



**THE DATASHEET OF  
DMN3033LSN-7**



## Features

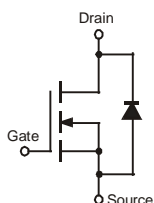
- Low Gate Charge
- Low  $R_{DS(ON)}$ :
  - $30m\Omega @ V_{GS} = 10V$
  - $40m\Omega @ V_{GS} = 4.5V$
- Low Input/Output Leakage
- **Totally Lead-Free & Fully RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**
- **Qualified to AEC-Q101 Standards for High Reliability**

## Mechanical Data

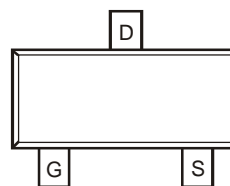
- Case: SC59
- Case Material - Molded Plastic, "Green" Molding Compound. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Finish – Matte Tin Annealed over Copper Leadframe. Solderable per MIL-STD-202, Method 208 **(e3)**
- Terminal Connections: See Diagram
- Weight: 0.014 grams (Approximate)



Top View



Equivalent Circuit



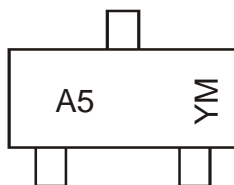
Pin Configuration

## Ordering Information (Note 4)

Part Number	Case	Packaging
DMN3033LSN-7	SC59	3000/Tape & Reel

- Notes:
1. No purposely added lead. Fully EU Directive 2002/95/EC (RoHS) & 2011/65/EU (RoHS 2) compliant.
  2. See [http://www.diodes.com/quality/lead\\_free.html](http://www.diodes.com/quality/lead_free.html) for more information about Diodes Incorporated's definitions of Halogen- and Antimony-free, "Green" and Lead-free.
  3. Halogen- and Antimony-free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.
  4. For packaging details, go to our website at <http://www.diodes.com/products/packages.html>.

## Marking Information



A5 = Product Type Marking Code  
 YM = Date Code Marking  
 Y = Year (ex: D = 2016)  
 M = Month (ex: 9 = September)

### Date Code Key

Year	2007	~	2016	2017	2018	2019	2020	2021	2022
Code	U	~	D	E	F	G	H	I	J

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

**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	$V_{GSS}$	$\pm 20$	V
Continuous Drain Current (Note 5)	$I_D$	$T_A = +25^\circ\text{C}$	6
		$T_A = +70^\circ\text{C}$	5
Pulsed Drain Current (Note 6)	$I_{DM}$	24	A
Body-Diode Continuous Current (Note 5)	$I_S$	2.25	A

**Thermal Characteristics** (@ $T_A = +25^\circ\text{C}$ , unless otherwise specified.)

Characteristic	Symbol	Value	Unit
Total Power Dissipation (Note 5)	$P_D$	1.4	W
Thermal Resistance, Junction to Ambient (Note 5) $t \leq 10\text{s}$	$R_{\theta JA}$	90	$^\circ\text{C/W}$
Operating and Storage Temperature Range	$T_J, T_{STG}$	-55 to +150	$^\circ\text{C}$

