

## Features

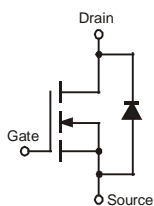
- Low Gate Charge
- Low  $R_{DS(ON)}$ :
  - $30m\Omega$  @  $V_{GS} = 10V$
  - $40m\Omega$  @  $V_{GS} = 4.5V$
- Low Input/Output Leakage
- **Totally Lead-Free & Fully RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**
- **Qualified to AEC-Q101 Standards for High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

## Mechanical Data

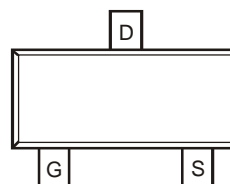
- Case: SC59
- Case Material - Molded Plastic, "Green" Molding Compound. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Finish – Matte Tin Annealed over Copper Leadframe. Solderable per MIL-STD-202, Method 208 **(e3)**
- Terminal Connections: See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



Top View



Equivalent Circuit



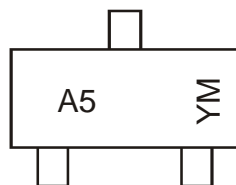
Pin Configuration

## 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<sub>A</sub> = +25°C, unless otherwise specified.)

Characteristic	Symbol	Value	Unit
Drain-Source Voltage	V <sub>DSS</sub>	30	V
Gate-Source Voltage	V <sub>GSS</sub>	±20	V
Continuous Drain Current (Note 5)	I <sub>D</sub>	T <sub>A</sub> = +25°C	6
		T <sub>A</sub> = +70°C	5
Pulsed Drain Current (Note 6)	I <sub>DM</sub>	24	A
Body-Diode Continuous Current (Note 5)	I <sub>S</sub>	2.25	A

**Thermal Characteristics** (@T<sub>A</sub> = +25°C, unless otherwise specified.)

Characteristic	Symbol	Value	Unit
Total Power Dissipation (Note 5)	P <sub>D</sub>	1.4	W
Thermal Resistance, Junction to Ambient (Note 5) t ≤ 10s	R <sub>θJA</sub>	90	°C/W
Operating and Storage Temperature Range	T <sub>J</sub> , T <sub>STG</sub>	-55 to +150	°C

**Electrical Characteristics** (@T<sub>A</sub> = +25°C, unless otherwise specified.)

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
<b>STATIC PARAMETERS</b>						
Drain-Source Breakdown Voltage	BV <sub>DSS</sub>	30	—	—	V	I <sub>D</sub> = 250μA, V <sub>GS</sub> = 0V
Zero Gate Voltage Drain Current	I <sub>DSS</sub>	—	—	1	μA	V <sub>DS</sub> = 30V, V <sub>GS</sub> = 0V
				5		
Gate-Body Leakage Current	I <sub>GSS</sub>	—	—	±100	nA	V <sub>DS</sub> = 0V, V <sub>GS</sub> = ±20V
Gate Threshold Voltage	V <sub>GS(TH)</sub>	1.0	—	2.1	V	V <sub>DS</sub> = V <sub>GS</sub> , I <sub>D</sub> = 250μA
Static Drain-Source On-Resistance (Note 7)	R <sub>DS(ON)</sub>	—	25	30	mΩ	V <sub>GS</sub> = 10V, I <sub>D</sub> = 6A V <sub>GS</sub> = 4.5V, I <sub>D</sub> = 5A
			36	40		
Forward Transconductance (Note 7)	g <sub>FS</sub>	—	5	—	S	V <sub>DS</sub> = 10V, I <sub>D</sub> = 8A
Diode Forward Voltage (Note 7)	V <sub>SD</sub>	—	0.7	1.1	V	I <sub>S</sub> = 2.25A, V <sub>GS</sub> = 0V
<b>DYNAMIC PARAMETERS (Note 8)</b>						
Total Gate Charge	Q <sub>g</sub>	—	10.5	—	nC	V <sub>GS</sub> = 5V, V <sub>DS</sub> = 15V, I <sub>D</sub> = 6A
Gate-Source Charge	Q <sub>gs</sub>	—	3.8	—	nC	V <sub>GS</sub> = 10V, V <sub>DS</sub> = 15V, I <sub>D</sub> = 6A
Gate-Drain Charge	Q <sub>gd</sub>	—	2.9	—	nC	V <sub>GS</sub> = 10V, V <sub>DS</sub> = 15V, I <sub>D</sub> = 6A
Turn-On Delay Time	t <sub>D(ON)</sub>	—	11	—	ns	V <sub>DD</sub> = 15V, V <sub>GS</sub> = 10V, R <sub>D</sub> = 1.8Ω, R <sub>G</sub> = 6Ω
Turn-On Rise Time	t <sub>R</sub>	—	7	—	ns	
Turn-Off Delay Time	t <sub>D(OFF)</sub>	—	63	—	ns	
Turn-Off Fall Time	t <sub>F</sub>	—	30	—	ns	
Input Capacitance	C <sub>iss</sub>	—	755	—	pF	V <sub>DS</sub> = 10V, V <sub>GS</sub> = 0V f = 1.0MHz
Output Capacitance	C <sub>oss</sub>	—	136	—	pF	
Reverse Transfer Capacitance	C <sub>rss</sub>	—	108	—	pF	

