



N-CHANNEL ENHANCEMENT MODE MOSFET

Product Summary

BV _{DSS}	R _{DS(ON)} Max	I _D Max T _A = +25°C
201/	2Ω @ V _{GS} = 4V	320mA
60V	2.5Ω @ V _{GS} = 2.5V	50mA

Description and Applications

This new generation MOSFET is designed to minimize the on-state resistance (R_{DS(ON)}) and yet maintain superior switching performance, making it ideal for high-efficiency power management applications.

- DC-DC Converters
- Power Management Functions
- Battery Operated Systems and Solid-State Relays
- Drivers: Relays, Solenoids, Lamps, Hammers, Displays, Memories, Transistors, etc.

Features and Benefits

- Low On-Resistance
- Low Input Capacitance
- Fast Switching Speed
- Low Input/Output Leakage
- ESD Protected
- Totally Lead-Free & Fully RoHS Compliant (Notes 1 & 2)
- Halogen and Antimony Free. "Green" Device (Note 3)
- For automotive applications requiring specific change control (i.e. parts qualified to AEC-Q100/101/200, PPAP capable, and manufactured in IATF 16949 certified facilities), please contact us or your local Diodes representative.

https://www.diodes.com/quality/product-definitions/

Mechanical Data

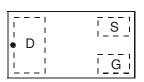
- Case: X1-DFN1006-3
- Case Material: Molded Plastic, "Green" Molding Compound;
 UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Finish NiPdAu over Copper Leadframe.
 Solderable per MIL-STD-202, Method 208 (e4)
- Weight: 0.001 grams (Approximate)



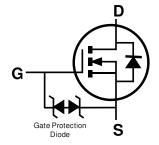




Bottom View



Top View Pin-Out



Equivalent Circuit

Ordering Information (Note 4)

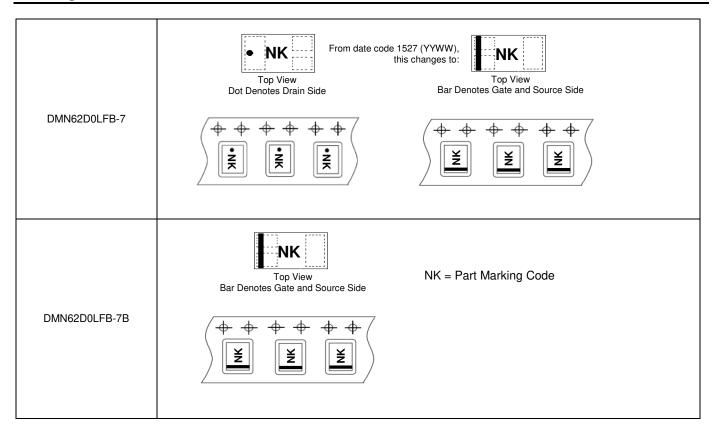
Part Number	Case	Packaging
DMN62D0LFB-7	X1-DFN1006-3	3,000 /Tape & Reel
DMN62D0LFB-7B	X1-DFN1006-3	10,000 /Tape & Reel

Notes:

- 1. No purposely added lead. Fully EU Directive 2002/95/EC (RoHS), 2011/65/EU (RoHS 2) & 2015/863/EU (RoHS 3) compliant.
- 2. See https://www.diodes.com/quality/lead-free/ for more information about Diodes Incorporated's definitions of Halogen- and Antimony-free, "Green" and Lead-free.
- 3. Halogen- and Antimony-free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.
- 4. For packaging details, go to our website at https://www.diodes.com/design/support/packaging/diodes-packaging/.



Marking Information



Maximum Ratings (@T_A = +25°C, unless otherwise specified.)

Characteristic			Symbol	Value	Unit
Drain-Source Voltage			VDSS	60	V
Gate-Source Voltage			Vgss	±20	V
Continuous Drain Current (Note 5) VGS = 4.0V	Steady State	T _A = +25°C T _A = +70°C	ID	320 75	mA
Pulsed Drain Current (Note 6)			IDM	1	Α

Thermal Characteristics

Characteristic	Symbol	Max	Unit
Power Dissipation (Note 5)	PD	0.5	W
Thermal Resistance, Junction to Ambient @T _A = +25°C (Note 5)	ReJA	258	°C/W
Operating and Storage Temperature Range	TJ, TSTG	-55 to +150	°C

Notes: 5. Device mounted on FR-4 PCB with minimum recommended pad layout, single sided.

