



PJM20N20DL

N-Channel Enhancement Mode Power MOSFET

Product Summary

- $V_{DS}=20V, I_D=20A$
- $R_{DS(on)} < 8m\Omega @ V_{GS}=4.5V$
- $R_{DS(on)} < 13m\Omega @ V_{GS}=2.5V$

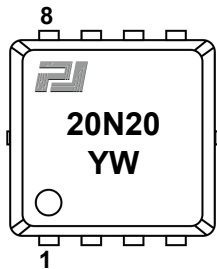
Features

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

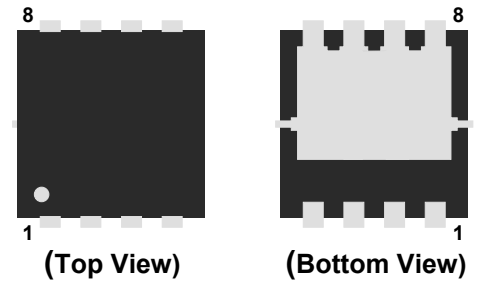
Application

- Load Switch
- Battery Protection
- Uninterruptible Power Supply

Marking Code

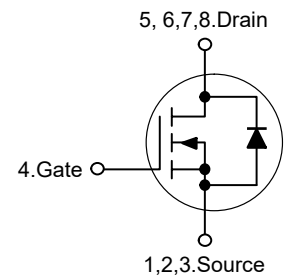


PDFN3x3-8L



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}	20	V
Gate-Source Voltage	V_{GS}	± 12	V
Drain Current-Continuous	I_D	20	A
Drain Current-Pulsed ^{Note1}	I_{DM}	60	A
Maximum Power Dissipation	P_D	20	W
Single Pulse Avalanche Energy ^{Note2}	E_{AS}	36	mJ
Junction Temperature	T_J	150	°C
Storage Temperature Range	T_{STG}	-55 to +150	°C

Thermal Characteristics

Thermal Resistance, Junction-to-Case	$R_{\theta JC}$	4.03	°C/W
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Electrical Characteristics

(T_C=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	20	--	--	V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =20V, V _{GS} =0V	--	--	1	μA
Gate-Body Leakage Current	I _{GSS}	V _{GS} =±12V, V _{DS} =0V	--	--	±100	nA
Gate Threshold Voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =250μA	0.4	0.7	1.2	V
Drain-Source On-Resistance ^{Note3}	R _{DS(on)}	V _{GS} =4.5V, I _D =20A	--	5.5	7.5	mΩ
		V _{GS} =2.5V, I _D =10A	--	7	10	mΩ
Forward Transconductance ^{Note3}	g _{FS}	V _{DS} =5V, I _D =5A	--	14	--	S
Dynamic Characteristics						
Input Capacitance	C _{iss}	V _{DS} =10V, V _{GS} =0V, f=1MHz	--	1895	--	pF
Output Capacitance	C _{oss}		--	196	--	pF
Reverse Transfer Capacitance	C _{rss}		--	166	--	pF
Gate Resistance	R _g	V _{DS} =0V, V _{GS} =0V, f=1MHz	--	1.6	--	Ω
Total Gate Charge	Q _g	V _{DS} =10V, I _D =4A, V _{GS} =4.5V	--	16	--	nC
Gate-Source Charge	Q _{gs}		--	3	--	nC
Gate-Drain Charge	Q _{gd}		--	5.5	--	nC
Switching Characteristics						
Turn-on Delay Time	t _{d(on)}	V _{DD} =10V, I _D =4A, V _{GS} =4.5V, R _{GEN} =3Ω	--	10	--	nS
Turn-on Rise Time	t _r		--	30	--	nS
Turn-off Delay Time	t _{d(off)}		--	40	--	nS
Turn-off Fall Time	t _f		--	16	--	nS
Source-Drain Diode Characteristics						
Diode Forward Voltage ^{Note3}	V _{SD}	V _{GS} =0V, I _S =20A	--	--	1.2	V
Diode Forward Current	I _S		--	--	20	A

Note :

