

## Features

- Low On-Resistance
- Low Gate Threshold Voltage
- Low Input Capacitance
- Fast Switching Speed
- Small Surface Mount Package
- ESD Protected Gate, 1KV (HBM)
- **Lead Free/RoHS Compliant (Note 2)**
- **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
- 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)

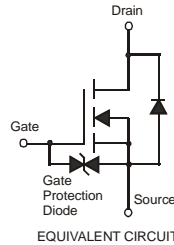


ESD PROTECTED, 1KV

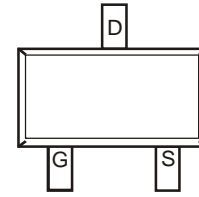


TOP VIEW

SOT-523



EQUIVALENT CIRCUIT



TOP VIEW

## Maximum Ratings @ $T_A = 25^\circ\text{C}$ unless otherwise specified

Characteristic	Symbol	Value	Units
Drain-Source Voltage	$V_{DSS}$	60	V
Gate-Source Voltage (Note 1)	$V_{GSS}$	$\pm 20$	V
Drain Current (Note 1)	Continuous	115	mA
	Continuous @ $100^\circ\text{C}$	73	
	Pulsed	800	

## Thermal Characteristics @ $T_A = 25^\circ\text{C}$ unless otherwise specified

Characteristic	Symbol	Value	Units
Total Power Dissipation	$P_D$	200	mW
Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	625	$^\circ\text{C}/\text{W}$
Operating and Storage Temperature Range	$T_J, T_{STG}$	-55 to +150	$^\circ\text{C}$

## Electrical Characteristics @ $T_A = 25^\circ\text{C}$ unless otherwise specified

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
<b>OFF CHARACTERISTICS (Note 3)</b>						
Drain-Source Breakdown Voltage	$BV_{DSS}$	60	70	—	V	$V_{GS} = 0\text{V}, I_D = 10\mu\text{A}$
Zero Gate Voltage Drain Current	$I_{DSS}$	—	—	1.0	$\mu\text{A}$	$V_{DS} = 60\text{V}, V_{GS} = 0\text{V}$
				500		
Gate-Body Leakage	$I_{GSS}$	—	—	$\pm 5$	$\mu\text{A}$	$V_{GS} = \pm 20\text{V}, V_{DS} = 0\text{V}$
<b>ON CHARACTERISTICS (Note 3)</b>						
Gate Threshold Voltage	$V_{GS(th)}$	1.2	—	2.0	V	$V_{DS} = V_{GS}, I_D = 250\mu\text{A}$
Static Drain-Source On-Resistance	$R_{DS(ON)}$	—	3.5	6	$\Omega$	$V_{GS} = 5.0\text{V}, I_D = 0.115\text{A}$
			3.0	5		$V_{GS} = 10\text{V}, I_D = 0.115\text{A}$
Forward Transconductance	$g_{FS}$	80	—	—	mS	$V_{DS} = 10\text{V}, I_D = 0.115\text{A}$
<b>DYNAMIC CHARACTERISTICS</b>						
Input Capacitance	$C_{iss}$	—	23	—	pF	$V_{DS} = 25\text{V}, V_{GS} = 0\text{V}, f = 1.0\text{MHz}$
Output Capacitance	$C_{oss}$	—	3.4	—	pF	
Reverse Transfer Capacitance	$C_{rss}$	—	1.4	—	pF	
<b>SWITCHING CHARACTERISTICS</b>						
Turn-On Delay Time	$t_{D(ON)}$	—	10	—	ns	$V_{DD} = 30\text{V}, I_D = 0.115\text{A}, R_L = 150\Omega, V_{GEN} = 10\text{V}, R_{GEN} = 25\Omega$
Turn-Off Delay Time	$t_{D(OFF)}$	—	33	—	ns	

- Notes:
1. Device mounted on FR-4 PCB, 1 inch x 0.85 inch x 0.062 inch; pad layout as shown on Diodes Inc. suggested pad layout document AP02001, which can be found on our website at <http://www.diodes.com/datasheets/ap02001.pdf>.
  2. No purposefully added lead.
  3. Short duration pulse test used to minimize self-heating effect.

