

TN40P30DL

P-Channel Enhancement Mode Power MOSFET

PDFN3x3-8L

Product Summary

- $V_{DS} = -30V, I_D = -40A$
- $R_{DS(on)} < 13m\Omega @ V_{GS} = -10V$
- $R_{DS(on)} < 20m\Omega @ V_{GS} = -4.5V$

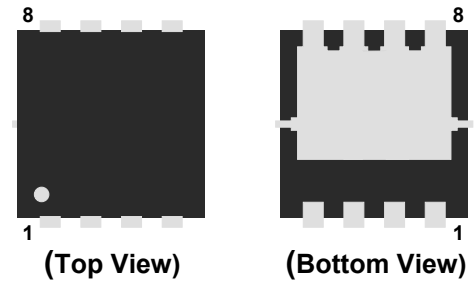
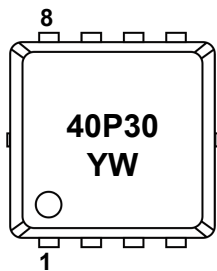
Features

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

Application

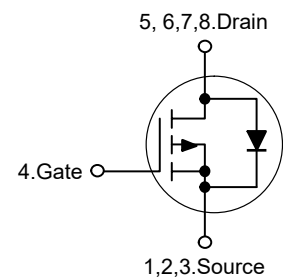
- Lithium Battery Protection
- Wireless Impact
- Mobile Phone Fast Charging

Marking Code



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	$-I_D$	40	A
Drain Current-Pulsed ^{Note1}	$-I_{DM}$	120	A
Maximum Power Dissipation	P_D	32	W
Single Pulse Avalanche Energy ^{Note2}	E_{AS}	39	mJ
Junction Temperature	T_J	150	°C
Storage Temperature Range	T_{STG}	-55 to +150	°C

Thermal Characteristics

Thermal Resistance, Junction-to-Case	$R_{\theta JC}$	3.91	°C/W
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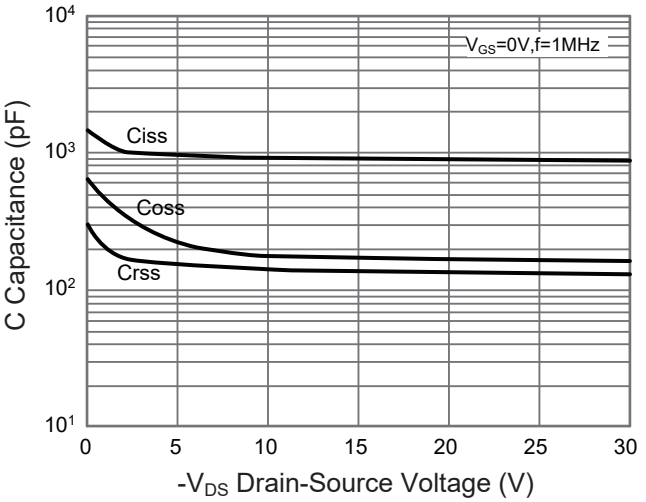
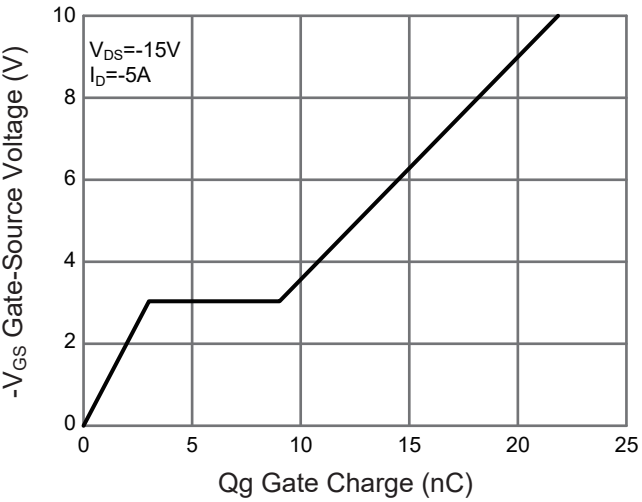
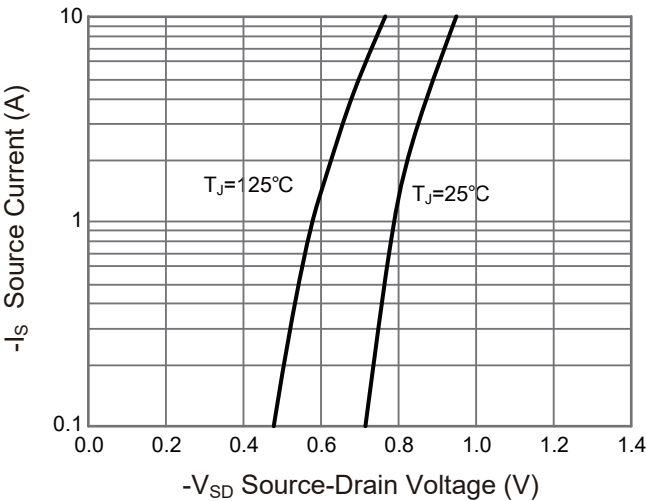
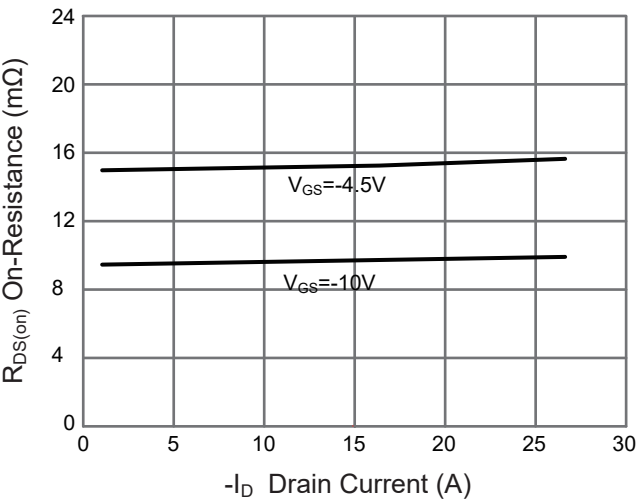
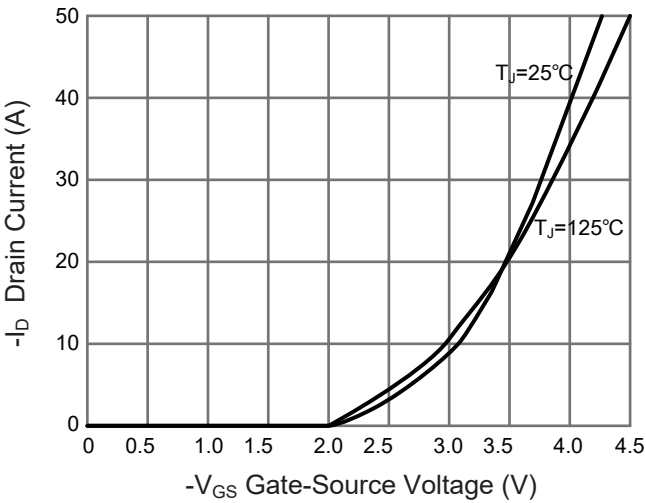
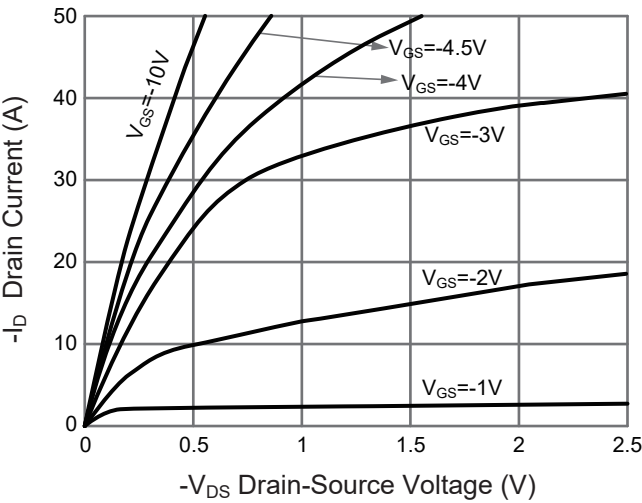
Electrical Characteristics

