





#### N-CHANNEL ENHANCEMENT MODE MOSFET

### **Features**

- Low On-Resistance
  - $38 \text{ m}\Omega @ V_{GS} = 10V$
  - 64 m $\Omega$  @ V<sub>GS</sub> = 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

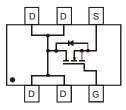
#### **Mechanical Data**

- 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<sub>A</sub> = 25°C unless otherwise specified

Characteristic	Symbol	Value	Units
Drain-Source Voltage	V <sub>DSS</sub>	30	V
Gate-Source Voltage	V <sub>GSS</sub>	±20	V
Drain Current (Note 1)	I <sub>D</sub>	4.0	А
Pulsed Drain Current (Note 1)	I <sub>DM</sub>	16	А

### **Thermal Characteristics**

Characteristic	Symbol	Value	Units
Total Power Dissipation (Note 1)	P <sub>D</sub>	900	mW
Thermal Resistance, Junction to Ambient	$R_{ hetaJA}$	139	°C/W
Operating and Storage Temperature Range	T <sub>J</sub> , T <sub>STG</sub>	-55 to +150	°C

Notes:

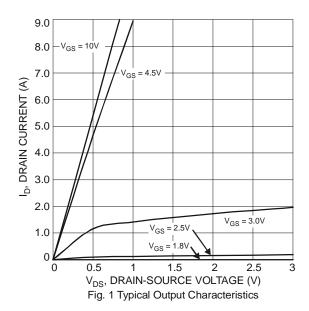
- 1. Device mounted on FR-4 PCB, minimum recommended pad layout on 2oz. Copper pads.
- 2. No purposefully added lead.
- 3. Diodes Inc.'s "Green" policy can be found on our website at http://www.diodes.com/products/lead\_free/index.php.

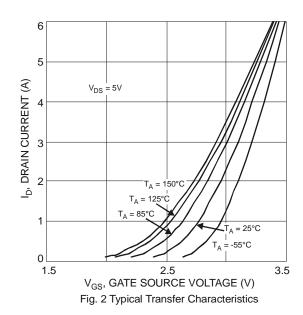


# **Electrical Characteristics** @T<sub>A</sub> = 25°C unless otherwise specified

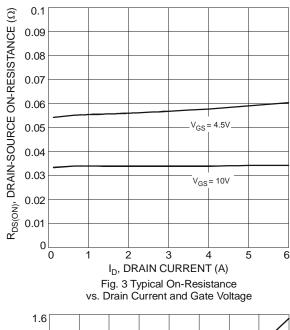
Characteristic	Symbol	Min	Тур	Max	Unit	Test Condition		
OFF CHARACTERISTICS (Note 4)								
Drain-Source Breakdown Voltage	BV <sub>DSS</sub>	30	_		V	$V_{GS} = 0V, I_D = 250\mu A$		
Zero Gate Voltage Drain Current	I <sub>DSS</sub>			800	nA	$V_{DS} = 30V, V_{GS} = 0V$		
Gate-Source Leakage	I <sub>GSS</sub>	_	_	±80 +800	nA	$V_{GS} = \pm 12V, V_{DS} = 0V$		
ON CHARACTERISTICS (Note 4)			_	±000		$V_{GS} = \pm 20V, V_{DS} = 0V$		
` ,	W	1.2		2.2	V	V V I 250A		
Gate Threshold Voltage	V <sub>GS(th)</sub>	1.2	_		V	$V_{DS} = V_{GS}, I_D = 250\mu A$		
Static Drain-Source On-Resistance	Pro (ON)		28	38	mΩ	$V_{GS} = 10V, I_D = 6A$		
Statio Brain Godroe On Resistance	R <sub>DS</sub> (ON)	_	50	64	1112.2	$V_{GS} = 4.5V, I_D = 5A$		
Forward Transfer Admittance	Y <sub>fs</sub>	_	5.2	_	S	$V_{DS} = 5V, I_{D} = 3.1A$		
Diode Forward Voltage (Note 4)	V <sub>SD</sub>	_	0.78	1.16	V	$V_{GS} = 0V$ , $I_S = 2A$		
DYNAMIC CHARACTERISTICS								
Input Capacitance	C <sub>iss</sub>	_	424	_	pF			
Output Capacitance	Coss	_	115	_	pF	$V_{DS} = 5V, V_{GS} = 0V, f = 1.0MHz$		
Reverse Transfer Capacitance	C <sub>rss</sub>	_	81	_	pF	]		
Gate Resistance	$R_{G}$	_	1.3	_	Ω	$V_{GS} = 0V V_{DS} = 0V, f = 1MHz$		
SWITCHING CHARACTERISTICS	· · · · · · · · · · · · · · · · ·							
Total Cata Charge	0		4.3		nC	$V_{DS} = 10V, V_{GS} = 4.5V, I_{D} = 10A$		
Total Gate Charge	$Q_g$	_	8.6	_		$V_{DS} = 10V, V_{GS} = 10V, I_{D} = 10A$		
Gate-Source Charge	$Q_{gs}$		1.2	_	iiC	$V_{DS} = 10V, V_{GS} = 10V, I_D = 10A$		
Gate-Drain Charge	$Q_{gd}$	_	2.5	_		$V_{DS} = 10V, V_{GS} = 10V, I_D = 10A$		

