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Diodes Incorporated
DMN3051LDM-7

For any questions, you can email us directly:
sales@integrated-circuit.com

DIODES INCORPORATED

Lead-free Green

DMN3051LDM

N-CHANNEL ENHANCEMENT MODE MOSFET

Features

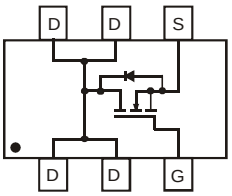
- Low On-Resistance
  - 38 mΩ @ V_{GS} = 10V
  - 64 mΩ @ V_{GS} = 4.5V
- Low Input Capacitance
- Fast Switching Speed
- **Lead Free By Design/RoHS Compliant (Note 2)**
- **"Green" Device (Note 3)**
- **Qualified to AEC-Q101 Standards for High Reliability**

Mechanical Data

- Case: SOT-26
- 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 — Matte Tin annealed over Copper leadframe. Solderable per MIL-STD-202, Method 208
- Marking Information: See Page 4
- Ordering Information: See Page 4
- Weight: 0.015 grams (approximate)

SOT-26

TOP VIEW



TOP VIEW
Internal Schematic

Maximum Ratings @T_A = 25°C unless otherwise specified

Characteristic	Symbol	Value	Units
Drain-Source Voltage	V_{DSS}	30	V
Gate-Source Voltage	V_{GSS}	±20	V
Drain Current (Note 1)	I_D	4.0	A
Pulsed Drain Current (Note 1)	I_{DM}	16	A

Thermal Characteristics

Characteristic	Symbol	Value	Units
Total Power Dissipation (Note 1)	P_D	900	mW
Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	139	°C/W
Operating and Storage Temperature Range	T_J, T_{STG}	-55 to +150	°C

Notes:
1. Device mounted on FR-4 PCB, minimum recommended pad layout on 2oz. Copper pads.
2. No purposefully added lead.
3. Diodes Inc.'s "Green" policy can be found on our website at http://www.diodes.com/products/lead_free/index.php.

Electrical Characteristics @T_A = 25°C unless otherwise specified

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
OFF CHARACTERISTICS (Note 4)						
Drain-Source Breakdown Voltage	BV_{DSS}	30	—	—	V	V_{GS} = 0V, I_D = 250μA
Zero Gate Voltage Drain Current	I_{DSS}	—	—	800	nA	V_{DS} = 30V, V_{GS} = 0V
Gate-Source Leakage	I_{GSS}	— —	— —	±80 ±800	nA	V_{GS} = ±12V, V_{DS} = 0V V_{GS} = ±20V, V_{DS} = 0V
ON CHARACTERISTICS (Note 4)						
Gate Threshold Voltage	$V_{GS(th)}$	1.2	—	2.2	V	V_{DS} = V_{GS}, I_D = 250μA
Static Drain-Source On-Resistance	$R_{DS\ (ON)}$	—	28 50	38 64	mΩ	V_{GS} = 10V, I_D = 6A V_{GS} = 4.5V, I_D = 5A
Forward Transfer Admittance	$\|Y_{fs}\|$	—	5.2	—	S	V_{DS} = 5V, I_D = 3.1A
Diode Forward Voltage (Note 4)	V_{SD}	—	0.78	1.16	V	V_{GS} = 0V, I_S = 2A
DYNAMIC CHARACTERISTICS						
Input Capacitance	C_{iss}	—	424	—	pF	V_{DS} = 5V, V_{GS} = 0V, f = 1.0MHz
Output Capacitance	C_{oss}	—	115	—	pF	
Reverse Transfer Capacitance	C_{rss}	—	81	—	pF	
Gate Resistance	R_G	—	1.3	—	Ω	V_{GS} = 0V V_{DS} = 0V, f = 1MHz
SWITCHING CHARACTERISTICS						
Total Gate Charge	Q_g	—	4.3 8.6	—	nC	V_{DS} = 10V, V_{GS} = 4.5V, I_D = 10A V_{DS} = 10V, V_{GS} = 10V, I_D = 10A
Gate-Source Charge	Q_{gs}	—	1.2	—		V_{DS} = 10V, V_{GS} = 10V, I_D = 10A
Gate-Drain Charge	Q_{gd}	—	2.5	—		V_{DS} = 10V, V_{GS} = 10V, I_D = 10A

Notes: 4. Short duration pulse test used to minimize self-heating effect.

