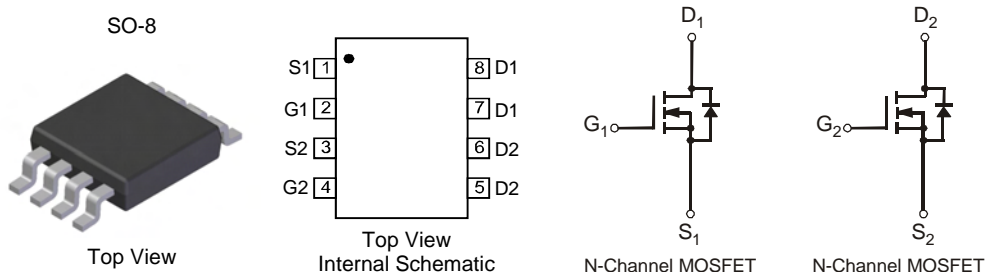


### Features

- Dual N-Channel MOSFET
- Low On-Resistance
  - 20mΩ @ V<sub>GS</sub> = 10V
  - 27mΩ @ V<sub>GS</sub> = 4.5V
- Low Gate Threshold Voltage
- Low Input Capacitance
- Fast Switching Speed
- Low Input/Output Leakage
- **Lead Free By Design/RoHS Compliant (Note 1)**
- **"Green" Device (Note 2)**
- **Qualified to AEC-Q101 Standards for High Reliability**

### Mechanical Data

- Case: SO-8
- Case Material: Molded Plastic, "Green" Molding Compound. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals Connections: See Diagram
- Terminals: Finish - Matte Tin annealed over Copper lead frame. Solderable per MIL-STD-202, Method 208
- Weight: 0.072grams (approximate)

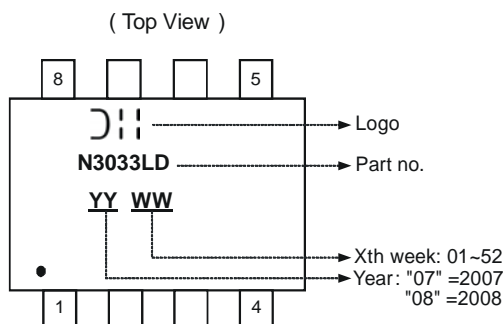


### Ordering Information (Note 3)

Part Number	Case	Packaging
DMN3033LSD-13	SO-8	2500/Tape & Reel

- Notes:
1. No purposefully added lead.
  2. Diodes Inc.'s "Green" policy can be found on our website at <http://www.diodes.com>.
  3. For packaging details, go to our website at <http://www.diodes.com>.

### Marking Information



**Maximum Ratings** @T<sub>A</sub> = 25°C unless otherwise specified

Characteristic			Symbol	Value	Units
Drain-Source Voltage			V <sub>DSS</sub>	30	V
Gate-Source Voltage			V <sub>GSS</sub>	±20	V
Drain Current (Note 4)	Steady State	T <sub>A</sub> = 25°C	I <sub>D</sub>	6.9	A
		T <sub>A</sub> = 70°C		5.8	
Pulsed Drain Current (Note 5)			I <sub>DM</sub>	30	A

