DMN2005LPK

N-CHANNEL ENHANCEMENT MODE FIELD EFFECT TRANSISTOR

NEW PRODUCT

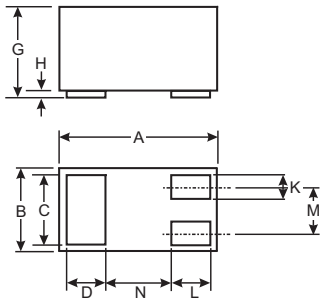
UNDER DEVELOPMENT

Features

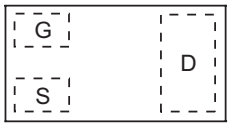
- Low On-Resistance
- Low Gate Threshold Voltage
- Fast Switching Speed
- Low Input/Output Leakage
- Ultra-Small Surface Mount Package
- **Lead Free By Design/RoHS Compliant (Note 2)**
- **"Green" Device (Note 4)**
- **ESD Protected Gate**

Mechanical Data

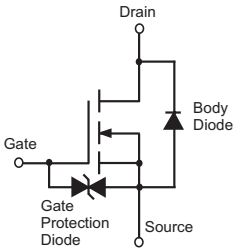
- Case: DFN1006-3
- Case Material: Molded Plastic, "Green" Molding Compound. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020C
- Terminals Connections: See Diagram
- Terminals: Finish — Matte Tin annealed over Copper leadframe. Solderable per MIL-STD-202, Method 208
- Marking: See Last Page
- Ordering & Date Code Information: See Last Page



DFN1006-3			
Dim	**Min**	**Max**	**Typ**
A	0.95	1.075	1.00
B	0.55	0.675	0.60
C	0.45	0.55	0.50
D	0.20	0.30	0.25
G	0.47	0.53	0.50
H	0	0.05	0.03
K	0.10	0.20	0.15
L	0.20	0.30	0.25
M	—	—	0.35
N	—	—	0.40
All Dimensions in mm			



TOP VIEW



EQUIVALENT CIRCUIT

ESD protected

Maximum Ratings @ T_A = 25°C unless otherwise specified

Characteristic		Symbol	Value	Units
Drain-Source Voltage		V_{DSS}	20	V
Gate-Source Voltage		V_{GSS}	±8	V
Drain Current per element (Note 1)	Continuous Pulsed (Note 3)	I_D	200 250	mA
Total Power Dissipation (Note 1)		P_d	200	mW
Thermal Resistance, Junction to Ambient		$R_{\theta JA}$	625	°C/W
Operating and Storage Temperature Range		T_j, T_{STG}	-65 to +150	°C

Note: 1. Device mounted on FR-4 PCB.
2. No purposefully added lead.
3. Pulse width ≤10μS, Duty Cycle ≤1%.
4. Diodes Inc.'s "Green" policy can be found on our website at http://www.diodes.com/products/lead_free/index.php.

NEW PRODUCT

Electrical Characteristics @ T_A = 25°C unless otherwise specified

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
OFF CHARACTERISTICS (per element) (Note 5)						
Drain-Source Breakdown Voltage	BV_{DSS}	20	—	—	V	V_{GS} = 0V, I_D = 100μA
Zero Gate Voltage Drain Current	I_{DSS}	—	—	10	μA	V_{DS} = 17V, V_{GS} = 0V
Gate-Source Leakage	I_{GSS}	—	—	±5	μA	V_{GS} = ±8V, V_{DS} = 0V
ON CHARACTERISTICS (per element) (Note 5)						
Gate Threshold Voltage	$V_{GS(th)}$	0.53	—	1.2	V	V_{DS} = V_{GS}, I_D = 100μA
Static Drain-Source On-Resistance	$R_{DS\ (ON)}$	— — — — —	0.9 0.85 1.2 2.4 2.5	1.5 1.7 1.7 3.5 3.5	Ω	V_{GS} = 4V, I_D = 10mA V_{GS} = 2.7V, I_D = 200mA V_{GS} = 2.5V, I_D = 10mA V_{GS} = 1.8V, I_D = 200mA V_{GS} = 1.5V, I_D = 1mA
Forward Transfer Admittance	$\|Y_{fs}\|$	40	—	—	mS	V_{DS} = 3V, I_D = 10mA

