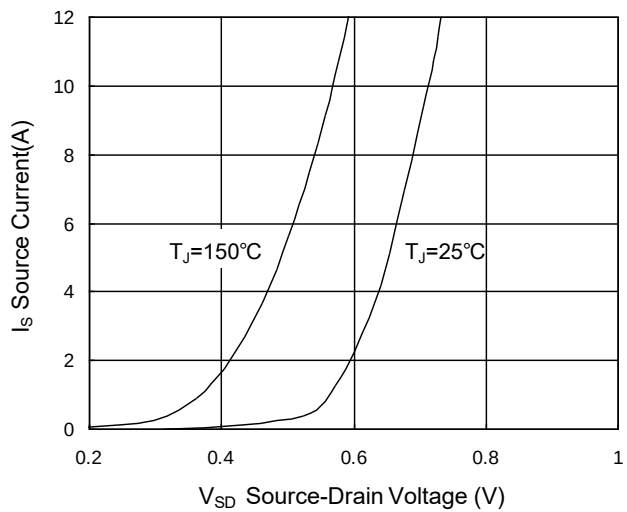
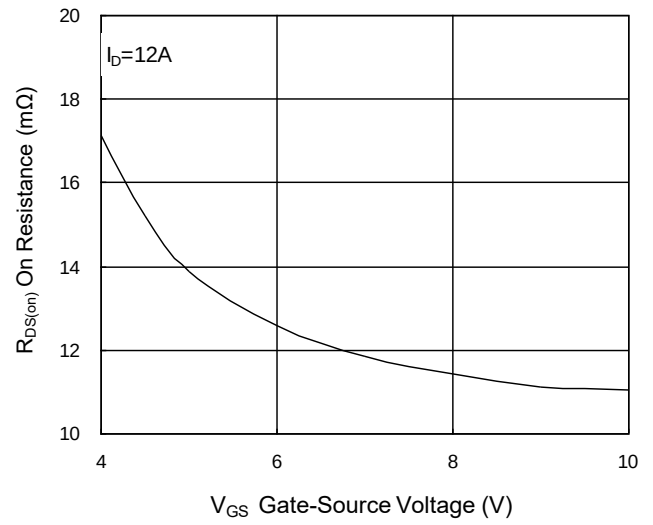
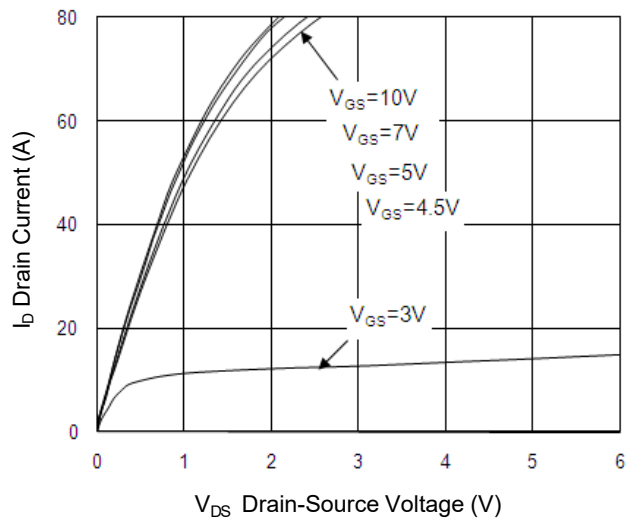
- 1.The data tested by surface mounted on a 1 inch² FR-4 board with 2OZ copper.
- 2.The data tested by pulsed , pulse width ≤ 300us , duty cycle ≤ 2%
- 3.The E_{AS} data shows Max. rating . The test condition is V_{DD}=25V, V_{GS}=10V, L=0.1mH, I_{AS}=28A
- 4.The power dissipation is limited by 150°C junction temperature
- 5.The data is theoretically the same as I_D and I_{DM} , in real applications , should be limited by total power dissipation.