**Thermal Characteristics**

Characteristic	Symbol	Value	Unit
Total Power Dissipation (Note 4)	P <sub>D</sub>	2	W
Thermal Resistance, Junction to Ambient	R <sub>θJA</sub>	62.5	°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>OFF CHARACTERISTICS (Note 6)</b>						
Drain-Source Breakdown Voltage	BV <sub>DSS</sub>	30	—	—	V	V <sub>GS</sub> = 0V, I <sub>D</sub> = 250μA
Zero Gate Voltage Drain Current	I <sub>DSS</sub>	—	—	100	nA	V <sub>DS</sub> = 30V, V <sub>GS</sub> = 0V
Gate-Source Leakage	I <sub>GSS</sub>	—	—	±100	nA	V <sub>GS</sub> = ±20V, V <sub>DS</sub> = 0V
		—	—	1	μA	V <sub>GS</sub> = ±25V, V <sub>DS</sub> = 0V
<b>ON CHARACTERISTICS (Note 6)</b>						
Gate Threshold Voltage	V <sub>GS(th)</sub>	1	—	2.1	V	V <sub>DS</sub> = V <sub>GS</sub> , I <sub>D</sub> = 250μA
Static Drain-Source On-Resistance	R <sub>DS(on)</sub>	—	13	20	mΩ	V <sub>GS</sub> = 10V, I <sub>D</sub> = 6.9A
		—	22	27		V <sub>GS</sub> = 4.5V, I <sub>D</sub> = 5.0A
Forward Transconductance	g <sub>fs</sub>	—	7	—	S	V <sub>DS</sub> = 5V, I <sub>D</sub> = 6.9A
Diode Forward Voltage (Note 6)	V <sub>SD</sub>	0.5	—	1.2	V	V <sub>GS</sub> = 0V, I <sub>S</sub> = 1A
<b>DYNAMIC CHARACTERISTICS</b>						
Input Capacitance	C <sub>iss</sub>	—	725	—	pF	V <sub>DS</sub> = 15V, V <sub>GS</sub> = 0V f = 1.0MHz
Output Capacitance	C <sub>oss</sub>	—	114	—	pF	
Reverse Transfer Capacitance	C <sub>rss</sub>	—	92	—	pF	
Gate Resistance	R <sub>G</sub>	—	0.89	—	Ω	V <sub>GS</sub> = 0V, V <sub>DS</sub> = 0V, f = 1.0MHz
<b>SWITCHING CHARACTERISTICS</b>						
Total Gate Charge	Q <sub>g</sub>	—	6.4	—	nC	V <sub>GS</sub> = 4.5V, V <sub>DS</sub> = 15V, I <sub>D</sub> = 5A
		—	13.0	—		V <sub>GS</sub> = 10V, V <sub>DS</sub> = 15V, I <sub>D</sub> = 6.9A
Gate-Source Charge	Q <sub>gs</sub>	—	1.9	—	nC	V <sub>GS</sub> = 4.5V, V <sub>DS</sub> = 15V, I <sub>D</sub> = 6.9A
Gate-Drain Charge	Q <sub>gd</sub>	—	3.2	—	nC	V <sub>GS</sub> = 4.5V, V <sub>DS</sub> = 15V, I <sub>D</sub> = 6.9A
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	

- Notes:
- Device mounted on 2 oz. Copper pads on FR-4 PCB with R<sub>θJA</sub> = 62.5°C/W
  - Pulse width ≤ 10μs, Duty Cycle ≤ 1%.
  - Short duration pulse test used to minimize self-heating effect.

