

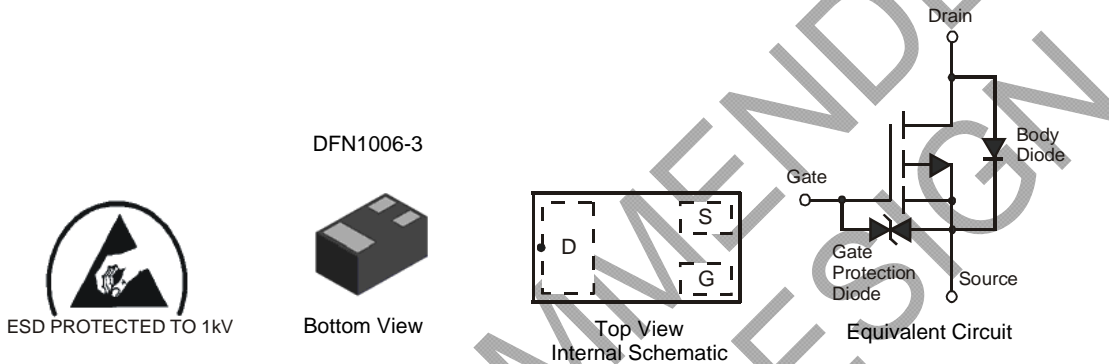


### Features

- Low On-Resistance:
  - $R_{DS(ON)} \leq 6\Omega$  @  $V_{GS} = -4.0V$
  - $R_{DS(ON)} \leq 8\Omega$  @  $V_{GS} = -2.5V$
- Very Low Gate Threshold Voltage,  $\leq 1.0V$
- Low Input Capacitance
- Fast Switching Speed
- Low Input/Output Leakage
- **ESD Protected Gate, 1KV**
- **Lead Free By Design/RoHS Compliant (Note 1)**
- **"Green" Device (Note 2)**
- **Qualified to AEC-Q101 Standards for High Reliability**

### 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-020
- Terminals: Finish — NiPdAu over Copper leadframe. Solderable per MIL-STD-202, Method 208
- Terminal Connections: See Diagram
- Weight: 0.001 grams (approximate)

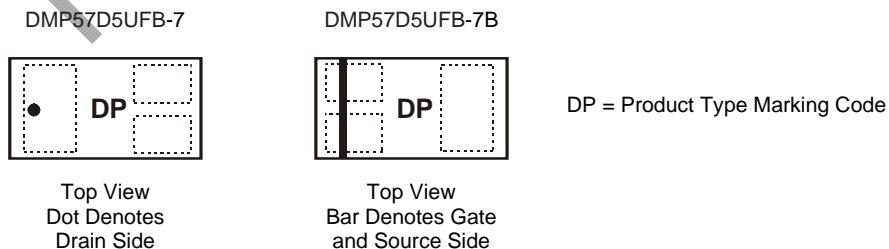


### Ordering Information (Note 3)

Part Number	Marking	Reel size (inches)	Tape width (mm)	Quantity per reel
DMP57D5UFB-7	DP	7	8	3000
DMP57D5UFB-7B	DP	7	8	10,000

- 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



### Maximum Ratings @T<sub>A</sub> = 25°C unless otherwise specified

Characteristic		Symbol	Value	Units
Drain-Source Voltage		V <sub>DSS</sub>	-50	V
Gate-Source Voltage		V <sub>GSS</sub>	±8	V
Drain Current (Note 4)	Steady	I <sub>D</sub>	-200	mA
Pulsed Drain Current (Note 5)		I <sub>DM</sub>	-700	mA

### Thermal Characteristics

Characteristic	Symbol	Value	Units
Total Power Dissipation (Note 4)	P <sub>D</sub>	425	mW
Thermal Resistance, Junction to Ambient @T <sub>A</sub> = 25°C (Note 4)	R <sub>θJA</sub>	294	°C/W
Operating and Storage Temperature Range	T <sub>J</sub> , T <sub>STG</sub>	-55 to +150	°C