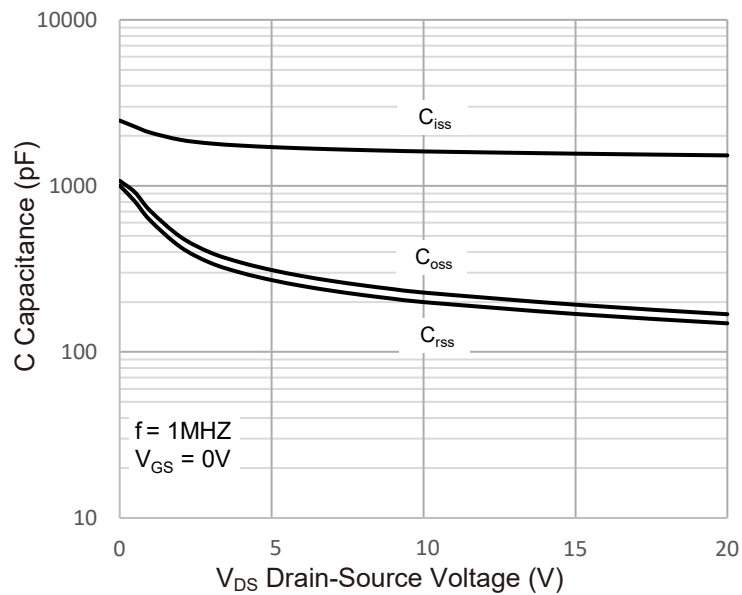
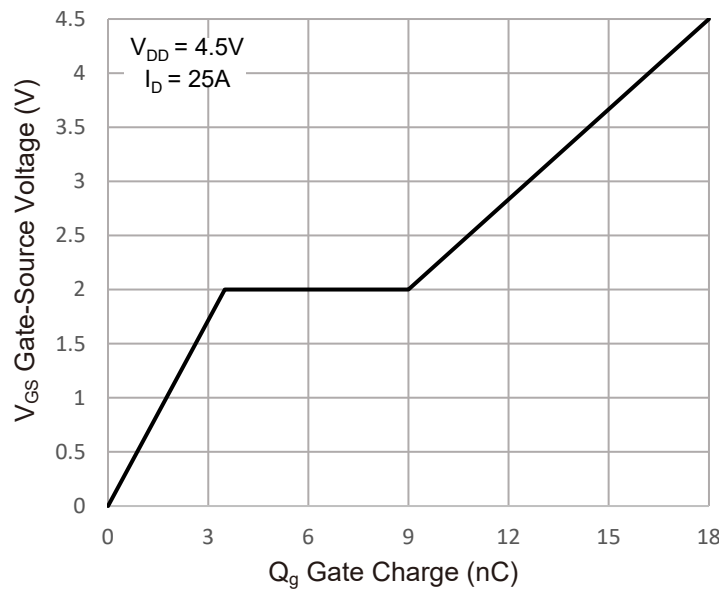
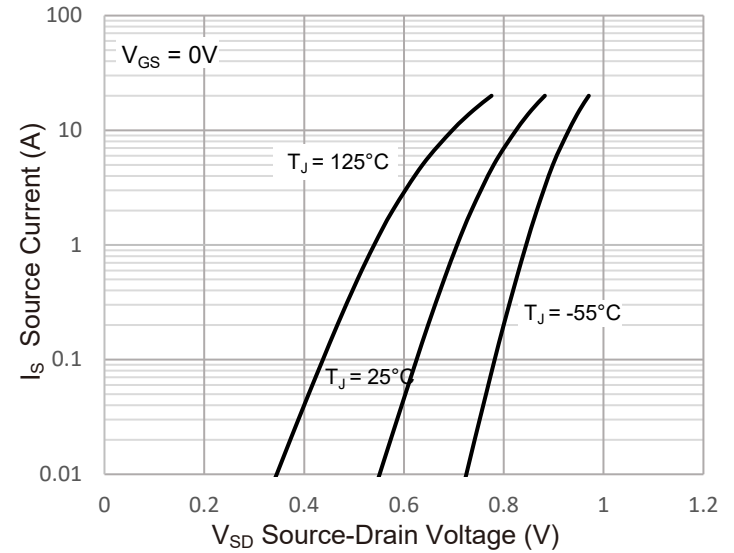
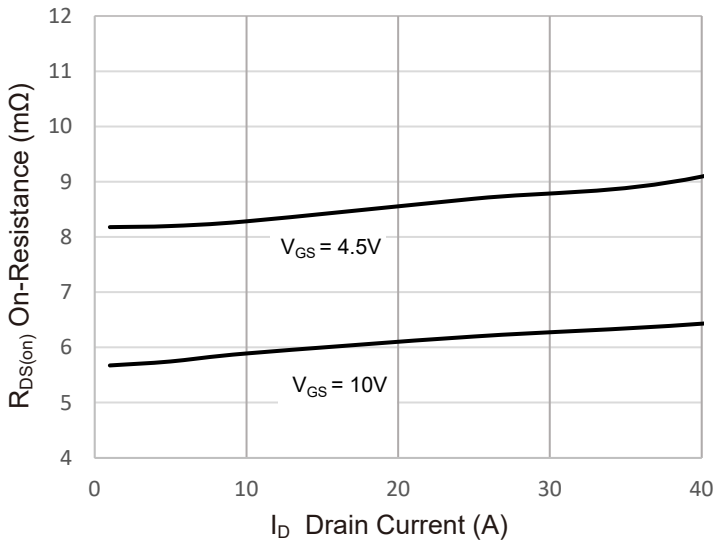
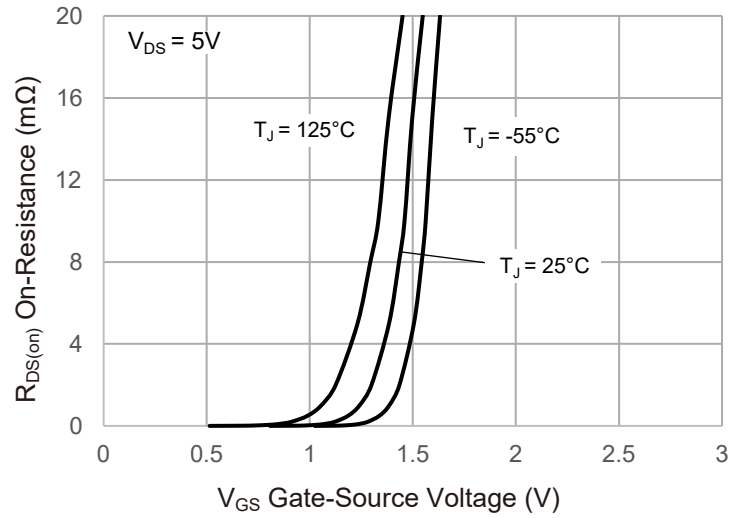
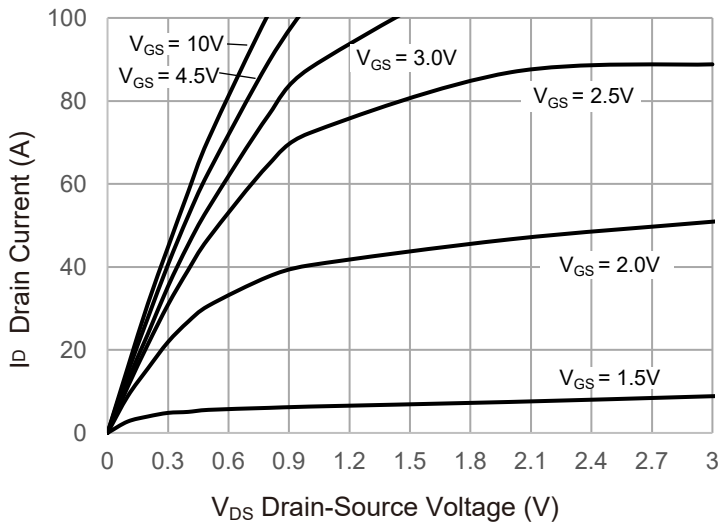
1. Repetitive Rating: Pulse Width Limited by Maximum Junction Temperature
2. EAS Condition: T_J=25°C, V_{DD}=10V, V_G=10V, L=0.5mH, R_G=25Ω, I_{AS}=12A.
3. The data tested by pulsed , pulse width ≤ 300us , duty cycle ≤ 2%