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

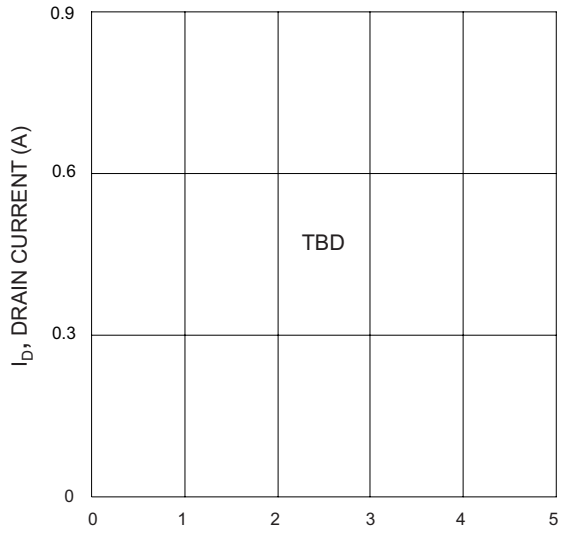


Fig. 1 Typical Output Characteristics

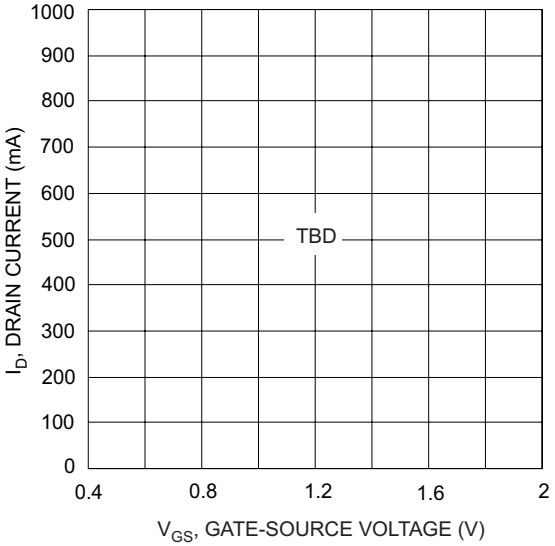


Fig. 2 Reverse Drain Current vs. Source-Drain Voltage

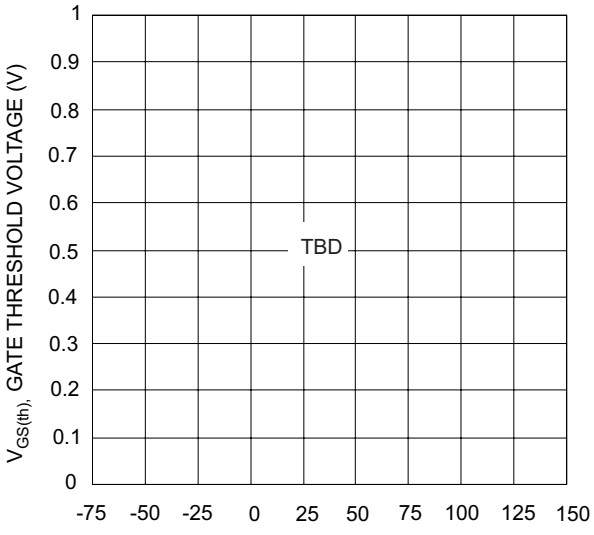


Fig. 3 Gate Threshold Voltage vs. Channel Temperature

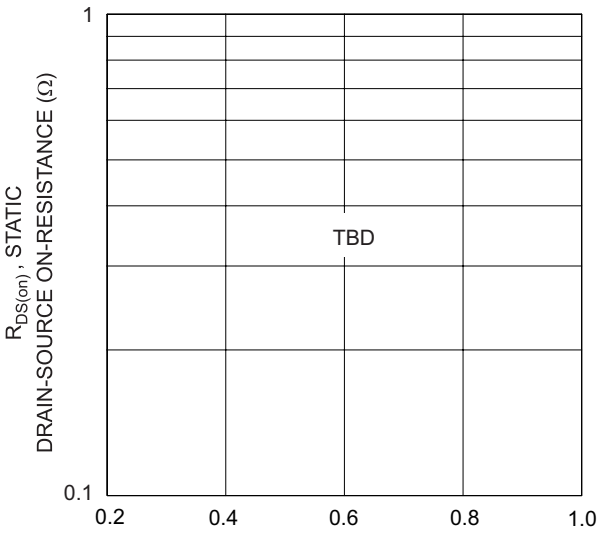


Fig. 4 Static Drain-Source On-Resistance Vs. Drain Current

NEW PRODUCT

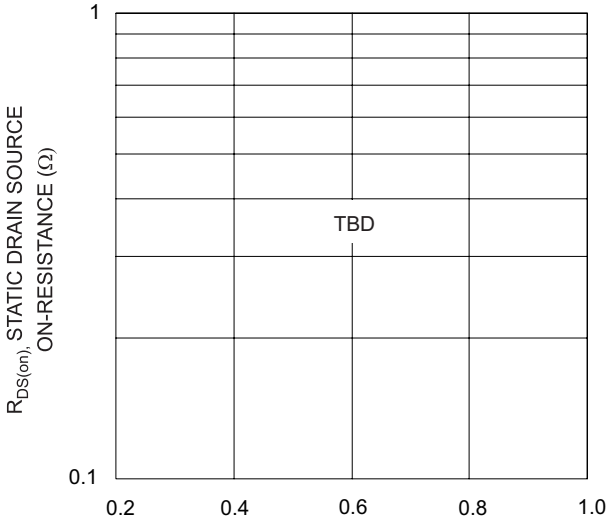


