



DUAL N-CHANNEL ENHANCEMENT MODE MOSFET

Product Summary

V _{(BR)DSS}	R _{DS(ON)} Max	I _D Max T _A = +25°C
001/	$30m\Omega$ @ $V_{GS} = 10V$	6.2A
30V	42mΩ @ V _{GS} = 4.5V	5.2A

Features and Benefits

- 100% Unclamped Inductive Switching Ensures More Reliable and Robust Application
- Low On-Resistance Minimizes Power Losses
- Low Gate Charge Minimizes Switching Losses
- Small Form Factor Low Profile Package Increased Power Density
- 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 Capable (Note 4)

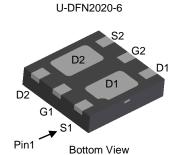
Description and Applications

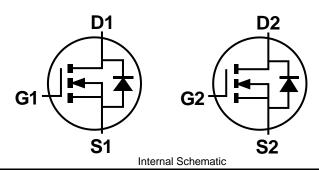
This MOSFET is designed to meet the stringent requirements of Automotive applications. It is qualified to AEC-Q101, supported by a PPAP and ideal for use in:

- Body Control Electronics
- Power Management Functions
- DC-DC Converters

Mechanical Data

- Case: U-DFN2020-6
- Case Material: Molded Plastic, "Green" Molding Compound.
 UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Finish NiPdAu Annealed over Copper Leadframe.
 Solderable per MIL-STD-202, Method 208 4
- Terminals Connections: See Diagram Below
- Weight: 0.0065 grams (Approximate)





Ordering Information (Notes 4 & 5)

Part Number	Case	Packaging
DMN3032LFDBQ-7	U-DFN2020-6	3,000/Tape & Reel
DMN3032LFDBQ-13	U-DFN2020-6	10,000/Tape & Reel

Notes:

- 1. No purposely added lead. Fully EU Directive 2002/95/EC (RoHS) & 2011/65/EU (RoHS 2) compliant.
- 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. Automotive products are AEC-Q101 qualified and are PPAP capable. Refer to http://www.diodes.com/quality/product_compliance_definitions/.
- 5. For packaging details, go to our website at http://www.diodes.com/products/packages.html.

Marking Information



N5 = Product Type Marking Code YM = Date Code Marking Y = Year (ex: C = 2015) M = Month (ex: 9 = September)

Date Code Key

Year	201	5	2016		2017	20	18	2019		2020	2	2021
Code	С		D		Е	F	=	G		Н		
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 (@ $T_A = +25$ °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 7) V _{GS} = 10V	I _D	6.2 5.0	А	
Maximum Continuous Body Diode Forward Current	(Note 7)	I _S	2	Α
Pulsed Drain Current (10µs Pulse, Duty Cycle = 1%	6)	I _{DM}	25	Α
Avalanche Current (Note 8) L = 0.1mH		I _{AS}	12	Α
Avalanche Energy (Note 8) L = 0.1mH		E _{AS}	10	mJ

Thermal Characteristics

Characteristic		Symbol	Value	Unit	
Total Power Dissipation (Note 6)		P_D	1.0	W	
Thermal Resistance, Junction to Ambient (Note 6)	Steady state	ס	127	°C/W	
Thermal Resistance, Junction to Ambient (Note 6)	t<10s	$R_{\theta JA}$	75	C/VV	
Total Power Dissipation (Note 7)		P_{D}	1.7	W	
Thermal Begintance, Junction to Ambient (Note 7)	Steady state	D	72		
Thermal Resistance, Junction to Ambient (Note 7)		$R_{\theta JA}$	43	°C/W	
Thermal Resistance, Junction to Case (Note 7)		$R_{ heta JC}$	9		
Operating and Storage Temperature Range		$T_{J_i}T_{STG}$	-55 to +150	°C	

