

Features

- Low Gate Charge
 - Low $R_{DS(ON)}$:
 - 33 mΩ @ $V_{GS} = 10V$
 - 40 mΩ @ $V_{GS} = 4.5V$
 - Low Input/Output Leakage
 - **Lead Free By Design/RoHS Compliant (Note 3)**
 - **Qualified to AEC-Q101 Standards for High Reliability**
 - **"Green" Device (Note 4)**

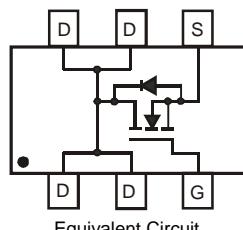
Mechanical Data

- Case: SOT-26
 - Case Material - Molded Plastic, "Green" Molding Compound. UL Flammability Classification Rating 94V-0
 - Moisture Sensitivity: Level 1 per J-STD-020D
 - Terminals: Finish – Matte Tin annealed over Copper leadframe. Solderable per MIL-STD-202, Method 208
 - Terminal Connections: See Diagram
 - Marking Information: See Page 4
 - Ordering Information: See Page 4
 - Weight: 0.008 grams (approximate)

SOT-26



TOP VIEW



Equivalent Circuit

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

Characteristic	Symbol	Value	Unit
Drain-Source Voltage	V_{DSS}	30	V
Gate-Source Voltage	V_{GSS}	± 20	V
Drain Current (Note 1) Continuous	I_D	6.9	A
		5.8	
Pulsed Drain Current (Note 2)	I_{DM}	20	A
Body-Diode Continuous Current (Note 1)	I_S	2.25	A

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

Characteristic	Symbol	Value	Unit
Total Power Dissipation (Note 1)	P_D	2	W
Thermal Resistance, Junction to Ambient (Note 1) $t \leq 10s$	$R_{\theta JA}$	62.5	$^{\circ}\text{C}/\text{W}$
Operating and Storage Temperature Range	T_J, T_{STG}	-55 to +150	$^{\circ}\text{C}$

Notes: 1. Device mounted on 1"x1", FR-4 PC board with 2 oz. Copper and test pulse width $t \leq 10s$.
2. Repetitive Rating, pulse width limited by junction temperature.
3. No purposefully added lead.
4. Diodes Inc's "Green" policy can be found on our website at http://www.diodes.com/products/lead_free/index.php.

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

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
STATIC CHARACTERISTICS						
Drain-Source Breakdown Voltage	BV_{DSS}	30	—	—	V	$I_D = 250\mu\text{A}$, $V_{GS} = 0\text{V}$
Zero Gate Voltage Drain Current $T_J = 25^\circ\text{C}$ $T_J = 55^\circ\text{C}$	I_{DSS}	—	—	1 5	μA	$V_{DS} = 30\text{V}$, $V_{GS} = 0\text{V}$
Gate-Body Leakage Current	I_{GSS}	—	—	± 100	nA	$V_{DS} = 0\text{V}$, $V_{GS} = \pm 20\text{V}$
Gate Threshold Voltage	$V_{GS(\text{th})}$	1.0	—	2.1	V	$V_{DS} = V_{GS}$, $I_D = 250\mu\text{A}$
Static Drain-Source On-Resistance (Note 5)	$R_{DS(\text{ON})}$	—	25 36	33 40	$\text{m}\Omega$	$V_{GS} = 10\text{V}$, $I_D = 6.9\text{A}$ $V_{GS} = 4.5\text{V}$, $I_D = 5.0\text{A}$
Forward Transconductance (Note 5)	g_{FS}	—	5	—	S	$V_{DS} = 10\text{V}$, $I_D = 8\text{A}$
Diode Forward Voltage (Note 5)	V_{SD}	—	0.7	1.1	V	$I_S = 2.25\text{A}$, $V_{GS} = 0\text{V}$
DYNAMIC CHARACTERISTICS (Note 6)						
Input Capacitance	C_{iss}	—	755	—	pF	$V_{DS} = 10\text{V}$, $V_{GS} = 0\text{V}$
Output Capacitance	C_{oss}	—	136	—	pF	$f = 1.0\text{MHz}$
Reverse Transfer Capacitance	C_{rss}	—	108	—	pF	
Gate Resistance	R_G	—	0.89	—	Ω	$V_{GS} = 0\text{V}$, $V_{DS} = 0\text{V}$, $f = 1\text{MHz}$
SWITCHING CHARACTERISTICS						
Total Gate Charge	Q_g	—	6.4 13.0	—	nC	$V_{GS} = 4.5\text{V}$, $V_{DS} = 15\text{V}$, $I_D = 5\text{A}$ $V_{GS} = 10\text{V}$, $V_{DS} = 15\text{V}$, $I_D = 6.9\text{A}$
Gate-Source Charge	Q_{gs}	—	1.9	—	nC	$V_{GS} = 10\text{V}$, $V_{DS} = 15\text{V}$, $I_D = 6.9\text{A}$
Gate-Drain Charge	Q_{gd}	—	3.2	—	nC	$V_{GS} = 10\text{V}$, $V_{DS} = 15\text{V}$, $I_D = 6.9\text{A}$
Turn-On Delay Time	$t_{D(\text{on})}$	—	11	—	ns	
Turn-On Rise Time	t_r	—	7	—	ns	$V_{DD} = 15\text{V}$, $V_{GS} = 10\text{V}$,
Turn-Off Delay Time	$t_{D(\text{off})}$	—	63	—	ns	$R_D = 1.8\Omega$, $R_G = 6\Omega$
Turn-Off Fall Time	t_f	—	30	—	ns	