### Electrical Characteristics @T<sub>A</sub> = 25°C unless otherwise specified

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
<b>OFF CHARACTERISTICS (Note 6)</b>						
Drain-Source Breakdown Voltage	BV <sub>DSS</sub>	-50	—	—	V	V <sub>GS</sub> = 0V, I <sub>D</sub> = -250μA
Zero Gate Voltage Drain Current	I <sub>DSS</sub>	—	—	-10	μA	V <sub>DS</sub> = -50V, V <sub>GS</sub> = 0V
Gate-Source Leakage	I <sub>GSS</sub>	—	—	±500	nA	V <sub>GS</sub> = ±8V, V <sub>DS</sub> = 0V
<b>ON CHARACTERISTICS (Note 6)</b>						
Gate Threshold Voltage	V <sub>GS(th)</sub>	-0.7	—	-1.0	V	V <sub>DS</sub> = V <sub>GS</sub> , I <sub>D</sub> = -250μA
Static Drain-Source On-Resistance	R <sub>DS(ON)</sub>	—	4.6 6	6 8	Ω	V <sub>GS</sub> = -4.0V, I <sub>D</sub> = -100mA V <sub>GS</sub> = -2.5V, I <sub>D</sub> = -80mA
Forward Transfer Admittance	Y <sub>fs</sub>	100	—	—	mS	V <sub>DS</sub> = -5V, I <sub>D</sub> = -100mA
Diode Forward Voltage (Note 6)	V <sub>SD</sub>	—	—	-1.2	V	V <sub>GS</sub> = 0V, I <sub>S</sub> = -100mA
<b>DYNAMIC CHARACTERISTICS</b>						
Input Capacitance	C <sub>iss</sub>	—	29	—	pF	
Output Capacitance	C <sub>oss</sub>	—	7.3	—	pF	V <sub>DS</sub> = -4V, V <sub>GS</sub> = 0V
Reverse Transfer Capacitance	C <sub>rss</sub>	—	2.5	—	pF	f = 1.0MHz

- Notes: 4. Device mounted on FR-4 PCB. t ≤ 5 sec.  
5. Pulse width ≤ 10μs, Duty Cycle ≤ 1%.  
6. Short duration pulse test used to minimize self-heating effect.