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

Characteristic	Symbol	Min	Тур	Max	Unit	Test Condition
OFF CHARACTERISTICS (Note 9)						
Drain-Source Breakdown Voltage	BV _{DSS}	30	-	-	V	$V_{GS} = 0V, I_D = 250\mu A$
Zero Gate Voltage Drain Current T _J = +25°C	I _{DSS}	-	-	1.0	μΑ	V _{DS} = 30V, V _{GS} = 0V
Zero Gate Voltage Drain Current T _J = +150°C (Note 10)	I _{DSS}	-	-	100	μΑ	$V_{DS} = 30V, V_{GS} = 0V$
Gate-Source Leakage	I _{GSS}	-	-	±100	nA	$V_{GS} = \pm 20V, V_{DS} = 0V$
ON CHARACTERISTICS (Note 9)		•				
Gate Threshold Voltage	V _{GS(TH)}	1.0	1.5	2.0	V	$V_{DS} = V_{GS}, I_{D} = 250 \mu A$
Static Drain-Source On-Resistance			25	30	mΩ	V _{GS} = 10V, I _D = 5.8A
Static Drain-Source On-Resistance	R _{DS(ON)}	-	30	42	11177	$V_{GS} = 4.5V, I_D = 4.8A$
Diode Forward Voltage	V _{SD}	-	0.75	1.2	V	V _{GS} = 0V, I _S = 1A
DYNAMIC CHARACTERISTICS (Note 10)						
Input Capacitance	C _{iss}	-	500	-	pF	45)/)/ 0)/
Output Capacitance	Coss	-	52	-	pF	$V_{DS} = 15V, V_{GS} = 0V,$ -f = 1.0MHz
Reverse Transfer Capacitance	C _{rss}	-	44	-	pF	
Gate Resistance	Rg	-	2.3	-	Ω	$V_{DS} = 0V$, $V_{GS} = 0V$, $f = 1MHz$
Total Gate Charge (V _{GS} = 4.5V)	Qg	-	5.0	-	nC	
Total Gate Charge (V _{GS} = 10V)	Qg	-	10.6	-	nC	15)/ 1 5 0 0
Gate-Source Charge	Q _{gs}	-	1.3	-	nC	$V_{DS} = 15V, I_{D} = 5.8A$
Gate-Drain Charge	Q _{qd}	-	1.8	-	nC	
Turn-On Delay Time	t _{D(ON)}	-	2.2	-	ns	
Turn-On Rise Time	t _R	-	2.6	-	ns	V _{DD} = 15V, V _{GS} = 10V,
Turn-Off Delay Time	t _{D(OFF)}	-	9.7	-	ns	$R_L = 2.6\Omega$, $R_G = 3\Omega$
Turn-Off Fall Time	t _F	-	2.0	-	ns	1

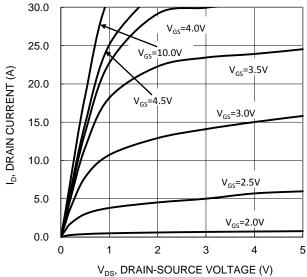
Notes: 6. Device mounted on FR-4 substrate PC board, 2oz copper, with minimum recommended pad layout.

^{7.} Device mounted on FR-4 substrate PC board, 2oz copper, with 1inch square copper plate. 8. I_{AS} and E_{AS} ratings are based on low frequency and duty cycles to keep $T_J = +25^{\circ}C$.

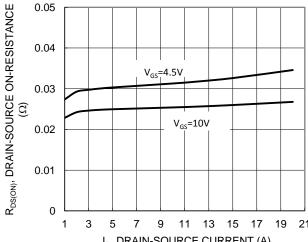
IAS and EAS ratings are based on low frequency and duty cycle
 Short duration pulse test used to minimize self-heating effect.

^{10.} Guaranteed by design. Not subject to product testing.





V_{DS}, DRAIN-SOURCE VOLTAGE (V) Figure 1. Typical Output Characteristic



I_D, DRAIN-SOURCE CURRENT (A) Figure 3. Typical On-Resistance vs. Drain Current and Gate Voltage

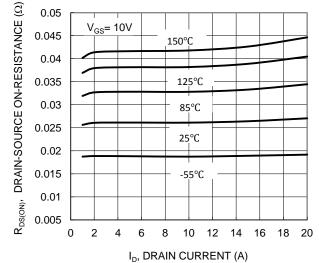
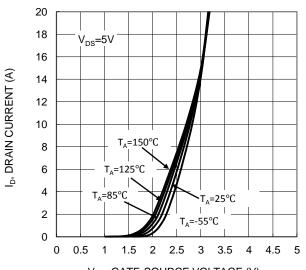
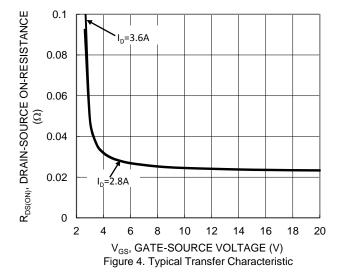


