



## Description

The DMN2320UFB4-7B uses advanced trench technology provide excellent  $R_{DS(ON)}$ , low gate charge and operation with gate voltages as low as 2.5V. This device is suitable for use as a Battery protection or in other Switching application.



DFN1006-3L  
(X2-DFN1006-3)

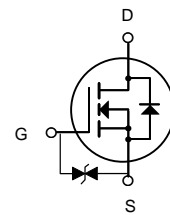
## General Features

$V_{DS} = 20V$   $I_D = 0.7A$

$R_{DS(ON)} < 350\text{ m}\Omega @ V_{GS}=4.5V$

$R_{DS(ON)} < 420\text{ m}\Omega @ V_{GS}=2.5V$

ESD=2500V HBM



N-Channel MOSFET

## Application

Load/Power Switching

Interfacing Switching

Battery Management for Ultra Small Portable Electronics

## Package Marking and Ordering Information

Product ID	Pack	Brand	Qty(PCS)
DMN2320UFB4-7B	DFN1006-3L(X2-DFN100-3)	HXY MOSFET	10000

## Absolute Maximum Ratings ( $T_A=25^\circ\text{C}$ unless otherwise noted)

Symbol	Parameter	Limit	Unit
$V_{DS}$	Drain-Source Voltage	20	V
$V_{GS}$	Gate-Source Voltage	$\pm 10$	V
$I_D$	Drain Current-Continuous	0.7	A
$P_D$	Maximum Power Dissipation	0.15	W
$T_J, T_{STG}$	Operating Junction and Storage Temperature Range	-55 To 150	$^\circ\text{C}$
$R_{\theta JA}$	Thermal Resistance, Junction-to-Ambient (Note 2)	1250	$^\circ\text{C/W}$



### Electrical Characteristics (T<sub>A</sub>= 25°C, unless otherwise specified)

Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Static Characteristics						
Drain-source breakdown voltage	V <sub>(BR)DSS</sub>	V <sub>GS</sub> = 0V, I <sub>D</sub> =250μA	20	--	--	V
Zero gate voltage drain current	I <sub>DSS</sub>	V <sub>DS</sub> =20V,V <sub>GS</sub> = 0V	--	--	1	μA
Gate-body leakage current	I <sub>GSS</sub>	V <sub>GS</sub> =±10V, V <sub>DS</sub> = 0V	--	--	±10	μA
Gate threshold voltage <small>(note2)</small>	V <sub>GS(th)</sub>	V <sub>DS</sub> =V <sub>GS</sub> , I <sub>D</sub> =250μA	0.45	0.7	1.1	V
Drain-source on-resistance <small>(note2)</small>	R <sub>DS(on)</sub>	V <sub>GS</sub> =4.5V, I <sub>D</sub> =0.5A	--	0.22	0.35	Ω
		V <sub>GS</sub> =2.5V, I <sub>D</sub> =0.5A	--	0.28	0.42	Ω
Forward tranconductance <small>(note2)</small>	g <sub>fs</sub>	V <sub>DS</sub> =5.0V, I <sub>D</sub> =0.5A	--	1.6	--	S
Diode forward voltage	V <sub>SD</sub>	I <sub>S</sub> =0.8A, V <sub>GS</sub> =0V	--	--	1.2	V
Dynamic Characteristics <small>(note4)</small>						
Input capacitance	C <sub>iss</sub>	V <sub>DS</sub> =10V,V <sub>GS</sub> =0V, f =1MHz	--	43.6	--	pF
Output capacitance	C <sub>oss</sub>		--	6.8	--	pF
Reverse transfer capacitance	C <sub>rss</sub>		--	4.6	--	pF
Switching Characteristics <small>(note4)</small>						
Turn-on delay time <small>(note3)</small>	t <sub>d(on)</sub>	V <sub>GS</sub> =4.5V,V <sub>DS</sub> =10V, R <sub>L</sub> =20Ω	--	1.4	--	nS
Turn-on rise time <small>(note3)</small>	t <sub>r</sub>		--	27.8	--	nS
Turn-off delay time <small>(note3)</small>	t <sub>d(off)</sub>		--	54.6	--	nS
Turn-off fall time <small>(note3)</small>	t <sub>f</sub>		--	25.6	--	nS

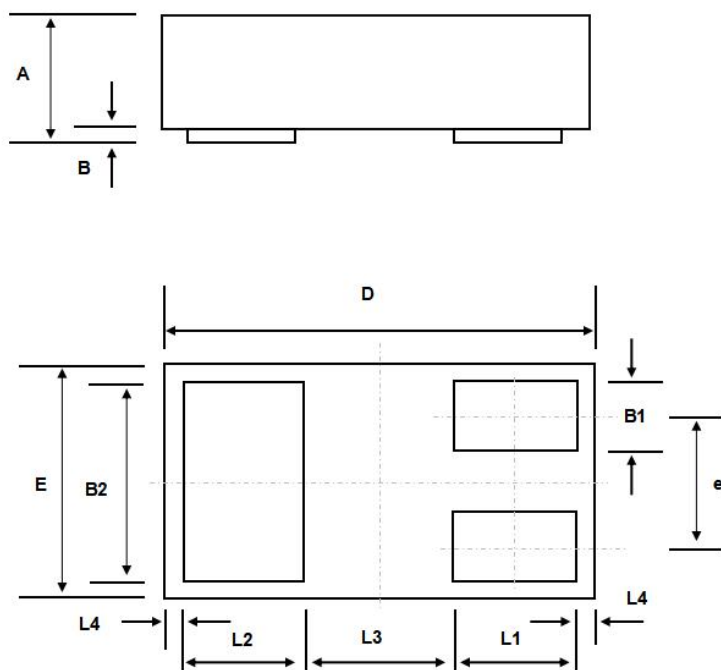
#### Notes:

1. Surface mounted on FR4 board using the minimum recommended pad size.
2. Pulse Test : Pulse Width=300μs, Duty Cycle=2%.
3. Switching characteristics are independent of operating junction temperatures.
4. Guaranteed by design, not subject to producting.



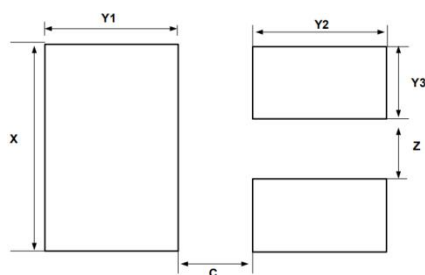
## Package Outline Dimensions

DFN1006-3L(X2-DFN1006-3)



Symbol	Dimensions In Millimet	
	Min	Max
A	0.33	0.50
B	0.00	0.05
B1	0.10	0.20
B2	0.45	0.55
D	0.90	1.05
E	0.50	0.65
e	0.35	
L1	0.20	0.30
L2	0.20	0.30
L3	0.39	
L4	0.05	

## Suggested Pad Layout (mm)



Symbol	Dimensions
C	0.25
X	0.65
Y1	0.50
Y2	0.50
Y3	0.25
Z	0.20



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