N-CHANNEL ENHANCEMENT MODE FIELD EFFECT TRANSISTOR

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NEW PRODUCT

Features

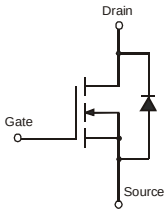
- Low On-Resistance:
  $R_{DS(ON)}$ < 88mΩ @ V_{GS} = 4.5V
  $R_{DS(ON)}$ < 138mΩ @ V_{GS} = 2.5V
- Low Gate Threshold Voltage
- Low Input Capacitance
- Fast Switching Speed
- Low Input/Output Leakage
- **Lead Free By Design/RoHS Compliant (Note 2)**
- **"Green" Device (Note 3)**
- **Qualified to AEC-Q101 Standards for High Reliability**

Mechanical Data

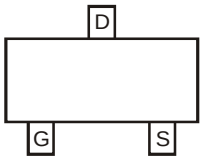
- Case: SOT-323
- Case Material: Molded Plastic, "Green" Molding Compound. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020D
- Terminals: Finish - Matte Tin annealed over Alloy 42 leadframe. Solderable per MIL-STD-202, Method 208
- Terminal Connections: See Diagram
- Marking Information: See Page 3
- Ordering Information: See Page 3
- Weight: 0.006 grams (approximate)

SOT-323

TOP VIEW



EQUIVALENT CIRCUIT



Pin Configuration

Maximum Ratings @T_A = 25°C unless otherwise specified

Characteristic		Symbol	Value	Unit
Drain Source Voltage		V_{DSS}	28	V
Gate-Source Voltage		V_{GSS}	±12	V
Drain Current (Note 1)	T_A = 25°C T_A = 70°C	I_D	1.6 1.2	A
Drain Current (Note 1)	Pulsed	I_{DM}	6.4	A
Body-Diode Continuous Current (Note 1)		I_S	1.5	A

Thermal Characteristics

Characteristic	Symbol	Value	Unit
Total Power Dissipation (Note 1)	P_D	350	mW
Thermal Resistance, Junction to Ambient @T_A = 25°C (Note 1)	$R_{\theta JA}$	357	°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	Typ	Max	Unit	Test Condition
OFF CHARACTERISTICS (Note 4)						
Drain-Source Breakdown Voltage	BV_{DSS}	28	—	—	V	V_{GS} = 0V, I_D = 250μA
Zero Gate Voltage Drain Current	I_{DSS}	—	—	800	nA	V_{DS} = 28V, V_{GS} = 0V
Gate-Body Leakage	I_{GSS}	—	—	±80 ±800	nA	V_{GS} = ±12V, V_{DS} = 0V V_{GS} = ±19V, V_{DS} = 0V
ON CHARACTERISTICS (Note 4)						
Gate Threshold Voltage	$V_{GS(th)}$	0.62	0.94	1.4	V	V_{DS} = V_{GS}, I_D = 250μA
Static Drain-Source On-Resistance	$R_{DS(ON)}$	— —	73 115	88 138	mΩ	V_{GS} = 4.5V, I_D = 1.6A V_{GS} = 2.5V, I_D = 1.2A
Forward Transconductance	$\|Y_{fs}\|$	—	5.4	—	S	V_{DS} = 5V, I_D = 2.7A
Source-Drain Diode Forward Voltage	V_{SD}	—	—	1.16	V	V_{GS} = 0V, I_S = 1.5A
DYNAMIC CHARACTERISTICS						
Input Capacitance	C_{iss}	—	305	—	pF	V_{DS} = 5V, V_{GS} = 0V f = 1.0MHz
Output Capacitance	C_{oss}	—	74	—	pF	
Reverse Transfer Capacitance	C_{rss}	—	48	—	pF	

Notes:
1. Device mounted on 1in² FR-4 PCB on 2oz. Copper. t ≤ 10 sec.
2. No purposefully added lead.
3. Diodes Inc.'s "Green" policy can be found on our website at http://www.diodes.com/products/lead_free/index.php.
4. Short duration pulse test used to minimize self-heating effect.

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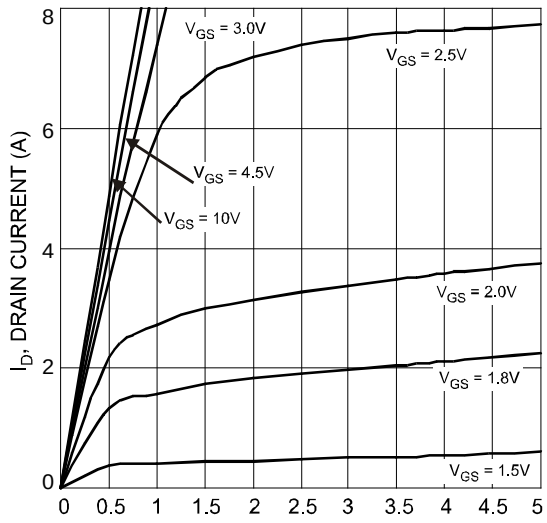

