



N-CHANNEL ENHANCEMENT MODE MOSFET

Product Summary

BV _{DSS}	R _{DS(on) max}	I _D Τ _A = +25°C
30V	$30m\Omega @ V_{GS} = 10V$	6A
307	$40m\Omega @ V_{GS} = 4.5V$	4A

Features

- Low Gate Charge
- Low R_{DS(ON)}
- 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
- PPAP (Note 4)

Description and Applications

This new generation small-signal enhancement mode MOSFET features low on-resistance and fast switching, making it ideal for high-efficiency power management applications.

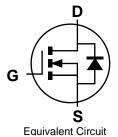
- Motor Control
- Backlighting
- DC-DC Converters
- Power Management Functions

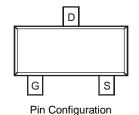
Mechanical Data

- Case: SC-59
- Case Material Molded Plastic, "Green" Molding Compound;
 UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminal Finish Matte Tin Annealed over Copper Leadframe;
- Solderable per MIL-STD-202, Method 208 (3)
- Weight: 0.014 grams (Approximate)









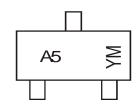
Ordering Information (Note 5)

Part Number	Case	Packaging
DMN3033LSNQ-7	SC-59	3,000/Tape & Reel
DMN3033LSNQ-13	SC-59	10,000/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 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. Automotive products are AEC-Q101 qualified and are PPAP capable. Automotive, AEC-Q101 and standard products are electrically and thermally the same, except where specified. For more information, please refer to http://www.diodes.com/quality/product_grade_definitions/.
- 5. 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: U = 2007) M = Month (ex: 9 = September)

Date Code Key

Year	2007		201	15 2	2016	2017	2018	2019	9 2	020	2021	2022
Code	U		C	;	D	Е	F	G		Н		J
Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Code	1	2	3	4	5	6	7	8	9	0	N	D



Maximum Ratings (@ $T_A = +25^{\circ}C$, unless otherwise specified.)

Characteristic		Symbol	Value	Unit
Drain-Source Voltage		V_{DSS}	30	V
Gate-Source Voltage		V _{GSS}	±20	V
Drain Current (Note 6) Continuous	$T_A = +25$ °C $T_A = +70$ °C	I _D	6 5	А
Pulsed Drain Current (Note 7)		I _{DM}	24	Α
Body-Diode Continuous Current (Note 6)		Is	2.25	Α

Thermal Characteristics (@T_A = +25°C, unless otherwise specified.)

Characteristic	Symbol	Value	Unit
Total Power Dissipation (Note 6)	P _D	1.4	W
Thermal Resistance, Junction to Ambient (Note 6) t ≤10s	$R_{ heta JA}$	90	°C /W
Operating and Storage Temperature Range	T _J , T _{STG}	-55 to +150	°C

Notes:

Electrical Characteristics (@T_A = +25°C, unless otherwise specified.)

Observatoristis	0		T	1	11	Tarat Oran distant	
Characteristic	Symbol	Min	Тур	Max	Unit	Test Condition	
STATIC PARAMETERS	STATIC PARAMETERS						
Drain-Source Breakdown Voltage	BV _{DSS}	30	_	_	V	$I_D = 250 \mu A, V_{GS} = 0 V$	
Zero Gate Voltage Drain Current $T_J = 25^{\circ}\text{C}$ (Note 9) $T_J = 55^{\circ}\text{C}$	Inee	_		1 5	μA	$V_{DS} = 30V, V_{GS} = 0V$	
Gate-Body Leakage Current	I_{GSS}	_	_	±100	nA	$V_{DS} = 0V, V_{GS} = \pm 20V$	
Gate Threshold Voltage	V _{GS(th)}	1.0		2.1	V	$V_{DS} = V_{GS}, I_{D} = 250 \mu A$	
Static Drain-Source On-Resistance (Note 8)		_	25 36	30 40	mΩ	$V_{GS} = 10V, I_D = 6A$ $V_{GS} = 4.5V, I_D = 5A$	
Forward Transconductance (Note 8)	g FS	_	5		S	$V_{DS} = 10V, I_D = 8A$	
Diode Forward Voltage (Note 8)	V_{SD}	_	0.7	1.1	V	$I_S = 2.25A$, $V_{GS} = 0V$	
DYNAMIC PARAMETERS (Note 9)							
Total Gate Charge	Q_g	_	10.5		nC	$V_{GS} = 5V, V_{DS} = 15V, I_D = 6A$	
Gate-Source Charge	Q_{gs}	_	3.8	_	nC	$V_{GS} = 10V, V_{DS} = 15V, I_D = 6A$	
Gate-Drain Charge	Q_{gd}	_	2.9	_	nC	$V_{GS} = 10V, V_{DS} = 15V, I_D = 6A$	
Turn-On Delay Time	t _{D(on)}	_	11	_	ns		
Turn-On Rise Time	t _r	_	7	_	ns	$V_{DD} = 15V, V_{GS} = 10V,$	
Turn-Off Delay Time	t _{D(off)}	_	63	_	ns	$R_D = 1.8\Omega$, $R_G = 6\Omega$	
Turn-Off Fall Time	t _f	_	30	_	ns		
Input Capacitance	C _{iss}	_	755	_	pF	101/1/	
Output Capacitance	Coss	_	136	_	pF	$V_{DS} = 10V, V_{GS} = 0V$ f = 1.0MHz	
Reverse Transfer Capacitance		_	108	_	рF	1 - 1.01/11 12	

