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.

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DUAL N-CHANNEL ENHANCEMENT MODE MOSFET

NEW PRODUCT

Product Summary

$V_{(BR)DSS}$	$R_{DS(ON)}$ max	I_D max T_A = +25°C
20V	28mΩ @ V_{GS} = 4.5V	7.63A
	41mΩ @ V_{GS} = 2.5V	4.35A

Description

This MOSFET has been designed to minimize the on-state resistance ($R_{DS(on)}$) and yet maintain superior switching performance, making it ideal for high efficiency power management applications.

Applications

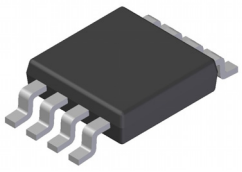
- Power Management Functions
- DC-DC Converters

Features

- Low On-Resistance
- Low Gate Threshold Voltage
- Low Input Capacitance
- Fast Switching Speed
- 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**

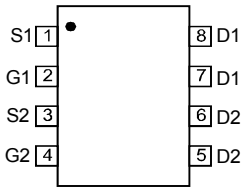
Mechanical Data

- Case: 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
- Marking Information: See Page 4
- Ordering Information: See Page 4
- Weight: 0.072 grams (approximate)

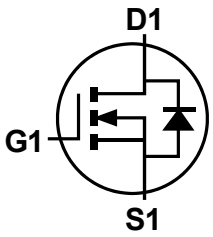


TOP VIEW

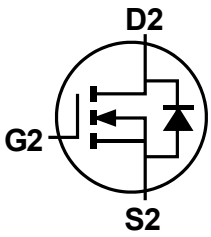
SO-8



TOP VIEW
Internal Schematic



N-Channel MOSFET



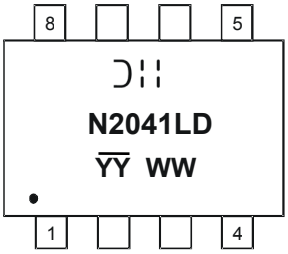
N-Channel MOSFET

Ordering Information (Note 4)

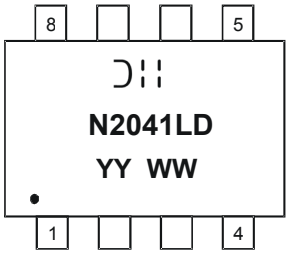
Part Number	Case	Packaging
DMN2041LSD-13	SO-8	2,500/Tape & Reel

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



Chengdu A/T Site



Shanghai A/T Site

= Manufacturer's Marking
N2041LD = Product Type Marking Code
YYWW = Date Code Marking
YY or $\overline{YY}$ = Year (ex: 13 = 2013)
WW = Week (01 - 53)
YY = Date Code Marking for SAT (Shanghai Assembly/ Test site)
$\overline{YY}$ = Date Code Marking for CAT (Chengdu Assembly/ Test site)

NEW PRODUCT

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 5)	Steady State	T_A = +25°C T_A = +85°C	I_D	7.63 4.92	A
Pulsed Drain Current (Note 6)			I_{DM}	30	A