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

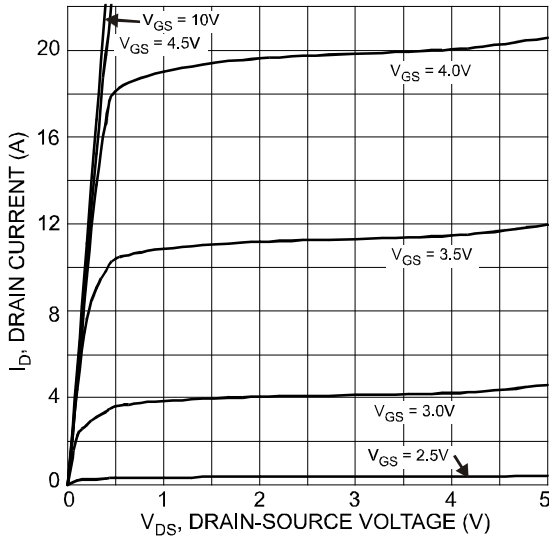


Fig. 1 Typical Output Characteristics

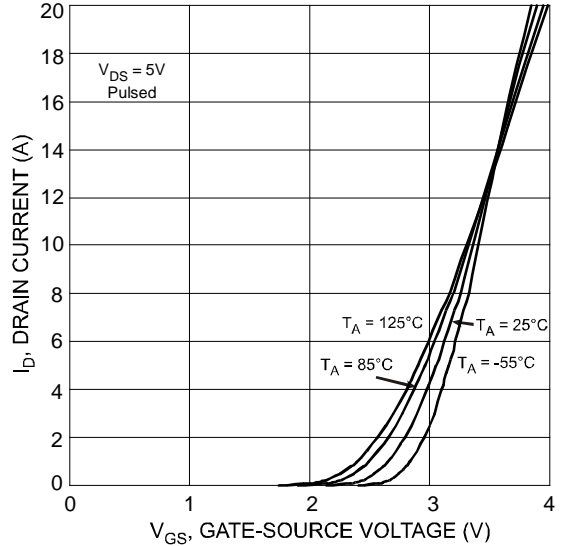


Fig. 2 Typical Transfer Characteristics

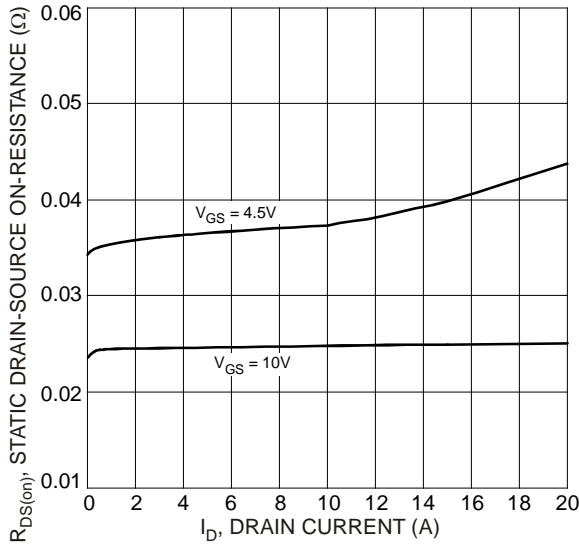


Fig. 3 On-Resistance vs. Drain Current and Gate Voltage

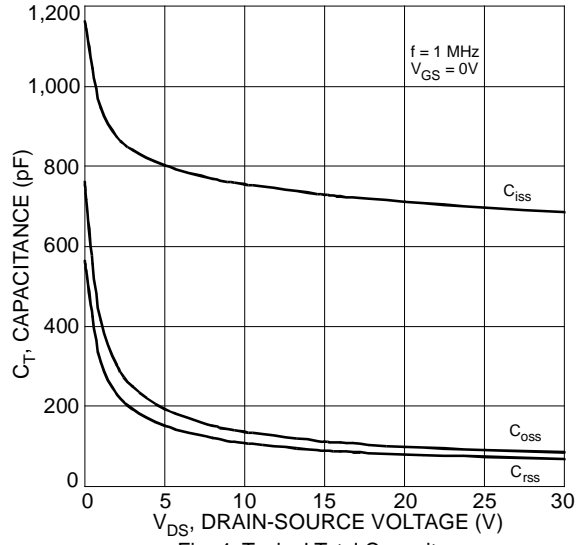


Fig. 4 Typical Total Capacitance

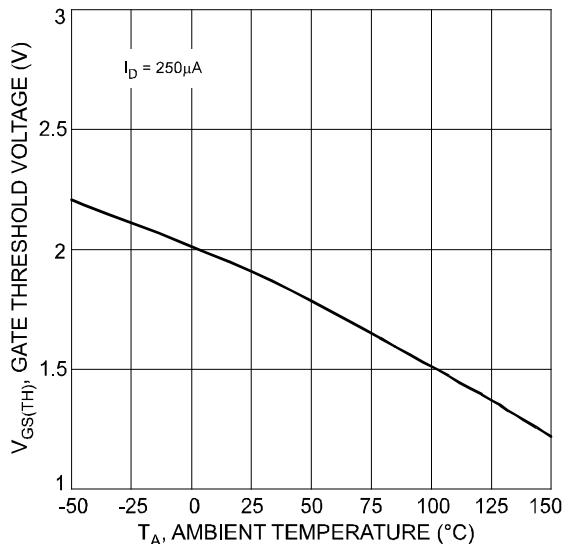


Fig. 5 Gate Threshold Voltage vs. Ambient Temperature