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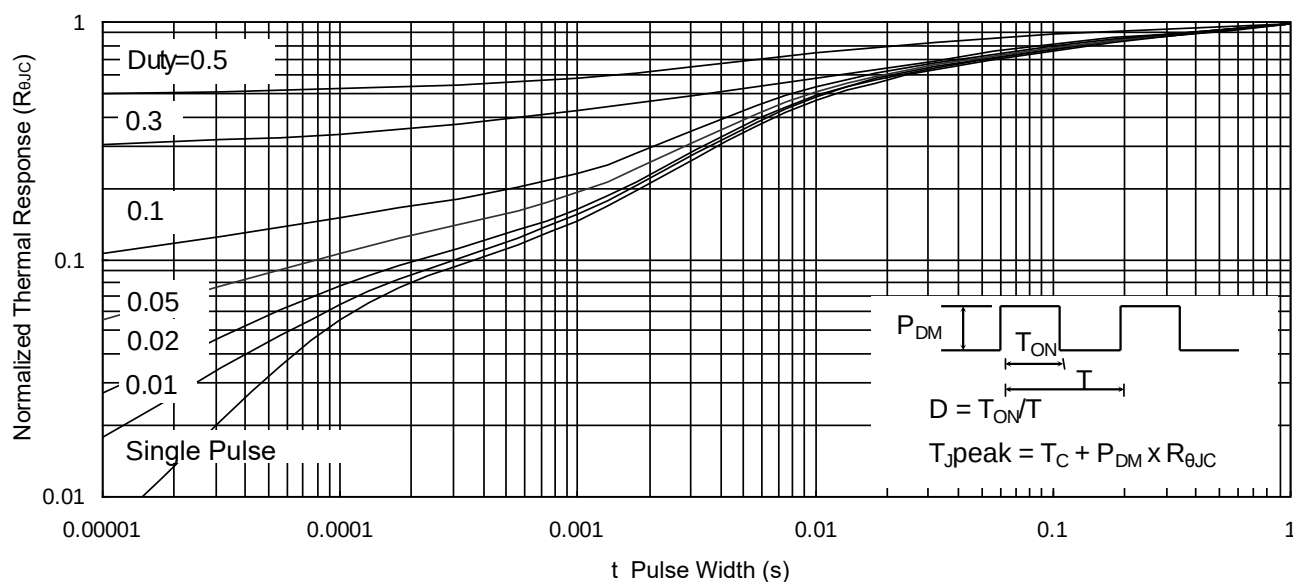
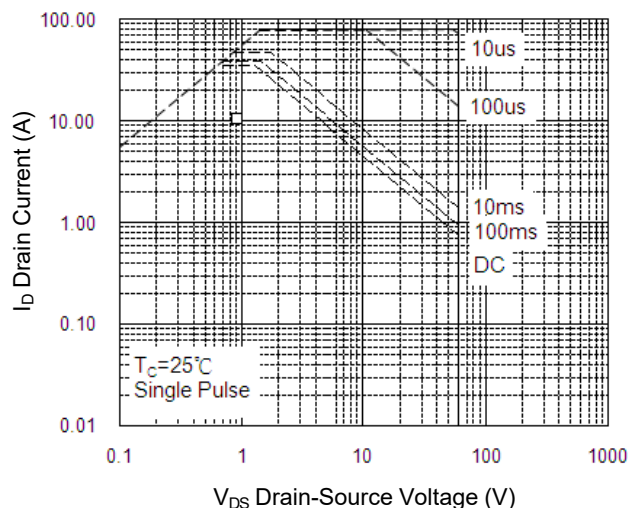
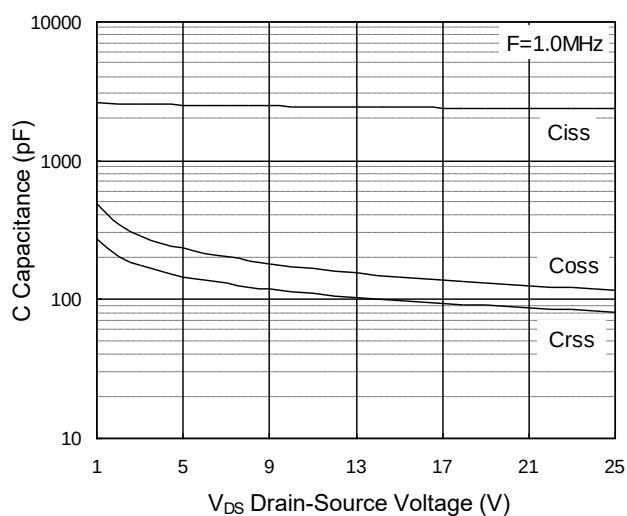
Typical Characteristic Curves

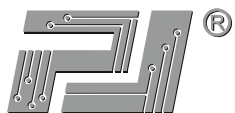




