



### N-CHANNEL ENHANCEMENT MODE MOSFET

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## **Features**

- Low On-Resistance
- Low Gate Threshold Voltage
- Low Input Capacitance
- Fast Switching Speed
- Small Surface Mount Package
- ESD Protected Gate, 1KV (HBM)
- 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

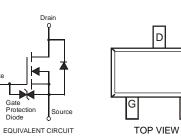
### **Mechanical Data**

- Case: SOT-523
- Case Material: Molded Plastic. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020D
- Terminals: Solderable per MIL-STD-202, Method 208(3)
- Lead Free Plating (Matte Tin Finish annealed over Alloy 42 leadframe).
- Terminal Connections: See Diagram
- Marking Information: See Page 3
- Ordering Information: See Page 3
- Weight: 0.002 grams (approximate)

ESD PROTECTED, 1KV



TOP VIEW



## Maximum Ratings (@T<sub>A</sub> = +25°C unless otherwise specified)

Characteris	tic	Symbol	Value	Units
Drain-Source Voltage		V <sub>DSS</sub>	60	V
Gate-Source Voltage (Note 1)	Continuous	V <sub>GSS</sub>	±20	V
Drain Current (Note 1)	Continuous Continuous @ +100°C Pulsed	ID	115 73 800	mA

SOT-523

### Thermal Characteristics (@T<sub>A</sub> = +25°C unless otherwise specified)

Characteristic	Symbol	Value	Units
Total Power Dissipation	PD	200	mW
Thermal Resistance, Junction to Ambient	R <sub>θJA</sub>	625	°C/W
Operating and Storage Temperature Range	$T_{J,} T_{STG}$	-55 to +150	O°

## Electrical Characteristics (@T<sub>A</sub> = +25°C unless otherwise specified)

Characteristic		Symbol	Min	Тур	Max	Unit	Test Condition
OFF CHARACTERISTICS (Note 3)							
Drain-Source Breakdown Voltage		<b>BV</b> <sub>DSS</sub>	60	70	_	V	$V_{GS} = 0V, I_D = 10\mu A$
Zero Gate Voltage Drain Current	@ T <sub>C</sub> = +25°C @ T <sub>C</sub> = +125°C	I <sub>DSS</sub>	_	_	1.0 500	μA	$V_{DS} = 60V, V_{GS} = 0V$
Gate-Body Leakage		I <sub>GSS</sub>	_	_	±5	μA	$V_{GS} = \pm 20V, V_{DS} = 0V$
ON CHARACTERISTICS (Note 3)							
Gate Threshold Voltage		V <sub>GS(th)</sub>	1.2		2.0	V	$V_{DS} = V_{GS}, I_D = 250 \mu A$
Static Drain-Source On-Resistance	@ T <sub>J</sub> = +25°C	D	_	3.5 3.0	6	Ω	V <sub>GS</sub> = 5.0V, I <sub>D</sub> = 0.115A
	@ T <sub>J</sub> = +125°C	R <sub>DS (ON)</sub>			5	Ω	V <sub>GS</sub> = 10V, I <sub>D</sub> = 0.115A
Forward Transconductance		<b>g</b> fs	80			mS	V <sub>DS</sub> = 10V, I <sub>D</sub> = 0.115A
DYNAMIC CHARACTERISTICS							
Input Capacitance		Ciss		23		pF	
Output Capacitance Reverse Transfer Capacitance		Coss		3.4		pF	$V_{DS} = 25V, V_{GS} = 0V, f = 1.0MHz$
		Crss	_	1.4	_	pF	
SWITCHING CHARACTERISTICS							
Turn-On Delay Time		t <sub>D(ON)</sub>		10		ns	$V_{DD} = 30V, I_D = 0.115A, R_L = 150\Omega,$
Turn-Off Delay Time		t <sub>D(OFF)</sub>	_	33	_	ns	$V_{GEN} = 10V, R_{GEN} = 25\Omega$

1. No purposely added lead. Fully EU Directive 2002/95/EC (RoHS) & 2011/65/EU (RoHS 2) compliant. Notes: 2. See http://www.diodes.com/quality/lead\_free.htmlfor more information about Diodes Incorporated's definitions of Halogen- and Antimony-free, "Green"

and Lead-free.

