



60V N-CHANNEL ENHANCEMENT MODE MOSFET

Product Summary

V _{(BR)DSS}	R _{DS(on)} Max	I _D Max @ T _A = +25°C	
60V	1.4Ω @ V _{GS} = 10V	0.41A	
000	1.6Ω @ V _{GS} = 4.5V	0.38A	

Description

This MOSFET has been 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.

Applications

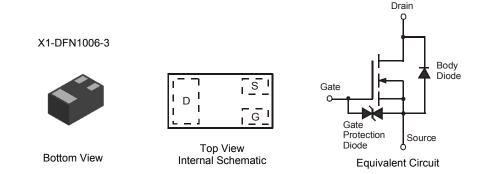
- Load Switch
- **Portable Applications**
- **Power Management Functions**

Features and Benefits

- Footprint of just 0.6mm² thirteen times smaller than SOT23
- Low On-Resistance
- Low Gate Threshold Voltage
- Fast Switching Speed
- Ultra-Small Surface Mount Package
- ESD Protected Gate 200V
- 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: 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 @4
- Weight: 0.001 grams (approximate)



Ordering Information (Note 4)

Product	Marking	Reel size (inches)	Tape width (mm)	Quantity per reel		
DMN62D1SFB-7B NH		7	8	10,000		
Notes: 1. No purposely added lead. Fully EU Directive 2002/95/EC (RoHS) & 2011/65/EU (RoHS 2) compliant.						

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.

. 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

DMN62D1SFB-7B



NH = Product Type Marking Code

Top View Bar Denotes Gate and Source Side



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

Characteristic			Symbol	Value	Unit
Drain-Source Voltage			V _{DSS}	60	V
Gate-Source Voltage			V _{GSS}	±20	V
Continuous Drain Current (Note 5)	V _{GS} = 10V	T _A = +25°C T _A = +85°C	ID	0.41 0.30	А
Pulsed Drain Current (Note 6)			I _{DM}	2.64	А

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

Characteristic	Symbol	Value	Unit	
Power Dissipation (Note 5)		PD	0.47	W
Thermal Resistance, Junction to Ambient	@T _A =+25°C	R _{θJA}	258	°C/W
Operating and Storage Temperature Range		TJ, T _{STG}	-55 to +150	°C

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

Characteristic	Symbol	Min	Тур	Max	Unit	Tes	t Condition	
OFF CHARACTERISTICS (Note 7)					_			
Drain-Source Breakdown Voltage	BV _{DSS}	60	—	—	V	V_{GS} = 0V, I_D	= 250µA	
Zero Gate Voltage Drain Current T _J = +25°C	I _{DSS}	_	_	100	nA	V _{DS} = 60V, V	√ _{GS} = 0∨	
Gate-Source Leakage	I _{GSS}	_	_	10 1	μΑ	$V_{GS} = \pm 20V, V_{DS} = 0V$ $V_{GS} = \pm 5V, V_{DS} = 0V$		
ON CHARACTERISTICS (Note 7)								
Gate Threshold Voltage	V _{GS(th)}	1.3	1.6	2.3	V	V _{DS} = V _{GS} , I	_D = 250µA	
Chatia Dazia Cauras On Desistence	5			1.40	Ω	V _{GS} = 10V, I _D = 40mA		
Static Drain-Source On-Resistance	R _{DS(ON)}	_	_	1.60	Ω	V _{GS} = 4.5V,		
Forward Transfer Admittance	Y _{fs}	100	—	_	mS	V _{DS} = 5V, I _D = 40mA		
Diode Forward Voltage	V _{SD}	_	0.7	1.1	V	V _{GS} = 0V, I _S = 300mA		
DYNAMIC CHARACTERISTICS (Note 8)								
Input Capacitance	C _{iss}		40	80	pF	V _{DS} = 40V, V _{GS} = 0V, f = 1.0MHz		
Output Capacitance	Coss		3.5	7	pF			
Reverse Transfer Capacitance	Crss	_	2.8	5.6	pF	1 - 1.0101112		
Gate Resistance	Rg	_	81.3	200	Ω	V _{DS} = 0V, V _{GS} = 0V, f = 1MHz		
Total Gate Charge	Qg	—	0.73	1.5	nC	V _{GS} = 4.5V		
Total Gate Charge	Qg		1.39	2.8	nC			
Gate-Source Charge	Q _{gs}		0.2	0.4	nC	V _{GS} = 10V	V _{DS} = 50V, I _D = 1A	
Gate-Drain Charge	Q _{gd}		0.23	0.5	nC	1		
Turn-On Delay Time	t _{D(on)}	_	3.89	10	ns	V _{DS} = 50V, I _D = 1A V _{GS} = 10V, R _G = 6Ω		
Turn-On Rise Time	tr		4.93	10	ns			
Turn-Off Delay Time	t _{D(off)}	—	18.80	40	ns			
Turn-Off Fall Time	t _f		11.96	25	ns			