Figure 5. Typical On-Resistance vs. Drain Current and Temperature



V_{GS}, GATE-SOURCE VOLTAGE (V) Figure 2. Typical Transfer Characteristic



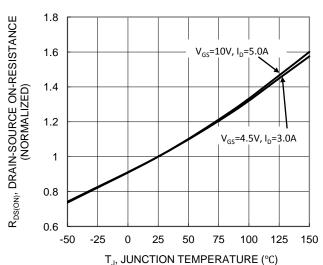
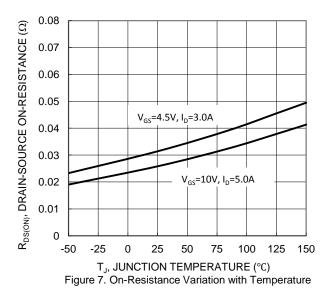
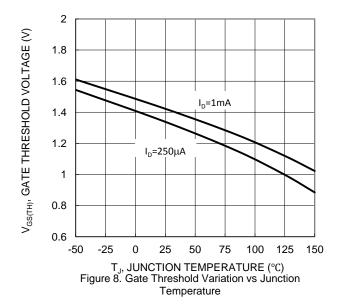
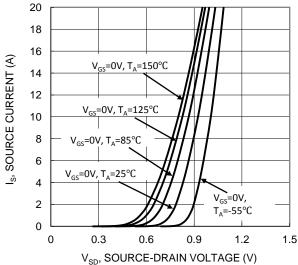


Figure 6. On-Resistance Variation with Temperature









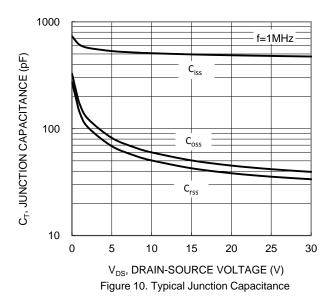
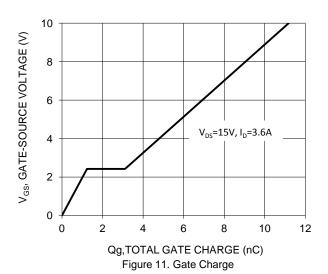


Figure 9. Diode Forward Voltage vs. Current



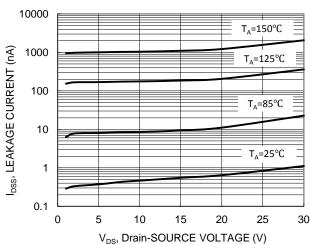
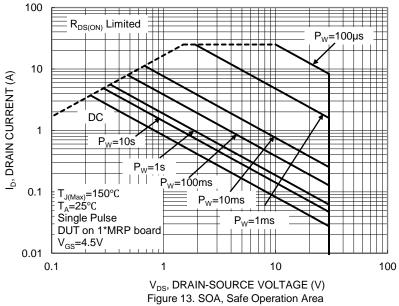


Figure 12. Typical Drain-Source Leakge Current vs. Voltage







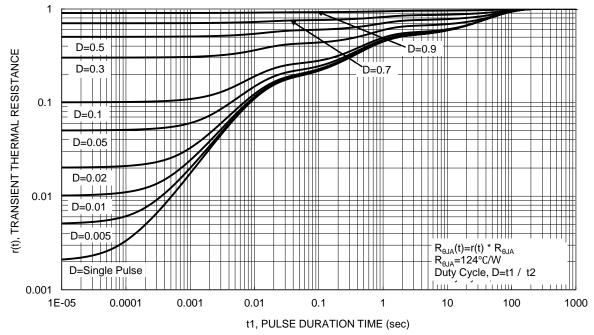
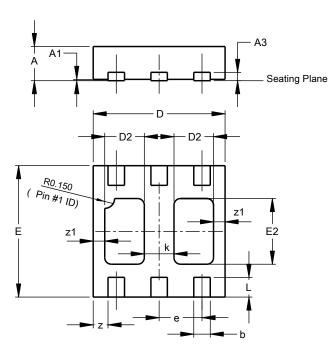


Figure 14. Transient Thermal Resistance



Package Outline Dimensions

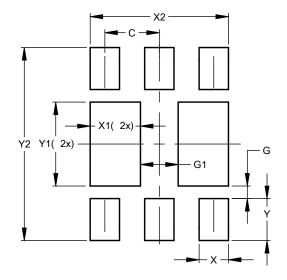
Please see AP02002 at http://www.diodes.com/datasheets/ap02002.pdf for the latest version.



U-DFN2020-6								
Type B								
Dim	Min Max Typ							
Α	0.545	0.605	0.575					
A1	0.00	0.05	0.02					
A3	-	-	0.13					
b	0.20	0.30	0.25					
D	1.95	2.075	2.00					
D2	0.50	0.70	0.60					
е	-	-	0.65					
Е	1.95	2.075	2.00					
E2	0.90	1.10	1.00					
k	-	-	0.45					
L	0.25	0.35	0.30					
Z	-	-	0.225					
z1	-	-	0.15					
All Dimensions in mm								

Suggested Pad Layout

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



Dimensions	Value
Dillicipions	(in mm)
С	0.650
G	0.150
G1	0.450
Х	0.350
X1	0.600
X2	1.650
Y	0.500
Y1	1.000
Y2	2.300



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Общество с ограниченной ответственностью «МосЧип» ИНН 7719860671 / КПП 771901001 Адрес: 105318, г.Москва, ул.Щербаковская д.3, офис 1107

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