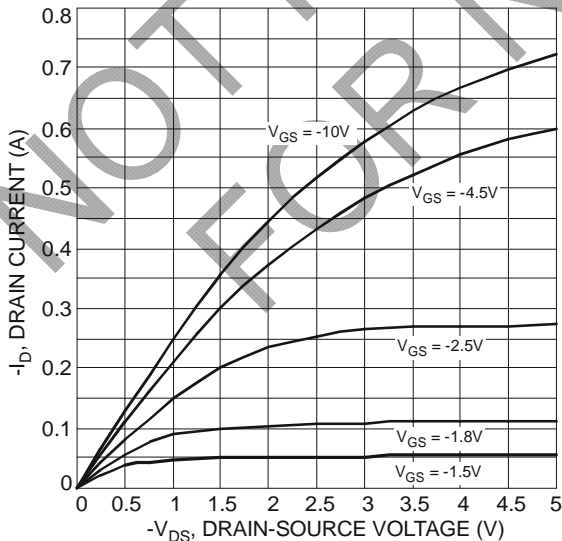


Fig. 1 Typical Output Characteristics

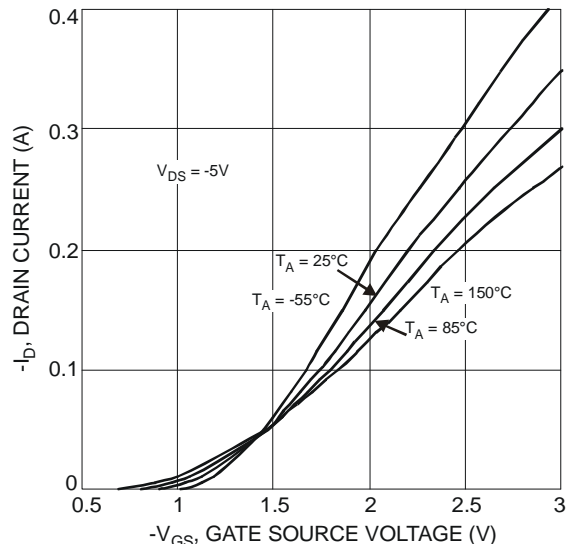


Fig. 2 Typical Transfer Characteristics

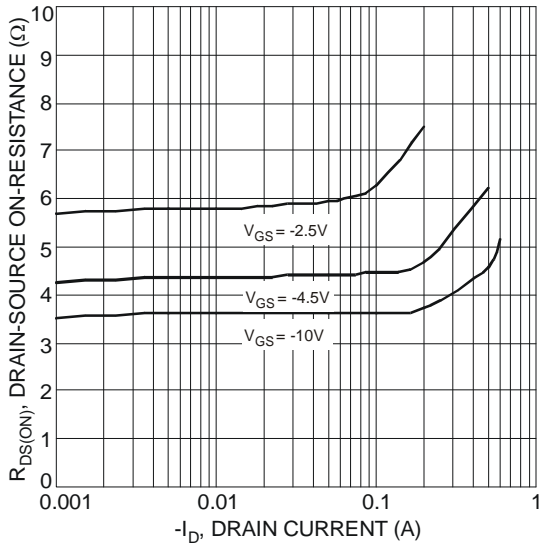


Fig. 3 Typical On-Resistance vs. Drain Current and Gate Voltage

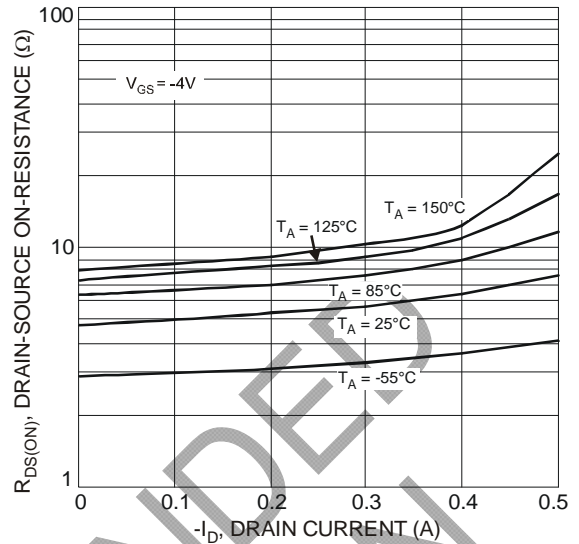


Fig. 4 Typical Drain-Source On-Resistance vs. Drain Current and Temperature

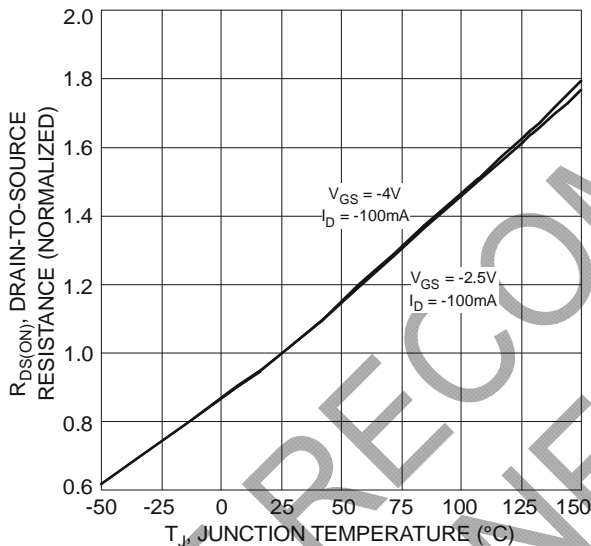


Fig. 5 On-Resistance Variation with Temperature

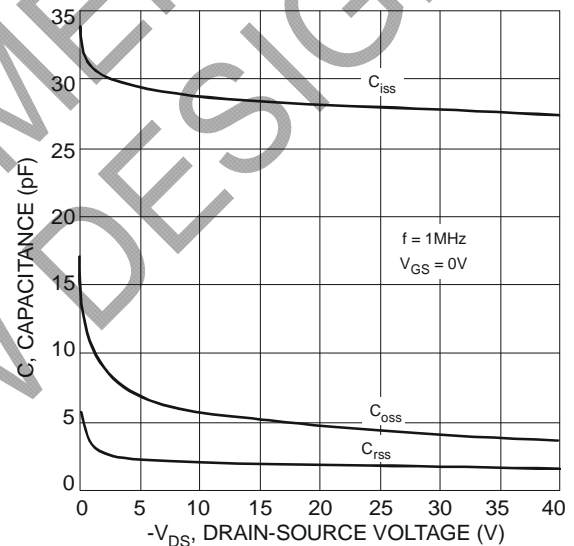


Fig. 6 Typical Capacitance

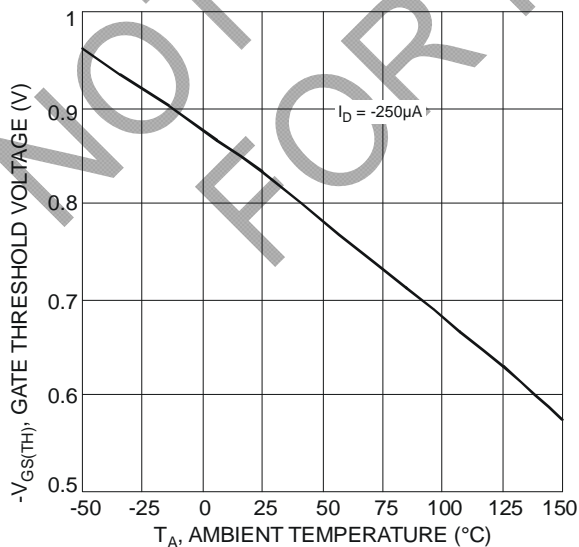


Fig. 7 Gate Threshold Variation vs. Ambient Temperature

