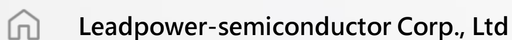
Power MOSFETS

PRELIMINARY DATASHEET

LM40018NHK8A

N-Channel
Enhancement Mode MOSFET


Leadpower-semiconductor Corp., Ltd

sales@leadpower-semi.com

(03) 6577339　FAX：(03) 6577229

www.leadpower-semi.com

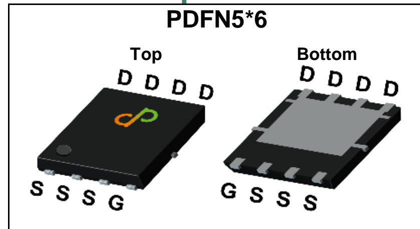
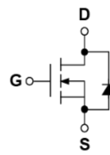
Quality Management Systems

ISO 9001:2015 Certificate

LM40018NHK8A

N-Channel Enhancement Mode MOSFET

Pin Description / Product Summary

PDFN5*6	Symbol	Symbol	N-Channel	Unit
		V_{DSS}	40	V
		$R_{DS(ON)\text{-}Max}$	1.7	mΩ
		ID	211	A

Feature

- Reliable and Rugged
- ROHS Compliant & Halogen-Free
- 100% UIS and Rg Tested

Applications

- Power Load Switch
- Battery Powered System

Ordering Information

Orderable Part Number	Package Type	Form	Shipping	Marking
LM40018NHK8A	PDFN5*6	Tape & Reel	5000 / Tape & Reel	40018 □□□□□G

Note : □□□□□ = Lot code

Absolute Maximum Ratings (T_J=25°C Unless Otherwise Noted)

Symbol	Parameter		N-Channel	Unit
V_{DSS}	Drain-Source Voltage		40	V
V_{GSS}	Gate-Source Voltage		±20	V
T_J	Maximum Junction Temperature		175	°C
T_{STG}	Storage Temperature Range		-55 to 175	°C
I_{DM}①	Pulse Drain Current Tested	T_C=25°C	400	A
I_S	Diode Continuous Forward Current	T_C=25°C	124.5	A
I_D	Continuous Drain Current	T_C=25°C	211	A
		T_C=100°C	150	
P_D	Maximum Power Dissipation	T_C=25°C	115	W
		T_C=100°C	57.7	
I_D③	Continuous Drain Current	T_A=25°C	34	A
		T_A=70°C	28.5	
P_D③	Maximum Power Dissipation	T_A=25°C	3	W
		T_A=70°C	2.1	
I_{AS}②	Avalanche Current, Single pulse	L=0.1mH	65	A
		L=0.3mH	46	
E_{AS}②	Avalanche Energy, Single pulse	L=0.1mH	214	mJ
		L=0.3mH	316	

Thermal Characteristics

Symbol	Parameter		Rating	Unit
$R_{\theta JC}$	Thermal Resistance-Junction to Case	Steady State	1.3	°C/W
$R_{\theta JA}$③	Thermal Resistance-Junction to Ambient	Steady State	50	°C/W

Note ① : Max. current is limited by junction temperature.
Note ② : UIS tested and pulse width are limited by maximum junction temperature 175°C
Note ③ : Surface Mounted on $1in^2$ FR-4 board with 1oz.

N-Channel Electrical Characteristics (T_J=25°C Unless Otherwise Noted)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
Static Electrical Characteristics						
BV_{DSS}	Drain-Source Breakdown Voltage	V_{GS}=0V, I_{DS}=250uA	40	-	-	V
I_{DSS}	Zero Gate Voltage Drain Current	V_{DS}=36V, V_{GS}=0V	-	-	1	uA
$V_{GS(th)}$	Gate Threshold Voltage	V_{DS}=V_{GS}, I_{DS}=250uA	2	3	4	V
I_{GSS}	Gate Leakage Current	V_{GS}=±20V, V_{DS}=0V	-	-	±100	nA
$R_{DS(ON)}$④	Drain-Source On-state Resistance	V_{GS}=10V, I_{DS}=20A	-	1.4	1.7	mΩ
gfs	Forward Transconductance	V_{DS}=5V, I_{DS}=10A	-	52.3	-	S
Dynamic Characteristics ⑤						
R_G	Gate Resistance	V_{GS}=0V,V_{DS}=0V, Freq.=1MHz	-	4.4	-	Ω
C_{iss}	Input Capacitance	V_{GS}=0V, V_{DS}=20V, Freq.=1MHz	-	6788	-	pF
C_{oss}	Output Capacitance		-	605	-	
C_{rss}	Reverse Transfer Capacitance		-	453	-	
$td_{(ON)}$	Turn-on Delay Time	V_{GS}=10V,V_{DS}=20V, I_D=1A,R_{GEN}=6Ω	-	12.8	-	nS
t_r	Turn-on Rise Time		-	15	-	
$t_{d(OFF)}$	Turn-off Delay Time		-	313	-	
t_f	Turn-off Fall Time		-	100	-	
Q_g	Total Gate Charge	V_{GS}=4.5V,V_{DS}=20V I_D=20A	-	80.5	-	nC
Q_g	Total Gate Charge	V_{GS}=10V,V_{DS}=20V, I_D=20A	-	113	-	
Q_{gs}	Gate-Source Charge		-	45.2	-	
Q_{gd}	Gate-Drain Charge		-	36	-	
Source-Drain Characteristics						
V_{SD}④	Diode Forward Voltage	I_{SD}=10A, V_{GS}=0V	-	0.7	1.1	V
t_{rr}	Reverse Recovery Time	I_F=10A, V_R=20V dI_F/dt=100A/µs	-	28	-	nS
Q_{rr}	Reverse Recovery Charge		-	22.4	-	nC

Note ④：Pulse test (pulse width≤300us, duty cycle≤2%).
Note ⑤：Guaranteed by design, not subject to production testing.