Fig. 1 Typical Output Characteristics

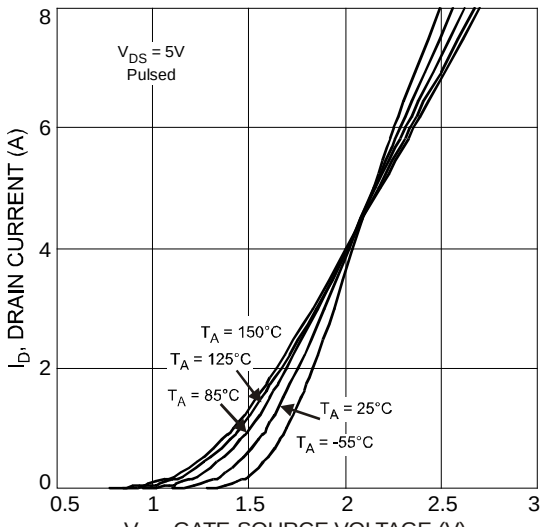

Fig. 2 Typical Transfer Characteristics

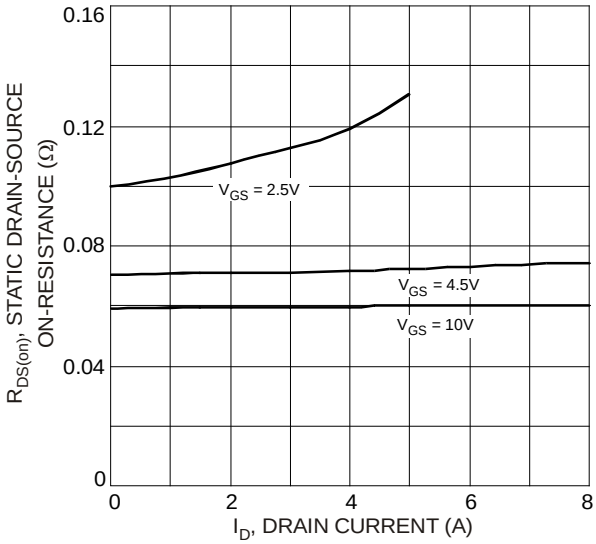

Fig. 3 On-Resistance vs. Drain Current and Gate Voltage

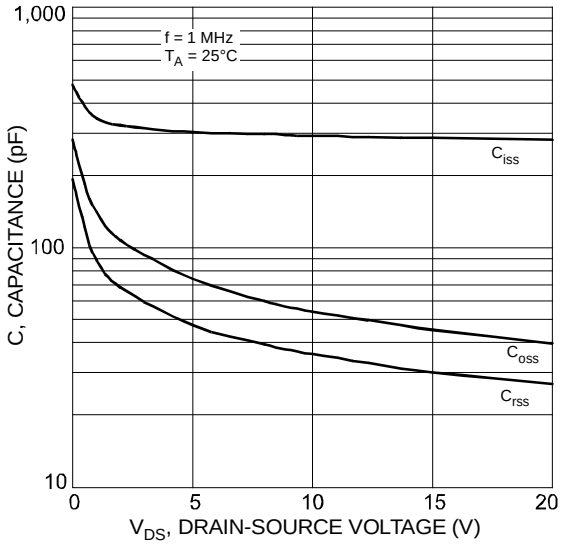

Fig. 4 Typical Total Capacitance

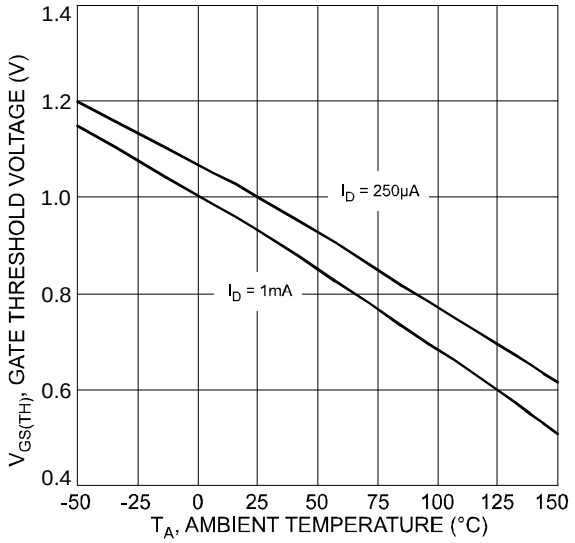

Fig. 5 Gate Threshold Voltage vs. Ambient Temperature

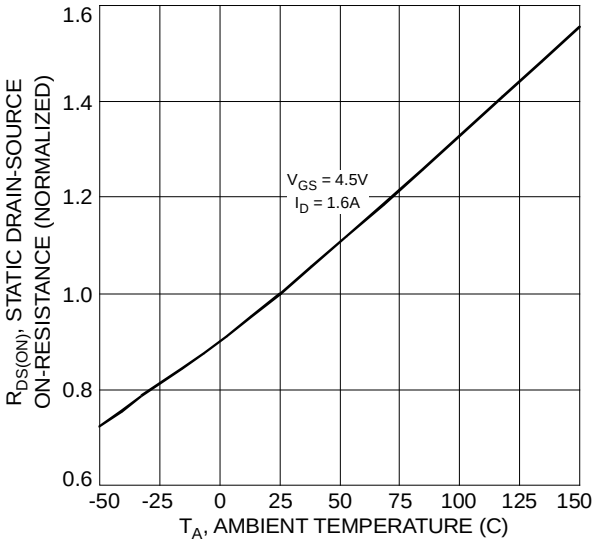

Fig. 6 Normalized Static Drain-Source On-Resistance vs. Ambient Temperature

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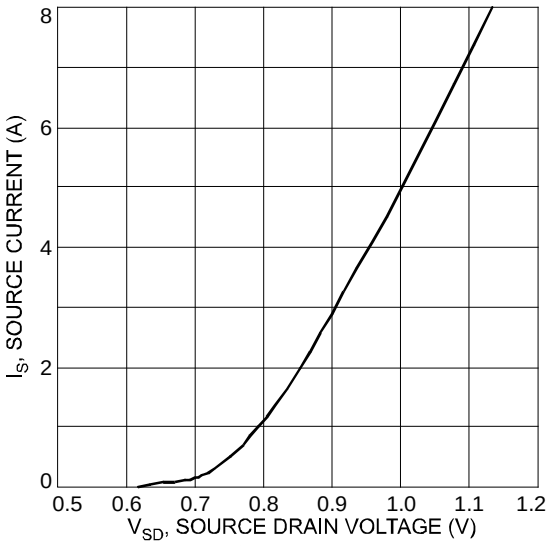


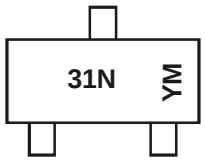
Fig. 7 Reverse Drain Current vs. Source-Drain Voltage

Ordering Information (Note 5)

Part Number	Case	Packaging
DMN3150LW-7	SOT-323	3000/Tape & Reel

Notes: 5. For packaging details, go to our website at http://www.diodes.com/datasheets/ap02007.pdf.

Marking Information



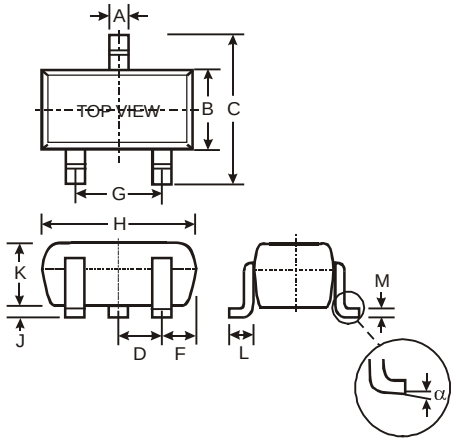
31N = Product Type Marking Code
YM = Date Code Marking
