



DMN95H8D5HCT

N-CHANNEL ENHANCEMENT MODE MOSFET

Product Summary

BV _{DSS} (@ T _J Max)	R _{DS(ON)}	I _D T _C = +25°C
1000V	7Ω@V _{GS} = 10V	2.5A

Description

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

Applications

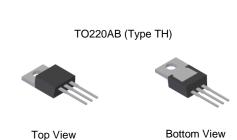
- Motor Control
- Backlighting
- DC-DC Converters
- Power Management Functions

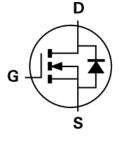
Features

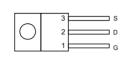
- Low Input Capacitance
- High BV_{DSS} Rating for Power Application
- Low Input/Output Leakage
- Lead-Free Finish; RoHS Compliant (Notes 1 & 2)
- Halogen and Antimony Free. "Green" Device (Note 3)

Mechanical Data

- Case: TO220AB (Type TH)
- Case Material: Molded Plastic, "Green" Molding Compound, UL Flammability Classification Rating 94V-0
- Terminals: Matte Tin Finish Annealed over Copper Leadframe.
 Solderable per MIL-STD-202, Method 208 [®]
- Terminal Connections: See Diagram Below
- Weight: 1.85 grams (Approximate)







Equivalent Circuit

Top View Pin Out Configuration

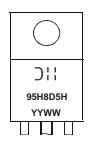
Ordering Information (Note 4)

Part Number	Case	Packaging	
DMN95H8D5HCT	TO220AB (Type TH)	50 pieces/tube	

Notes: 1. EU Directive 2002/95/EC (RoHS) & 2011/65/EU (RoHS 2) compliant. All applicable RoHS exemptions applied.

- 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



☐ ☐ Manufacturer's Marking
95H8D5H = Product Type Marking Code
YYWW = Date Code Marking
YY or YY = Last Two Digits of Year (ex: 16 = 2016)
WW or WW = Week Code (01 to 53)



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

Characteristic			Symbol	Value	Units
Drain-Source Voltage			V_{DSS}	950	V
Gate-Source Voltage			V_{GSS}	±30	V
Continuous Drain Current V _{GS} = 10V	Steady State	$T_{C} = +25^{\circ}C$ $T_{C} = +100^{\circ}C$	Ι _D	2.5 1.5	Α
Maximum Body Diode Forward Current (Note 5)			I _S	3	Α
Pulsed Drain Current (10µs pulse, duty cycle = 1%)			I _{DM}	3	Α
Avalanche Current, L = 60mH (Note 7)			I _{AS}	1.8	Α
Avalanche Energy, L = 60mH (Note 7)			Eas	97	mJ
Peak Diode Recovery dv/dt			dv/dt	3.3	V/ns

Thermal Characteristics

Characteristic	Symbol	Value	Units	
Total Power Dissipation	$T_C = +25^{\circ}C$	0	125	- W
Total Power Dissipation	T _C = +100°C	P_{D}	50	
Thermal Resistance, Junction to Ambient (Note 6)	$R_{ heta JA}$	50	°C/W	
Thermal Resistance, Junction to Case	$R_{\theta JC}$	1		
Operating and Storage Temperature Range		$T_{J_i} T_{STG}$	-55 to +150	°C