**Electrical Characteristics** (@ $T_A = +25^\circ\text{C}$ , unless otherwise specified.)

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
<b>STATIC PARAMETERS</b>						
Drain-Source Breakdown Voltage	$BV_{DSS}$	30	—	—	V	$I_D = 250\mu\text{A}, V_{GS} = 0\text{V}$
Zero Gate Voltage Drain Current	$I_{DSS}$	—	—	1 5	$\mu\text{A}$	$V_{DS} = 30\text{V}, V_{GS} = 0\text{V}$ $T_J = +25^\circ\text{C}$ $T_J = +55^\circ\text{C}$
Gate-Body Leakage Current	$I_{GSS}$	—	—	$\pm 100$	nA	$V_{DS} = 0\text{V}, V_{GS} = \pm 20\text{V}$
Gate Threshold Voltage	$V_{GS(TH)}$	1.0	—	2.1	V	$V_{DS} = V_{GS}, I_D = 250\mu\text{A}$
Static Drain-Source On-Resistance (Note 7)	$R_{DS(ON)}$	—	25 36	30 40	m $\Omega$	$V_{GS} = 10\text{V}, I_D = 6\text{A}$ $V_{GS} = 4.5\text{V}, I_D = 5\text{A}$
Forward Transconductance (Note 7)	$g_{FS}$	—	5	—	S	$V_{DS} = 10\text{V}, I_D = 8\text{A}$
Diode Forward Voltage (Note 7)	$V_{SD}$	—	0.7	1.1	V	$I_S = 2.25\text{A}, V_{GS} = 0\text{V}$
<b>DYNAMIC PARAMETERS (Note 8)</b>						
Total Gate Charge	$Q_g$	—	10.5	—	nC	$V_{GS} = 5\text{V}, V_{DS} = 15\text{V}, I_D = 6\text{A}$
Gate-Source Charge	$Q_{gs}$	—	3.8	—	nC	$V_{GS} = 10\text{V}, V_{DS} = 15\text{V}, I_D = 6\text{A}$
Gate-Drain Charge	$Q_{gd}$	—	2.9	—	nC	$V_{GS} = 10\text{V}, V_{DS} = 15\text{V}, I_D = 6\text{A}$
Turn-On Delay Time	$t_{D(ON)}$	—	11	—	ns	$V_{DD} = 15\text{V}, V_{GS} = 10\text{V},$ $R_D = 1.8\Omega, R_G = 6\Omega$
Turn-On Rise Time	$t_R$	—	7	—	ns	
Turn-Off Delay Time	$t_{D(OFF)}$	—	63	—	ns	
Turn-Off Fall Time	$t_F$	—	30	—	ns	
Input Capacitance	$C_{iss}$	—	755	—	pF	$V_{DS} = 10\text{V}, V_{GS} = 0\text{V}$ $f = 1.0\text{MHz}$
Output Capacitance	$C_{oss}$	—	136	—	pF	
Reverse Transfer Capacitance	$C_{riss}$	—	108	—	pF	

- Notes:
- Device mounted on 1"x1", FR-4 PC board with 2 oz. Copper and test pulse width  $t \leq 10\text{s}$ .
  - Repetitive Rating, pulse width limited by junction temperature.
  - Test pulse width  $t = 300\text{ms}$ .
  - Guaranteed by design. Not subject to production testing.