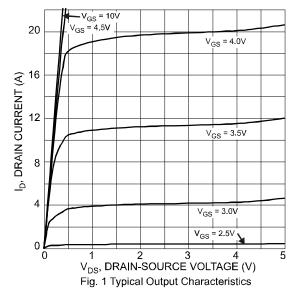
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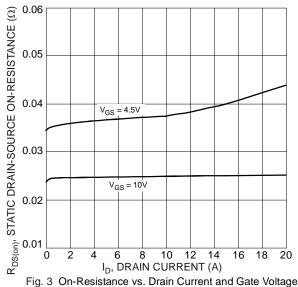
^{6.} Device mounted on 1"x1", FR-4 PC board with 2 oz. Copper and test pulse width t ≤10s. 7. Repetitive Rating, pulse width limited by junction temperature.

^{8.} Test pulse width t = 300ms.

^{9.} Guaranteed by design. Not subject to production testing.







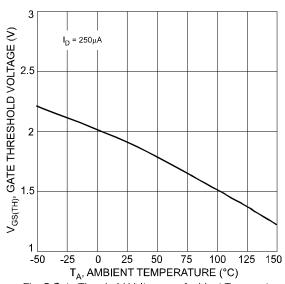
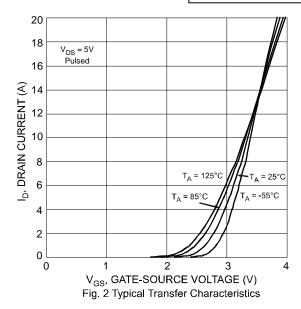
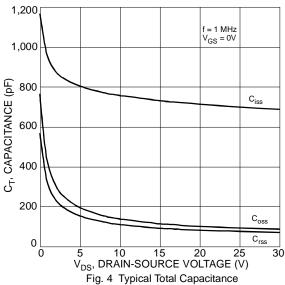


Fig. 5 Gate Threshold Voltage vs. Ambient Temperature





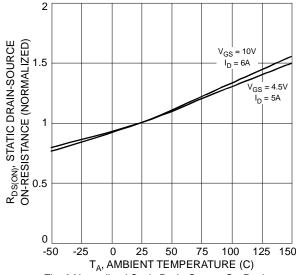
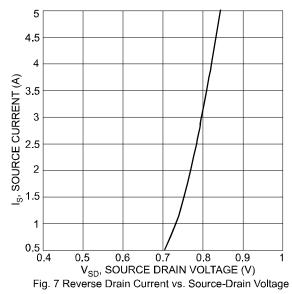


Fig. 6 Normalized Static Drain-Source On-Resistance vs. Ambient Temperature

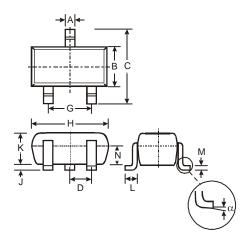






Package Outline Dimensions

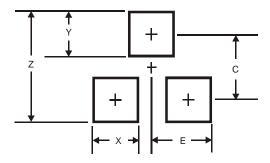
Please see AP02002 at http://www.diodes.com/datasheets/ap02002.pdf for the latest version.



	SC-59						
Dim	Min	Max	Тур				
Α	0.35	0.50	0.38				
В	1.50	1.70	1.60				
С	2.70	3.00	2.80				
D	-	-	0.95				
G	-	-	1.90				
Н	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	α 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)
Z	3.4
Х	0.8
Υ	1.0
С	2.4
F	1 35



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