Thermal Characteristics

Characteristic	Symbol	Value	Unit
Total Power Dissipation (Note 5)	P_D	1.16	W
Thermal Resistance, Junction to Ambient @T_A = +25°C	$R_{\theta JA}$	107.4	°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 7)						
Drain-Source Breakdown Voltage	BV_{DSS}	20	—	—	V	V_{GS} = 0V, I_D = 250μA
Zero Gate Voltage Drain Current T_J = +25°C	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 7)						
Gate Threshold Voltage	$V_{GS(th)}$	0.5	—	1.2	V	V_{DS} = V_{GS}, I_D = 250μA
Static Drain-Source On-Resistance	$R_{DS\ (ON)}$	—	19	28	mΩ	V_{GS} = 4.5V, I_D = 6A
			25	41		V_{GS} = 2.5V, I_D = 5.2A
Forward Transfer Admittance	$\|Y_{fs}\|$	—	6	—	S	V_{DS} = 10V, I_D = 6A
Diode Forward Voltage	V_{SD}	—	0.7	1.2	V	V_{GS} = 0V, I_S = 1.7A
DYNAMIC CHARACTERISTICS (Note 8)						
Input Capacitance	C_{iss}	—	550	—	pF	V_{DS} =10V, V_{GS} = 0V, f = 1MHz
Output Capacitance	C_{oss}	—	88	—		
Reverse Transfer Capacitance	C_{rss}	—	81	—		
Gate Resistance	R_g	—	1.34	—	Ω	V_{DS} = 0V, V_{GS} = 0V, f = 1MHz
Total Gate Charge	Q_g	—	15.6	—	nC	V_{GS} = 10V, V_{DS} = 10V, I_D = 6A
Total Gate Charge	Q_g	—	7.2	—	nC	V_{GS} = 4.5 V, V_{DS} = 10V, I_D = 6A
Gate-Source Charge	Q_{gs}	—	1	—		
Gate-Drain Charge	Q_{gd}	—	1.9	—		
Turn-On Delay Time	$t_{D(on)}$	—	4.69	—	ns	V_{DD} = 10V, V_{GEN} = 4.5V, R_g = 1Ω, I_D = 6.7A
Turn-On Rise Time	t_r	—	13.19	—		
Turn-Off Delay Time	$t_{D(off)}$	—	22.1	—		
Turn-Off Fall Time	t_f	—	6.43	—		

Notes:
5. Device mounted on FR-4 PCB with minimum recommended pad layout.
6. Repetitive rating, pulse width limited by function temperature.
7. Short duration pulse test used to minimize self-heating effect.
8. Guaranteed by design. Not subject to production testing.