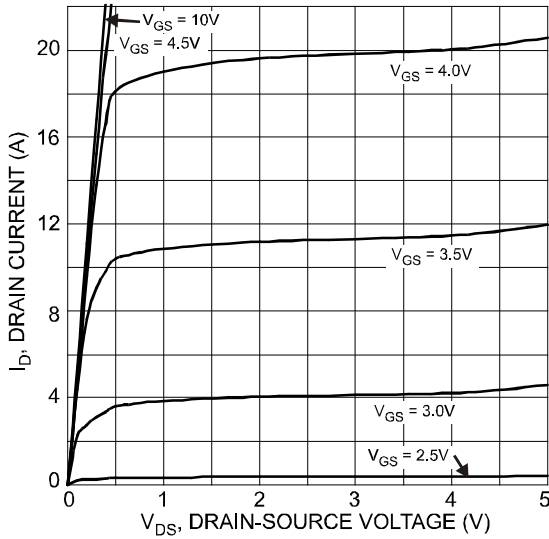


Fig. 1 Typical Output Characteristics

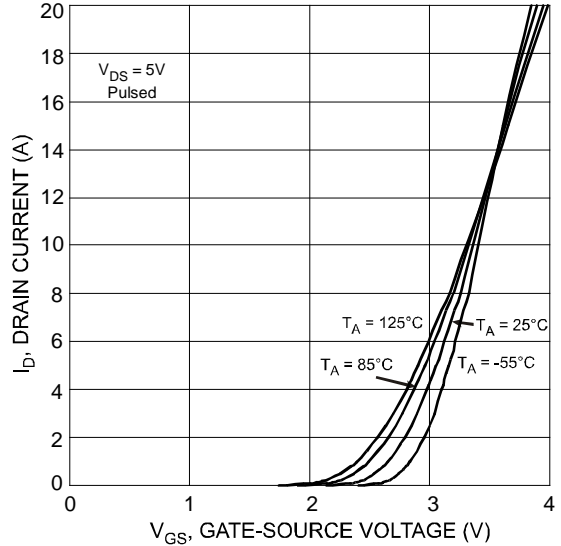


Fig. 2 Typical Transfer Characteristics

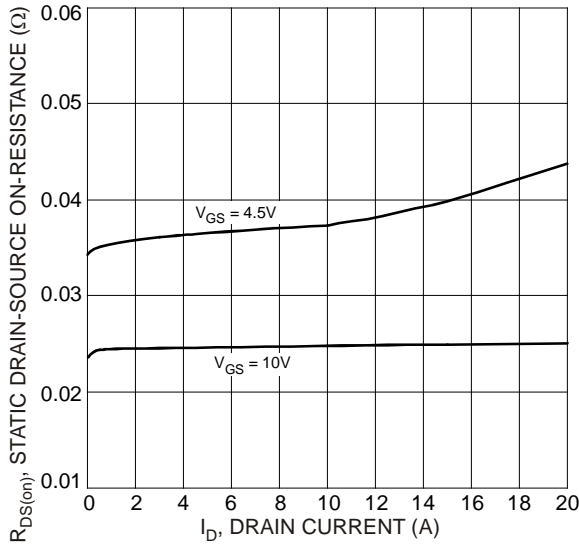


Fig. 3 On-Resistance vs. Drain Current and Gate Voltage

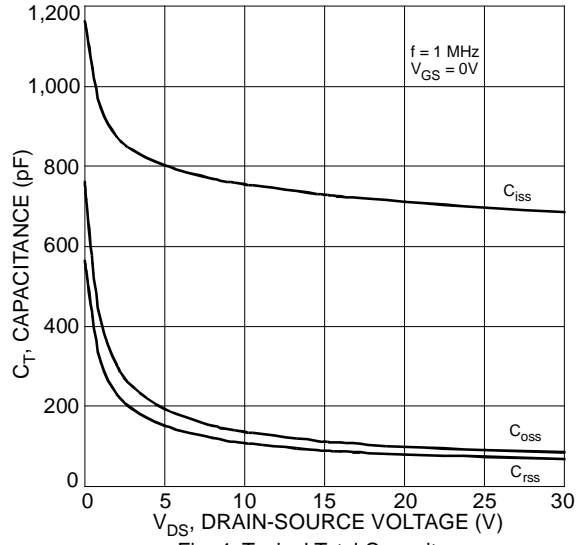


Fig. 4 Typical Total Capacitance

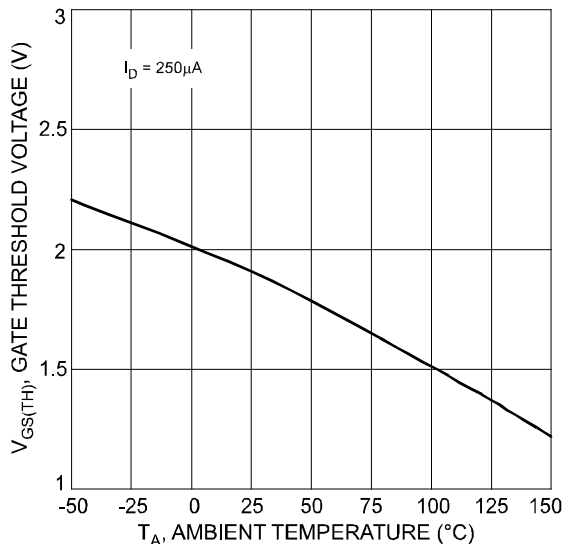


Fig. 5 Gate Threshold Voltage vs. Ambient Temperature

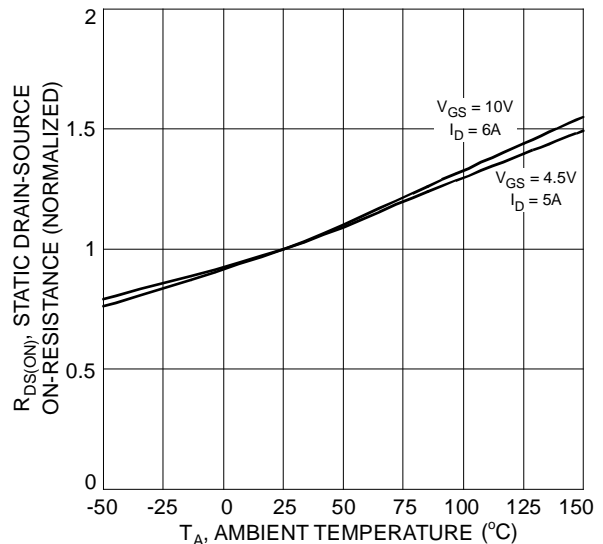


Fig. 6 Normalized Static Drain-Source On-Resistance vs. Ambient Temperature

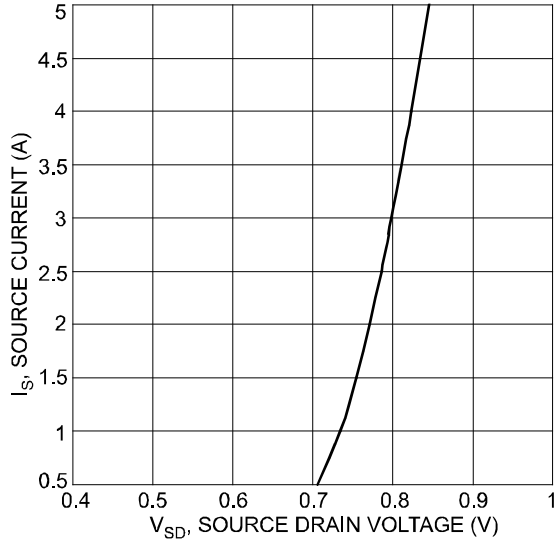
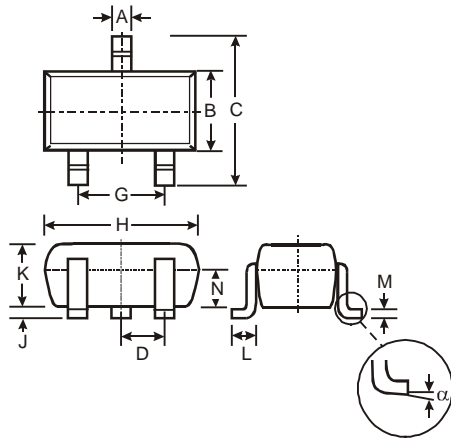


Fig. 7 Reverse Drain Current vs. Source-Drain Voltage

### Package Outline Dimensions

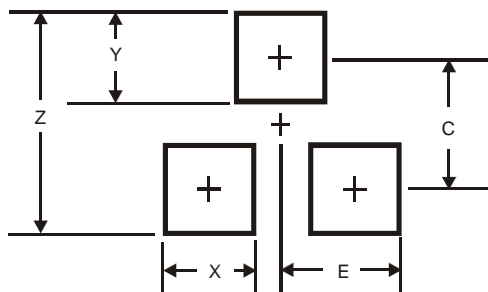
Please see <http://www.diodes.com/package-outlines.html> for the latest version.



SC59			
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
G	-	-	1.90
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
N	0.70	0.80	0.75
α	0°	8°	-
All Dimensions in mm			

### Suggested Pad Layout

Please see <http://www.diodes.com/package-outlines.html> for the latest version.



Dimensions	Value (in mm)
Z	3.4
X	0.8
Y	1.0
C	2.4
E	1.35

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