



Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of “Quality Parts,Customers Priority,Honest Operation,and Considerate Service”,our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!



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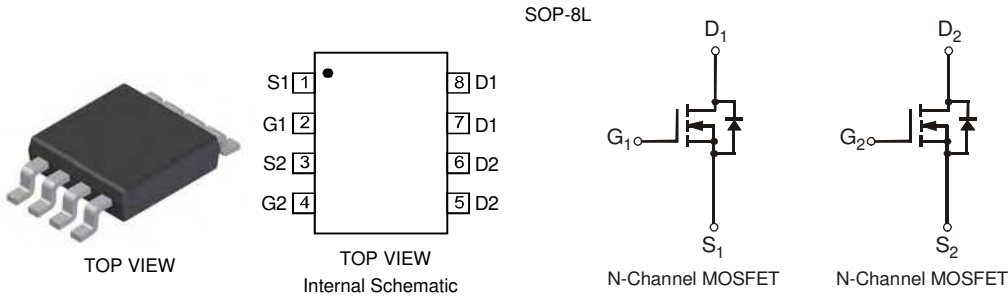


Features

- Dual N-Channel MOSFET
- Low On-Resistance
 - 26mΩ @ V_{GS} = 4.5V
 - 36mΩ @ V_{GS} = 2.5V
- Low Gate Threshold Voltage
- Low Input Capacitance
- Fast Switching Speed
- Low Input/Output Leakage
- **Lead Free By Design/RoHS Compliant (Note 2)**
- **"Green" Device (Note 4)**
- **Qualified to AEC-Q 101 Standards for High Reliability**

Mechanical Data

- Case: SOP-8L
- Case Material: Molded Plastic, "Green" Molding Compound. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020D
- Terminals Connections: See Diagram
- Terminals: Finish - Matte Tin annealed over Copper lead frame. Solderable per MIL-STD-202, Method 208
- Marking Information: See Page 4
- Ordering Information: See Page 4
- Weight: 0.072 grams (approximate)



Maximum Ratings @T_A = 25°C unless otherwise specified

Characteristic	Symbol	Value	Units
Drain-Source Voltage	V _{DSS}	20	V
Gate-Source Voltage	V _{GSS}	±12	V
Drain Current (Note 1)	I _D	T _A = 25°C	7.0
		T _A = 70°C	5.6
Pulsed Drain Current (Note 3)	I _{DM}	30	A

Thermal Characteristics

Characteristic	Symbol	Value	Unit
Total Power Dissipation (Note 1)	P _D	2	W
Thermal Resistance, Junction to Ambient	R _{θJA}	62.5	°C/W
Operating and Storage Temperature Range	T _J , T _{STG}	-55 to +150	°C

Electrical Characteristics @T_A = 25°C unless otherwise specified

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
OFF CHARACTERISTICS (Note 5)						
Drain-Source Breakdown Voltage	BV _{DSS}	20	—	—	V	V _{GS} = 0V, I _D = 250μA
Zero Gate Voltage Drain Current	I _{DSS}	—	—	1	μA	V _{DS} = 20V, V _{GS} = 0V
Gate-Source Leakage	I _{GSS}	—	—	±100	nA	V _{GS} = ±12V, V _{DS} = 0V
ON CHARACTERISTICS (Note 5)						
Gate Threshold Voltage	V _{GS(th)}	0.6	—	1.2	V	V _{DS} = V _{GS} , I _D = 250μA
Static Drain-Source On-Resistance	R _{DS(ON)}	—	19	26	mΩ	V _{GS} = 4.5V, I _D = 6.0A
		—	26	36		V _{GS} = 2.5V, I _D = 5.2A
Forward Transfer Admittance	g _{fs}	—	12	—	ms	V _{DS} = 10V, I _D = 6.0A
Diode Forward Voltage (Note 5)	V _{SD}	0.5	—	1.2	V	V _{GS} = 0V, I _S = 1.7A
DYNAMIC CHARACTERISTICS						
Input Capacitance	C _{iss}	—	562	—	pF	V _{DS} = 10V, V _{GS} = 0V f = 1.0MHz
Output Capacitance	C _{oss}	—	75	—	pF	
Reverse Transfer Capacitance	C _{rss}	—	65	—	pF	

- Notes:
1. Device mounted on 2 oz. Copper pads on FR-4 PCB.
 2. No purposefully added lead.
 3. Pulse width ≤10μs, Duty Cycle ≤1%.
 4. Diodes Inc.'s "Green" policy can be found on our website at http://www.diodes.com/products/lead_free/index.php.
 5. Short duration pulse test used to minimize self-heating effect.

