



N-CHANNEL ENHANCEMENT MODE FIELD MOSFET

Product Summary

V _{(BR)DSS}	R _{DS(ON)}	I _D T _A = 25°C
60V	3.0Ω @ V _{GS} = 10V	400mA
	4.0Ω @ V _{GS} = 5V	330mA

Description and Applications

These N-Channel enhancement mode field effect transistors are produced using DIODES proprietary, high density, uses advanced trench technology. These products have been designed to minimize on-state resistance while provide rugged, reliable, and fast switching performance. These products are particularly suited for low voltage, low current applications such as small

Load switching

Features and Benefits

- N-Channel MOSFET
- Low On-Resistance
- Low Gate Threshold Voltage
- Low Input Capacitance
- Fast Switching Speed
- Small Surface Mount Package
- ESD Protected Gate, 1.2kV HBM
- Lead, Halogen and Antimony Free, RoHS Compliant
- "Green" Device (Notes 1 and 2)
- Qualified to AEC-Q101 Standards for High Reliability

Mechanical Data

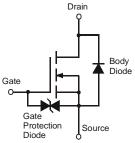
- Case: X1-DFN1006-3
- Case Material: Molded Plastic, "Green" Molding Compound. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminal Connections: See Diagram
- Terminals: Finish NiPdAu over Copper leadframe. Solderable per MIL-STD-202, Method 208
- Weight: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



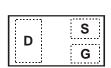




Bottom View



Equivalent Circuit



Top View Pin Configuration

Ordering Information (Note 3)

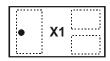
Part Number	Case	Packaging
DMN65D8LFB-7	X1-DFN1006-3	3,000/Tape & Reel
DMN65D8LFB-7B	X1-DFN1006-3	10,000/Tape & Reel

Notes:

- 1. No purposefully added lead. Halogen and Antimony Free.
- 2. Diodes Inc.'s "Green" Policy can be found on our website at http://www.diodes.com
- 3. For packaging details, go to our website at http://www.diodes.com

Marking Information

DMN65D8LFB-7



Top View Dot Denotes Drain Side DMN65D8LFB-7B



Top View Bar Denotes Gate and Source Side X1 = Product Type Marking Code

ate Code Key

Year	201	1	2012		2013	20	14	2015		2016	2	2017
Code	Υ		Z		Α	E	8	С		D		Е
Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Code	1	2	3	4	5	6	7	8	9	0	N	D



Maximum Ratings

Characteristic		Symbol	Value	Units	
Drain-Source Voltage	V_{DSS}	60	V		
Gate-Source Voltage			V_{GSS}	±20	V
Continuous Drain Current (Note 4) V _{GS} = 10V	Steady State	$T_A = 25$ °C $T_A = 70$ °C	I _D	260 210	mA
Continuous Drain Current (Note 5) V _{GS} = 10V	Steady State	$T_A = 25$ °C $T_A = 70$ °C	I _D	400 310	mA

Thermal Characteristics

Characteristic	Symbol	Value	Units
Power Dissipation, @T _A = 25°C (Note 4)	P_{D}	430	mW
Thermal Resistance, Junction to Ambient @T _A = 25°C (Note 4)	$R_{ heta JA}$	290	°C/W
Power Dissipation, @T _A = 25°C (Note 5)	P_{D}	840	mW
Thermal Resistance, Junction to Ambient @T _A = 25°C (Note 5)	$R_{\theta JSA}$	147	°C/W
Operating and Storage Temperature Range	T _J , T _{STG}	-55 to +150	°C

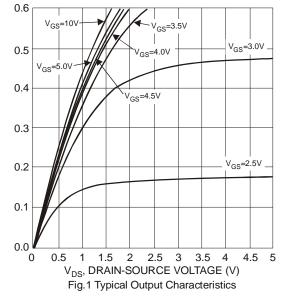
Electrical Characteristics @T_A = 25°C unless otherwise specified