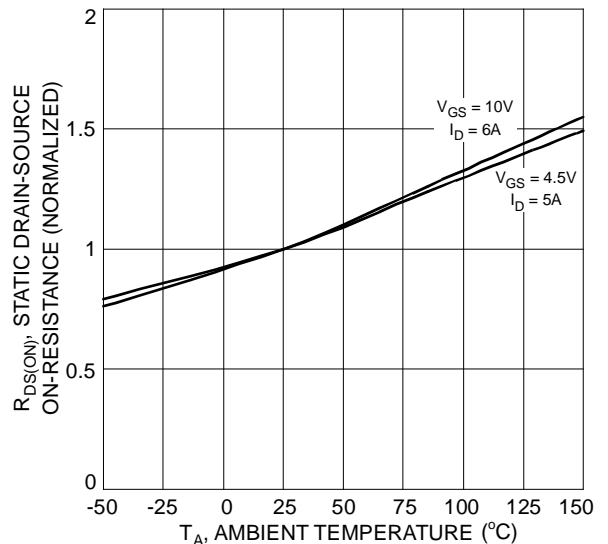


Fig. 6 Normalized Static Drain-Source On-Resistance vs. Ambient Temperature

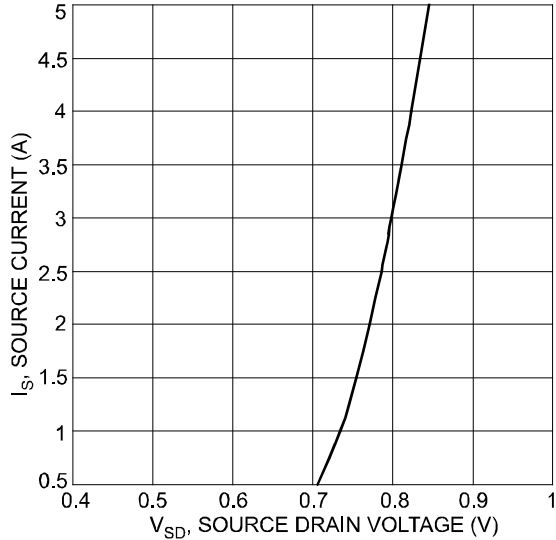
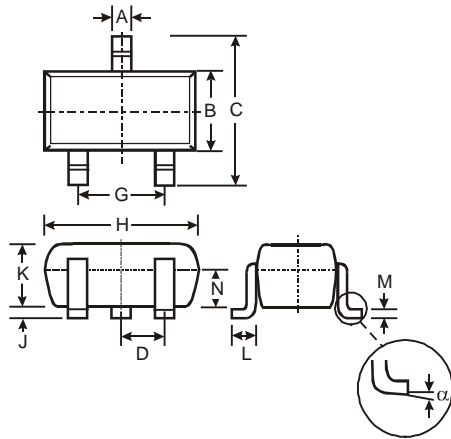


Fig. 7 Reverse Drain Current vs. Source-Drain Voltage

### Package Outline Dimensions

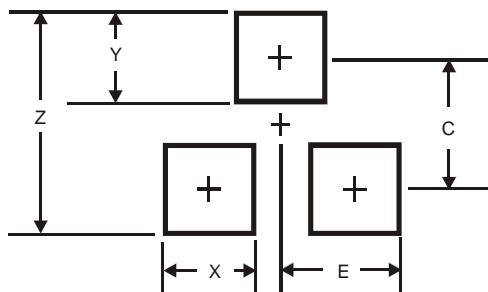
Please see <http://www.diodes.com/package-outlines.html> for the latest version.



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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