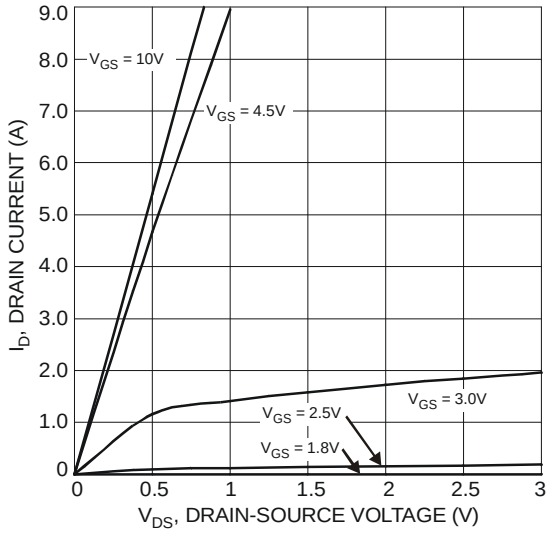


Fig. 1 Typical Output Characteristics

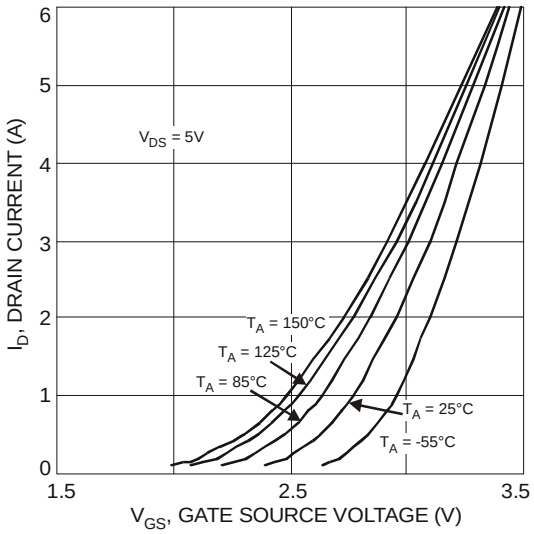


Fig. 2 Typical Transfer Characteristics

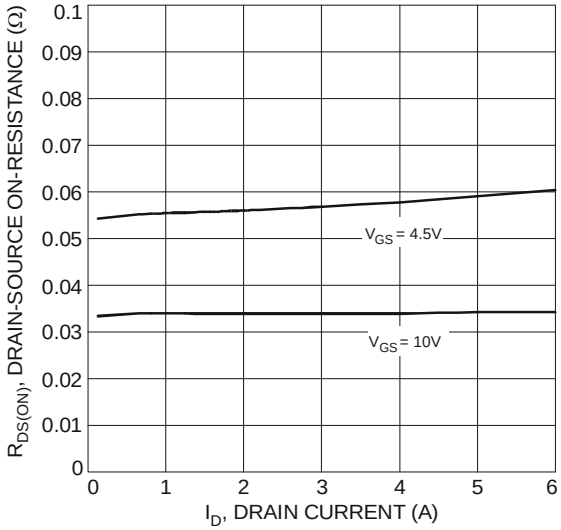


Fig. 3 Typical On-Resistance vs. Drain Current and Gate Voltage

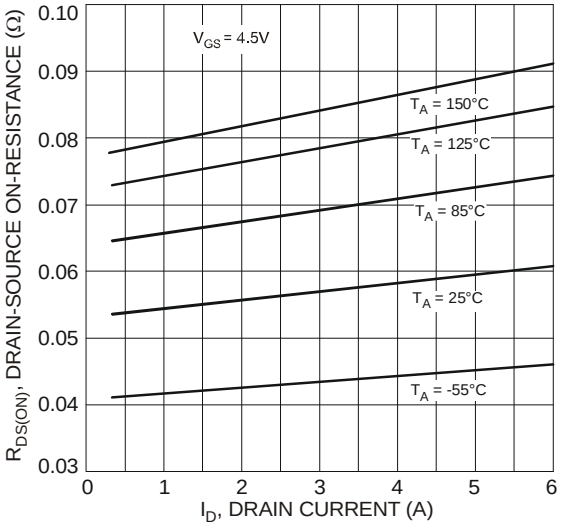


Fig. 4 Typical Drain-Source On-Resistance vs. Drain Current and Temperature

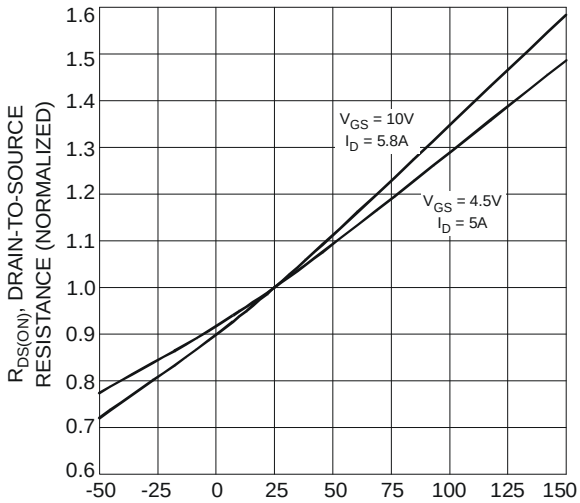


Fig. 5 On-Resistance Variation with Temperature

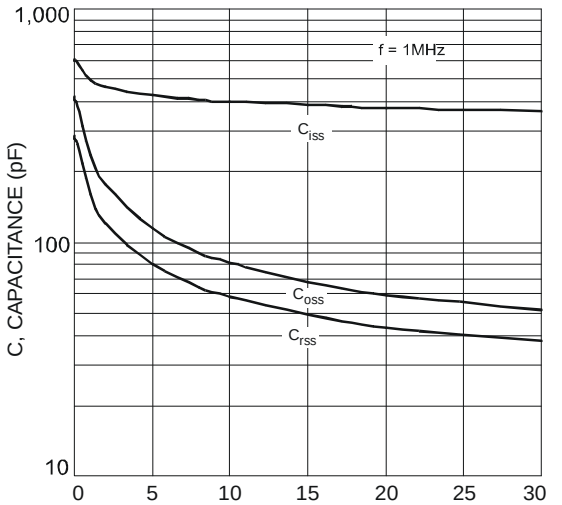


Fig. 6 Typical Capacitance

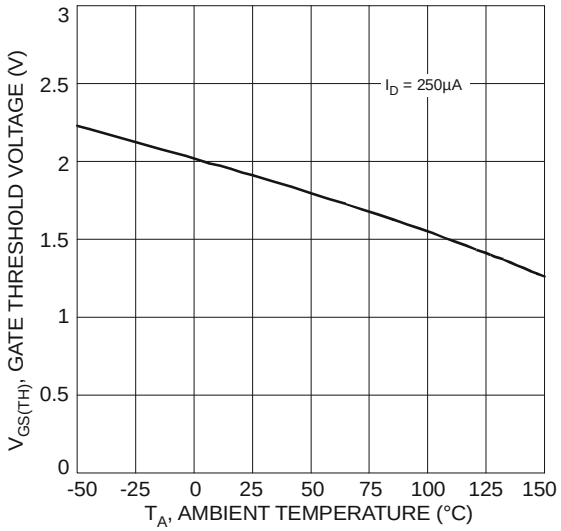


Fig. 7 Gate Threshold Variation vs. Ambient Temperature

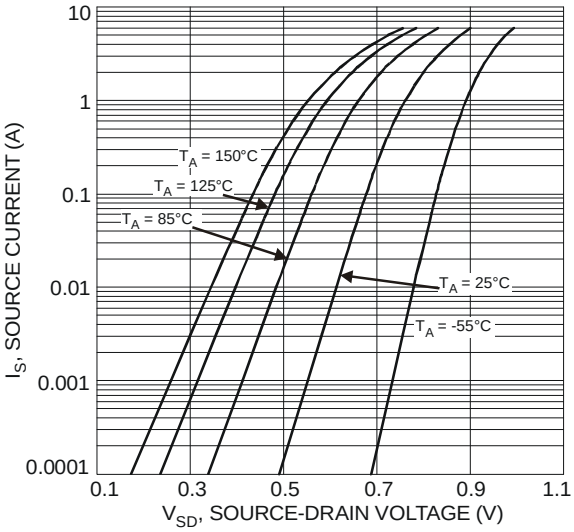


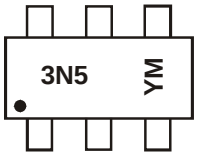
Fig. 8 Diode Forward Voltage vs. Current

Ordering Information (Note 5)

Part Number	Case	Packaging