Fig. 5 Static Drain-Source On-Resistance vs. Drain Current

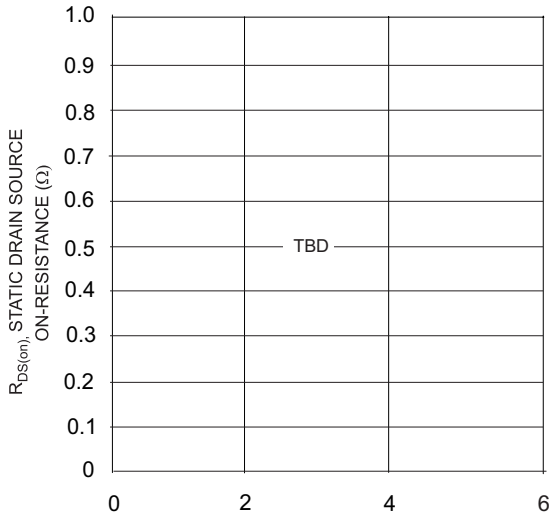


Fig. 6 Static Drain-Source, On-Resistance vs. Gate-Source Voltage

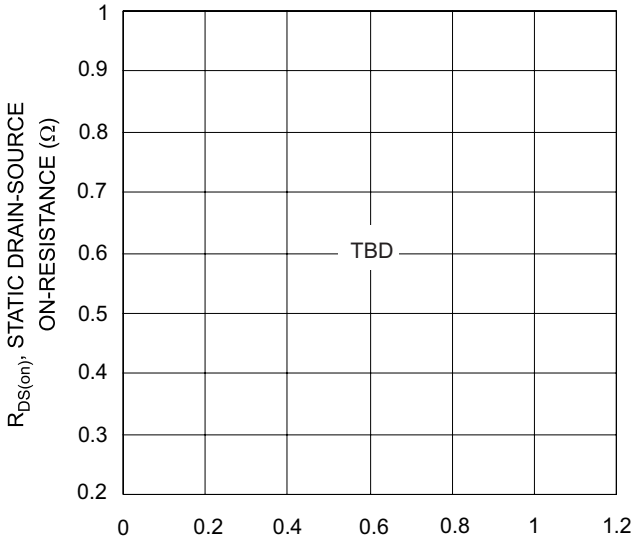


Fig. 7 On-Resistance vs. Drain Current and Gate Voltage

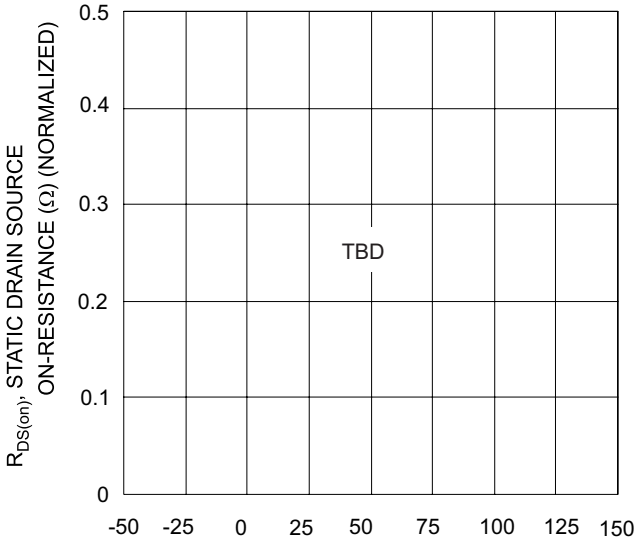


Fig. 8 Static Drain-Source, On-Resistance vs. Temperature

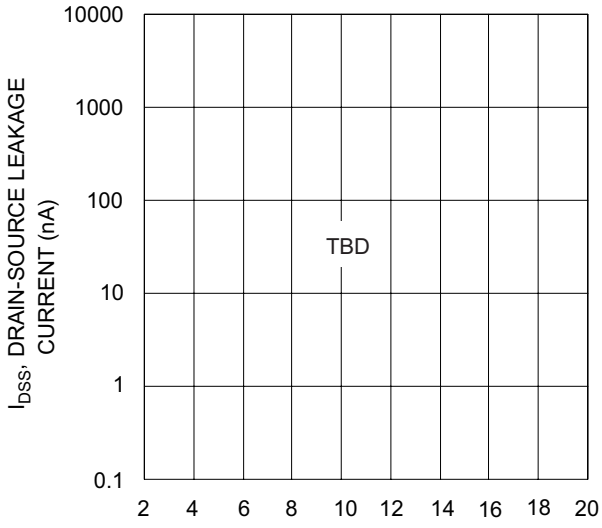


Fig. 9 Drain Source Leakage Current vs. Voltage

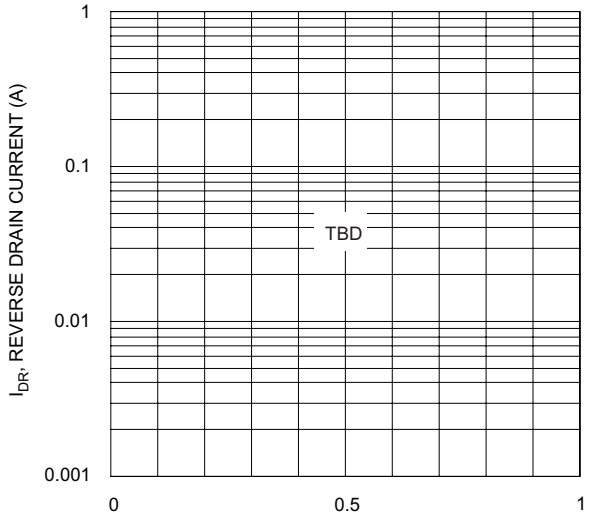