 Notes: 5. Test pulse width $t = 300\text{ms}$.

6. Guaranteed by design. Not subject to production testing.

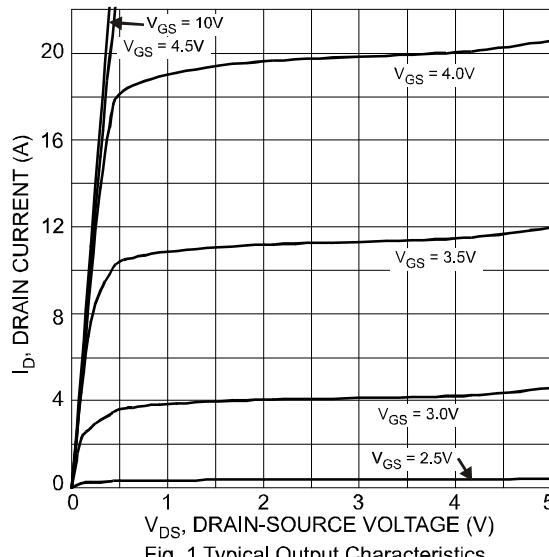


Fig. 1 Typical Output Characteristics

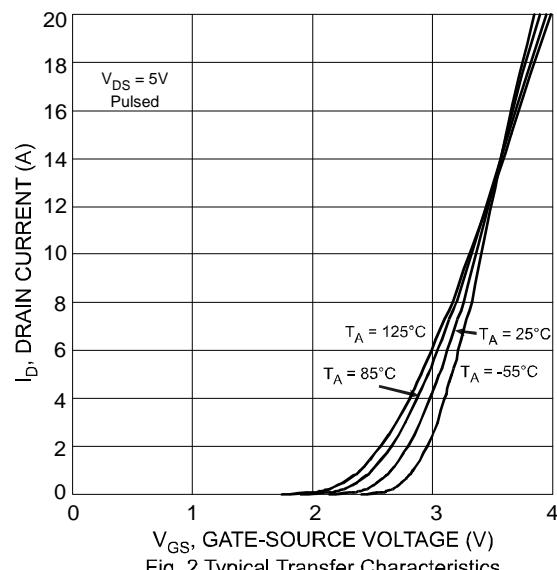


Fig. 2 Typical Transfer Characteristics

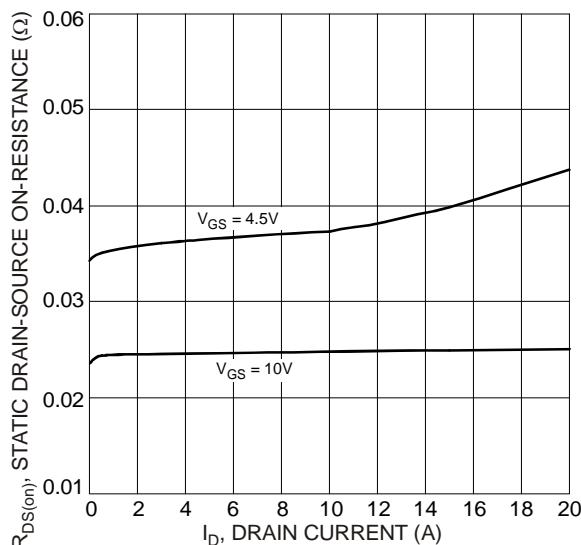


Fig. 3 On-Resistance vs. Drain Current and Gate Voltage

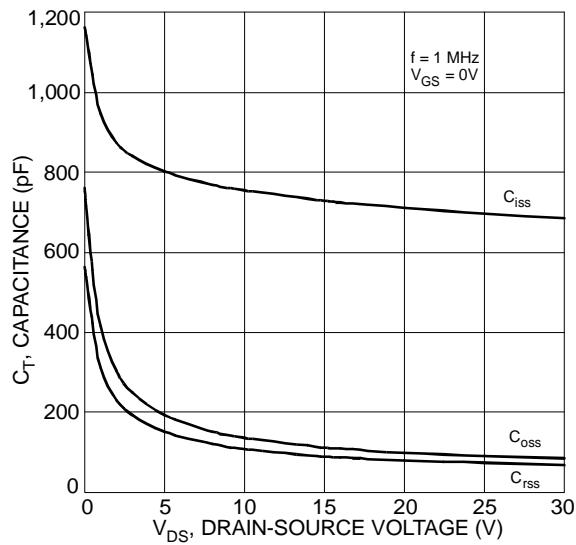


Fig. 4 Typical Total Capacitance