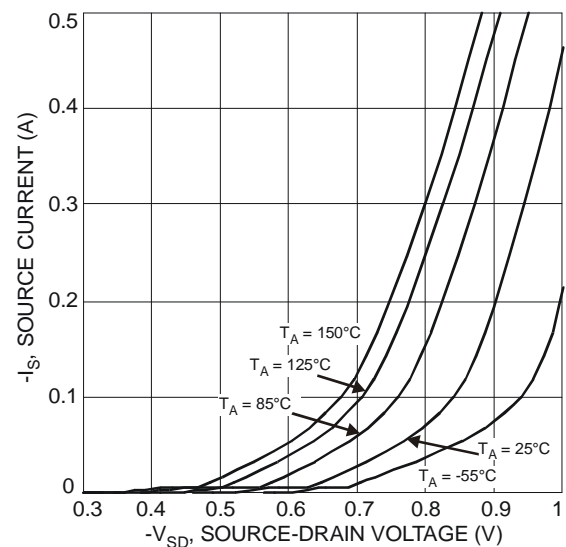


Fig. 8 Diode Forward Voltage vs. Current

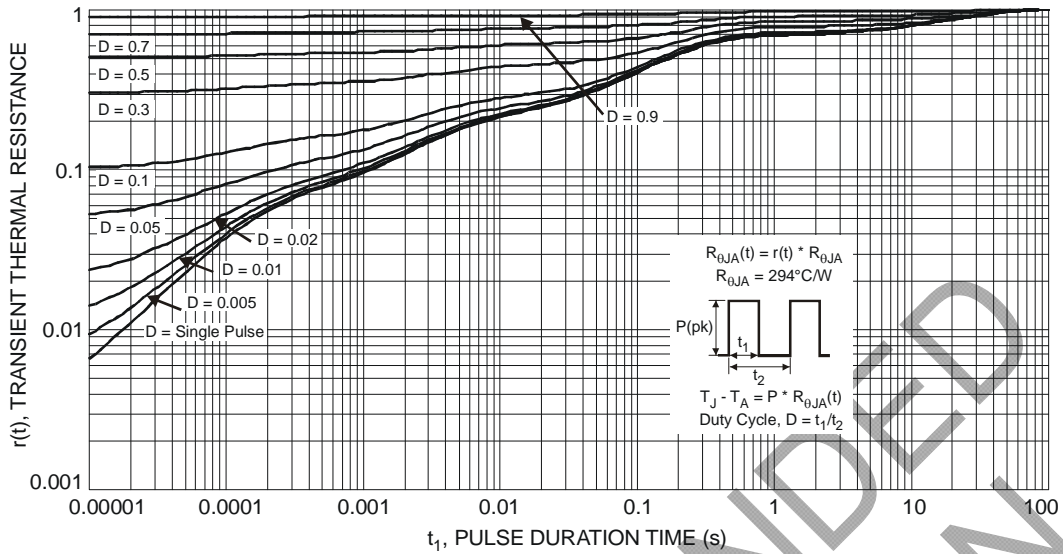
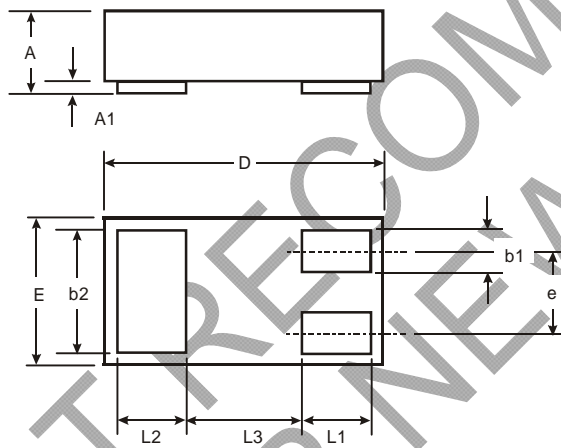


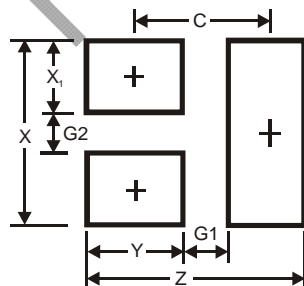
Fig. 9 Transient Thermal Response

**Package Outline Dimensions**



DFN1006-3			
Dim	Min	Max	Typ
A	0.47	0.53	0.50
A1	0	0.05	0.03
b1	0.10	0.20	0.15
b2	0.45	0.55	0.50
D	0.95	1.075	1.00
E	0.55	0.675	0.60
e	—	—	0.35
L1	0.20	0.30	0.25
L2	0.20	0.30	0.25
L3	—	—	0.40
All Dimensions in mm			

**Suggested Pad Layout**



Dimensions	Value (in mm)
Z	1.1
G1	0.3
G2	0.2
X	0.7
X1	0.25
Y	0.4
C	0.7

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