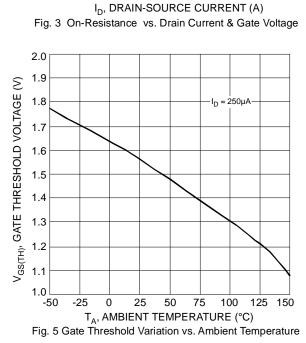
<sup>3.</sup> Halogen- and Antimony-free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.

## DMN66D0LT



0.6 V<sub>GS</sub> = 10V ∨<sub>GS</sub> = 5∨ 0.5 √<sub>GS</sub> = 4.5V I<sub>D</sub>, DRAIN CURRENT (A) 0.4  $V_{GS} = 4.0V$ 0.3 V<sub>GS</sub> = 3 5V 0.2 V<sub>GS</sub> = 3.0V 0.1 V<sub>GS</sub> = 2.5V 0 1 2 3 4 V<sub>DS</sub>, DRAIN-SOURCE VOLTAGE (V) 0 Fig.1 Typical Output Characteristic 9 8 R<sub>DS(ON)</sub>, STATIC DRAIN-SOURCE 7 ON-RESISTANCE (Ω) 6 5 V<sub>GS</sub> = 5V 3  $V_{GS} = 10V$ 2 1

5



0.2

0

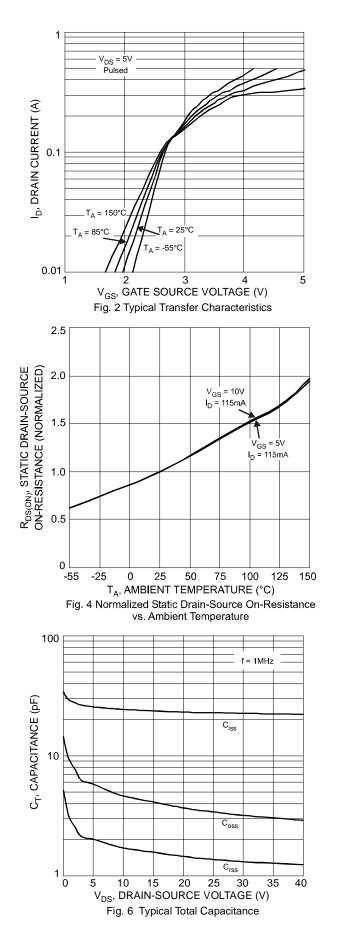
0.1

0.3

0.4

0.5

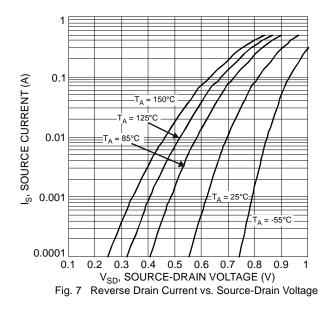
0.6



DMN66D0LT Document number: DS31530 Rev. 3 - 2

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# Ordering Information (Note 4)

Part Number	Case	Packaging
DMN66D0LT-7	SOT-523	3000/Tape & Reel

Note: 4. For packaging details, go to our website at http://www.diodes.com/products/packages.html.

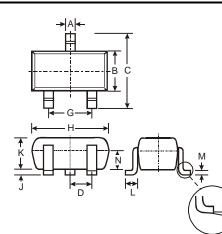
## **Marking Information**

MN1 YM

MN1 = Product Type Marking Code YM = Date Code Marking Y = Year ex: V = 2008 M = Month ex: 9 = September

Date Code Key												
Year	2008		2009	2010		2011	2012		2013	2014		2015
Code	V		W	Х		Y	Z		А	В		С
Month	Jan	Feb	Mar	Apr	Мау	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Code	1	2	3	4	5	6	7	8	9	0	N	D

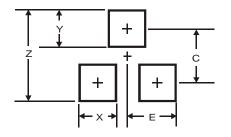
## **Package Outline Dimensions**



SOT-523						
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			
К	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	Dimens	ions in	mm			



## Suggested Pad Layout



Value (in mm)
1.8
0.4
0.51
1.3
0.7

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