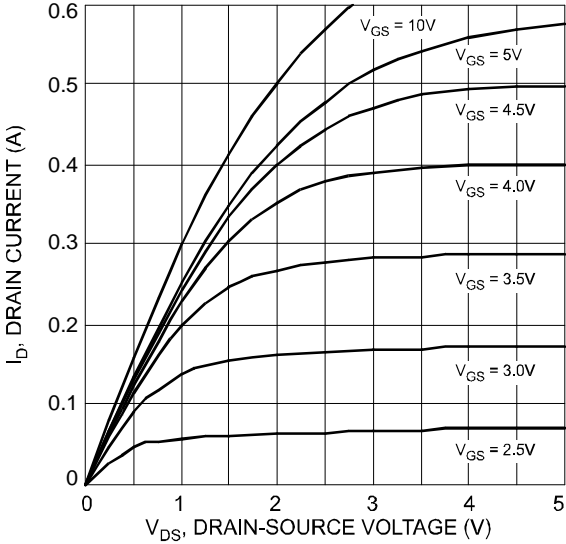


Fig. 1 Typical Output Characteristic

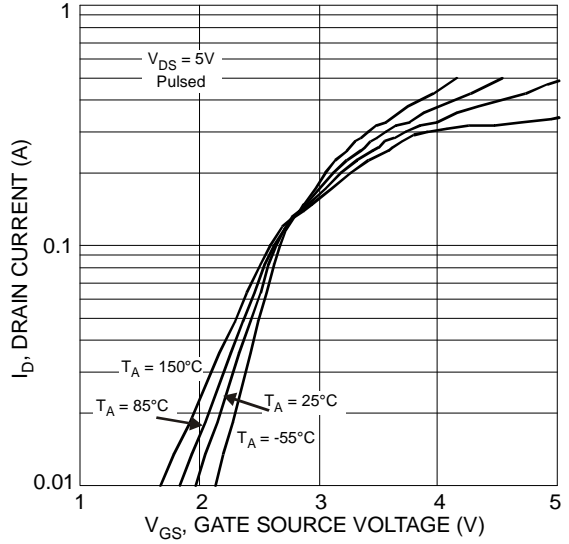


Fig. 2 Typical Transfer Characteristics

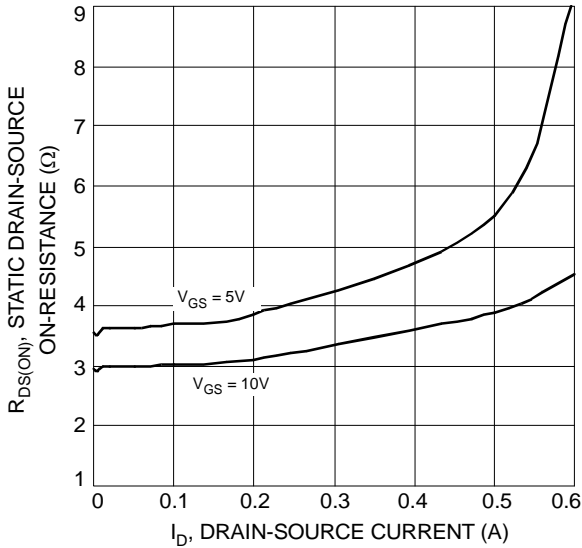


Fig. 3 On-Resistance vs. Drain Current & Gate Voltage

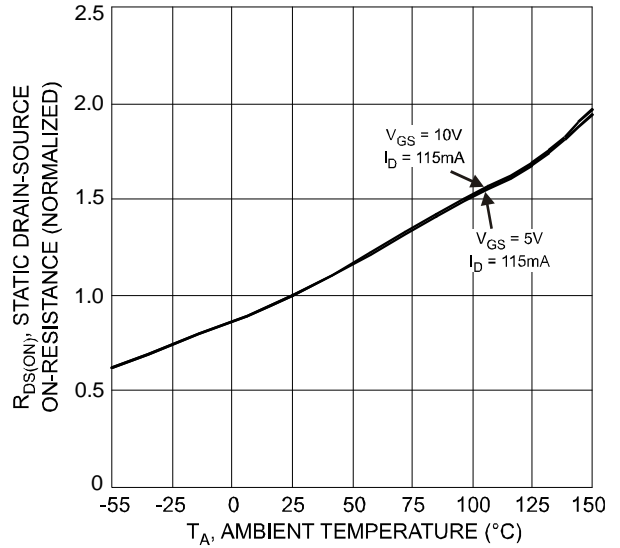


Fig. 4 Normalized Static Drain-Source On-Resistance vs. Ambient Temperature

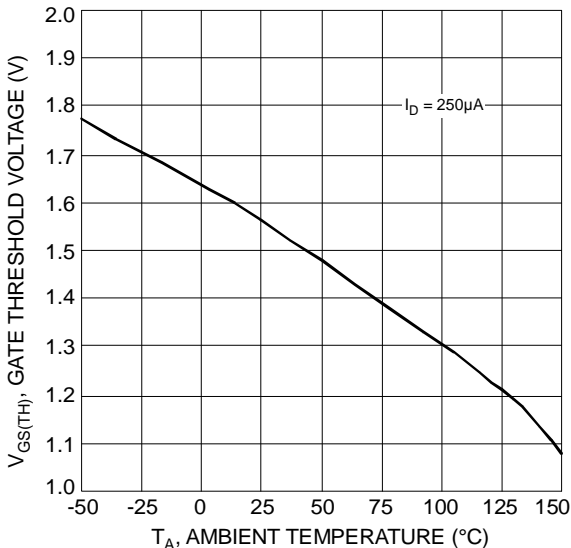


Fig. 5 Gate Threshold Variation vs. Ambient Temperature

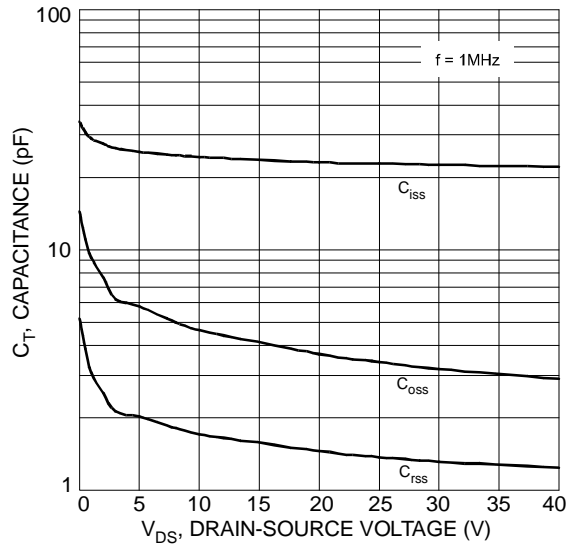


Fig. 6 Typical Total Capacitance

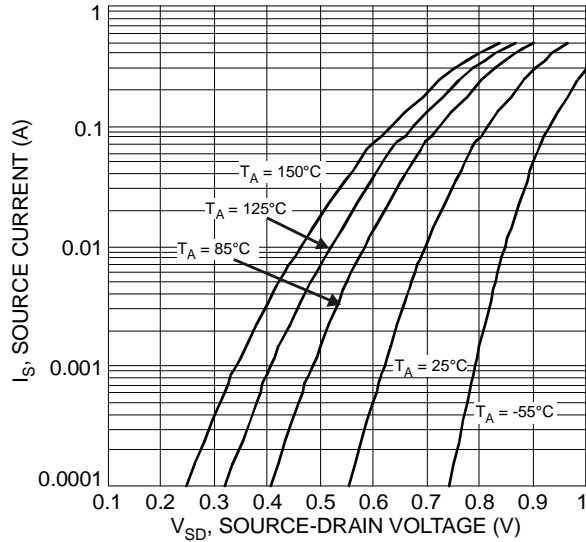


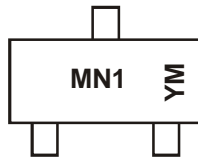
Fig. 7 Reverse Drain Current vs. Source-Drain Voltage

**Ordering Information** (Note 4)

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