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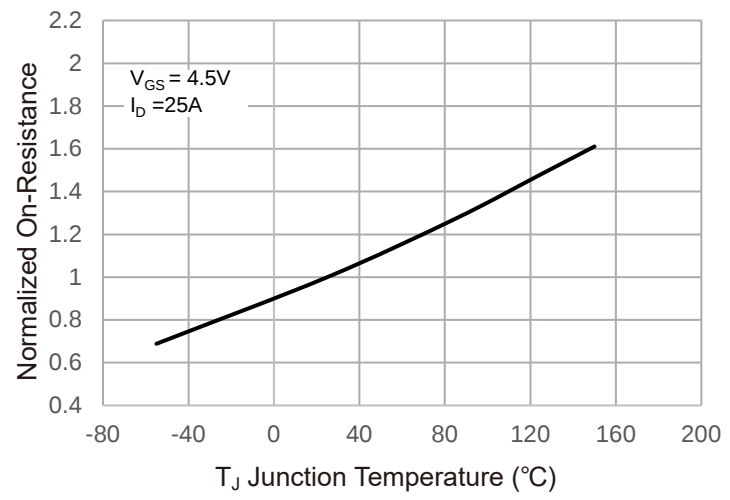
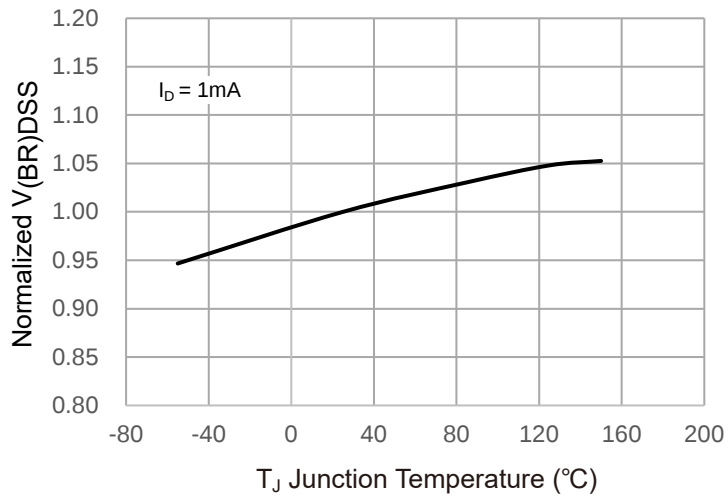
Typical Characteristic Curves