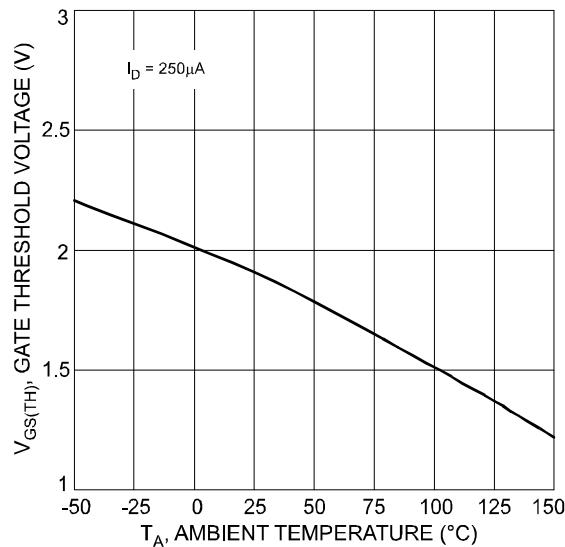


Fig. 5 Gate Threshold Voltage vs. Ambient Temperature

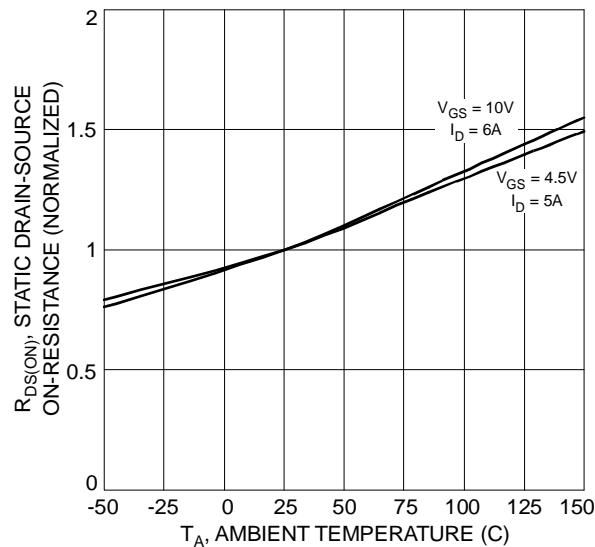


Fig. 6 Normalized Static Drain-Source On-Resistance vs. Ambient Temperature

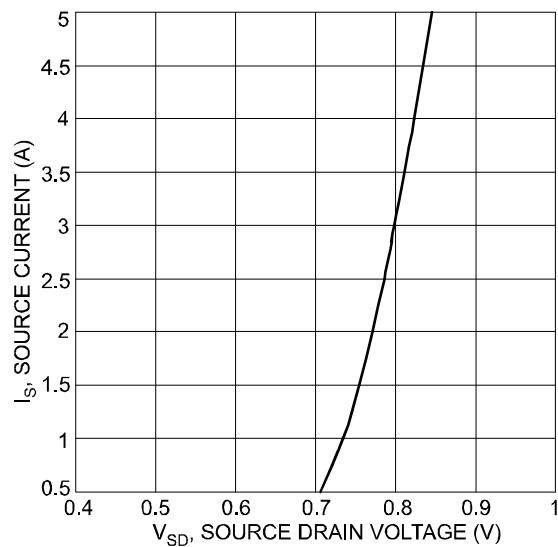
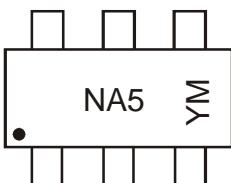


Fig. 7 Reverse Drain Current vs. Source-Drain Voltage

Ordering Information (Note 7)

Part Number	Case	Packaging
DMN3033LDM-7	SOT-26	3000/Tape & Reel

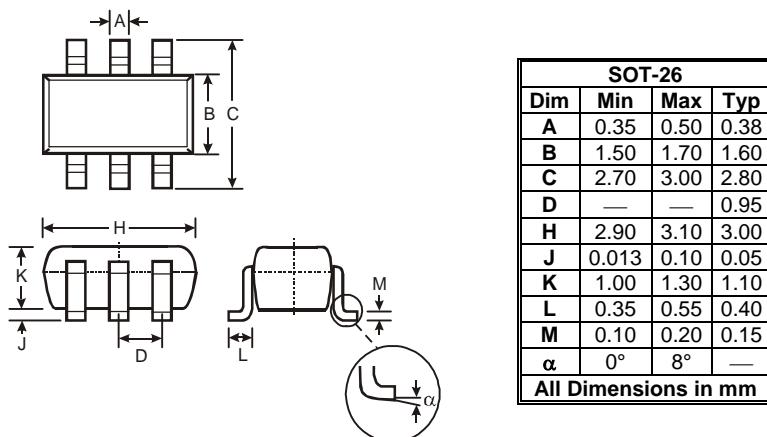
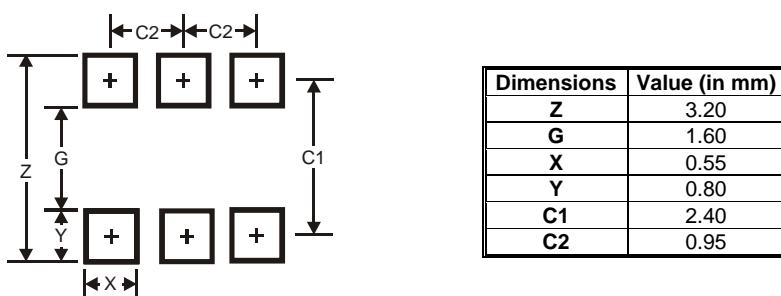
Notes: 7. For packaging details, go to our website at <http://www.diodes.com/datasheets/ap02007.pdf>.

Marking Information


NA5 = Product Type Marking Code
 YM = Date Code Marking
 Y = Year (ex: U = 2007)
 M = Month (ex: 9 = September)

Date Code Key

Year	2007	2008	2009	2010	2011	2012	2013	2014	2015			
Code	U	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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