

Features

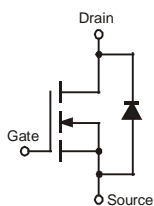
- Low Gate Charge
- Low $R_{DS(ON)}$:
 - $30m\Omega$ @ $V_{GS} = 10V$
 - $40m\Omega$ @ $V_{GS} = 4.5V$
- Low Input/Output Leakage
- **Totally Lead-Free & Fully RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**
- **Qualified to AEC-Q101 Standards for High Reliability**

Mechanical Data

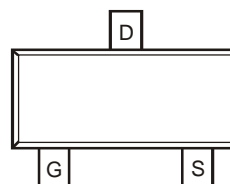
- Case: SC59
- Case Material - Molded Plastic, "Green" Molding Compound. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Finish – Matte Tin Annealed over Copper Leadframe. Solderable per MIL-STD-202, Method 208 **(e3)**
- Terminal Connections: See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



Top View



Equivalent Circuit



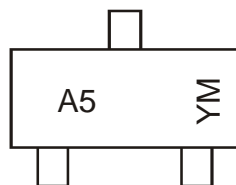
Pin Configuration

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 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}	± 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
STATIC PARAMETERS						
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	μA	$V_{DS} = 30\text{V}, V_{GS} = 0\text{V}$
				5		
Gate-Body Leakage Current	I_{GSS}	—	—	± 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	30	m Ω	$V_{GS} = 10\text{V}, I_D = 6\text{A}$ $V_{GS} = 4.5\text{V}, I_D = 5\text{A}$
			36	40		
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	$I_S = 2.25\text{A}, V_{GS} = 0\text{V}$
DYNAMIC PARAMETERS (Note 8)						
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.

