N-CHANNEL ENHANCEMENT MODE FIELD EFFECT TRANSISTOR

Please click here to visit our online spice models database.

NEW PRODUCT

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**

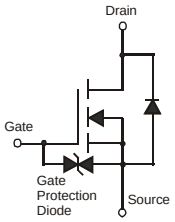
Mechanical Data

- Case: SOT-323
- 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: 0.006 grams (approximate)

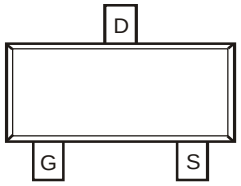
SOT-323

ESD PROTECTED, 1KV

TOP VIEW



EQUIVALENT CIRCUIT



TOP VIEW

Maximum Ratings @T_A = 25°C unless otherwise specified

Characteristic		Symbol	Value	Units
Drain-Source Voltage		V_{DSS}	60	V
Gate-Source Voltage (Note 1)	Continuous	V_{GSS}	±20	V
Drain Current (Note 1)	Continuous Continuous @ 100°C Pulsed	I_D	115 73 800	mA

Thermal Characteristics @T_A = 25°C unless otherwise specified

Characteristic	Symbol	Value	Units
Total Power Dissipation	P_D	200	mW
Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	625	°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	Typ	Max	Unit	Test Condition
OFF CHARACTERISTICS (Note 3)							
Drain-Source Breakdown Voltage		BV_{DSS}	60	70	—	V	V_{GS} = 0V, I_D = 10μA
Zero Gate Voltage Drain Current	@ T_C = 25°C @ T_C = 125°C	I_{DSS}	—	—	1.0 500	μA	V_{DS} = 60V, V_{GS} = 0V
Gate-Body Leakage		I_{GSS}	—	—	±5	μA	V_{GS} = ±20V, V_{DS} = 0V
ON CHARACTERISTICS (Note 3)							
Gate Threshold Voltage		$V_{GS(th)}$	1.2	—	2.0	V	V_{DS} = V_{GS}, I_D = 250μA
Static Drain-Source On-Resistance	@ T_J = 25°C	$R_{DS\ (ON)}$	—	3.5	6	Ω	V_{GS} = 5.0V, I_D = 0.115A
	@ T_J = 125°C			3.0	5		V_{GS} = 10V, I_D = 0.115A
Forward Transconductance		g_{FS}	80	—	—	mS	V_{DS} = 10V, I_D = 0.115A
DYNAMIC CHARACTERISTICS							
Input Capacitance		C_{iss}	—	23	—	pF	V_{DS} = 25V, V_{GS} = 0V, f = 1.0MHz
Output Capacitance		C_{oss}	—	3.4	—	pF	
Reverse Transfer Capacitance		C_{rss}	—	1.4	—	pF	
SWITCHING CHARACTERISTICS							
Turn-On Delay Time		$t_{D(ON)}$	—	10	—	ns	V_{DD} = 30V, I_D = 0.115A, R_L = 150Ω,
Turn-Off Delay Time		$t_{D(OFF)}$	—	33	—	ns	V_{GEN} = 10V, R_{GEN} = 25Ω

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.

