





N-CHANNEL ENHANCEMENT MODE MOSFET

Product Summary

V _{(BR)DSS}	R _{DS(on)} max	I _D max T _A = +25°C
	1.2Ω @ V _{GS} = 4V	415mA
30V	1.5Ω @ V _{GS} = 2.5V	370mA
	2.2Ω @ V _{GS} = 1.8V	300mA

Description

This MOSFET has been designed to minimize the on-state resistance and yet maintain superior switching performance, making it ideal for high efficiency power management applications.

Applications

- Backlighting
- Power Management Functions
- DC-DC Converters

Features

- Low On-Resistance
- Very Low Gate Threshold Voltage, 1.2V max
- Low Input Capacitance
- Fast Switching Speed
- Low Input/Output Leakage
- Ultra-Small Surface Mount Package
- ESD Protected Gate
- Totally Lead-Free & Fully RoHS Compliant (Notes 1 & 2)
- Halogen and Antimony Free. "Green" Device (Note 3)
- Qualified to AEC-Q101 Standards for High Reliability

Mechanical Data

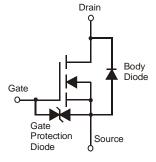
- Case: X2-DFN1006-3
- Case Material: Molded Plastic, "Green" Molding Compound. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminal Connections: See Diagram
- Terminals: Finish NiPdAu over Copper leadframe. Solderable per MIL-STD-202, Method 208 @
- Weight: 0.001 grams (approximate)



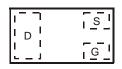




Bottom View



Equivalent Circuit



Top View Pin-Out

Ordering Information (Note 4)

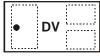
Part Number	Marking	Reel size (inches)	Tape width (mm)	Quantity per reel
DMN32D2LFB4-7	DV	7	8	3000
DMN32D2LFB4-7B	DV	7	8	10,000

Notes:

- 1. No purposely added lead. Fully EU Directive 2002/95/EC (RoHS) & 2011/65/EU (RoHS 2) compliant.
- 2. See http://www.diodes.com/quality/lead_free.html 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 http://www.diodes.com/products/packages.html

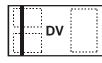
Marking Information

DMN32D2LFB4-7



Top View Dot Denotes Drain Side

DMN32D2LFB4-7B



Top View Bar Denotes Gate and Source Side

DV = Product Type Marking Code



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

Characteristic	Symbol	Value	Unit
Drain Source Voltage	V_{DSS}	30	V
Gate-Source Voltage	V _{GSS}	±10	V
Drain Current (Note 5)	I _D	300	mA

Thermal Characteristics (@T_A = +25°C, unless otherwise specified.)

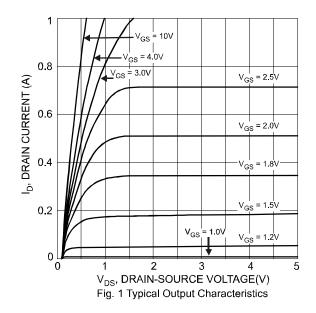
Total Power Dissipation (Note 5) @T _A = 25°C	P_{D}	350	mW
Thermal Resistance, Junction to Ambient (Note 5)	Reja	357	°C/W
Operating and Storage Temperature Range	T _J , T _{STG}	-55 to +150	°C

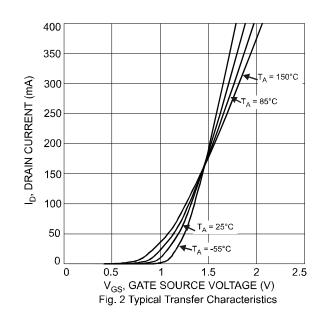
Electrical Characteristics (@T_A = +25°C, unless otherwise specified.)

Characteristic		Symbol	Min	Тур	Max	Unit	Test Condition
OFF CHARACTERISTICS (Note 6)							
Drain-Source Breakdown Voltage		BV _{DSS}	30	_	_	V	$V_{GS} = 0V, I_D = 10\mu A$
Zero Gate Voltage Drain Current	@ T _C = +25°C	I _{DSS}	_	_	1	μА	$V_{DS} = 30V, V_{GS} = 0V$
Gate-Body Leakage		lana	_	_	±10	μΑ	$V_{GS} = \pm 10V$, $V_{DS} = 0V$
Gate-Body Leakage		I _{GSS}			±500	nA	$V_{GS} = \pm 5V$, $V_{DS} = 0V$
ON CHARACTERISTICS (Note 6)							
Gate Threshold Voltage		V _{GS(th)}	0.6		1.2	V	$V_{DS} = V_{GS}, I_{D} = 250 \mu A$
			_	_	2.2		$V_{GS} = 1.8V, I_D = 20mA$
Static Drain-Source On-Resistance		R _{DS} (ON)	_	_	1.5	Ω	$V_{GS} = 2.5V, I_D = 20mA$
			_		1.2		$V_{GS} = 4.0V, I_D = 100mA$
Forward Transconductance		Y _{fs}	100	_	_	mS	$V_{DS} = 10V, I_{D} = 0.1A$
Source-Drain Diode Forward Voltage		V_{SD}	0.5	_	1.4	V	$V_{GS} = 0V, I_{S} = 115mA$
DYNAMIC CHARACTERISTICS							
Input Capacitance		C _{iss}	_	39	78	pF	.,
Output Capacitance		Coss	_	10	20	pF	$V_{DS} = 3V, V_{GS} = 0V$ f = 1.0MHz
Reverse Transfer Capacitance		C _{rss}	_	3.6	7.2	pF	1 = 1.0IVIDZ
Switching Time	Turn-on Time	t _{on}		11	22	nS	$V_{DD} = 5V, I_D = 10mA,$
Switching Time	Turn-off Time	t _{off}	_	51	102	nS	$V_{GS} = 0-5V$