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

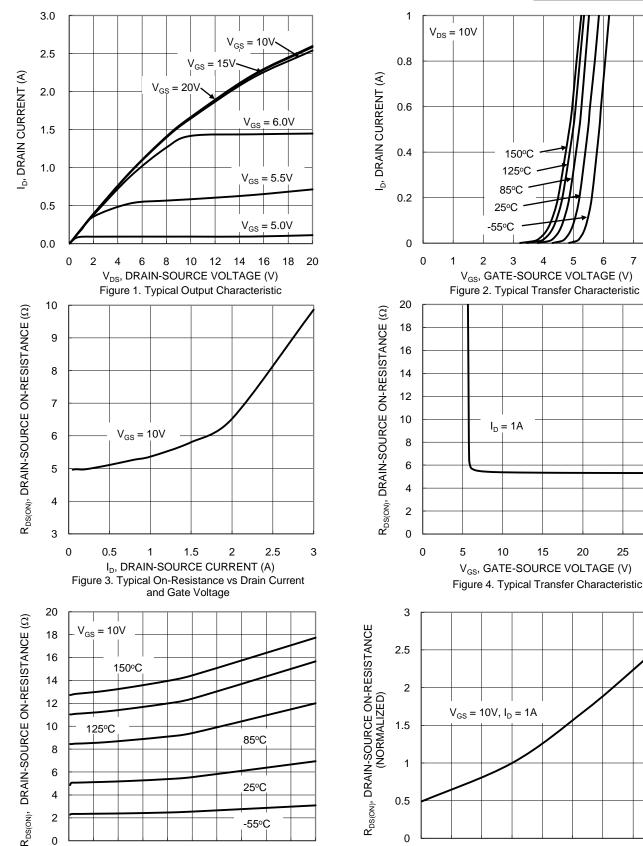
Characteristic	Cumbal	Min	Time	Max	Unit	Test Condition	
Characteristic	Symbol	IVIIN	Тур	wax	Unit	lest Condition	
OFF CHARACTERISTICS (Note 8)							
Drain-Source Breakdown Voltage	BV _{DSS}	950		_	V	$V_{GS} = 0V, I_{D} = 250\mu A$	
Zero Gate Voltage Drain Current	IDSS	_	_	1	μΑ	$V_{DS} = 950V, V_{GS} = 0V$	
Gate-Source Leakage	I_{GSS}	_	_	100	nA	$V_{GS} = \pm 30V, V_{DS} = 0V$	
ON CHARACTERISTICS (Note 8)							
Gate Threshold Voltage	$V_{GS(TH)}$	3.0	4.0	5.0	V	$V_{DS} = V_{GS}, I_{D} = 250 \mu A$	
Static Drain-Source On-Resistance	R _{DS(ON)}	_	5.5	7	Ω	$V_{GS} = 10V, I_D = 1A$	
Diode Forward Voltage	V_{SD}	_	0.84	1.2	V	$V_{GS} = 0V, I_{S} = 2A$	
DYNAMIC CHARACTERISTICS (Note 7)							
Input Capacitance	Ciss	_	470			\\ 25\\ f 4.0MU=	
Output Capacitance	Coss	_	45		pF	$V_{DS} = 25V, f = 1.0MHz, V_{GS} = 0$	
Reverse Transfer Capacitance	C _{rss}	_	0.6	_			
Gate Resistance	R_{G}	_	1.2		Ω	$V_{DS} = 0V, V_{GS} = 0V, f = 1.0MHz$	
Total Gate Charge	Q_g	_	7.9	_		7201/ 1 24	
Gate-Source Charge	Q_{gs}	_	2.5	_	nC	$V_{DD} = 720V, I_D = 2A,$ $V_{GS} = 10V$	
Gate-Drain Charge	Q_{gd}	_	2.9				
Turn-On Delay Time	t _{D(ON)}	_	16			$V_{DD} = 450V, R_G = 25\Omega, I_D = 2A, V_{GS} = 10V$	
Turn-On Rise Time	t _R	_	21		ns		
Turn-Off Delay Time	t _{D(OFF)}	_	17.6	_	115		
Turn-Off Fall Time	t _F		17	_			
Body Diode Reverse Recovery Time	t _{RR}	_	375	_	ns	$dI/dt = 100A/\mu s$, $V_{DS} = 100V$,	
Body Diode Reverse Recovery Charge	Q_{RR}	_	2.9	_	μC	I _F = 2A	

Notes:

- 5. Device mounted on FR-4 substrate PC board, 2oz copper, with 1inch square copper plate.
- 6. Device mounted on FR-4 substrate PC board, 2oz copper, with minimum recommended pad layout.
- 7. Guaranteed by design. Not subject to production testing.
- 8. Short duration pulse test used to minimize self-heating effect.







I_D, DRAIN CURRENT (A) Figure 5. Typical On-Resistance vs Drain Current and Junction Temperature

0.2 0.4 0.6 0.8 1 1.2 1.4 1.6 1.8

-55°C

Figure 6. On-Resistance Variation with Junction Temperature

50

T_J, JUNCTION TEMPERATURE (℃)

