



Product Summary

BV _{DSS}	R _{DS(ON)} Max	Ι _D T _A = +25°C
	$13m\Omega @ V_{GS} = 4.5V$	9.0A
20V	$14m\Omega @ V_{GS} = 4.0V$	8.7A
	$17m\Omega @ V_{GS} = 3.1V$	8.0A
	$18m\Omega @ V_{GS} = 2.5V$	6.7A
	28mΩ @ V _{GS} = 1.8V	6.3A

Description

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

Applications

- **Power Management Functions**
- **Battery Pack**
- Load Switch

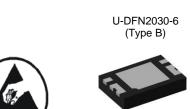
DUAL N-CHANNEL ENHANCEMENT MODE MOSFET

Features

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

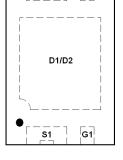
- Case: U-DFN2030-6 (Type B)
- Case Material: Molded Plastic, "Green" Molding Compound UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminal Connections: See Diagram Below
- Weight: 0.012 grams (Approximate)



ESD PROTECTED TO 2kV

Notes:

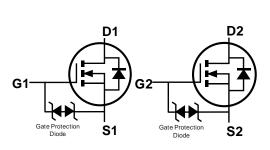
Bottom View



S2

G2

Top View



Equivalent Circuit

Ordering Information (Note 4)

Part Number	Case	Packaging
DMN2014LHAB-7	U-DFN2030-6 (Type B)	3,000 / Tape & Reel
DMN2014LHAB-13	U-DFN2030-6 (Type B)	10,000 / Tape & Reel

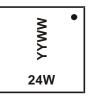
1. No purposely added lead. Fully EU Directive 2002/95/EC (RoHS) & 2011/65/EU (RoHS 2) compliant.

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



24W = Product Type Marking Code YYWW = Date Code Marking YY = Last Two Digits of Year (ex: 16 for 2016) WW = Week code (01 to 53)



Maximum Ratings (@T_A = +25°C, unless otherwise specified.)

Character	Symbol	Value	Unit		
Drain-Source Voltage	V _{DSS}	20	V		
Gate-Source Voltage			V _{GSS}	±12	V
Continuous Drain Current (Note 6) V_{GS} = 4.5V -	Steady State	T _A = +25°C T _A = +70°C	ID	9.0 7.1	А
	t < 10s	$T_A = +25^{\circ}C$ $T_A = +70^{\circ}C$	ID	9.3 7.4	А
Pulsed Drain Current (10µs Pulse, Duty Cycle = 1%)			IDM	45	А

Thermal Characteristics

Characteristic		Symbol	Value	Units	
Total Bower Dissinction (Note 5)	T _A = +25°C	D	0.8	W	
Total Power Dissipation (Note 5)	T _A = +70°C	PD	0.5		
Thermal Resistance, Junction to Ambient (Note 5)	Steady State	Devi	157	°C/W	
Thermal Resistance, Junction to Amblent (Note 5)	t < 10s	R _{0JA}	148	C/VV	
Total Power Dissipation (Note 6)	T _A = +25°C	D	1.7	w	
Total Power Dissipation (Note 6)	T _A = +70°C	PD	1.1	vv	
Thermal Resistance, Junction to Ambient (Note 6)	Steady State	D	73.7		
Thermal Resistance, Junction to Amblent (Note 6)	t < 10s	R _{0JA}	68	°C/W	
Thermal Resistance, Junction to Case		R _{θJC}	9.4		
Operating and Storage Temperature Range		TJ, TSTG	-55 to +150	°C	

