

## 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

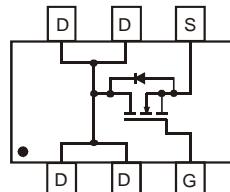
## Mechanical Data

- 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

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

Characteristic	Symbol	Value	Units
Drain-Source Voltage	$V_{DSS}$	30	V
Gate-Source Voltage	$V_{GSS}$	$\pm 20$	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	$R_{JJA}$	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](http://www.diodes.com/products/lead_free/index.php).

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

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

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

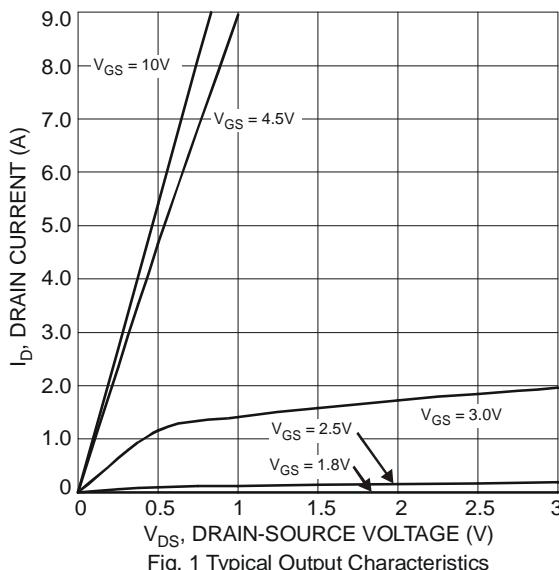


Fig. 1 Typical Output Characteristics

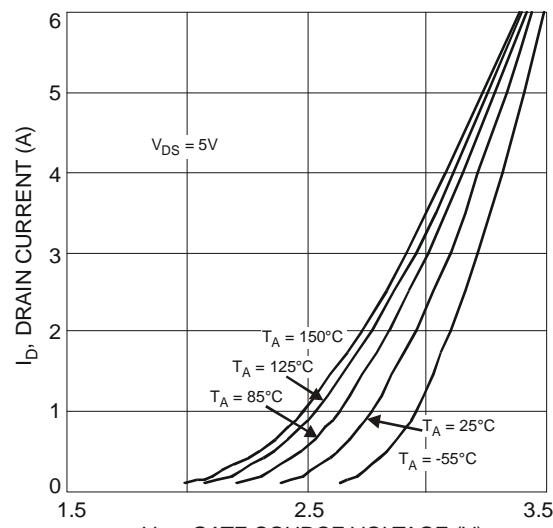


Fig. 2 Typical Transfer Characteristics

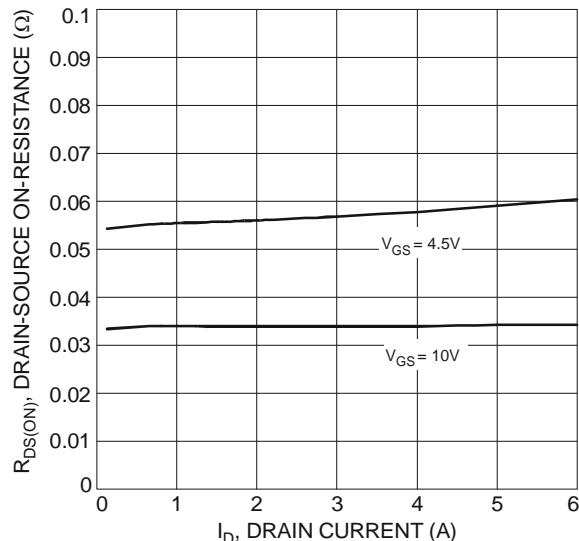


Fig. 3 Typical On-Resistance  
vs. Drain Current and Gate Voltage

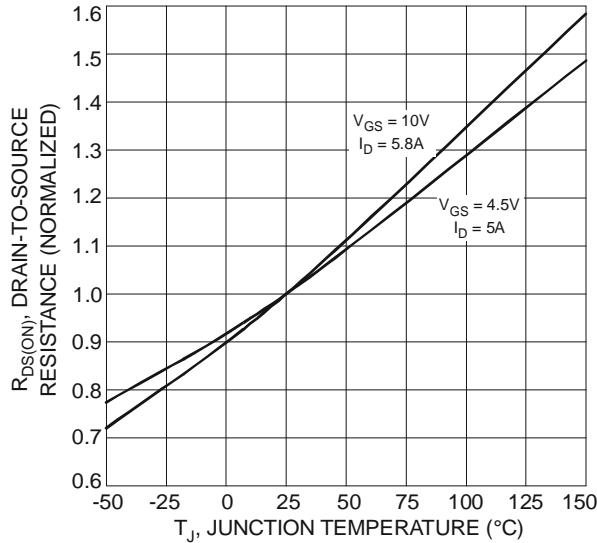


Fig. 5 On-Resistance Variation with Temperature

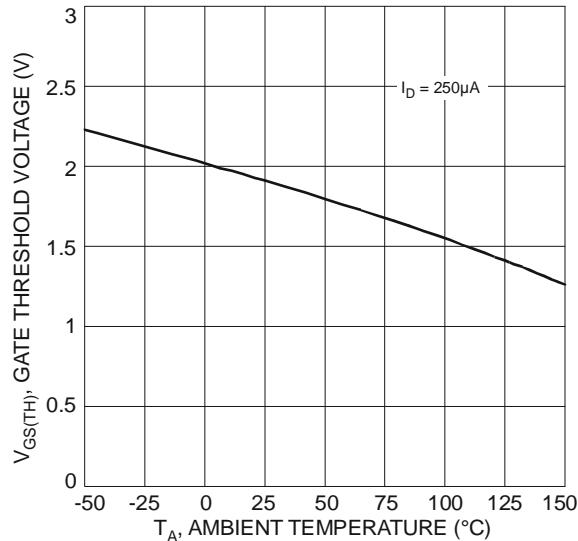


Fig. 7 Gate Threshold Variation vs. Ambient Temperature

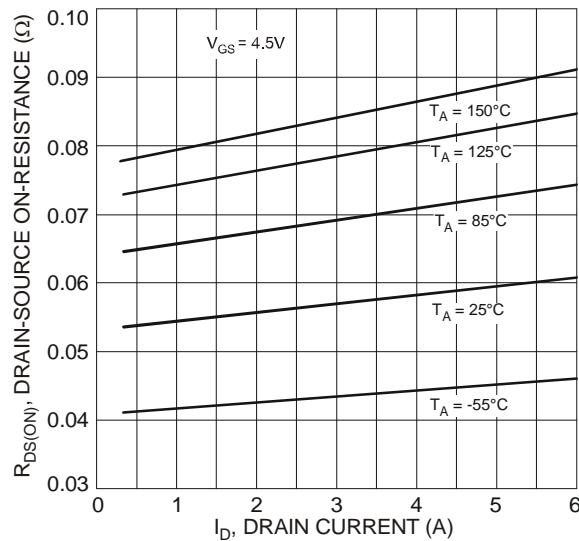


Fig. 4 Typical Drain-Source On-Resistance  
vs. Drain Current and Temperature