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

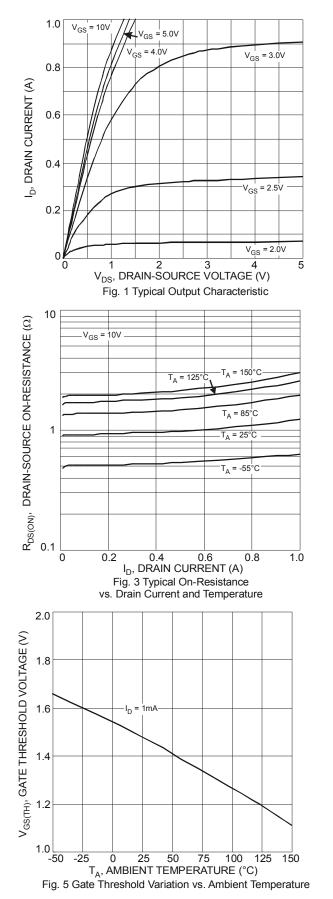
6. Device mounted on minimum recommended pad layout test board, 10µs pulse duty cycle = 1%.

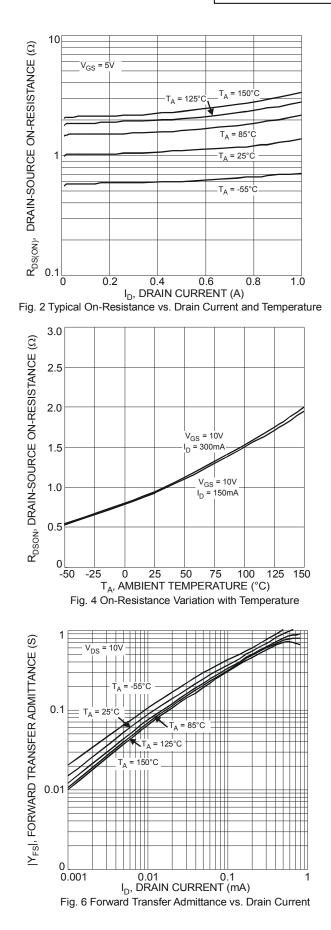
7. Short duration pulse test used to minimize self-heating effect.

8. Guaranteed by design. Not subject to production testing.

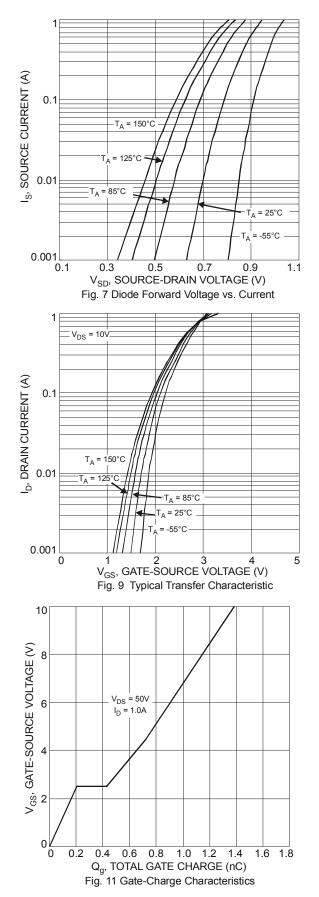


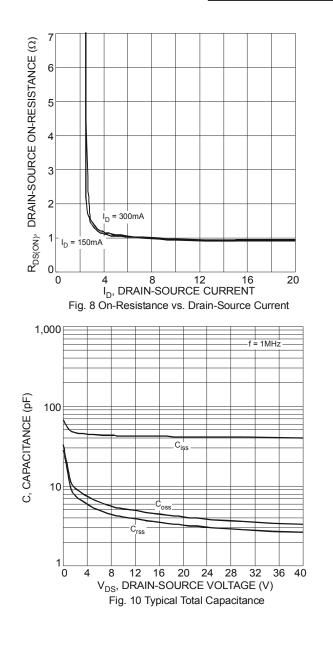




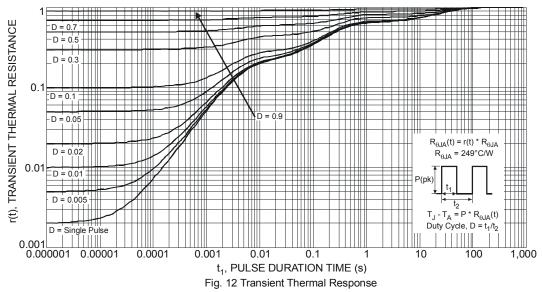






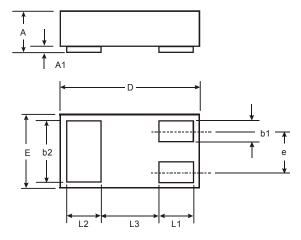






Package Outline Dimensions

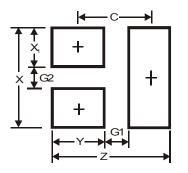
Please see AP02002 at http://www.diodes.com/datasheets/ap02002.pdf for latest version.



	X1-DFN1006-3					
Dim	Min	Max	Тур			
Α	0.47	0.53	0.50			
A1	0	0.05	0.03			
b1	0.10	0.20	0.15			
b2	0.45	0.55	0.50			
D	0.95	1.075	1.00			
Е	0.55	0.675	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 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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