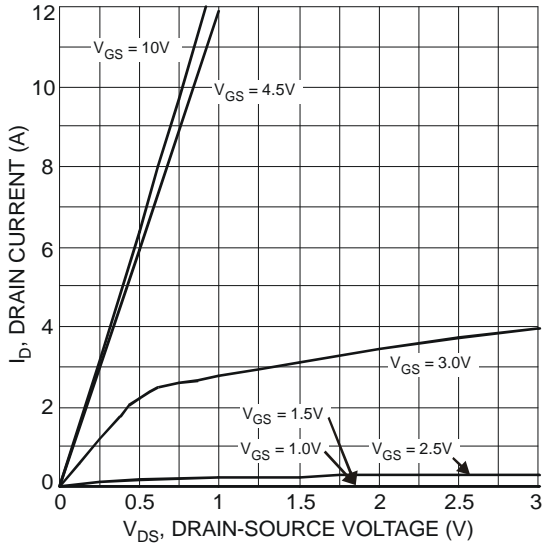


Fig. 1 Typical Output Characteristics

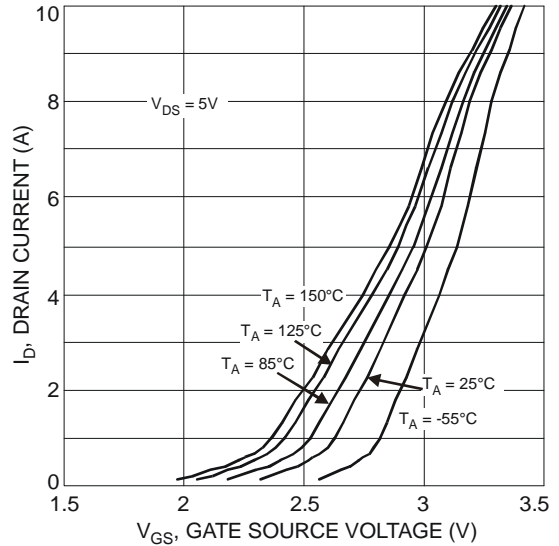


Fig. 2 Typical Transfer Characteristics

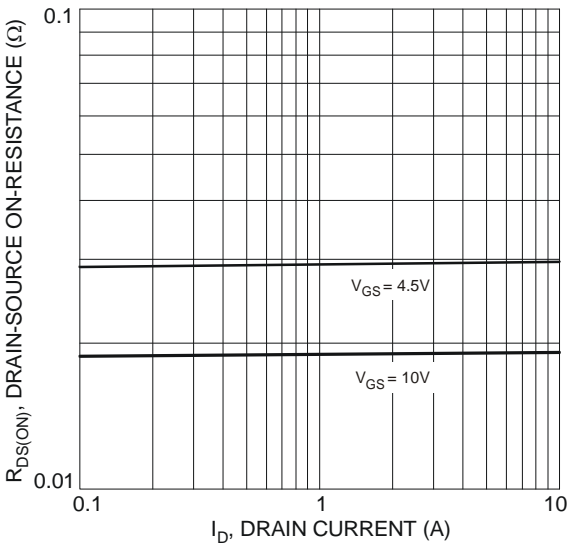


Fig. 3 Typical On-Resistance vs. Drain Current and Gate Voltage

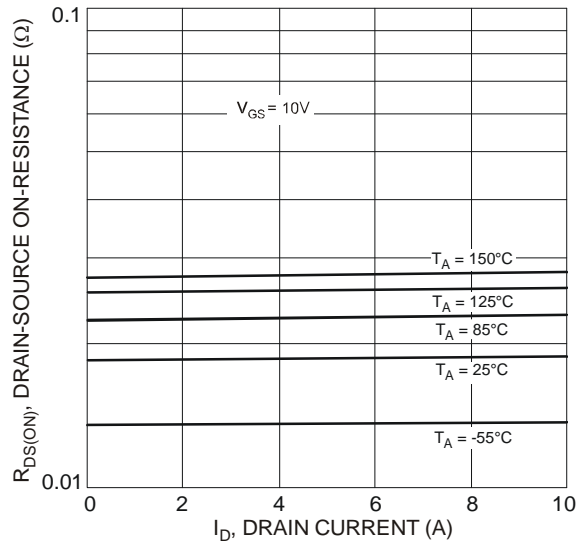


Fig. 4 Typical Drain-Source On-Resistance vs. Drain Current and Temperature

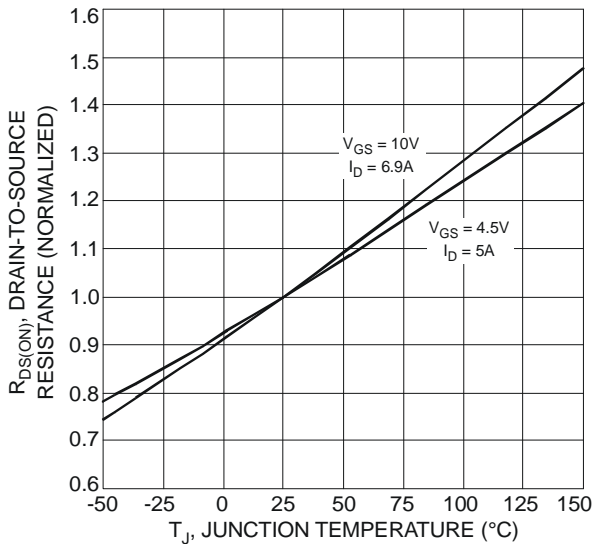


Fig. 5 On-Resistance Variation with Temperature