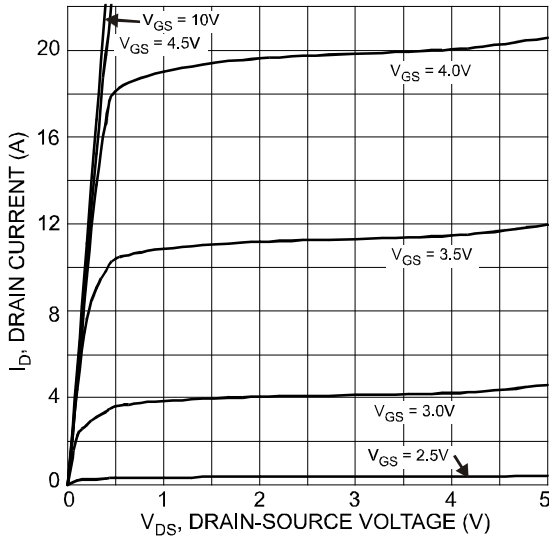


Fig. 1 Typical Output Characteristics

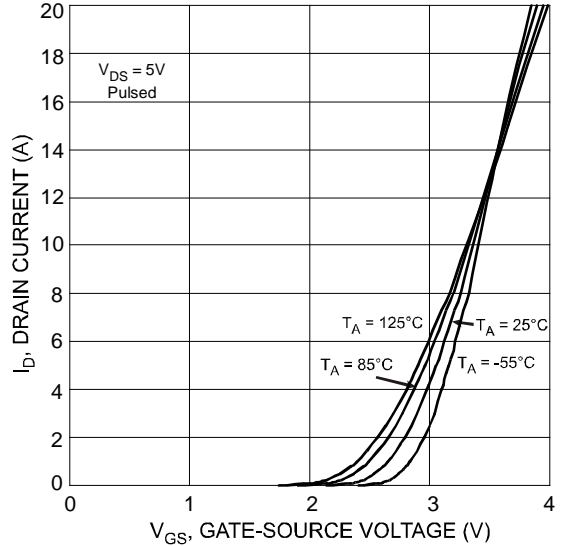


Fig. 2 Typical Transfer Characteristics

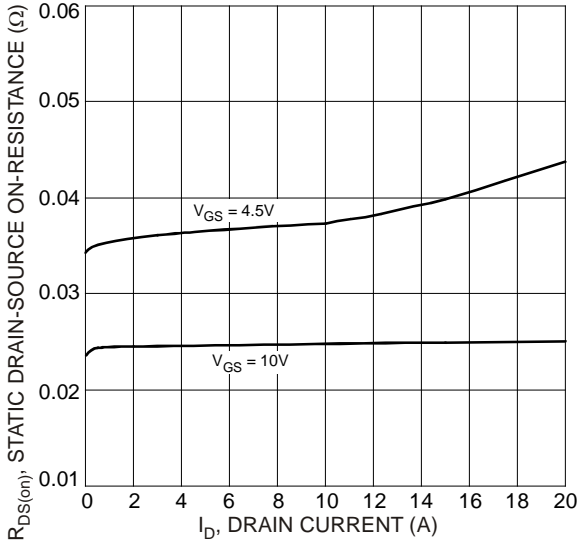


Fig. 3 On-Resistance vs. Drain Current and Gate Voltage

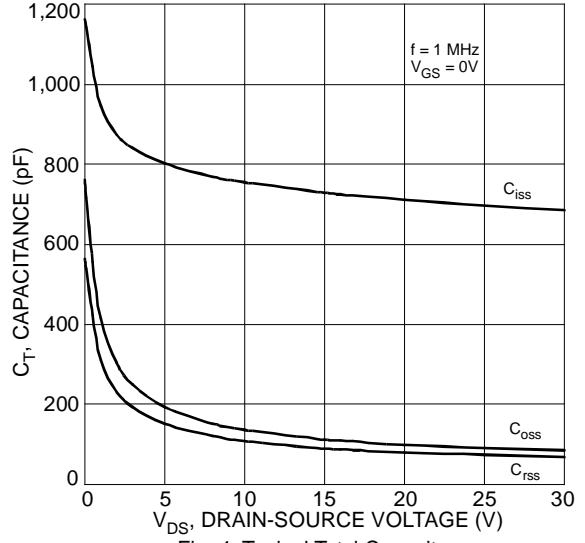


Fig. 4 Typical Total Capacitance

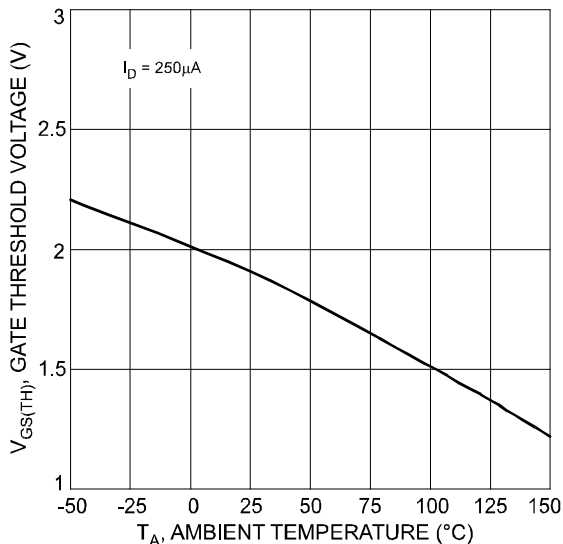


Fig. 5 Gate Threshold Voltage vs. Ambient Temperature

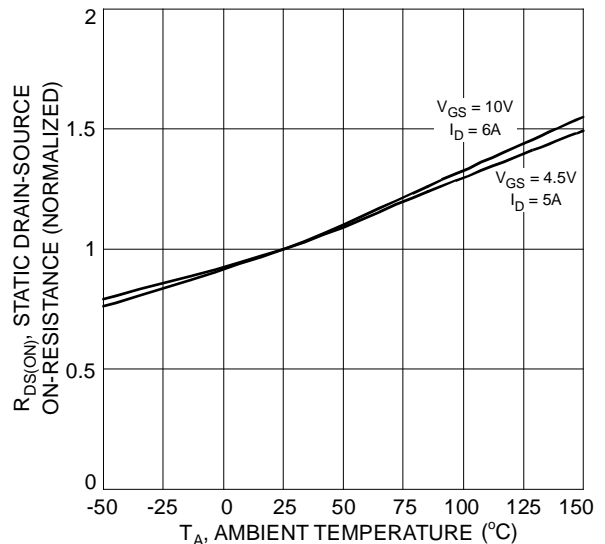


Fig. 6 Normalized Static Drain-Source On-Resistance vs. Ambient Temperature

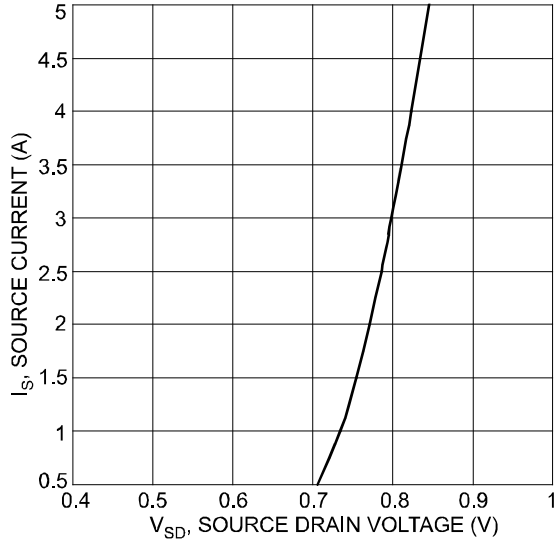
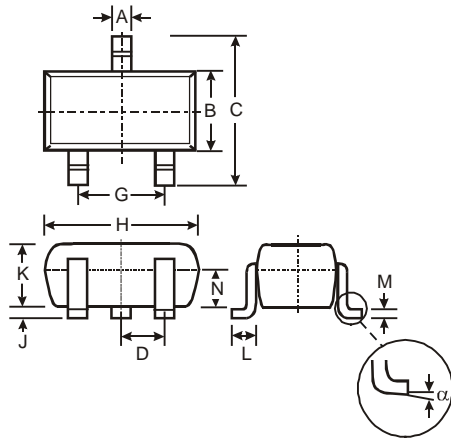


Fig. 7 Reverse Drain Current vs. Source-Drain Voltage

Package Outline Dimensions

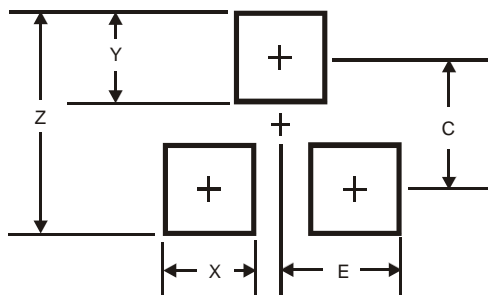
Please see <http://www.diodes.com/package-outlines.html> for the latest version.



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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