

TN80P20DL

P-Channel Enhancement Mode Power MOSFET

Product Summary

- $V_{DS} = -20V, I_D = -80A$
- $R_{DS(on)} < 3.5m\Omega @ V_{GS} = -4.5V$
- $R_{DS(on)} < 5m\Omega @ V_{GS} = -2.5V$

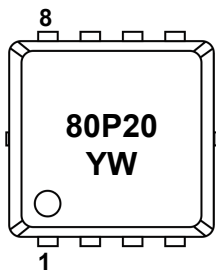
Features

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

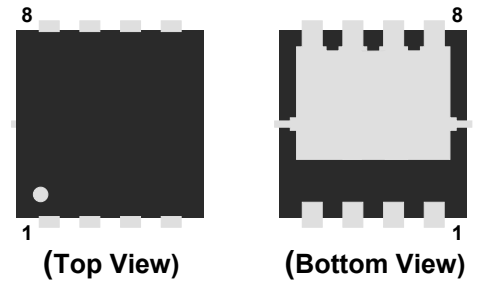
Application

- Load Switch
- PWM Application
- Power Management

Marking Code

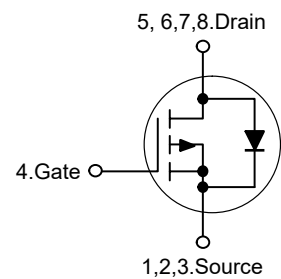


PDFN3x3-8L



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	$-I_D$	80	A
Drain Current-Pulsed ^{Note1}	$-I_{DM}$	320	A
Maximum Power Dissipation	P_D	75	W
Junction Temperature	T_J	150	°C
Storage Temperature Range	T_{STG}	-55 to +150	°C

Thermal Characteristics

Thermal Resistance, Junction-to-Case	$R_{\theta JC}$	1.67	°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	$-V_{(BR)DSS}$	$V_{GS}=0V, I_D=-250\mu A$	20	--	--	V
Zero Gate Voltage Drain Current	$-I_{DSS}$	$V_{DS}=-20V, V_{GS}=0V$	--	--	1	μA
Gate-Body Leakage Current	I_{GSS}	$V_{GS}=\pm 12V, V_{DS}=0V$	--	--	± 100	nA
Gate Threshold Voltage ^{Note2}	$-V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=-250\mu A$	0.4	--	1	V
Drain-Source On-Resistance ^{Note2}	$R_{DS(on)}$	$V_{GS}=-4.5V, I_D=-15A$	--	--	3.5	m Ω
		$V_{GS}=-2.5V, I_D=-12A$	--	--	5	m Ω
Dynamic Characteristics						
Input Capacitance	C_{iss}	$V_{DS}=-10V, V_{GS}=0V, f=1MHz$	--	6700	--	pF
Output Capacitance	C_{oss}		--	995	--	pF
Reverse Transfer Capacitance	C_{rss}		--	800	--	pF
Total Gate Charge	Q_g	$V_{DS}=-10V, I_D=-15A,$ $V_{GS}=-4.5V$	--	100	--	nC
Gate-Source Charge	Q_{gs}		--	15	--	nC
Gate-Drain Charge	Q_{gd}		--	28	--	nC
Switching Characteristics						
Turn-on Delay Time	$t_{d(on)}$	$V_{DD}=-10V, I_D=-13A,$ $V_{GS}=-10V, R_{GEN}=2.7\Omega$	--	19	--	nS
Turn-on Rise Time	t_r		--	198	--	nS
Turn-off Delay Time	$t_{d(off)}$		--	282	--	nS
Turn-off Fall Time	t_f		--	288	--	nS
Source-Drain Diode Characteristics						
Diode Forward Voltage ^{Note2}	$-V_{SD}$	$V_{GS}=0V, I_S=-30A$	--	--	1.2	V
Diode Forward Current	$-I_S$		--	--	80	A

Note :

1. Repetitive Rating: Pulse Width Limited by Maximum Junction Temperature
2. The data tested by pulsed , pulse width $\leq 300\mu s$, duty cycle $\leq 2\%$

