



DMN33D8LT

N-CHANNEL ENHANCEMENT MODE MOSFET

Product Summary

V _{(BR)DSS}	R _{DS(ON)}	I _D T _A = +25°C
30V	5 Ω @ V _{GS} = 4V	200 mA
	7 Ω @ V _{GS} = 2.5V	115 mA

Description

This new generation 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

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

Features

- N-Channel MOSFET
- Low On-Resistance
- Low Input Capacitance
- · Fast Switching Speed
- Small Surface Mount Package
- ESD Protected Gate 2KV
- 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

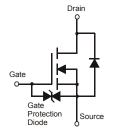
Mechanical Data

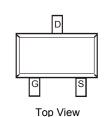
- Case: SOT523
- Case Material: Molded Plastic. "Green" Molding Compound.
 UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Matte Tin Finish Annealed Over Alloy 42 Leadframe (Lead Free Plating). Solderable per MIL-STD-202, Method 208 ^{©3}
- Terminal Connections: See Diagram
- Weight: 0.002 grams (approximate)





Top View





Equivalent Circuit

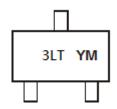
Ordering Information (Note 4)

Part Number	Case	Packaging
DMN33D8LT-7	SOT523	3,000/Tape & Reel
DMN33D8LT-13	SOT523	10,000/Tape & Reel

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



3LT = Product Type Marking Code YM = Date Code Marking Y = Year ex: A = 2013 M = Month ex: 9 = September

Date Code Key

Year	201	2	2013		2014	20	15	2016		2017	2	2018
Code	Z		Α		В	(0	D		Е		F
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 (@T_A = +25°C, unless otherwise specified.)

Characteristic		Symbol	Value	Unit
Drain-Source Voltage		V_{DSS}	30	V
Gain-Source Voltage		V_{GSS}	±20	V
Drain Current (Note 5)	Continuous	I_{D}	115	mA

Thermal Characteristics ($@T_A = +25^{\circ}C$, unless otherwise specified.)

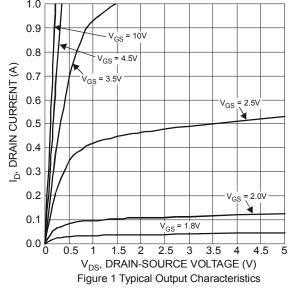
Characteristic	Symbol	Value	Unit
Total Power Dissipation (Note 5)	P _D	240	mW
Thermal Resistance, Junction to Ambient(Note 5)	$R_{ heta JA}$	521	°C /W
Total Power Dissipation (Note 6)	P _D	300	mW
Thermal Resistance, Junction to Ambient(Note 6)	$R_{ heta JA}$	420	°C /W
Operating and Storage Temperature Range	T _J , T _{STG}	-55 to +150	°C

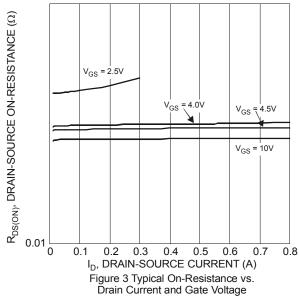
Electrical Characteristics (@T_A = +25°C, unless otherwise specified.)

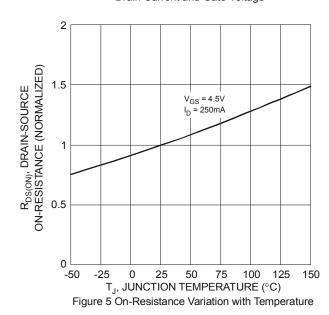
	Symbol				T:	
		Min	Тур	Max	Unit	Test Condition
OFF CHARACTERISTICS (Note 7)						
Drain-Source Breakdown Voltage	BV _{DSS}	30	_	_	V	$V_{GS} = 0V, I_D = 250\mu A$
Zero Gate Voltage Drain Current	I _{DSS}	_	_	1.0	μΑ	$V_{DS} = 30V, V_{GS} = 0V$
Gate-Body Leakage	I _{GSS}	_	_	±10	μA	$V_{GS} = \pm 20V, V_{DS} = 0V$
ON CHARACTERISTICS (Note 7)						
Gate Threshold Voltage	V _{GS(th)}	0.8	_	1.5	V	V _{DS} = 3V, I _D = 100μA
Static Drain-Source On-Resistance	D	_	_	5	Ω	V _{GS} = 4V, I _D = 10mA
Static Diditi-Source Off-Resistance	R _{DS (ON)}	_	_	7	Ω	$V_{GS} = 2.5V, I_D = 5mA$
Diode Forward Voltage	V _{SD}		_	1.2	V	V _{GS} = 0V, I _S = 115mA
DYNAMIC CHARACTERISTICS (Note 8)						
Input Capacitance	C _{iss}	_	48	_		
Output Capacitance	Coss	_	11	_	pF	$V_{DS} = 5V, V_{GS} = 0V, f = 1.0MHz$
Reverse Transfer Capacitance	C _{rss}	_	8			
Total Gate Charge V _{GS} = 10V	Qg	_	0.55	_		
Total Gate Charge V _{GS} = 4.5V	Qg	_	1.23	_	nC	V _{GS} = 10V, V _{DS} = 10V,
Gate-Source Charge	Q_{gs}	_	0.14		IIC	I _D = 250mA
Gate-Drain Charge	Q_{gd}	_	0.14			
Turn-On Delay Time	t _{D(on)}	_	2.9			
Turn-On Rise Time	t _r	_	2.6		nS	V _{DD} = 30V, I _D = 0.2A, V _{GEN} = 10V,
Turn-Off Delay Time	t _{D(off)}	_	18.2		lio	R_{GEN} = 25 Ω
Turn-Off Fall Time	t _f		13.6			