NEW PRODUCT

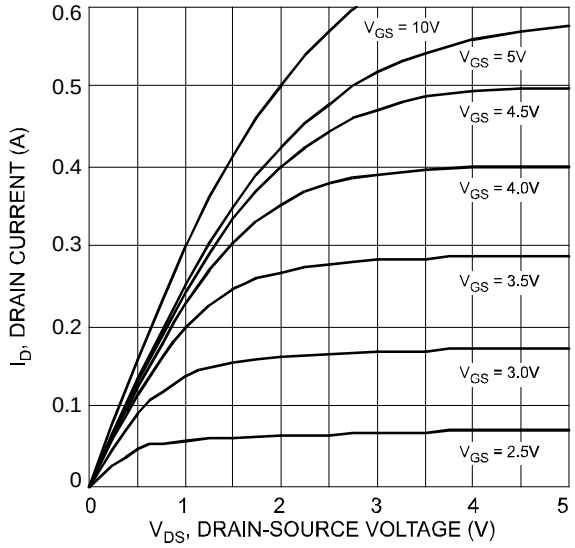


Fig.1 Typical Output Characteristic

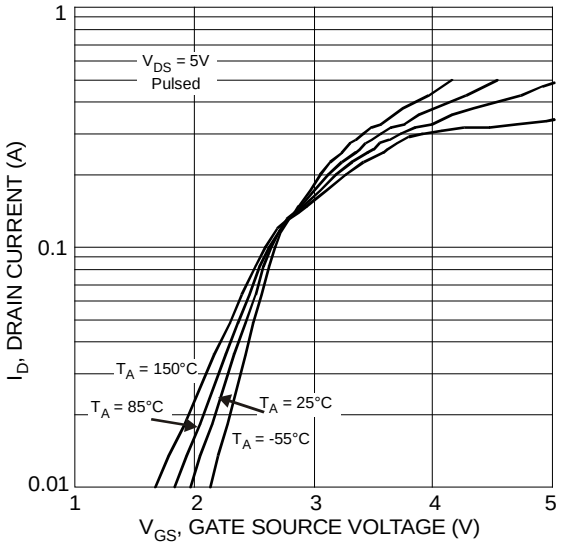


Fig. 2 Typical Transfer Characteristics

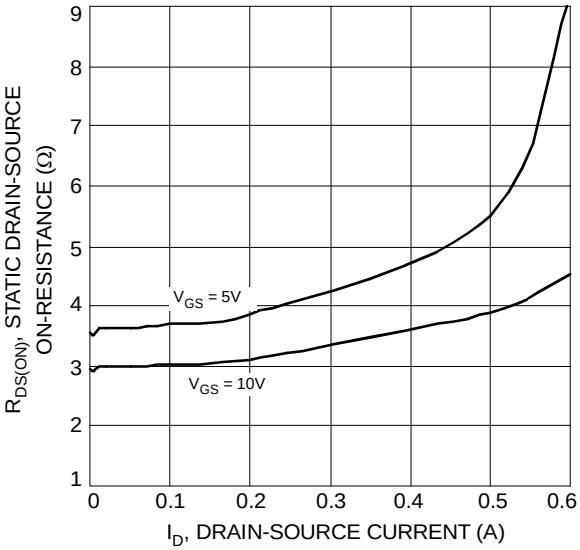


Fig. 3 On-Resistance vs. Drain Current & Gate Voltage

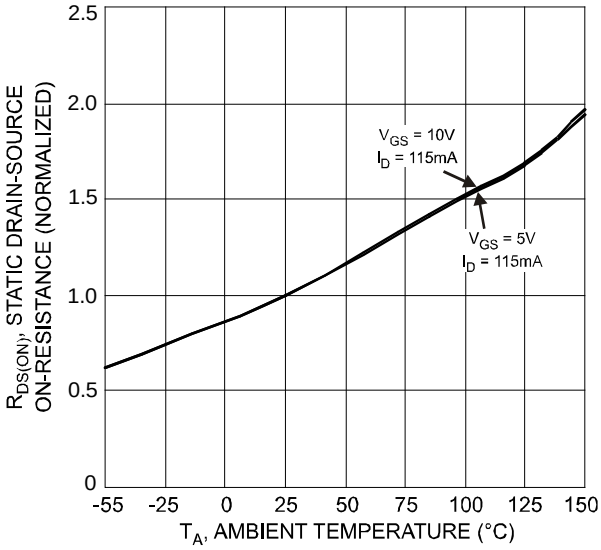


Fig. 4 Normalized Static Drain-Source On-Resistance vs. Ambient Temperature

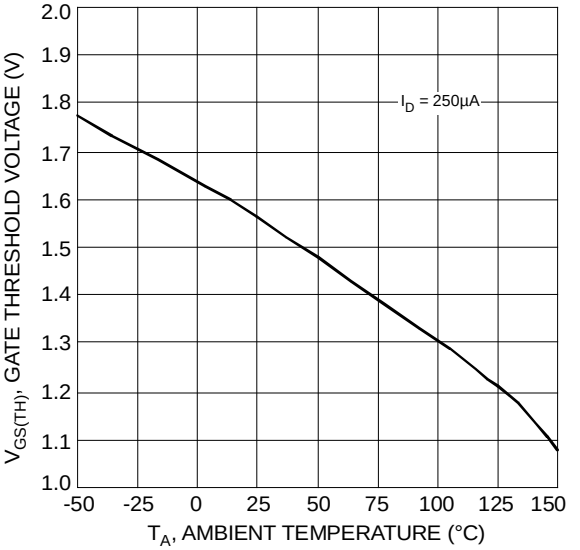


Fig. 5 Gate Threshold Variation vs. Ambient Temperature

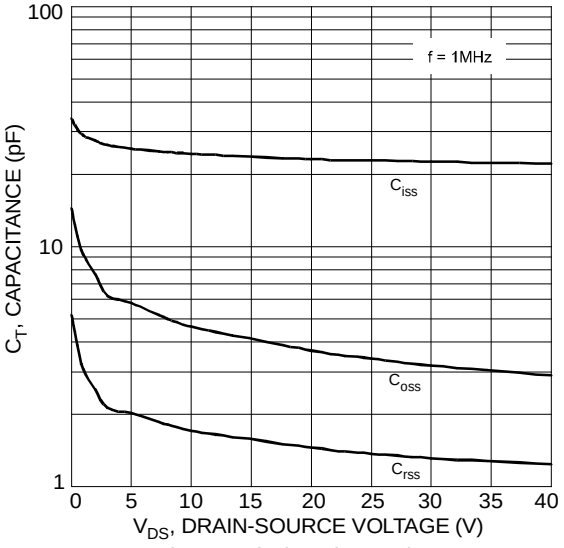


Fig. 6 Typical Total Capacitance

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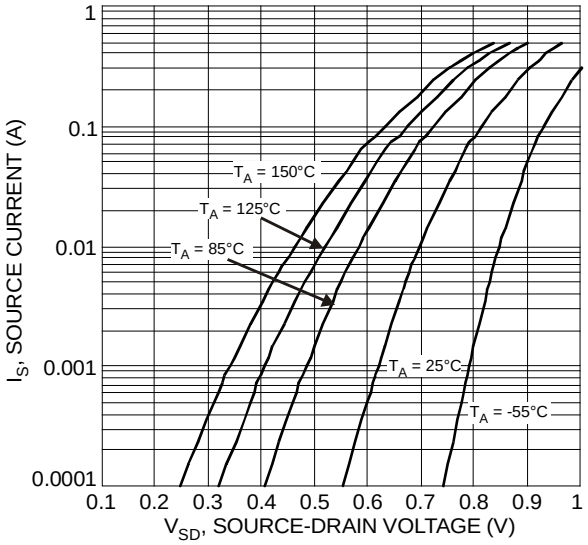


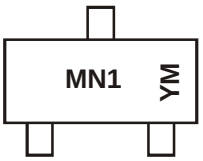
Fig. 7 Reverse Drain Current vs. Source-Drain Voltage