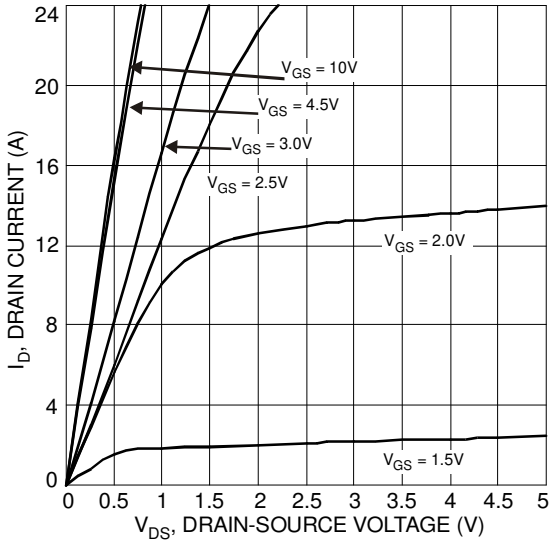


Fig. 1 Typical Output Characteristics

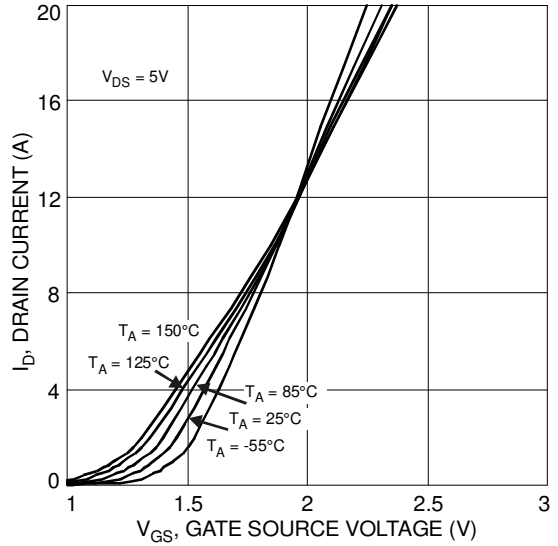


Fig. 2 Typical Transfer Characteristics

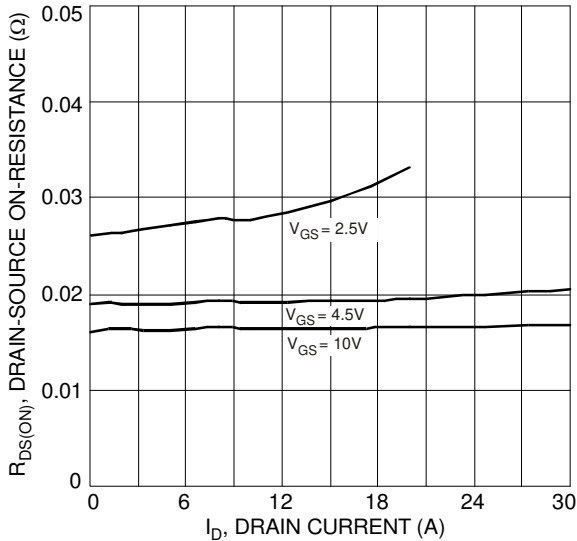


Fig. 3 Typical On-Resistance vs. Drain Current and Gate Voltage

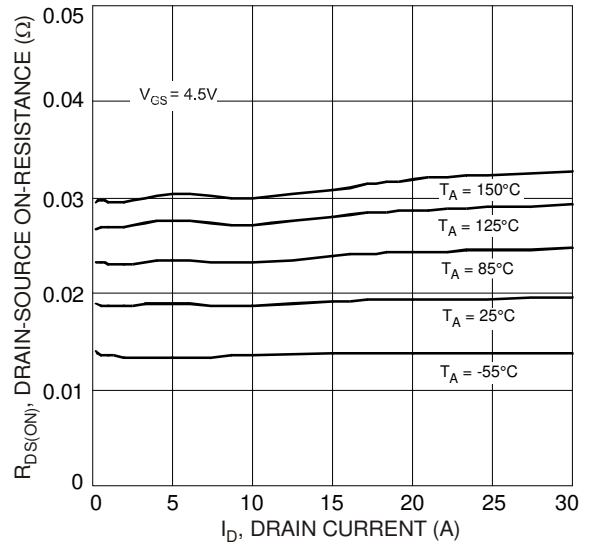


Fig. 4 Typical Drain-Source On-Resistance vs. Drain Current and Temperature

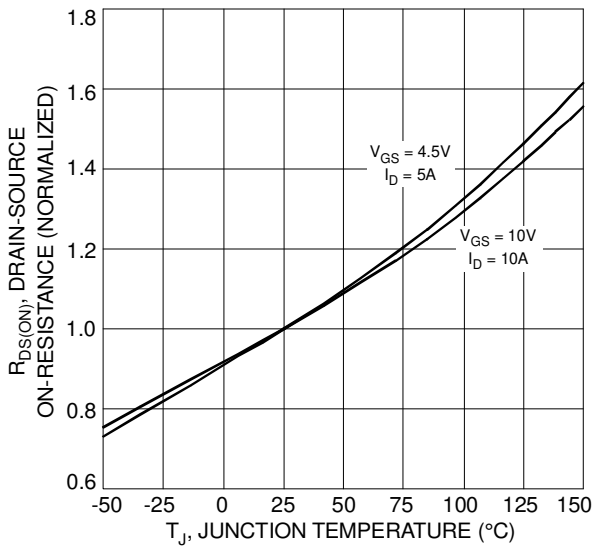


Fig. 5 On-Resistance Variation with Temperature

