



DUAL N-CHANNEL ENHANCEMENT MODE MOSFET

Features

- Low On-Resistance
- Low Input Capacitance
- Fast Switching Speed
- Low Input/Output Leakage
- Lead Free By Design/RoHS Compliant (Note 1)
- **ESD Protected Up To 2KV**
- "Green" Device (Note 2)
- Qualified to AEC-Q101 Standards for High Reliability

Mechanical Data

- Case: TSSOP-8L
- 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
- Marking Information: See Page 4
- Ordering Information: See Page 4
- Weight: 0.039 grams (approximate)

TSSOP-8L



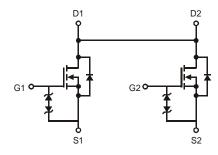


TOP VIEW





Top View Pin Configuration



Internal Schematic

Maximum Ratings @T_A = 25°C unless otherwise specified

Characteristic			Symbol	Value	Unit
Drain-Source Voltage			V_{DSS}	20	V
Gate-Source Voltage		V _{GSS}	±8	V	
Continuous Drain Current (Note 3)	Steady State	$T_A = 25$ °C $T_A = 85$ °C	I _D	8.58 5.73	А
Pulsed Drain Current (Note 4)		I _{DM}	36	A	

Thermal Characteristics

Characteristic	Symbol	Value	Unit
Power Dissipation (Note 3)	P _D	0.88	W
Thermal Resistance, Junction to Ambient @T _A = 25°C (Note 3)	$R_{\theta JA}$	141.57	°C/W
Operating and Storage Temperature Range	T _J , T _{STG}	-55 to +150	°C

Notes:

- 1. No purposefully added lead.
- 2. Diodes Inc.'s "Green" policy can be found on our website at http://www.diodes.com/products/lead_free/index.php.
- 3. Device mounted on FR-4 PCB, with minimum recommended pad layout.
- 4. Repetitive rating, pulse width limited by junction temperature.

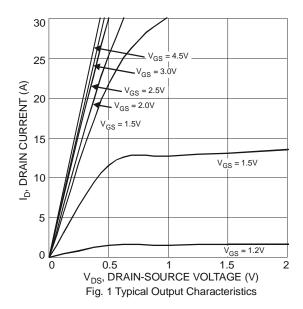


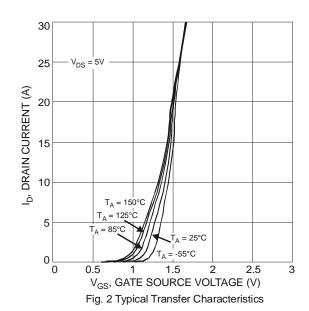
Electrical Characteristics @T_A = 25°C unless otherwise specified

Characteristic	Symbol	Min	Тур	Max	Unit	Test Condition	
OFF CHARACTERISTICS (Note 5)							
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	μΑ	$V_{DS} = 20V, V_{GS} = 0V$	
Gate-Source Leakage	I _{GSS}	-	-	±10	μΑ	$V_{GS} = \pm 8V, V_{DS} = 0V$	
ON CHARACTERISTICS (Note 5)							
Gate Threshold Voltage	V _{GS(th)}	0.4	0.72	1.0	V	$V_{DS} = V_{GS}$, $I_D = 250\mu A$	
Static Drain-Source On-Resistance		_	11	14.5	$m\Omega$	$V_{GS} = 4.5V, I_D = 9.4A$	
Static Drain-Source On-Nesistance	R _{DS} (ON)		13	16.5		$V_{GS} = 2.5V, I_D = 8.3A$	
Forward Transfer Admittance	Y _{fs}	-	19	ı	S	$V_{DS} = 5V, I_{D} = 9.4A$	
Diode Forward Voltage	V_{SD}	-	0.65	1.2	V	$V_{GS} = 0V, I_{S} = 1.3A$	
DYNAMIC CHARACTERISTICS (Note 6)							
Input Capacitance	Ciss	-	1495	-	pF	V 40V V 0V	
Output Capacitance	Coss	-	161	-	pF	$V_{DS} = 10V, V_{GS} = 0V,$ f = 1.0MHz	
Reverse Transfer Capacitance	C_{rss}	-	152	-	pF	1 = 1.0WI IZ	
Gate Resistance	R_g	-	1.42	ı	Ω	$V_{DS} = 0V$, $V_{GS} = 0V$, $f = 1MHz$	
Total Gate Charge	Q_g	-	16.5	ı	nC	V _{GS} = 4.5V, V _{DS} = 10V, I _D = 9.4A	
Gate-Source Charge	Q_gs	-	2.5	ı	nC		
Gate-Drain Charge	Q_{gd}	-	3.2	i	nC		
Turn-On Delay Time	t _{D(on)}	-	10.39	i	ns		
Turn-On Rise Time	t _r	-	11.66	i	ns	$V_{DD} = 10V, V_{GS} = 4.5V,$ $R_{GEN} = 6\Omega, I_D = 1A, R_1 = 10\Omega$	
Turn-Off Delay Time	t _{D(off)}	-	59.38	·	ns		
Turn-Off Fall Time	t _f	-	16.27	-	ns		

