



DUAL N-CHANNEL ENHANCEMENT MODE MOSFET POWERDI®

Product Summary

V _{(BR)DSS}	R _{DS(ON)} max	I _D max T _A = +25°C
20V	20mΩ @ V _{GS} = 10V	6.8A
	22mΩ @ V _{GS} = 4.5V	6.5A
	26mΩ @ V _{GS} = 2.5V	6.1A
	36mΩ @ V _{GS} = 1.8V	5.2A

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
- Load Switch

Features

- Low On-Resistance
- Low Input Capacitance
- ESD Protected Up To 2kV
- 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

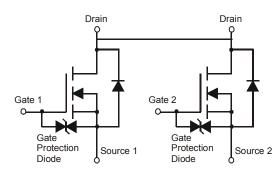
Mechanical Data

- Case: POWERDI3030-8
- 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
- Weight: 0.0072 grams (approximate)

POWERDI3030-8



Bottom View



Internal Schematic

Ordering Information (Note 4)

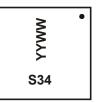
ESD PROTECTED

Part Number	Case	Packaging
DMN2028UFDH-7	POWERDI3030-8	3,000/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. For packaging details, go to our website at http://www.diodes.com.

Marking Information



S34 = Product Type Marking Code YYWW = Date Code Marking YY = Last Digit of Year (ex: 13 = 2013) WW = Week Code (01 to 53)



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

Characteristic	Symbol	Value	Units		
Drain-Source Voltage	V_{DSS}	20	V		
Gate-Source Voltage (Note 5)	V_{GSS}	±12	V		
Continuous Drain Current (Note 7) V 10V	Steady State	$T_A = +25^{\circ}C$ $T_A = +70^{\circ}C$	Ι _D	6.8 5.8	Α
Continuous Drain Current (Note 7) V _{GS} = 10V	t<10s	$T_A = +25^{\circ}C$ $T_A = +70^{\circ}C$	I _D	8.8 7.0	А
Maximum Body Diode Forward Current (Note 7)			Is	2	Α
Pulsed Drain Current (10μs pulse, Duty cycle = 1%)			I _{DM}	40	A

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

Characteristic	Symbol	Value	Units	
Total Power Dissipation (Note 6)		P_{D}	1.1	W
Thermal Resistance, Junction to Ambient (Note 6)	Steady state t<10s	$R_{ heta JA}$	118 72	°C/W
Total Power Dissipation (Note 7)		P _D	1.5	W
Thermal Resistance, Junction to Ambient (Note 7)	Steady state t<10s	$R_{ hetaJA}$	82 50	°C/W
Thermal Resistance, Junction to Case (Note 7)		$R_{\theta JC}$	14	
Operating and Storage Temperature Range		T _{J,} T _{STG}	-55 to +150	°C

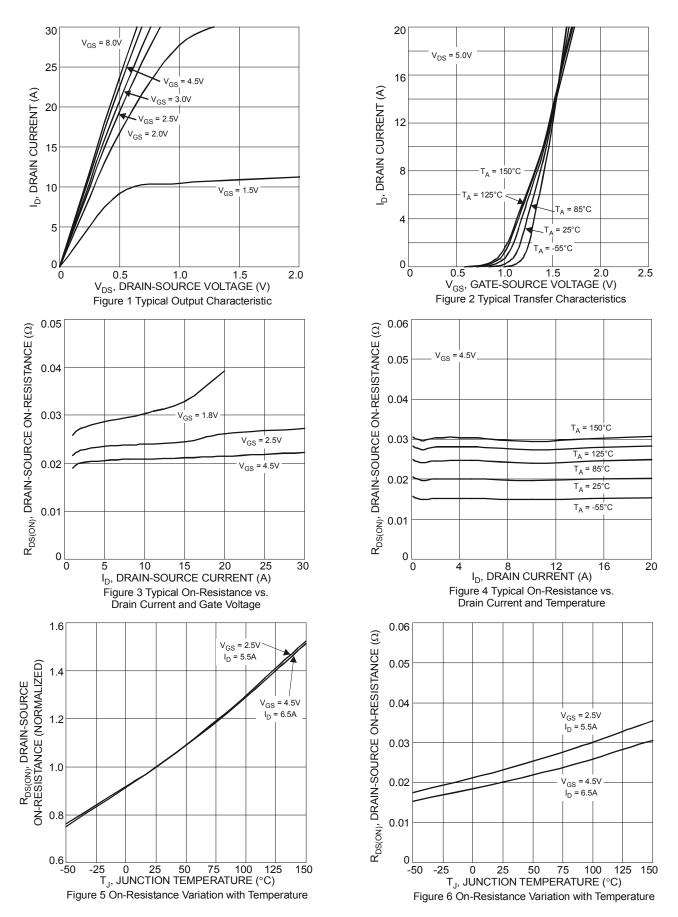
Electrical Characteristics (@T_A = +25°C, unless otherwise specified.)

