



N-CHANNEL ENHANCEMENT MODE MOSFET

Features

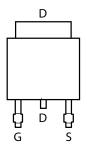
- Low On-Resistance
- Low Input Capacitance
- Fast Switching Speed
- Low Input/Output Leakage
- ESD Protected
- Lead Free By Design/RoHS Compliant (Note 1)
- "Green" Device (Note 2)
- Qualified to AEC-Q101 Standards for High Reliability

Mechanical Data

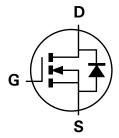
- Case: TO252-3L
- Case Material: Molded Plastic, "Green" Molding Compound. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals Connections: See Diagram
- Terminals: Matte Tin Finish annealed over Copper leadframe.
 Solderable per MIL-STD-202, Method 208
- Weight: 0.33 grams (approximate)







PIN OUT -TOP VIEW



Equivalent Circuit

Ordering Information (Note 3)

Part Number	Case	Packaging
DMN3005LK3-13	TO252-3L	2500 / Tape & Reel

Notes:

- 1. No purposefully added lead.
- 2. Diodes Inc.'s "Green" policy can be found on our website at http://www.diodes.com.
- 3. For packaging details, go to our website at http://www.diodes.com.

Marking Information



Oll = Manufacturer's Marking
N3005L = Product Type Marking Code
YYWW = Date Code Marking
YY = Year (ex: 09 = 2009)
WW = Week (01 - 53)



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 4) V _{GS} = 10V	Steady State	T _A = 25°C T _A = 85°C	I _D	14.5 10.5	А
Continuous Drain Current (Note 5) V _{GS} = 10V	Steady State	T _A = 25°C T _A = 85°C	I _D	22 16	А
Pulsed Drain Current (Note 6)			I _{DM}	48	Α

Thermal Characteristics

Characteristic	Symbol	Value	Unit
Power Dissipation (Note 4)	P _D	1.68	W
Thermal Resistance, Junction to Ambient @T _A = 25°C (Note 4)	$R_{ heta JA}$	74.3	°C/W
Power Dissipation (Note 5)	P _D	4.1	W
Thermal Resistance, Junction to Ambient @T _A = 25°C (Note 5)	R _{θJA}	30.8	°C/W
Operating and Storage Temperature Range	T _J , T _{STG}	-55 to +150	°C

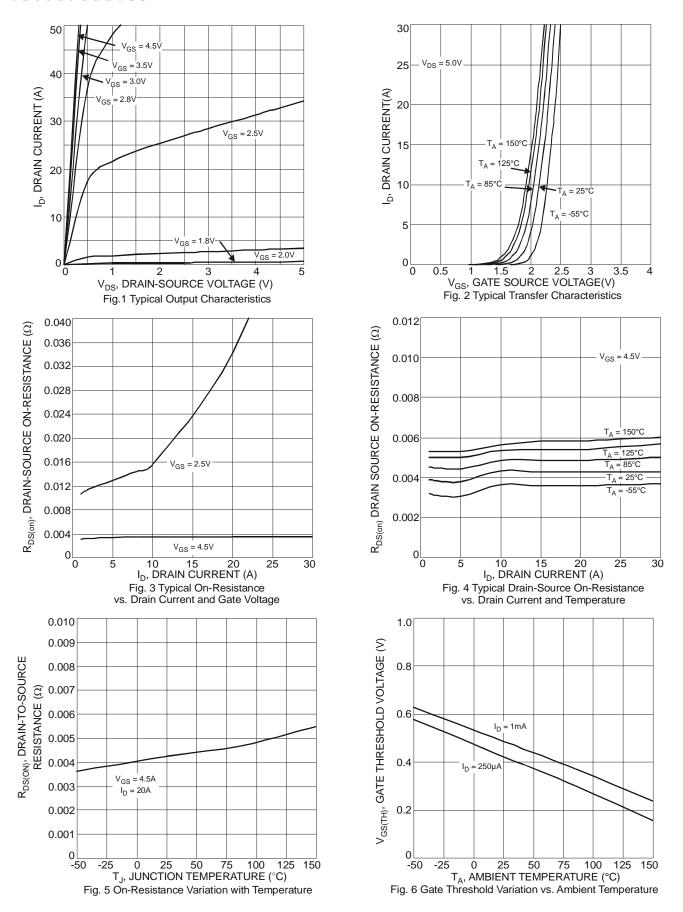
Electrical Characteristics @T_A = 25°C unless otherwise specified