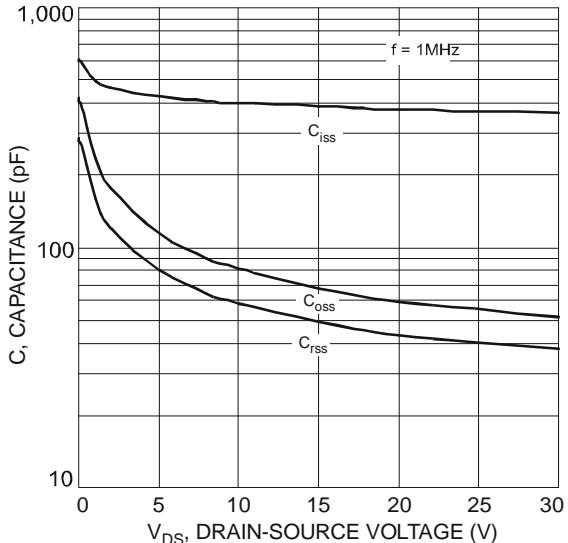


Fig. 6 Typical Capacitance

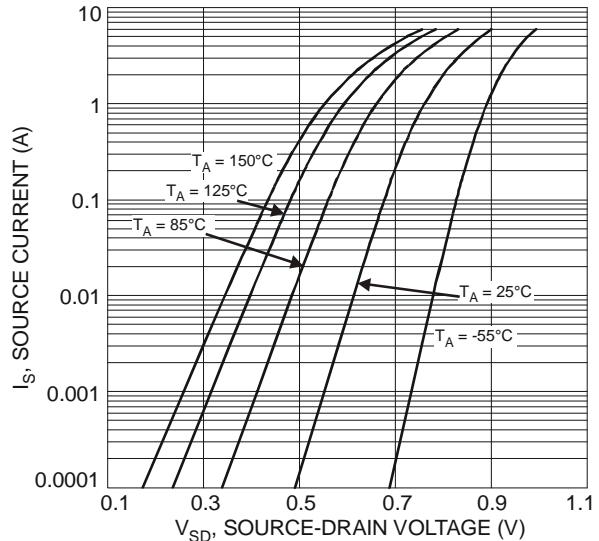
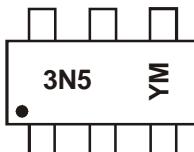


Fig. 8 Diode Forward Voltage vs. Current

**Ordering Information** (Note 5)

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

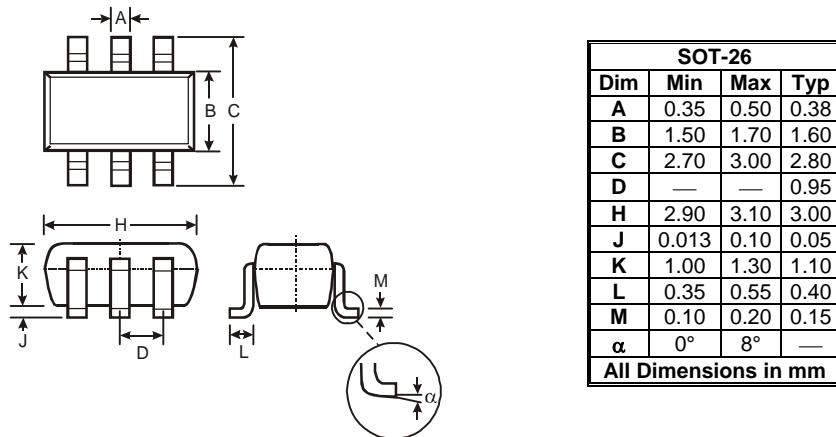
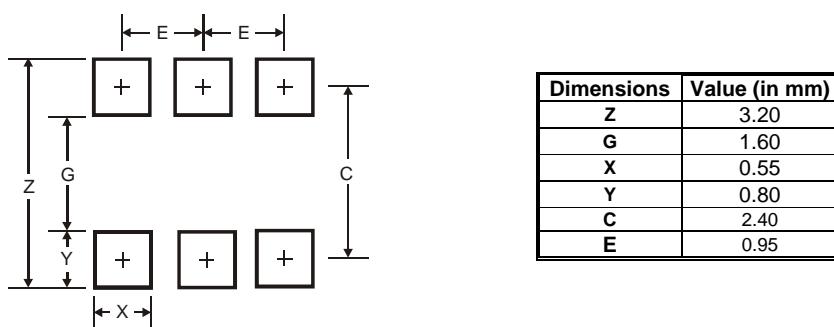
Notes: 5. For packaging details, go to our website at <http://www.diodes.com/datasheets/ap02007.pdf>.

**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**

**Suggested Pad Layout**


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