75

100 125

2

0

0

-50

-25

0

25

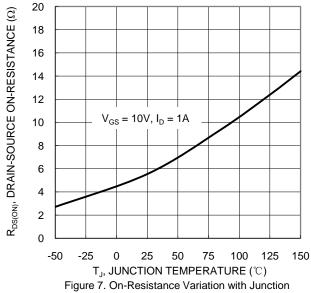
150

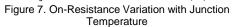
25

30









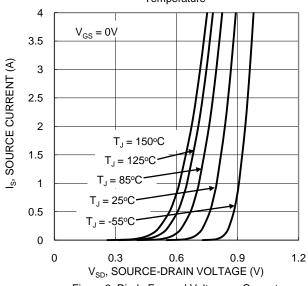


Figure 9. Diode Forward Voltage vs Current

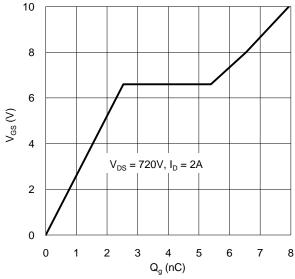


Figure 11. Gate Charge

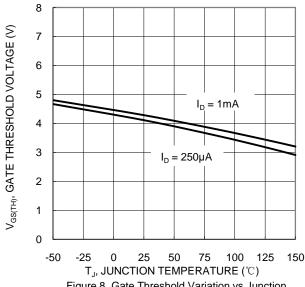


Figure 8. Gate Threshold Variation vs Junction Temperature

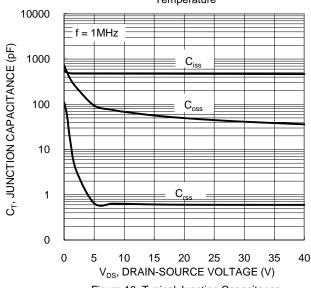


Figure 10. Typical Junction Capacitance

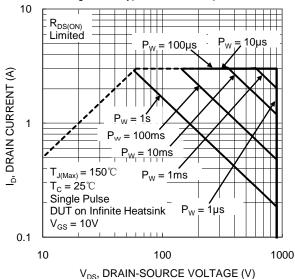


Figure 12. SOA, Safe Operation Area



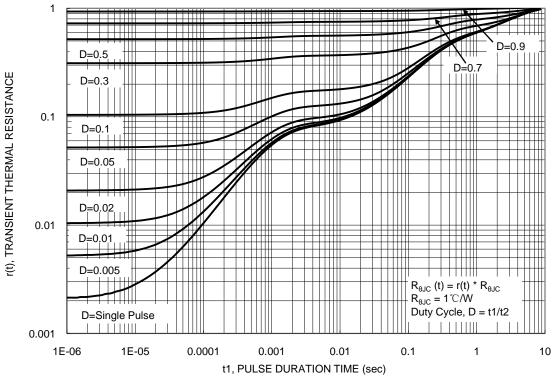


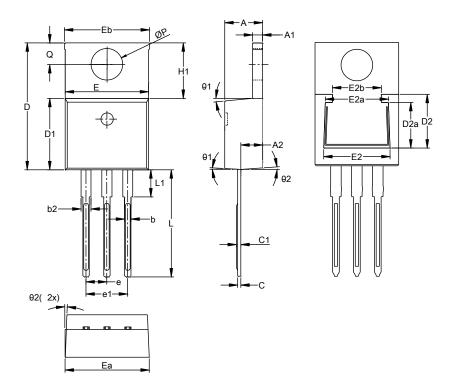
Figure.13. Transient Thermal Resistance



Package Outline Dimensions

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

TO220AB (Type TH)



TO220AB (Type TH)					
Dim	Min	Min Max Ty			
Α	4.27	4.87	4.57		
A1	1.12	1.42	1.27		
A2	2.39	2.99	2.69		
b	0.70	1.01	0.81		
b2	1.17	1.50	1.27		
С	0.30	0.53	0.38		
c1	0.38	0.72	0.56		
D	14.60	15.40	15.00		
D1	8.40	9.00	8.70		
D2	5.33	6.63	6.33		
D2a	4.54	5.54			
е	2.54 BSC				
e1		5.08 BSC			
Е	9.88	10.50	10.16		
Ea	9.90	10.45	10.10		
Eb	9.90	10.65	10.25		
E2	7.06	8.36	8.06		
E2a	6.67	7.97	7.67		
E2b	4.94	6.24	5.94		
H1	5.70	6.65	6.30		
L	13.00	13.80	13.40		
L1	-	4.10	3.75		
Q	2.50	2.99	2.74		
ØΡ	3.70	3.99	3.84		
θ1	4°	10°	7°		
θ2	0° 6° 3°				
All Dimensions in mm					



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