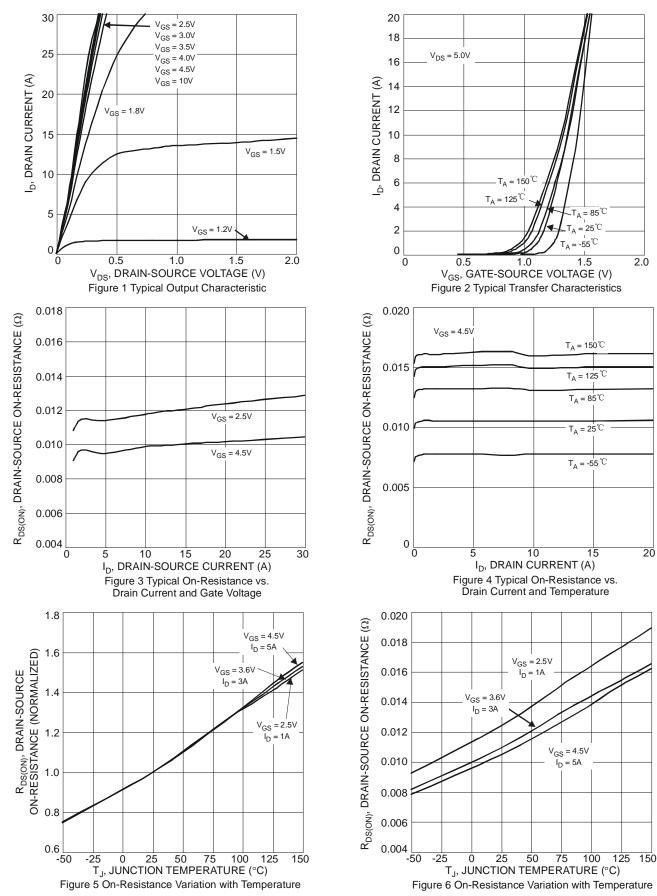
Electrical Characteristics (@T_A = +25°C, unless otherwise specified.)

Characteristic	Symbol	Min	Тур	Max	Unit	Test Condition	
OFF CHARACTERISTICS (Note 7)							
Drain-Source Breakdown Voltage	BV _{DSS}	20	_	—	V	$V_{GS} = 0V, I_{D} = 250\mu A$	
Zero Gate Voltage Drain Current T _J = +25°C	I _{DSS}	—	—	1.0	μA	$V_{DS} = 20V, V_{GS} = 0V$	
Gate-Source Leakage	I _{GSS}	_	—	±10	μA	$V_{GS} = \pm 8V, V_{DS} = 0V$	
ON CHARACTERISTICS (Note 7)							
Gate Threshold Voltage	V _{GS(TH)}	0.3	0.71	1.1	V	$V_{DS} = V_{GS}, I_D = 250 \mu A$	
			10	13		$V_{GS} = 4.5V, I_D = 4.0A$	
			11	14		$V_{GS} = 4.0V, I_D = 4.0A$	
Static Drain-Source On-Resistance	R _{DS(ON)}	_	12	17	mΩ	$V_{GS} = 3.1V, I_D = 4.0A$	
			13	18		$V_{GS} = 2.5V, I_D = 4.0A$	
			19	28		V _{GS} = 1.8V, I _D = 3.5A	
Forward Transfer Admittance	Y _{fs}		25	_	S	$V_{DS} = 5V, I_D = 6A$	
Diode Forward Voltage	V _{SD}	_	0.75	1.0	V	$V_{GS} = 0V, I_{S} = 1A$	
DYNAMIC CHARACTERISTICS (Note 8)						•	
Input Capacitance	Ciss		1550	-	pF		
Output Capacitance	Coss	_	166	—	pF	$V_{DS} = 10V, V_{GS} = 0V,$ - f = 1.0MHz	
Reverse Transfer Capacitance	C _{rss}	_	145	—	pF		
Gate Resistance	Rg	—	1.37	—	Ω	$V_{DS} = 0V, V_{GS} = 0V, f = 1MHz$	
Total Gate Charge (V _{GS} = 2.5V)	Qq	_	8.4	—	nC		
Total Gate Charge (V _{GS} = 4.5V)	Qq	_	16	—	nC	V _{DS} = 10V, I _D = 6A	
Gate-Source Charge	Q _{gs}		2.3	—	nC		
Gate-Drain Charge	Q _{ad}		2.5	—	nC		
Turn-On Delay Time	t _{D(ON)}		6.9	—	ns		
Turn-On Rise Time	t _R		15.5	—	ns	$V_{DD} = 10V, R_{L} = 1.7\Omega,$	
Turn-Off Delay Time	t _{D(OFF)}	_	40.9	_	ns	$V_{GS} = 5.0V, R_g = 3\Omega$	
Turn-Off Fall Time	t _F	_	12	—	ns		