Ordering Information (Note 4)

Part Number	Case	Packaging
DMN66D0LW-7	SOT-323	3000/Tape & Reel

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

Marking Information



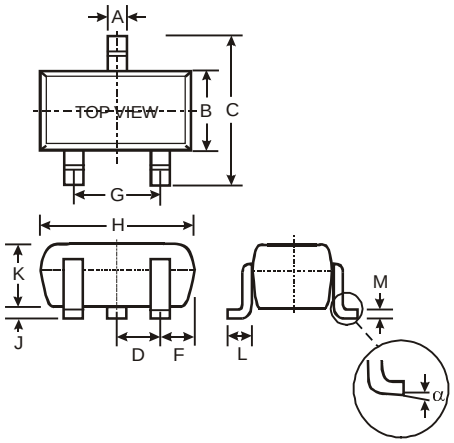
MN1 = Product Type Marking Code
YM = Date Code Marking
Y = Year ex: V = 2008
M = Month ex: 9 = September

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

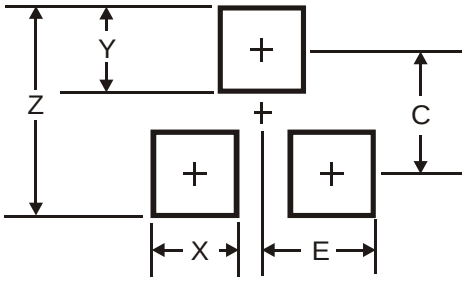
Package Outline Dimensions



SOT-323			
Dim	Min	Max	Typ
A	0.25	0.40	0.30
B	1.15	1.35	1.30
C	2.00	2.20	2.10
D	-	-	0.65
F	0.30	0.40	0.425
G	1.20	1.40	1.30
H	1.80	2.20	2.15
J	0.0	0.10	0.05
K	0.90	1.00	1.00
L	0.25	0.40	0.30
M	0.10	0.18	0.11
α	0°	8°	-
All Dimensions in mm			

NEW PRODUCT

Suggested Pad Layout



Dimensions	Value (in mm)
Z	2.8
X	0.7
Y	0.9
C	1.9
E	1.0