NEW PRODUCT

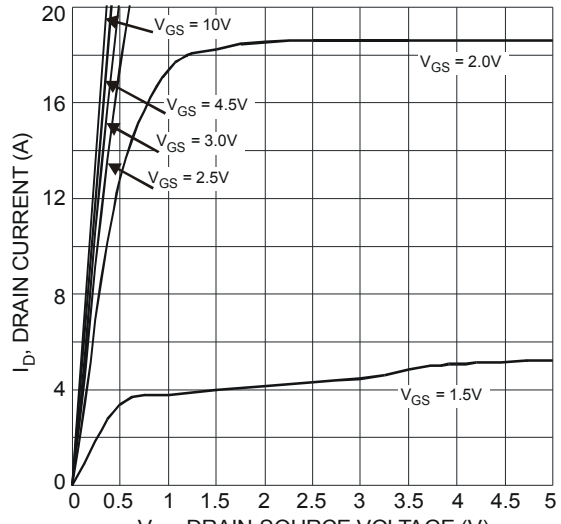


Fig. 1 Typical Output Characteristics

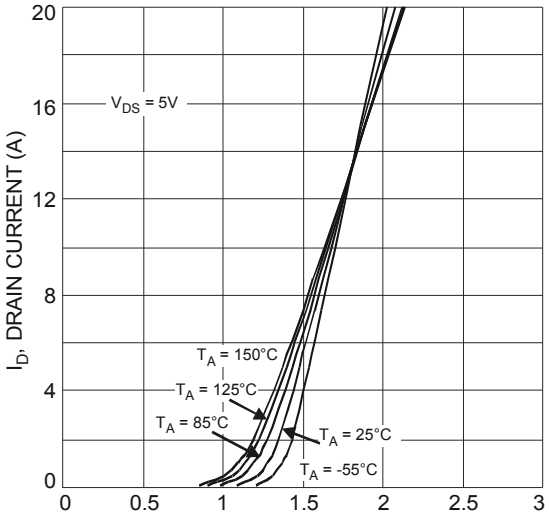


Fig. 2 Typical Transfer Characteristics

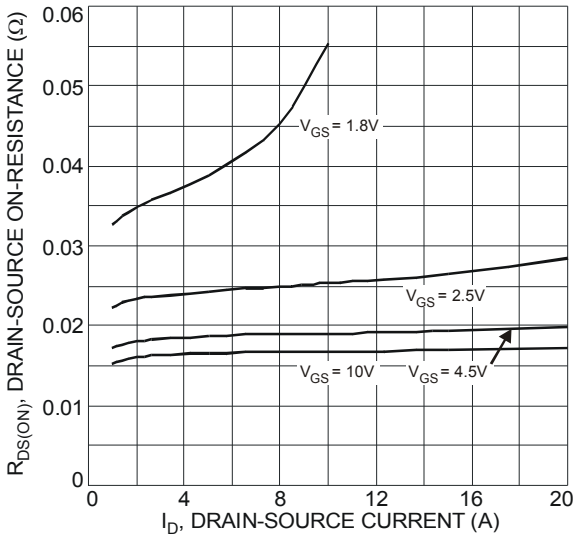


Fig. 3 Typical On-Resistance
vs. Drain Current and Gate Voltage

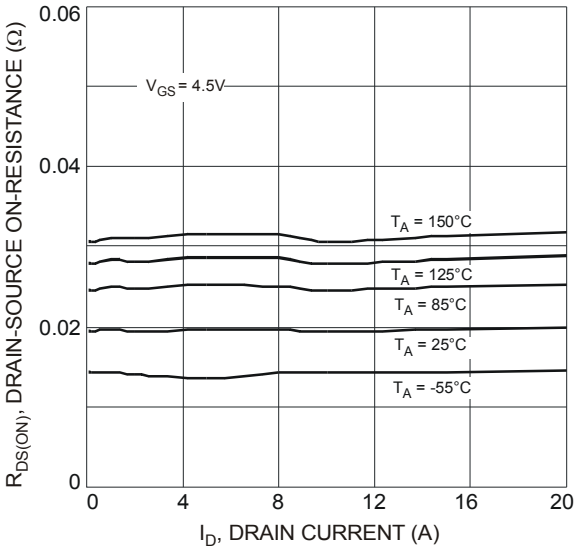


Fig. 4 Typical Drain-Source On-Resistance
vs. Drain Current and Temperature

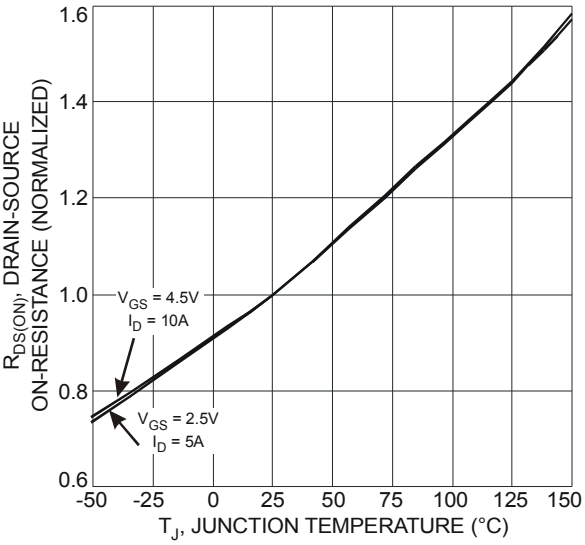


Fig. 5 On-Resistance Variation with Temperature

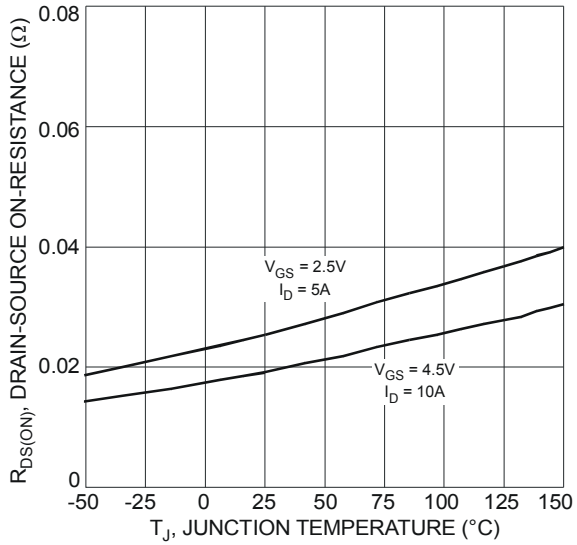


Fig. 6 On-Resistance Variation with Temperature

NEW PRODUCT