Notes: 4. For packaging details, go to our website at <http://www.diodes.com/datasheets/ap02007.pdf>.

**Marking Information**



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

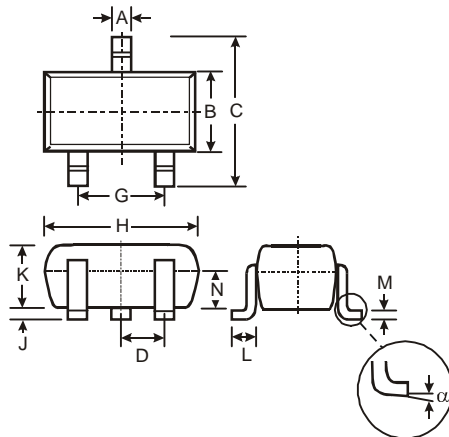
Date Code Key

Year	2008	2009	2010	2011	2012	2013	2014	2015
Code	V	W	X	Y	Z	A	B	C

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Code	1	2	3	4	5	6	7	8	9	O	N	D

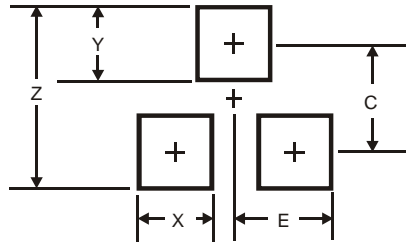
**Package Outline Dimensions**



SOT-523			
Dim	Min	Max	Typ
A	0.15	0.30	0.22
B	0.75	0.85	0.80
C	1.45	1.75	1.60
D	—	—	0.50
G	0.90	1.10	1.00
H	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
M	0.10	0.20	0.12
N	0.45	0.65	0.50
α	0°	8°	—

All Dimensions in mm

**Suggested Pad Layout**



Dimensions	Value (in mm)
Z	1.8
X	0.4
Y	0.51
C	1.3
E	0.7

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