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Test Circuit

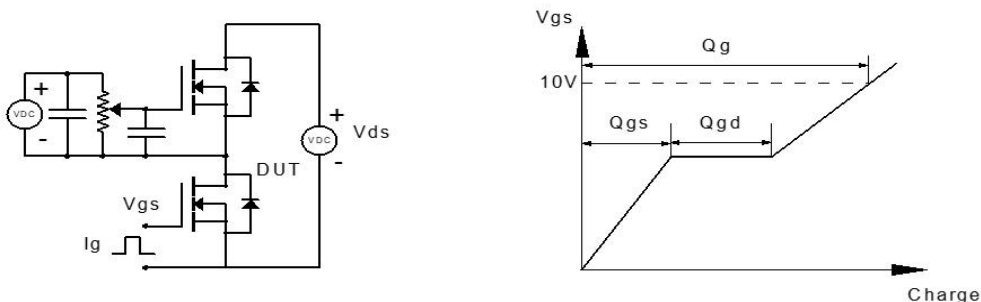


Figure 1: Gate Charge Test Circuit & Waveform

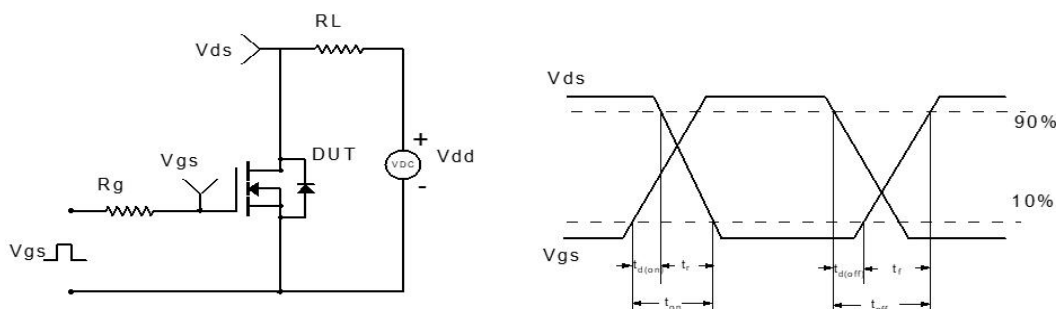


Figure 2: Resistive Switching Test Circuit & Waveform

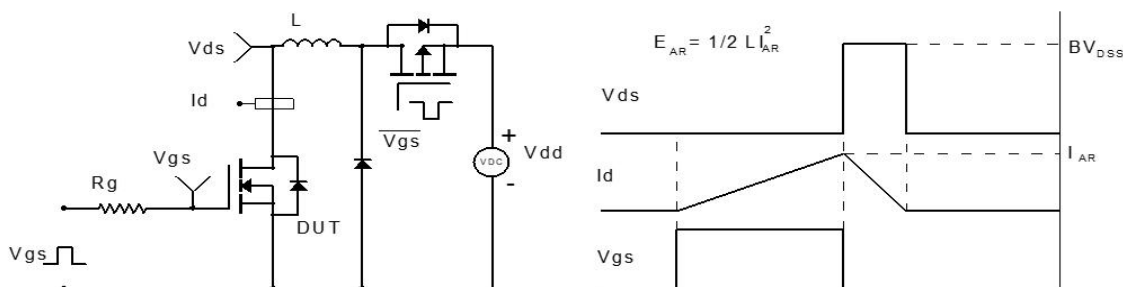


Figure 3: Unclamped Inductive Switching Test Circuit & Waveform

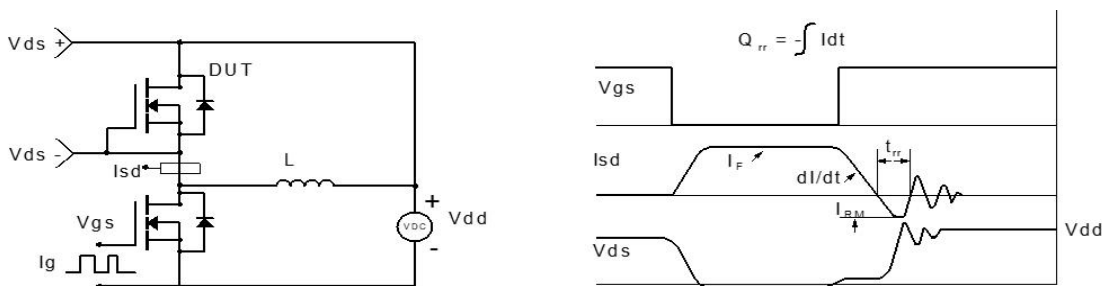


Figure 4: Diode Recovery Test Circuit & Waveform



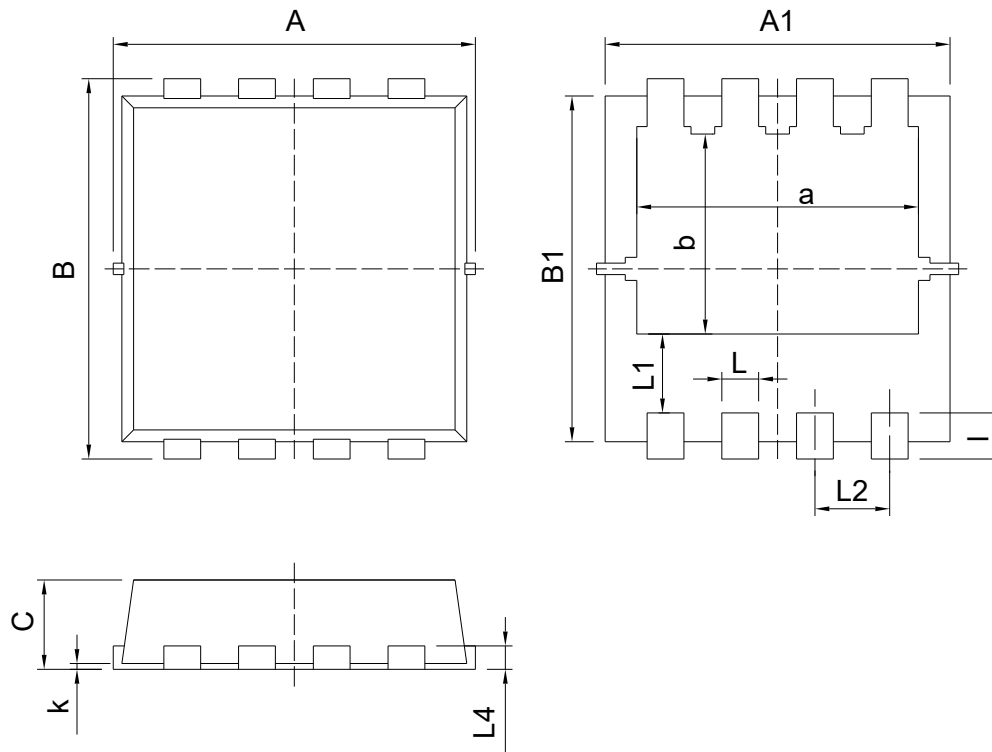
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Package Outline

PDFN3x3-8L

Dimensions in mm



Symbol	Dimensions		Symbol	Dimensions	
	Min.	Max.		Min.	Max.
A	3.2	3.4	L2	0.55	0.75
A1	3.1	3.2	L4	0.14	0.20
B	3.2	3.4	a	2.35	2.55
B1	2.95	3.05	b	1.635	1.835
C	0.75	0.85	k	0.0	0.05
L	0.25	0.35	l	0.3	0.5
L1	-	0.75			