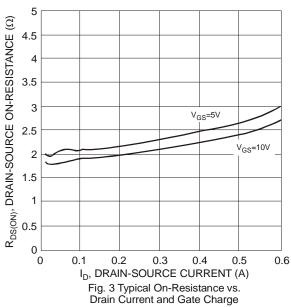
Characteristic	Symbol	Min	Тур	Max	Unit	Test Condition	
OFF CHARACTERISTICS (Note 6)							
Drain-Source Breakdown Voltage	BV _{DSS}	60	-	-	V	$V_{GS} = 0V, I_D = 250\mu A$	
Zero Gate Voltage Drain Current T _J = 25°C	I _{DSS}	-	-	0.1	μA	$V_{DS} = 60V, V_{GS} = 0V$	
Gate-Body Leakage	I _{GSS}	-	-	±10	μA	$V_{GS} = \pm 20V, V_{DS} = 0V$	
ON CHARACTERISTICS (Note 6)							
Gate Threshold Voltage	V _{GS(th)}	1.2	-	2.0	V	$V_{DS} = V_{GS}, I_D = 250 \mu A$	
Static Drain-Source On-Resistance	R _{DS (ON)}	-	-	3.0 4.0	Ω	V _{GS} = 10V, I _D = 0.115A	
Command Transfer Admittance		80	220		C	$V_{GS} = 5V, I_D = 0.1115A$	
Forward Transfer Admittance	Y _{fs}	60	320	-	mS	$V_{DS} = 10V, I_D = 0.115A$	
Diode Forward Voltage	V_{SD}	-	0.7	1.2	V	$V_{GS} = 0V, I_{S} = 0.115A$	
DYNAMIC CHARACTERISTICS (Note 7)							
Input Capacitance	Ciss	-	25	-	pF		
Output Capacitance	Coss	-	4.7	-	pF	$V_{DS} = 25V, V_{GS} = 0V, f = 1.0MHz$	
Reverse Transfer Capacitance	C _{rss}	-	2.5	-	pF		
Turn-On Delay Time	t _{D(on)}	-	3.27	-	ns		
Turn-On Rise Time	t _r	-	3.15	-	ns	$V_{DD} = 30V, V_{GEN} = 10V,$	
Turn-Off Delay Time	t _{D(off)}	-	12.025	-	ns	$R_{GEN} = 25\Omega, I_D = 0.115A$	
Turn-Off Fall Time	t _f	-	6.29	-	ns		

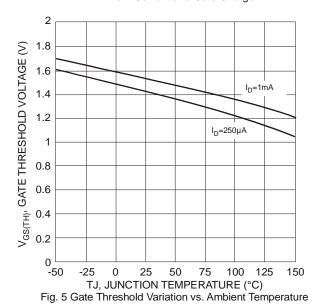
Notes:

- 4. Device mounted on FR-4 PCB with minimum recommended pad layout, single sided.
 5. Device mounted on 2" x 2" FR-4 PCB with high coverage 2 oz. Copper, single sided.
 6. Short duration pulse test used to minimize self-heating effect.
 7. Guaranteed by design. Not subject to production testing.

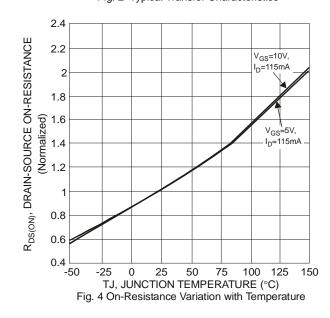


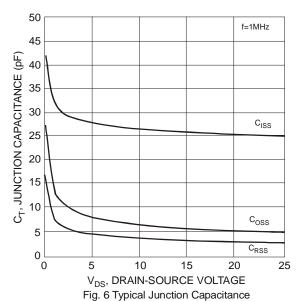




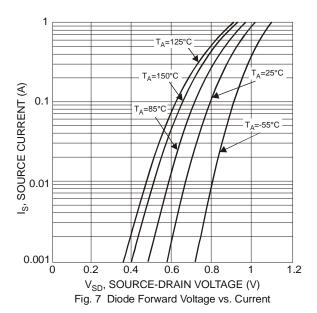


T_A=150°C V_{DS}= 5.0V ID, DRAIN CURRENT (A) =85°C 0.1 0.01 0 0.5 1.5 2 2.5 3 3.5 4 V_{GS} , GATE-SOURCE VOLTAGE Fig. 2 Typical Transfer Characteristics

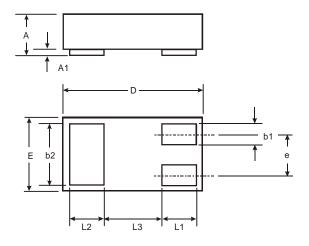






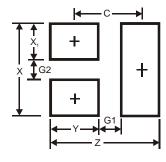


Package Outline Dimensions



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



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



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