6. Repetitive rating, pulse width limited by junction temperature.

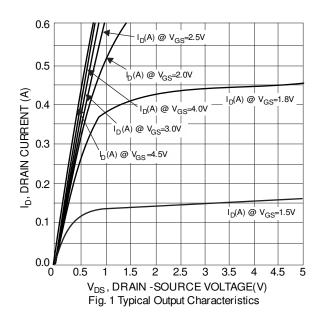


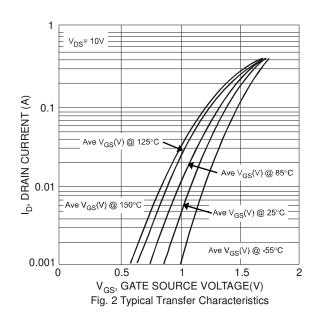
Electrical Characteristics (@ T_A = +25°C, unless otherwise stated.)

Characteristic	Symbol	Min	Тур	Max	Unit	Test Condition	
OFF CHARACTERISTICS (Note 7)							
Drain-Source Breakdown Voltage	BVDSS	60	_	_	V	$V_{GS} = 0V, I_D = 250\mu A$	
Zero Gate Voltage Drain Current T _J = +25°C	IDSS	_	_	1.0	μΑ	$V_{DS} = 60V$, $V_{GS} = 0V$	
	I _{GSS}	_	_	±100	nA	$V_{GS} = \pm 5V$, $V_{DS} = 0V$	
Gate-Source Leakage		_	_	±500	nA	$V_{GS} = \pm 10V, V_{DS} = 0V$	
		_	_	±2.0	μΑ	$V_{GS} = \pm 15V$, $V_{DS} = 0V$	
ON CHARACTERISTICS (Note 7)							
Gate Threshold Voltage	V _{GS(TH)}	0.6	_	1.0	V	$V_{DS} = V_{GS}$, $I_D = 250 \mu A$	
		_	1.3	2		$V_{GS} = 4V$, $I_D = 100mA$	
Static Drain-Source On-Resistance		_	1.5	2.5	Ω	$V_{GS} = 2.5V, I_D = 50mA$	
Static Drain-Source On-Nesistance	RDS(ON)	_	1.9	3	12	$V_{GS} = 1.8V, I_{D} = 50mA$	
		_	2.6	_		$V_{GS} = 1.5V, I_D = 10mA$	
Forward Transfer Admittance	Y _{fs}	_	0.8	_	S	$V_{DS} = 10V, I_{D} = 200mA$	
Diode Forward Voltage	V _{SD}	_	0.9	1.3	V	$V_{GS} = 0V, I_{S} = 115mA$	
DYNAMIC CHARACTERISTICS (Note 8)	•						
Input Capacitance	Ciss	_	32	64		V 05V V 0V	
Output Capacitance	Coss	_	4.4	9	pF	$V_{DS} = 25V, V_{GS} = 0V,$ f = 1.0MHz	
Reverse Transfer Capacitance	Crss	_	2.9	6		1 – 1.01/11/12	
Gate Resistance	Rg	_	126	250	Ω	$V_{DS} = 0V$, $V_{GS} = 0V$, $f = 1MHz$	
Total Gate Charge	Qg	_	0.45	0.9		V 45V V 40V	
Gate-Source Charge	Qgs	_	0.08	0.2	nC	$V_{GS} = 4.5V, V_{DS} = 10V,$ $I_{D} = 250 \text{mA}$	
Gate-Drain Charge	Q_{gd}	_	0.08	0.2		ID = 250MA	
Turn-On Delay Time	tD(ON)	_	3.4	10	ns	$V_{GS} = 10V, V_{DS} = 30V,$ $R_{L} = 150\Omega, R_{g} = 25\Omega,$ $I_{D} = 200mA$	
Turn-On Rise Time	tR	_	3.4	10	ns		
Turn-Off Delay Time	t _{D(OFF)}	_	26.4	45	ns		
Turn-Off Fall Time	tr	_	16.3	30	ns		

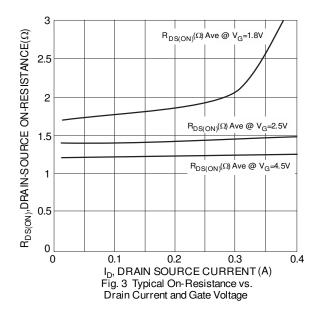
Notes:

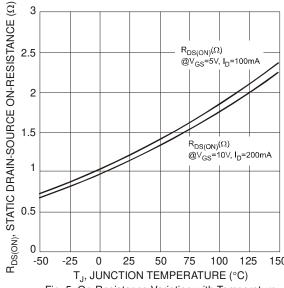
- 7. Short duration pulse test used to minimize self-heating effect. 8. Guaranteed by design. Not subject to production testing.