Y = Year (ex: V = 2008)
M = Month (ex: 9 = September)

Date Code Key

Year	2008	2009	2010	2011	2012	2013	2014	2015
Code	V	W	X	Y	Z	A	B	C

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Code	1	2	3	4	5	6	7	8	9	O	N	D

Package Outline Dimensions



SOT-323			
Dim	Min	Max	Typ
A	0.25	0.40	0.30
B	1.15	1.35	1.30
C	2.00	2.20	2.10
D	-	-	0.65
F	0.30	0.40	0.425
G	1.20	1.40	1.30
H	1.80	2.20	2.15
J	0.0	0.10	0.05
K	0.90	1.00	1.00
L	0.25	0.40	0.30
M	0.10	0.18	0.11
α	0°	8°	-
All Dimensions in mm			

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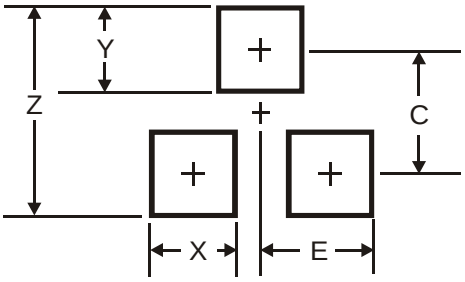
Suggested Pad Layout



Dimensions	Value (in mm)
Z	2.8
X	0.7
Y	0.9
C	1.9
E	1.0

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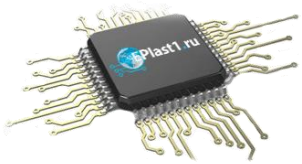
- Подбор аналогов;
- Консультации по применению компонента;
- Поставка образцов и прототипов;
- Техническая поддержка проекта;
- Защита от снятия компонента с производства.



Как с нами связаться

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