Fig. 10 Reverse Drain Current vs. Source-Drain Voltage

NEW PRODUCT

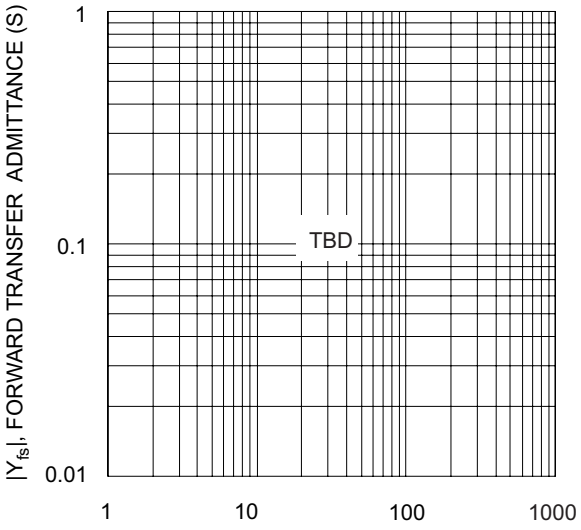


Fig. 11 Forward Transfer Admittance vs. Drain Current

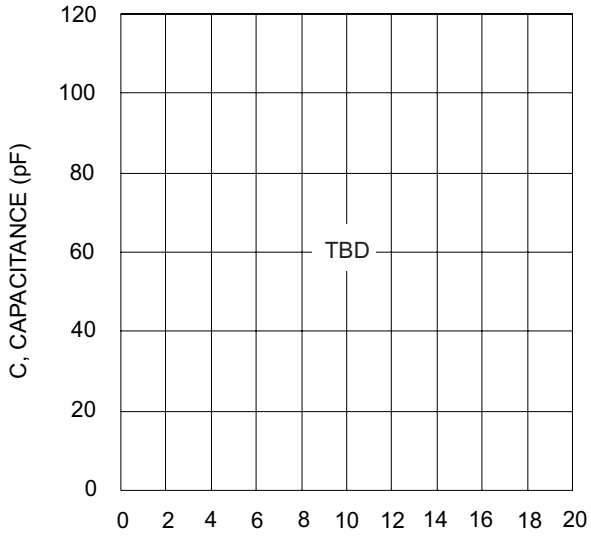


Fig. 12 Capacitance Variation

Ordering Information (Note 6)

Device	Packaging	Shipping
DMN2005LPK-7	DFN1006-3	3000/Tape & Reel

Notes: 6. For Packaging Details, go to our website at http://www.diodes.com/datasheets/ap02007.pdf.

Marking Information

DM = Product Type Marking Code,
Dot Denotes Collector Side