Characteristic	Symbol	Min	Тур	Max	Unit	Test Condition	
OFF CHARACTERISTICS (Note 7)		-		-	•		
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	$V_{DS} = 30V, V_{GS} = 0V$	
Gate-Source Leakage	I _{GSS}	-	-	±100	nA	$V_{GS} = \pm 20V, V_{DS} = 0V$	
ON CHARACTERISTICS (Note 7)						-	
Gate Threshold Voltage	V _{GS(th)}	1.0	1.5	2.0	V	$V_{DS} = V_{GS}, I_{D} = 250 \mu A$	
Static Prain Source On Begintenes	Б		3.6	5.0 6.5	mΩ	$V_{GS} = 10V, I_D = 20A$	
Static Drain-Source On-Resistance	R _{DS} (ON)	-	4.9			$V_{GS} = 4.5V, I_D = 20A$	
Forward Transfer Admittance	Y _{fs}	-	22	-	S	$V_{DS} = 15V, I_D = 15A$	
Diode Forward Voltage	V_{SD}	-	0.8	1.0	V	$V_{GS} = 0V, I_S = 20A$	
DYNAMIC CHARACTERISTICS (Note 8)							
Input Capacitance	C _{iss}	-	4342	-	pF		
Output Capacitance	Coss	-	1801	-	pF	$V_{DS} = 15V, V_{GS} = 0V,$	
Reverse Transfer Capacitance	C_{rss}	-	669	-	pF	f = 1.0MHz	
Gate Resistance	Rg	-	1.76	-	Ω	$V_{DS} = 0V$, $V_{GS} = 0V$, $f = 1MHz$	
Total Gate Charge	Q _a	-	46.9	-	nC		
Gate-Source Charge	Q _{gs}	-	14.3	-	nC	$V_{GS} = 4.5V, V_{DS} = 15V,$	
Gate-Drain Charge	Q _{qd}	-	18.6	-	nC	$I_D = 15A$	
Turn-On Delay Time	t _{D(on)}	-	7.9	-	ns		
Turn-On Rise Time	t _r	-	22.8	-	ns	$V_{DS} = 15V, V_{GS} = 10V,$	
Turn-Off Delay Time	t _{D(off)}	-	73.4	-	ns	$R_L = 1.3\Omega R_G = 3\Omega$	
Turn-Off Fall Time	t _f	-	43.5	-	ns		

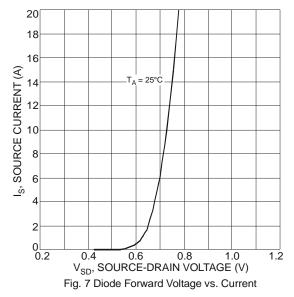
Notes:

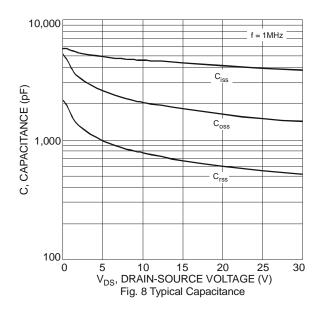
- 4. Device mounted on FR-4 PCB, with minimum recommended pad layout, single sided.
- 5. Device mounted on 2" x 2" FR-4 PCB with high coverage 2oz. copper, single sided.
- 6. Repetitive rating, pulse width limited by junction temperature and current limited by package.
 7. Short duration pulse test used to minimize self-heating effect.
- 8. Guaranteed by design. Not subject to production testing.

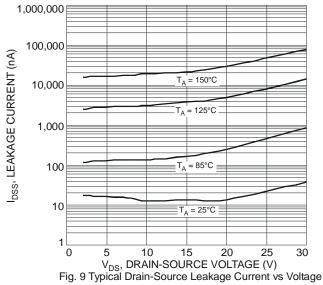




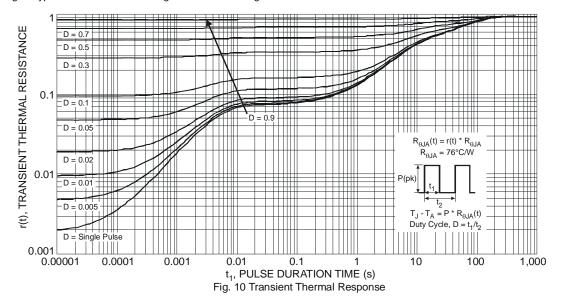






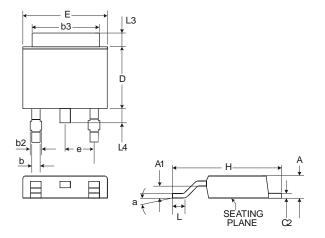






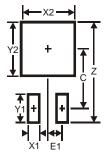


Package Outline Dimensions



TO252-3L					
Dim	Min	Тур	Max		
Α	2.19	2.29	2.39		
A1	0.97	1.07	1.17		
b	0.64	0.76	0.88		
b2	0.76	0.95	1.14		
b3	5.21	5.33	5.50		
C2	0.45	0.51	0.58		
D	6.00	6.10	6.20		
Е	6.45	6.58	6.70		
е	2.286 Typ.				
Н	9.40	9.91	10.41		
L	1.40	1.59	1.78		
L3	0.88	1.08	1.27		
L4	0.64	0.83	1.02		
а	0°	-	10°		
All Dimensions in mm					

Suggested Pad Layout



Dimensions	Value (in mm)
Z	11.6
X1	1.5
X2	7.0
Y1	2.5
Y2	7.0
С	6.9
E1	2.3



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