Characteristic	Symbol	Min	Тур	Max	Unit	Test Condition	
OFF CHARACTERISTICS (Note 8)							
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	μΑ	$V_{DS} = 20V, V_{GS} = 0V$	
Gate-Source Leakage	I _{GSS}	_	_	±10	μΑ	$V_{GS} = \pm 10V, V_{DS} = 0V$	
ON CHARACTERISTICS (Note 8)							
Gate Threshold Voltage	$V_{GS(th)}$	0.5	_	1	V	$V_{DS} = V_{GS}, I_{D} = 250 \mu A$	
			16	20	mΩ	V _{GS} = 10V, I _D = 4A	
Static Ducin Course On Bosistance	_		17	22		$V_{GS} = 4.5V, I_D = 4A$	
Static Drain-Source On-Resistance	R _{DS} (ON)	_	19	26		V _{GS} = 2.5V, I _D = 4A	
			24	36		V _{GS} = 1.8V, I _D = 4A	
Forward Transfer Admittance	Y _{fs}	_	8	_	S	$V_{DS} = 5V, I_{D} = 12A$	
Diode Forward Voltage	V_{SD}	_	0.7	1.0	V	$V_{GS} = 0V, I_{S} = 5A$	
DYNAMIC CHARACTERISTICS (Note 9)						•	
Input Capacitance	C _{iss}	_	151		рF	101/11/101/	
Output Capacitance	Coss	_	91		рF	$V_{DS} = 10V, V_{GS} = 0V,$ - f = 1.0MHz	
Reverse Transfer Capacitance	C _{rss}	_	32		pF	1 - 1.000112	
Gate Resistance	R_g	_	200	_	Ω	$V_{DS} = 0V$, $V_{GS} = 0V$, $f = 1MHz$	
Total Gate Charge	Qg	_	8.5	_	nC	V _{GS} = 4.5V, V _{DS} = 10V,	
Gate-Source Charge	Q_{gs}	_	1.6	_	nC		
Gate-Drain Charge	Q _{qd}	_	2.8	_	nC	$I_D = 6.5A$	
Turn-On Delay Time	t _{D(on)}	_	53	_	ns		
Turn-On Rise Time	t _r	_	77	_	ns	V _{GS} = 10V, V _{DS} = 4.5V,	
Turn-Off Delay Time	t _{D(off)}	_	561	_	ns	$R_G = 6\Omega, R_L = 1.0 \Omega, I_D = 1A$	
Turn-Off Fall Time	t _f	_	234	_	ns		

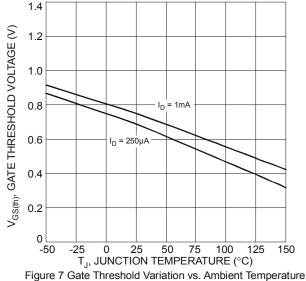
Notes:

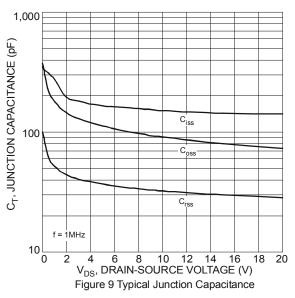
- 5. AEC-Q101 V_{GS} maximum is $\pm 9.6 V$.
- 6. Device mounted on FR-4 PC board, with minimum recommended pad layout, single sided.
- 7. Device mounted on FR-4 substrate PC board, 2oz copper, with thermal bias to bottom layer 1inch square copper plate.
- 8 .Short duration pulse test used to minimize self-heating effect.
- 9. Guaranteed by design. Not subject to production testing.

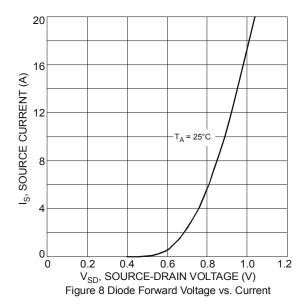


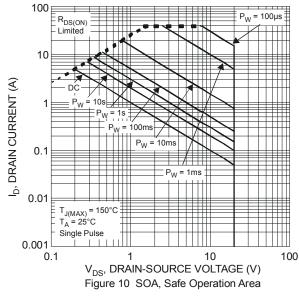


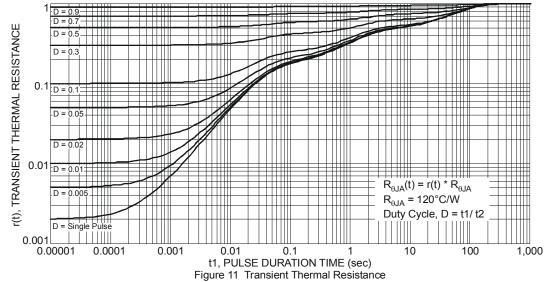










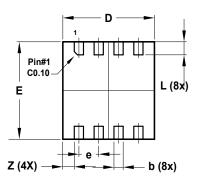




Package Outline Dimensions

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

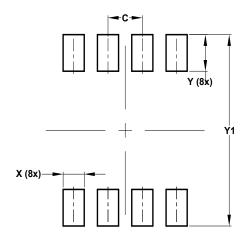




POWERDI3030-8				
Dim	Min	Max	Тур	
Α	0.75	0.85	0.80	
A 1	0	0.05	0.02	
A3	_	-	0.203	
b	0.25	0.35	0.30	
D	2.95	3.05	3.00	
Е	2.95	3.05	3.00	
е	_	-	0.65	
L	0.55	0.65	0.60	
Z	_	-	0.375	
All Dimensions in mm				

Suggested Pad Layout

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



Dimensions	Value (in mm)		
С	0.650		
Х	0.400		
Y	0.850		
Y1	3.400		



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