DMN3051LDM-7	SOT-26	3000/Tape & Reel

Notes: 5. For packaging details, go to our website at http://www.diodes.com/datasheets/ap02007.pdf.

Marking Information



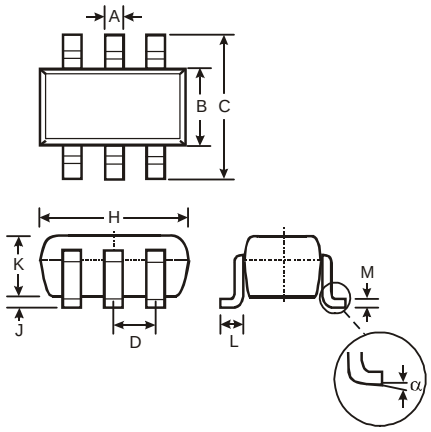
3N5 = Marking Code
YM = Date Code Marking
Y = Year (ex: V = 2008)
M = Month (ex: 9 = September)

Date Code Key

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

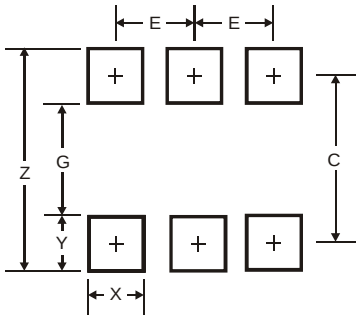
Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Code	1	2	3	4	5	6	7	8	9	O	N	D

Package Outline Dimensions



SOT-26			
Dim	Min	Max	Typ
A	0.35	0.50	0.38
B	1.50	1.70	1.60
C	2.70	3.00	2.80
D	—	—	0.95
H	2.90	3.10	3.00
J	0.013	0.10	0.05
K	1.00	1.30	1.10
L	0.35	0.55	0.40
M	0.10	0.20	0.15
α	0°	8°	—
All Dimensions in mm			

Suggested Pad Layout



Dimensions	Value (in mm)
Z	3.20
G	1.60
X	0.55
Y	0.80
C	2.40
E	0.95

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