 Device mounted on FR-4 substrate PC board, 2oz copper, with minimum recommended pad layout
Device mounted on FR-4 substrate PC board, 2oz copper, with 1inch square copper pad
Repetitive rating, pulse width limited by junction temperature
Guaranteed by design. Not subject to product testing Notes:

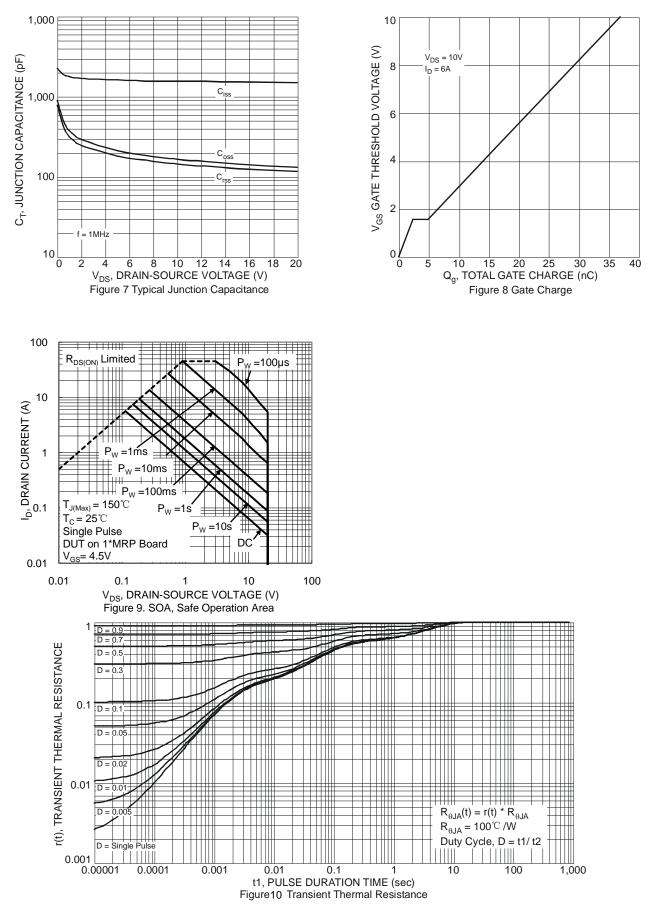


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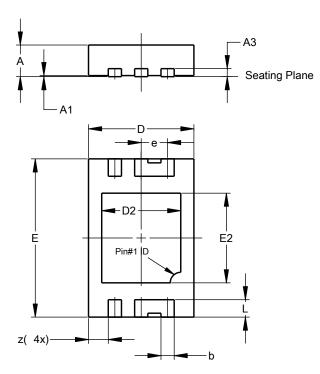
DMN2014LHAB





Package Outline Dimensions

Please see http://www.diodes.com/package-outlines.html for the latest version.

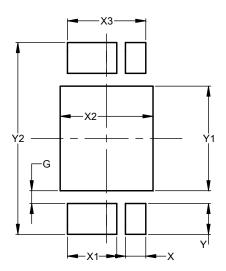


U-DFN2030-6 (Type B)						
Dim	Min	Max	Тур			
Α	0.55	0.65	0.60			
A1	0.00	0.05	0.02			
A3			0.15			
b	0.20	0.30	0.25			
D	1.95	2.05	2.00			
D2	1.40	1.60	1.50			
ш	2.95	3.05	3.00			
E2	1.65	1.75	1.70			
e			0.50			
L	0.28	0.38	0.33			
z			0.375			
All Dimensions in mm						

Suggested Pad Layout

Please see http://www.diodes.com/package-outlines.html for the latest version.

U-DFN2030-6 (Type B)



Dimensions	Value (in mm)		
G	0.220		
Х	0.350		
X1	0.850		
X2	1.600		
X3	1.350		
Y	0.530		
Y1	1.800		
Y2	3.300		

U-DFN2030-6 (Type B)



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