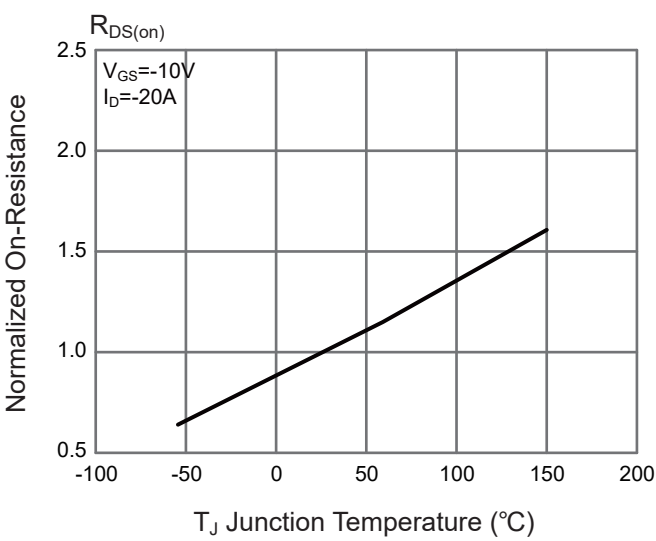
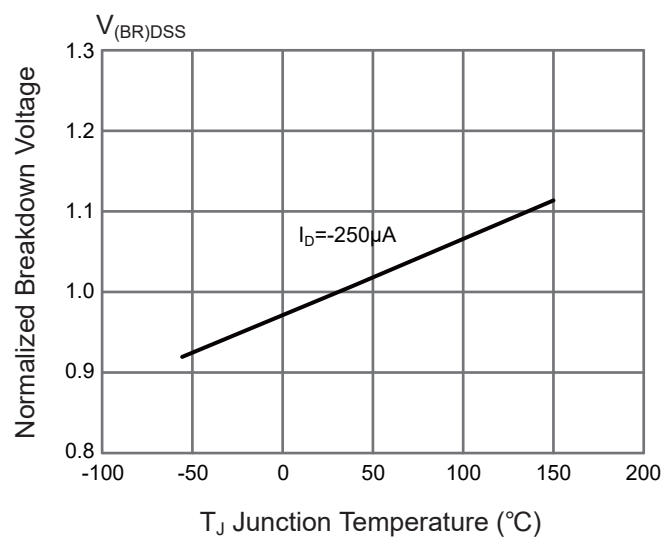
(T_C=25°C unless otherwise specified)