Notes:

- 5. Device mounted on FR-4 PCB, pad layout as shown on Diodes Inc. suggested pad layout document AP02001, which can be found on our website at http://www.diodes.com.
- 6. Short duration pulse test used to minimize self-heating effect.







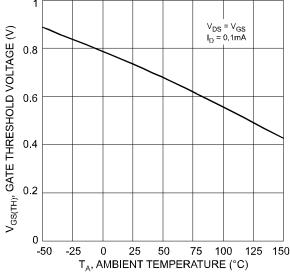
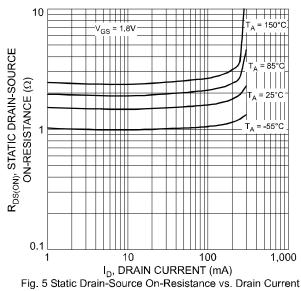


Fig. 3 Gate Threshold Voltage vs. Ambient Temperature



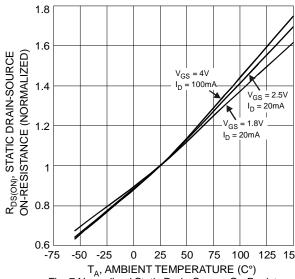


Fig. 7 Normalized Static Drain-Source On-Resistance vs. Ambient Temperature

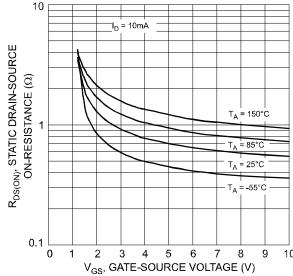


Fig. 4 Static Drain-Source On-Resistance vs. Gate-Source Voltage

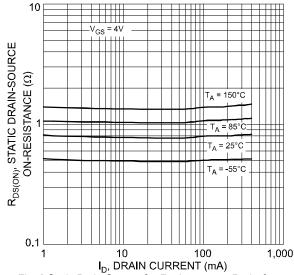


Fig. 6 Static Drain-Source On-Resistance vs. Drain Current

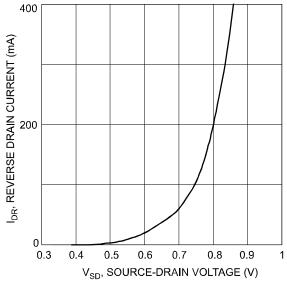
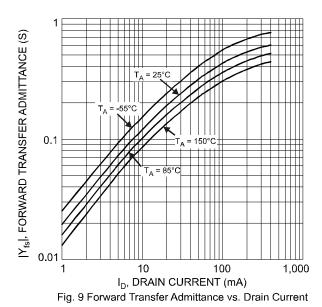
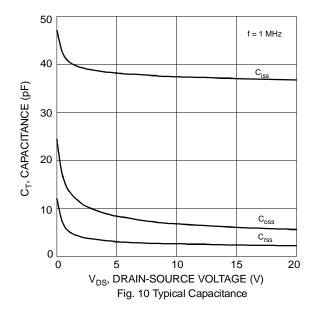


Fig. 8 Reverse Drain Current vs. Source-Drain Voltage

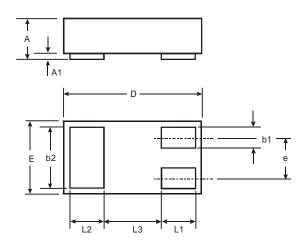






Package Outline Dimensions

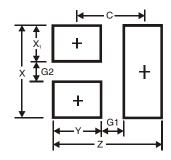
Please see AP02002 at http://www.diodes.com/datasheets/ap02002.pdf for the latest version.



	X2-DFN1006-3					
Dim	Min	Max	Тур			
Α		0.40	_			
A1	0	0.05	0.03			
b1	0.10	0.20	0.15			
b2	0.45	0.55	0.50			
D	0.95	1.05	1.00			
Е	0.55	0.65	0.60			
е		_	0.35			
L1	0.20	0.30	0.25			
L2	0.20	0.30	0.25			
L3	_	_	0.40			
All Dimensions in mm						

Suggested Pad Layout

Please see AP02001 at http://www.diodes.com/datasheets/ap02001.pdf for the latest version.



Dimensions	Value (in mm)	
Z	1.1	
G1	0.3	
G2	0.2	
Х	0.7	
X1	0.25	
Y	0.4	
С	0.7	



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