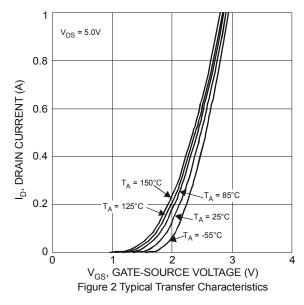
 Device mounted on FR-4 substrate PC board, 2oz copper, with minimum recommended pad layout.
 Device mounted on FR-4 substrate PC board, 2oz copper, with 1inch square copper plate.
 Short duration pulse test used to minimize self-heating effect.
 Guaranteed by design. Not subject to product testing. Notes:

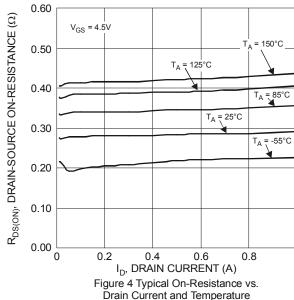


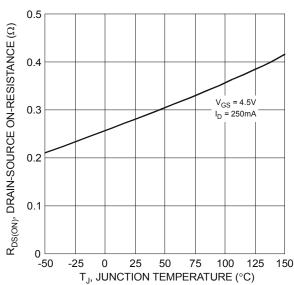














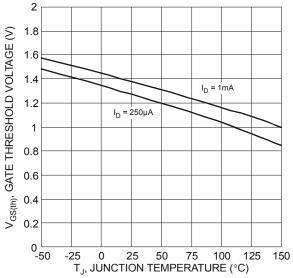
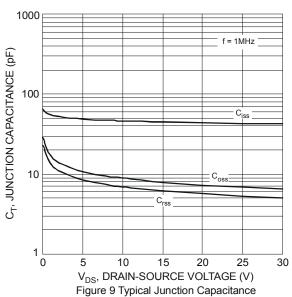
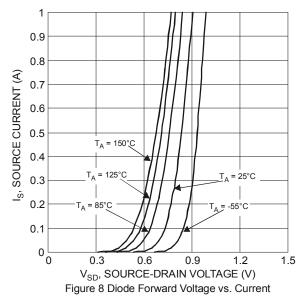
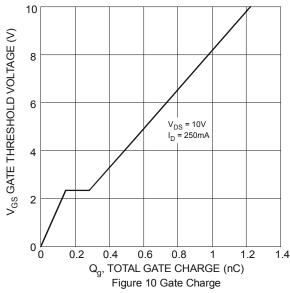


Figure 7 Gate Threshold Variation vs. Ambient Temperature

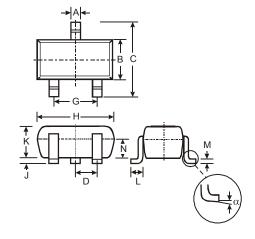






Package Outline Dimensions

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



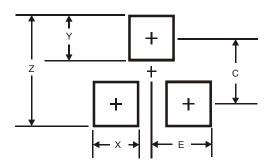
SO 1523						
Dim	Min	Max	Тур			
Α	0.15	0.30	0.22			
В	0.75	0.85	0.80			
С	1.45	1.75	1.60			
D	_	_	0.50			
G	0.90	1.10	1.00			
Н	1.50	1.70	1.60			
J	0.00	0.10	0.05			
K	0.60	0.80	0.75			
L	0.10	0.30	0.22			
М	0.10	0.20	0.12			
N	0.45	0.65	0.50			
α	0°	8°	_			
All Dimensions in mm						

COTESS



Suggested Pad Layout

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



Dimensions	Value (in mm)
Z	1.8
Х	0.4
Υ	0.51
С	1.3
E	0.7

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