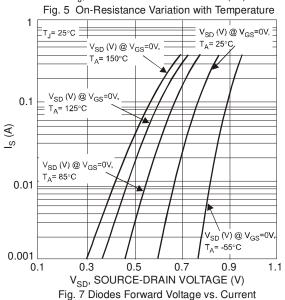


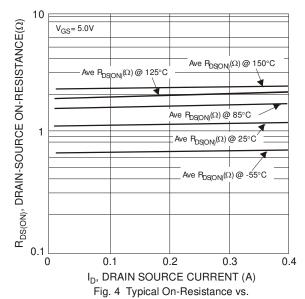












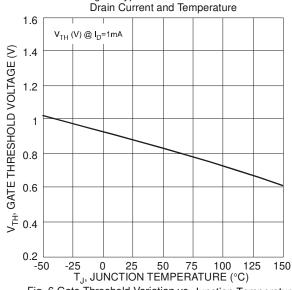
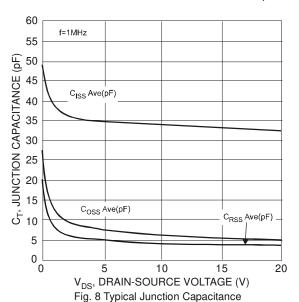
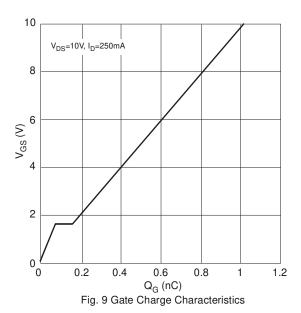
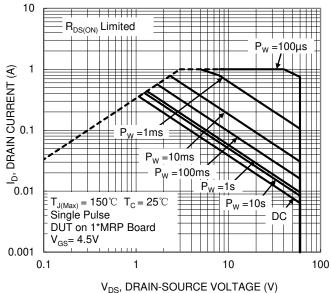


Fig. 6 Gate Threshold Variation vs. Junction Temperature









V_{DS}, DRAIN-SOURCE VOLTAGE (V) Fig.10 SOA, Safe Operation Area

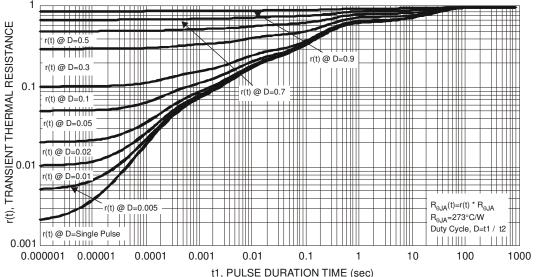


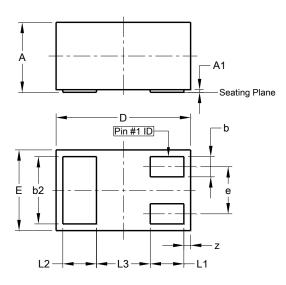
Fig. 11 Transient Thermal Resistance



Package Outline Dimensions

Please see http://www.diodes.com/package-outlines.html for the latest version.

X1-DFN1006-3

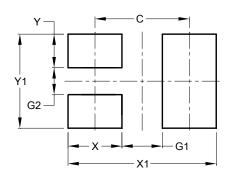


X1-DFN1006-3				
Dim	Min	Max	Тур	
Α	0.47	0.53	0.50	
A 1	0.00	0.05	0.03	
b	0.10	0.20	0.15	
b2	0.45	0.55	0.50	
ם	0.95	1.075	1.00	
Е	0.55	0.675	0.60	
е	ı	1	0.35	
1	0.20	0.30	0.25	
L2	0.20	0.30	0.25	
L3	-	-	0.40	
Z	0.02	0.08	0.05	
All Dimensions in mm				

Suggested Pad Layout

Please see http://www.diodes.com/package-outlines.html for the latest version.

X1-DFN1006-3



Dimensions	Value (in mm)
С	0.70
G1	0.30
G2	0.20
X	0.40
X1	1.10
Υ	0.25
V1	0.70



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