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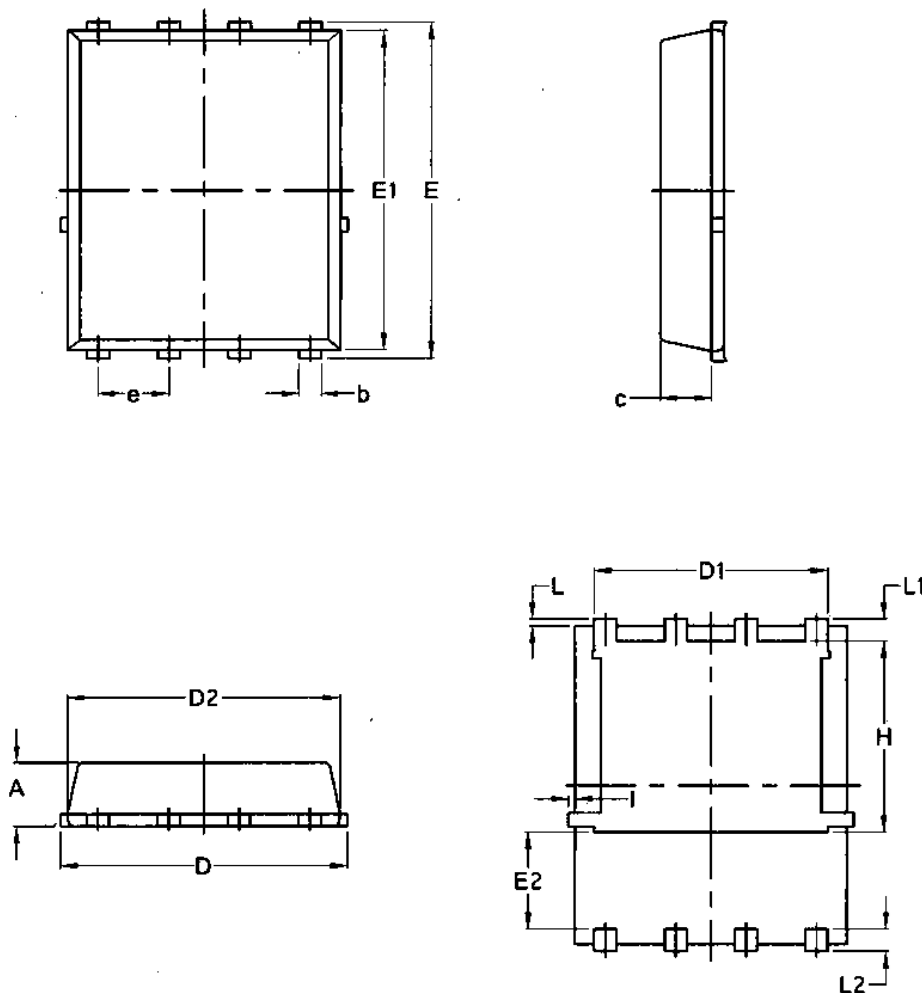
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Package Outline

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