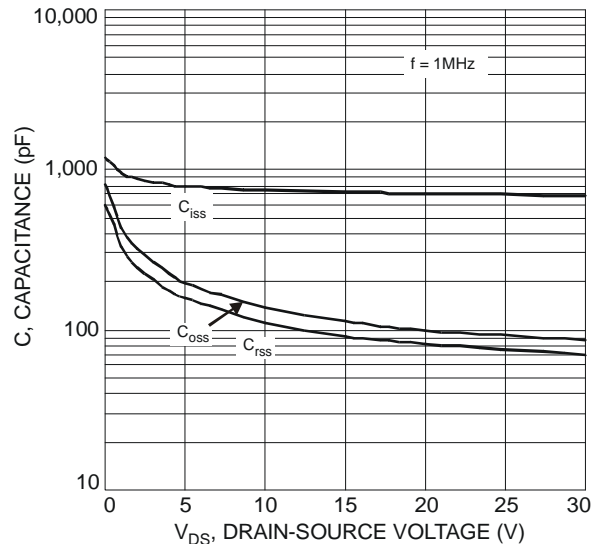


Fig. 6 Typical Capacitance

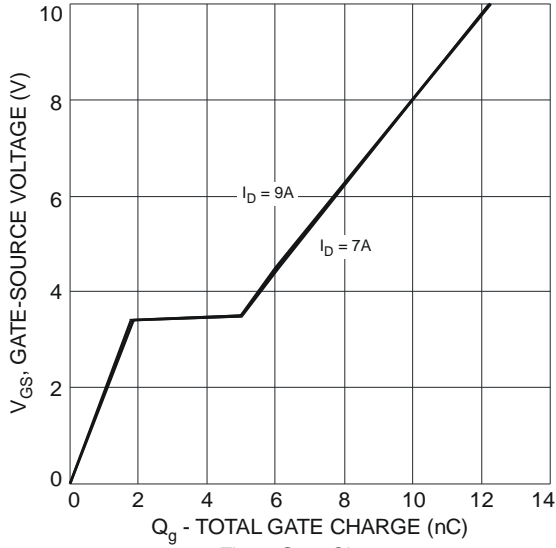


Fig. 7 Gate Charge

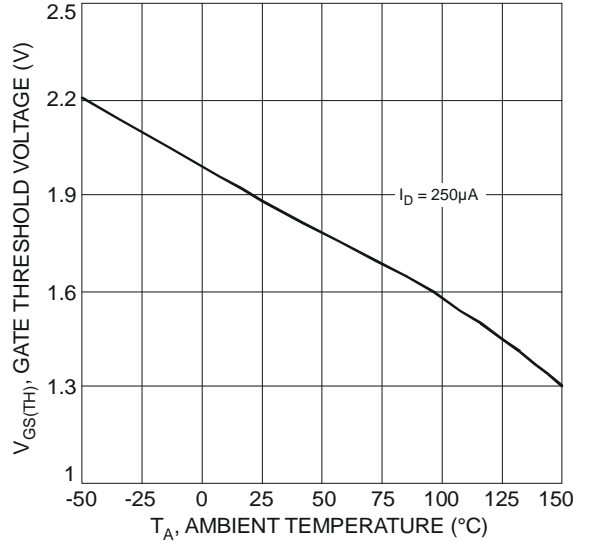


Fig. 8 Gate Threshold Variation vs. Ambient Temperature

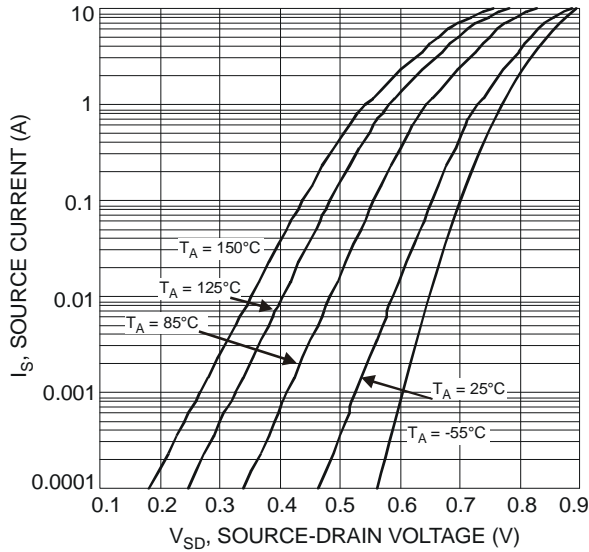


Fig. 9 Diode Forward Voltage vs. Current

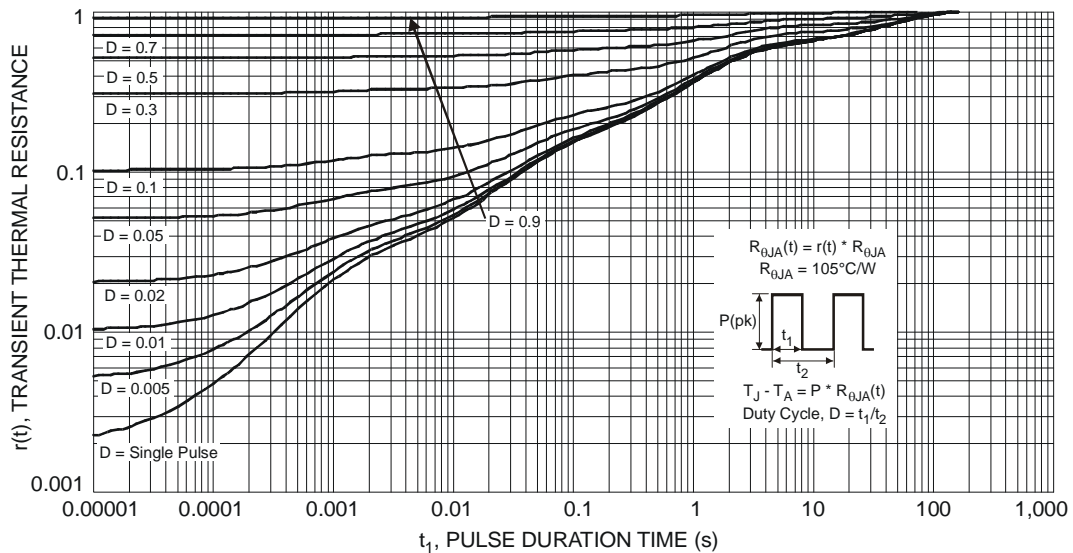
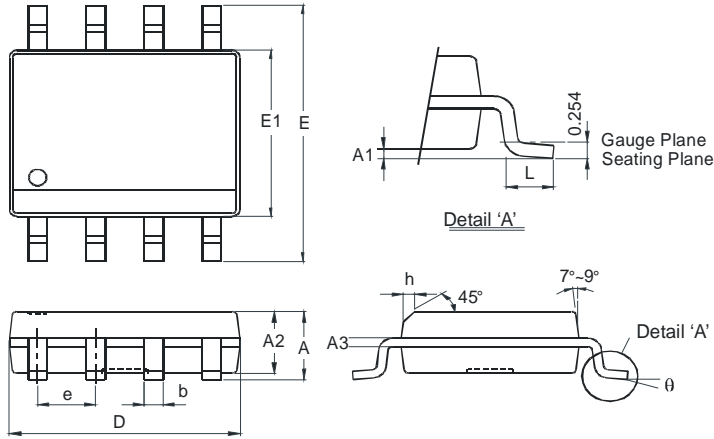


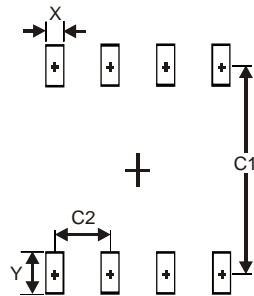
Fig. 10 Transient Thermal Response

**Package Outline Dimensions**



SO-8		
Dim	Min	Max
<b>A</b>	-	1.75
<b>A1</b>	0.10	0.20
<b>A2</b>	1.30	1.50
<b>A3</b>	0.15	0.25
<b>b</b>	0.3	0.5
<b>D</b>	4.85	4.95
<b>E</b>	5.90	6.10
<b>E1</b>	3.85	3.95
<b>e</b>	1.27 Typ	
<b>h</b>	-	0.35
<b>L</b>	0.62	0.82
<b>θ</b>	0°	8°
All Dimensions in mm		

**Suggested Pad Layout**



Dimensions	Value (in mm)
<b>X</b>	0.60
<b>Y</b>	1.55
<b>C1</b>	5.4
<b>C2</b>	1.27

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