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Static Characteristics						
Drain-Source Breakdown Voltage	-V _{(BR)DSS}	V _{GS} =0V, I _D =-250μA	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 ^{Note3}	-V _{GS(th)}	V _{DS} =V _{GS} , I _D =-250μA	1	1.5	2.5	V
Drain-Source On-Resistance ^{Note3}	R _{DS(on)}	V _{GS} =-10V, I _D =-10A	--	--	13	mΩ
		V _{GS} =-4.5V, I _D =-5A	--	--	20	mΩ
Dynamic Characteristics						
Input Capacitance	C _{iss}	V _{DS} =-15V, V _{GS} =0V, f=1MHz	--	900	--	pF
Output Capacitance	C _{oss}		--	172	--	pF
Reverse Transfer Capacitance	C _{rss}		--	146	--	pF
Total Gate Charge	Q _g	V _{DS} =-15V, I _D =-5A, V _{GS} =-10V	--	22	--	nC
Gate-Source Charge	Q _{gs}		--	3	--	nC
Gate-Drain Charge	Q _{gd}		--	6	--	nC
Switching Characteristics						
Turn-on Delay Time	t _{d(on)}	V _{DD} =-15V, I _D =-5A, V _{GS} =-10V, R _{GEN} =2.5Ω	--	10	--	nS
Turn-on Rise Time	t _r		--	14	--	nS
Turn-off Delay Time	t _{d(off)}		--	50	--	nS
Turn-off Fall Time	t _f		--	20	--	nS
Source-Drain Diode Characteristics						
Diode Forward Voltage ^{Note3}	-V _{SD}	V _{GS} =0V, I _S =-30A	--	--	1.2	V
Diode Forward Current	-I _S		--	--	40	A

Note: 1. Repetitive Rating: Pulse width limited by maximum junction temperature.
2. EAS Condition: T_J=25°C, V_{DD}=-15V, V_G=-10V, R_G=25Ω, L=0.5mH, I_{AS}=-12.5A.
3. Pulse Test: Pulse width≤300μs, duty cycles≤2%.

Typical Characteristics Curves

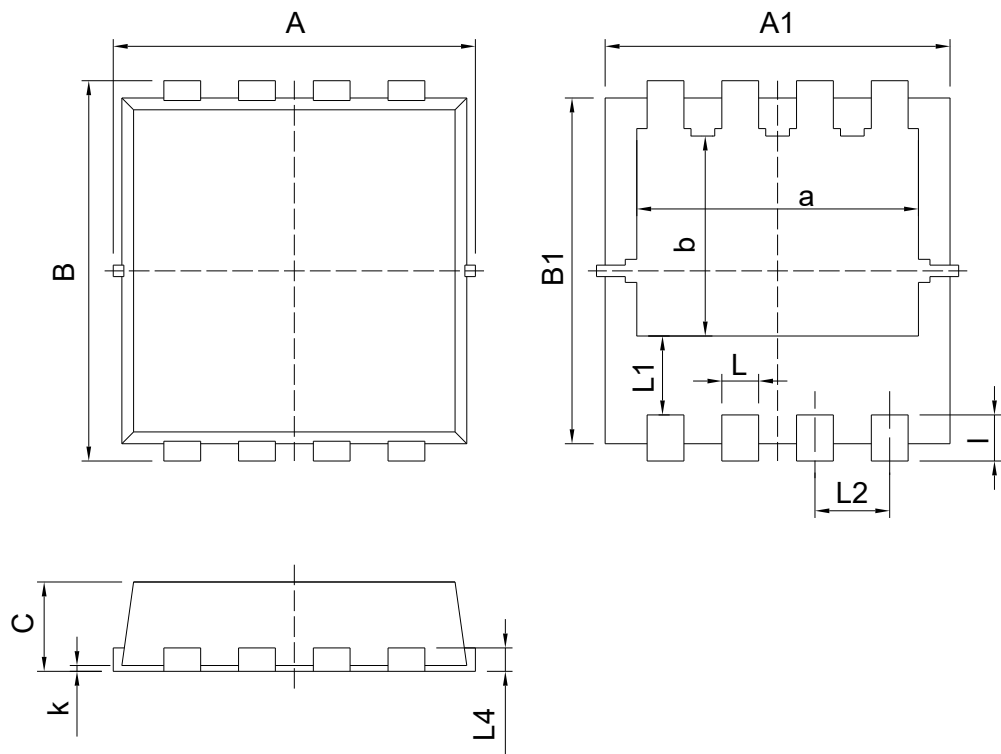




Package Outline

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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