Test Circuit

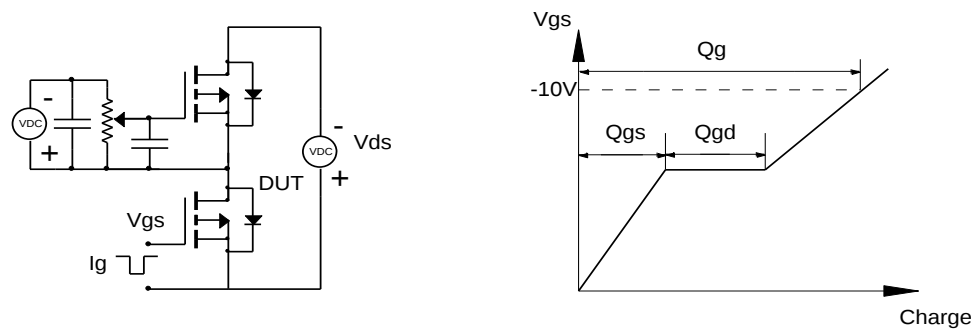


Figure 1: Gate Charge Test Circuit & Waveform

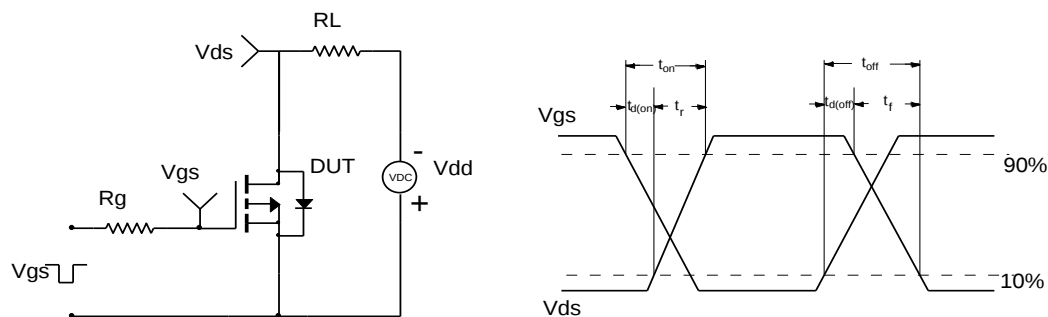


Figure 2: Resistive Switching Test Circuit & Waveform

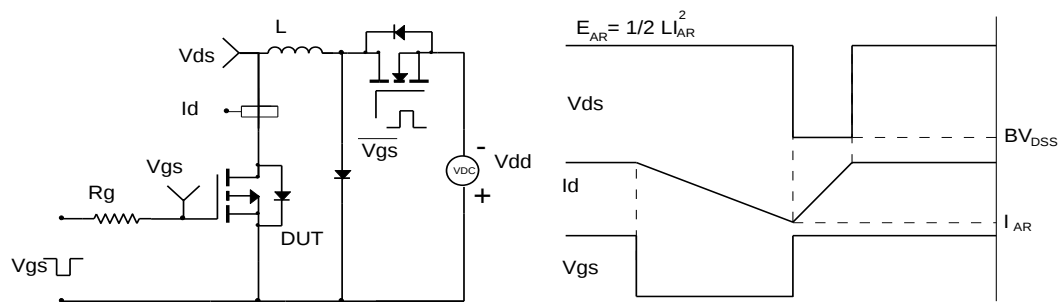


Figure 3: Unclamped Inductive Switching Test Circuit & Waveform

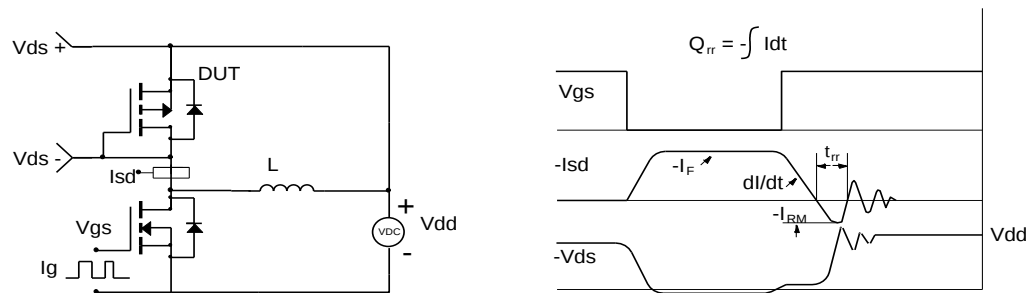
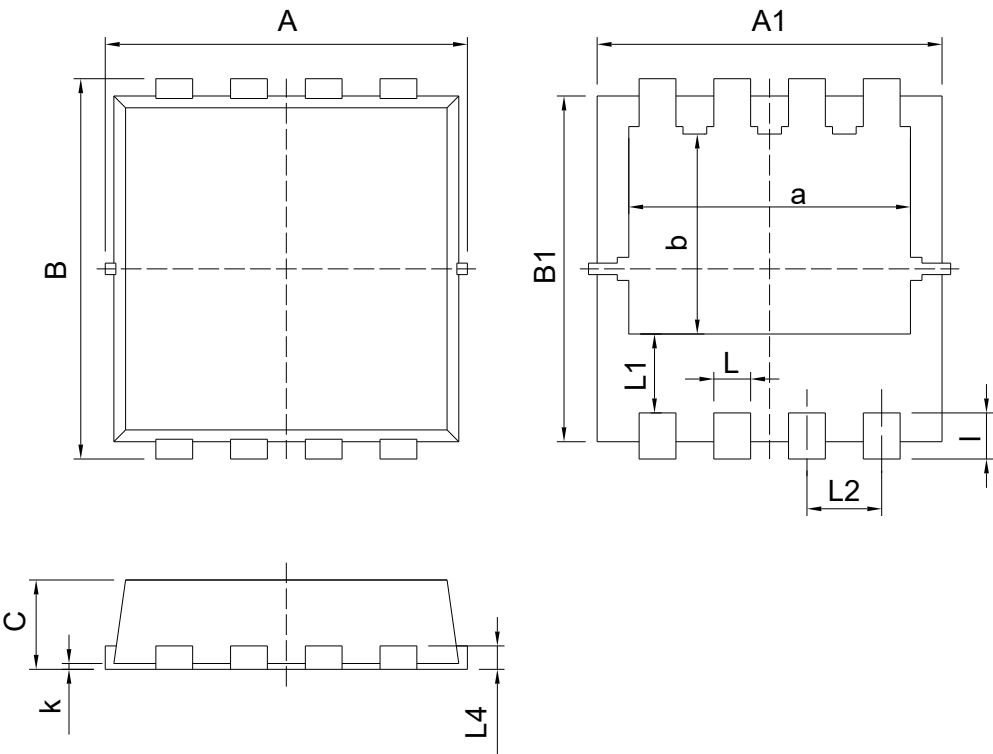


Figure 4: Diode Recovery Test Circuit & Waveform

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			

Contact Information

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For additional information, please contact your local Sales Representative.



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