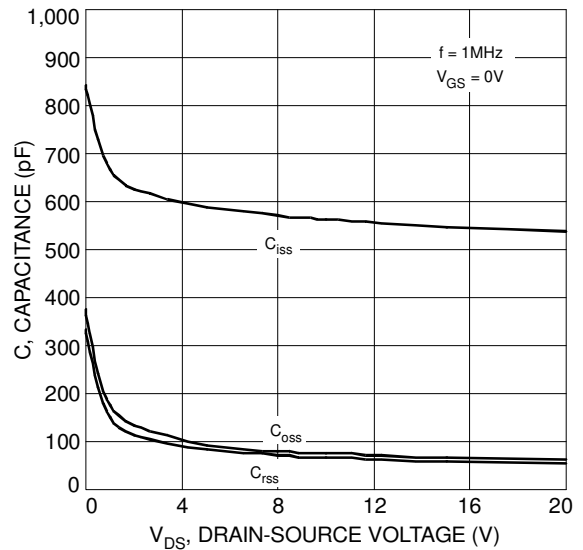


Fig. 6 Typical Capacitance

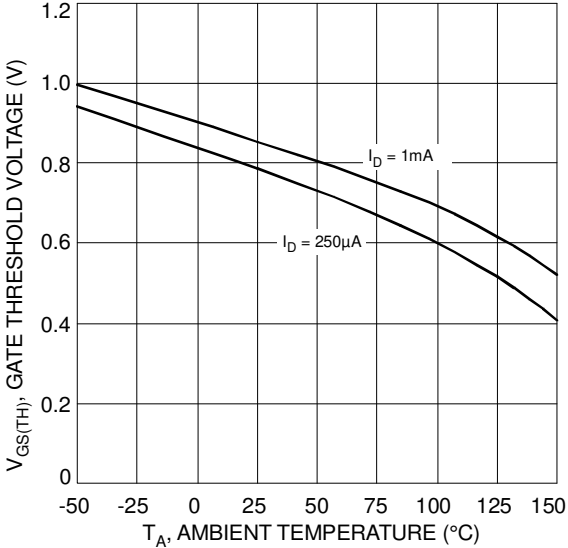


Fig. 7 Gate Threshold Variation vs. Ambient Temperature

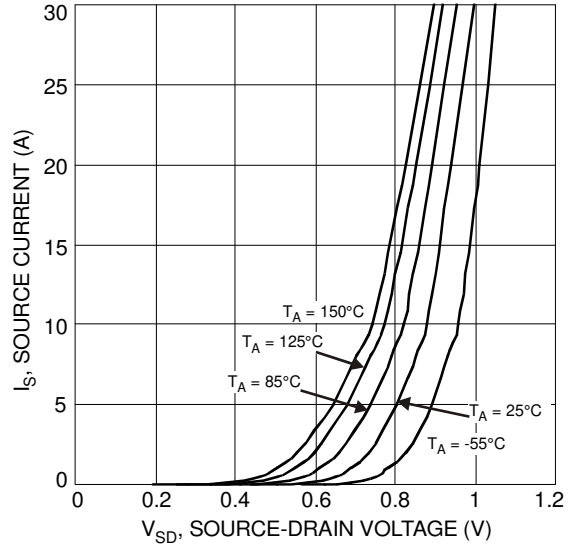


Fig. 8 Diode Forward Voltage vs. Current

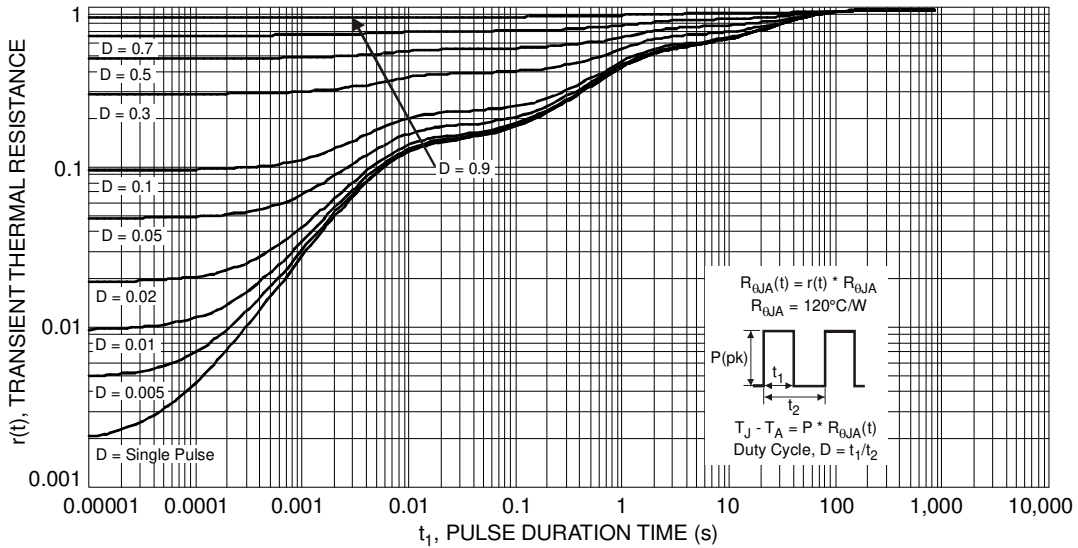


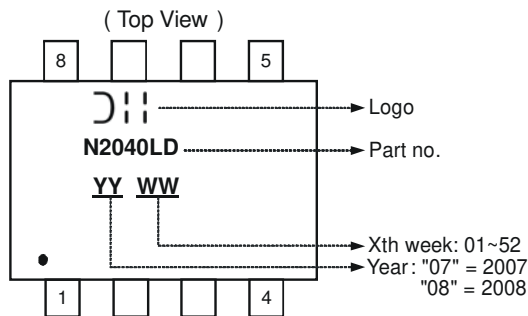
Fig. 9 Transient Thermal Response

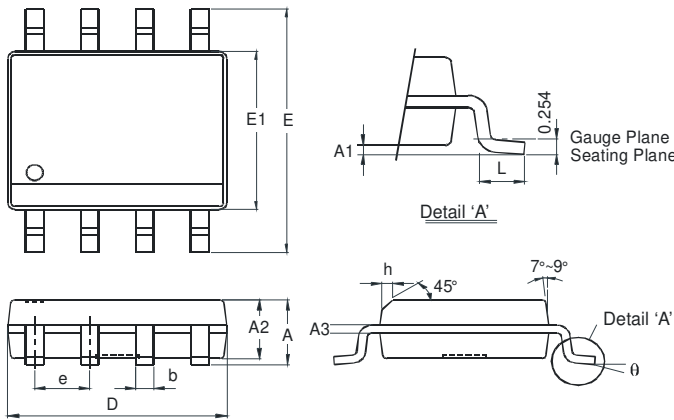
Ordering Information (Note 6)

Part Number	Case	Packaging
DMN2040LSD-13	SOP-8L	2500/Tape & Reel

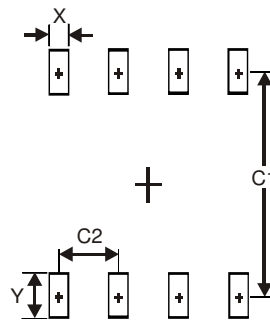
Notes: 6. For packaging details, go to our website at <http://www.diodes.com/datasheets/ap02007.pdf>.

Marking Information



Package Outline Dimensions


SOP-8L		
Dim	Min	Max
A	-	1.75
A1	0.08	0.25
A2	1.40	1.50
A3	0.20	Typ
b	0.3	0.5
D	4.85	4.95
E	5.90	6.10
E1	3.80	3.90
e	1.27	Typ
h	-	0.35
L	0.60	0.80
θ	0°	8°
All Dimensions in mm		

Suggested Pad Layout


Dimensions	Value (in mm)
X	0.60
Y	1.55
C1	5.4
C2	1.27

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