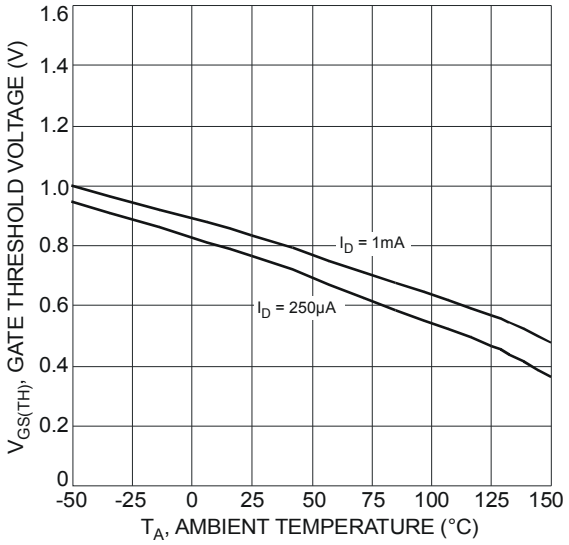


Fig. 7 Gate Threshold Variation vs. Ambient Temperature

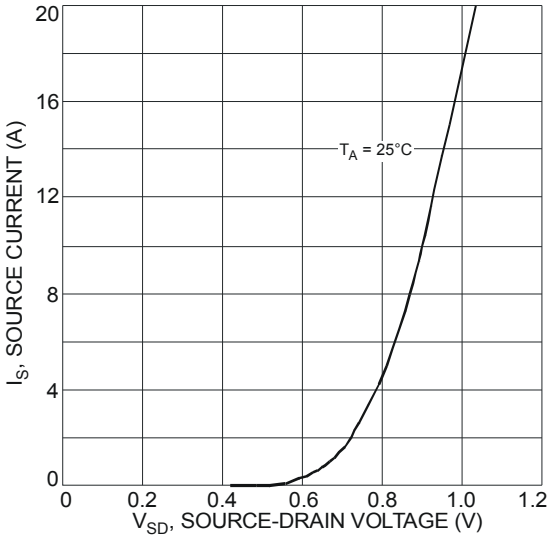


Fig. 8 Diode Forward Voltage vs. Current

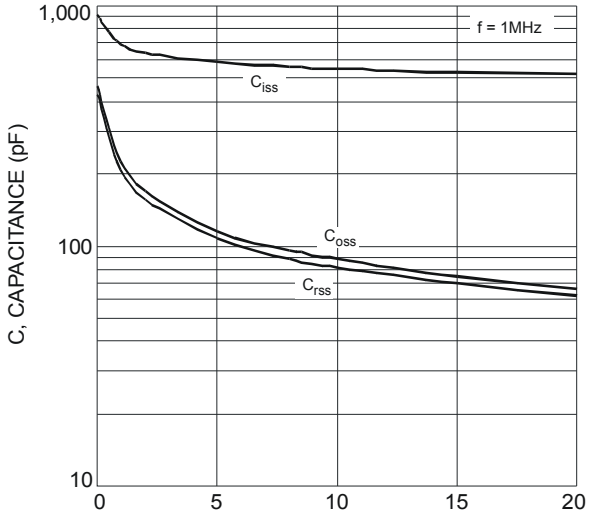


Fig. 9 Typical Capacitance

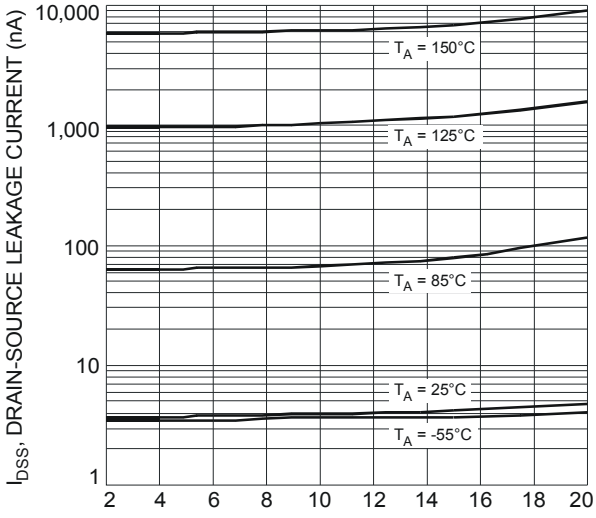


Fig. 10 Typical Drain-Source Leakage Current vs. Drain-Source Voltage

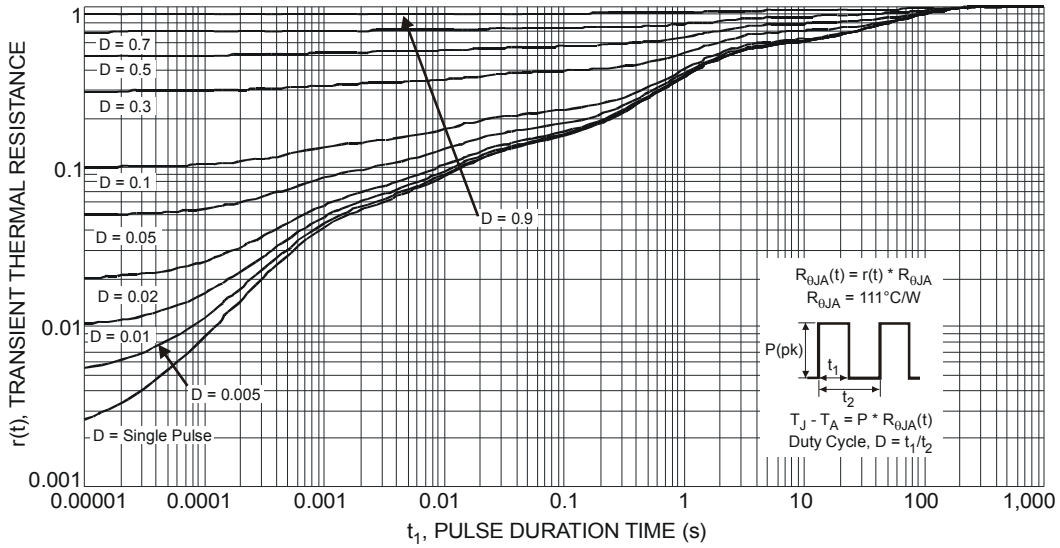
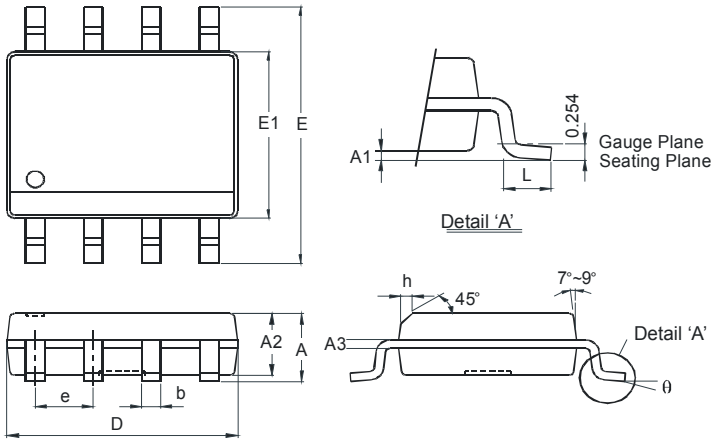


Fig. 11 Transient Thermal Response

NEW PRODUCT

Package Outline Dimensions

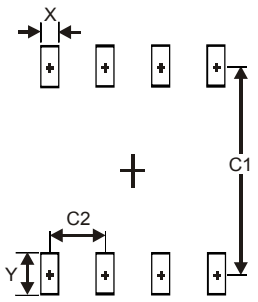
Please see AP02002 at http://www.diodes.com/datasheets/ap02002.pdf for latest version.



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

Suggested Pad Layout

Please see AP02001 at http://www.diodes.com/datasheets/ap02001.pdf for the latest version.



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

NEW PRODUCT

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2. support or sustain life and whose failure to perform when properly used in accordance with instructions for use provided in the labeling can be reasonably expected to result in significant injury to the user.

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