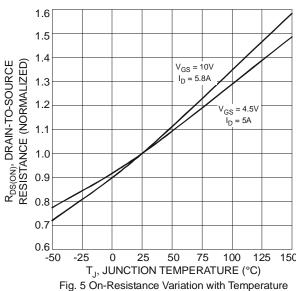
Notes: 4. Short duration pulse test used to minimize self-heating effect.

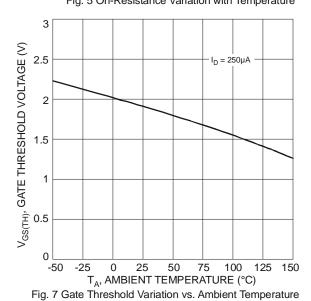












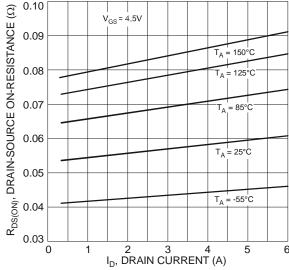
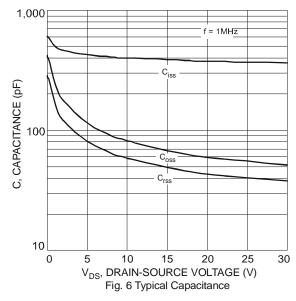
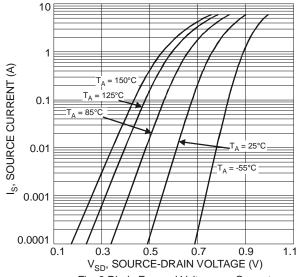


Fig. 4 Typical Drain-Source On-Resistance vs. Drain Current and Temperature





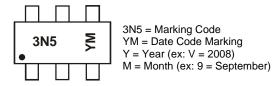


## Ordering Information (Note 5)

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.

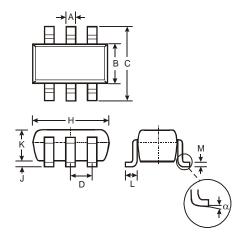
## **Marking Information**



Date Code Key

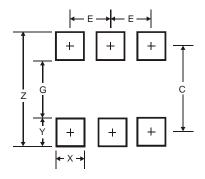
Year	2008		2009	2010		2011	2012		2013	2014		2015
Code	V		W	X		Υ	Z		Α	В		С
Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Code	1	2	3	4	5	6	7	8	9	0	N	D

# **Package Outline Dimensions**



SOT-26					
Dim	Min	Max	Тур		
Α	0.35	0.50	0.38		
В	1.50	1.70	1.60		
С	2.70	3.00	2.80		
D	_		0.95		
Н	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
Х	0.55
Y	0.80
С	2.40
E	0.95



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