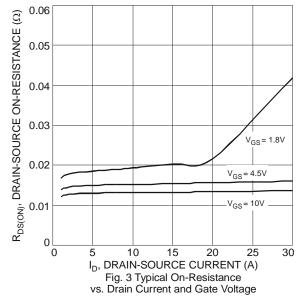
otes: 5. Short duration pulse test used to minimize self-heating effect.

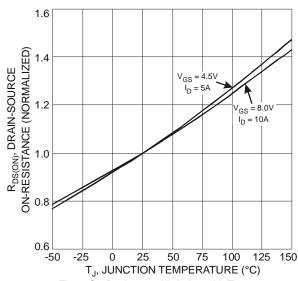
6. Guaranteed by design. Not subject to production testing.

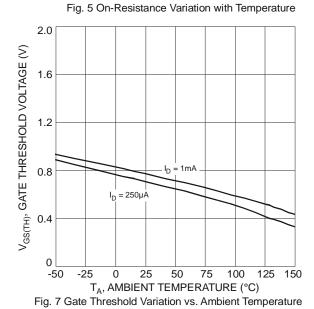












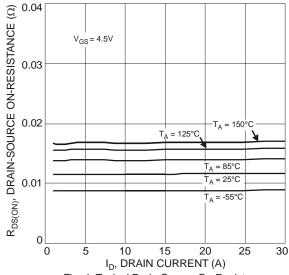
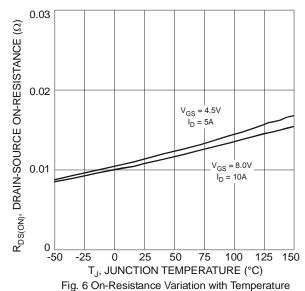
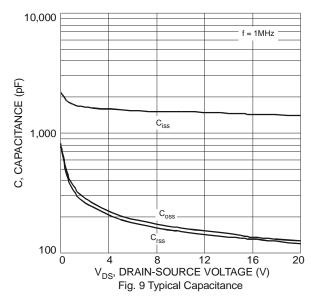


Fig. 4 Typical Drain-Source On-Resistance vs. Drain Current and Temperature



20 16 17 T_A = 25°C T_A =





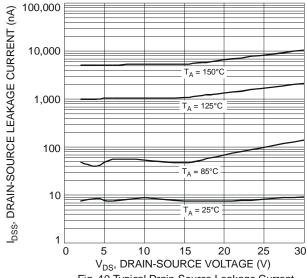
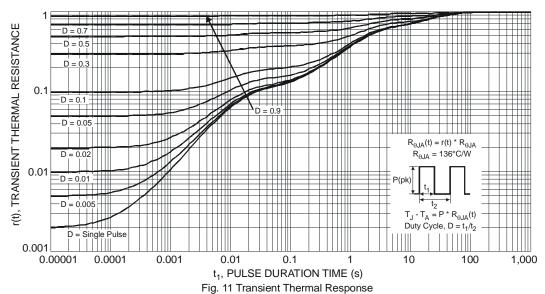


Fig. 10 Typical Drain-Source Leakage Current vs. Drain-Source Voltage

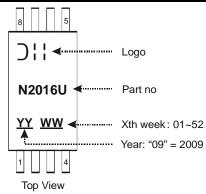


Ordering Information (Note 7)

Part Number	Case	Packaging
DMN2016UTS-13	TSSOP-8L	2500 / Tape & Reel

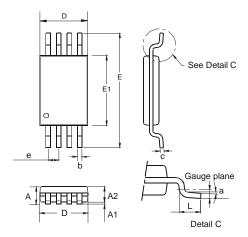
Notes: 7. For packaging details, go to our website at http://www.diodes.com/datasheets/ap02007.pdf.

Marking Information



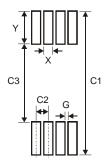


Package Outline Dimensions



TSSOP-8L				
Dim	Min	Max	Тур	
а	0.09	-	-	
Α	_	1.20	_	
A1	0.05	0.15	-	
A2	0.825	1.025	0.925	
b	0.19	0.30	-	
C	0.09	0.20	-	
D	2.90	3.10	3.025	
е	_	_	0.65	
Е	_	_	6.40	
E1	4.30	4.50	4.425	
L	0.45	0.75	0.60	
All Dimensions in mm				

Suggested Pad Layout



Dimensions	Value (in mm)
Х	0.45
Y	1.78
C1	7.72
C2	0.65
C3	4.16
G	0.20



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