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, ≤ 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

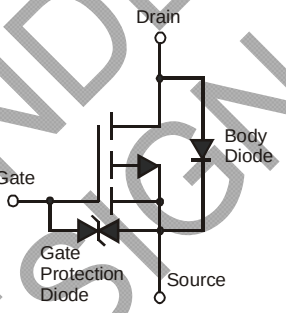
- Case: DFN1006-3
- Case Material: Molded Plastic, "Green" Molding Compound. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Finish — NiPdAu over Copper leadframe. Solderable per MIL-STD-202, Method 208
- Terminal Connections: See Diagram
- Weight: 0.001 grams (approximate)

ESD PROTECTED TO 1kV

DFN1006-3

Bottom View

Top View
Internal Schematic



Equivalent Circuit

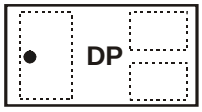
Ordering Information (Note 3)

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.

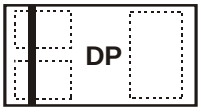
Marking Information

DMP57D5UFB-7



Top View
Dot Denotes
Drain Side

DMP57D5UFB-7B



Top View
Bar Denotes Gate
and Source Side

DP = Product Type Marking Code

Maximum Ratings @T_A = 25°C unless otherwise specified

Characteristic			Symbol	Value	Units
Drain-Source Voltage			V_{DSS}	-50	V
Gate-Source Voltage			V_{GSS}	±8	V
Drain Current (Note 4)	Steady	T_A = 25°C	I_D	-200	mA
Pulsed Drain Current (Note 5)			I_{DM}	-700	mA

Thermal Characteristics

Characteristic	Symbol	Value	Units
Total Power Dissipation (Note 4)	P_D	425	mW
Thermal Resistance, Junction to Ambient @T_A = 25°C (Note 4)	$R_{\theta JA}$	294	°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 6)						
Drain-Source Breakdown Voltage	BV_{DSS}	-50	—	—	V	V_{GS} = 0V, I_D = -250µA
Zero Gate Voltage Drain Current	I_{DSS}	—	—	-10	µA	V_{DS} = -50V, V_{GS} = 0V
Gate-Source Leakage	I_{GSS}	—	—	±500	nA	V_{GS} = ±8V, V_{DS} = 0V
ON CHARACTERISTICS (Note 6)						
Gate Threshold Voltage	$V_{GS(th)}$	-0.7	—	-1.0	V	V_{DS} = V_{GS}, I_D = -250µA
Static Drain-Source On-Resistance	$R_{DS\ (ON)}$	— —	4.6 6	6 8	Ω	V_{GS} = -4.0V, I_D = -100mA V_{GS} = -2.5V, I_D = -80mA
Forward Transfer Admittance	$\|Y_{fs}\|$	100	—	—	mS	V_{DS} = -5V, I_D = -100mA
Diode Forward Voltage (Note 6)	V_{SD}	—	—	-1.2	V	V_{GS} = 0V, I_S = -100mA
DYNAMIC CHARACTERISTICS						
Input Capacitance	C_{iss}	—	29	—	pF	V_{DS} = -4V, V_{GS} = 0V f = 1.0MHz
Output Capacitance	C_{oss}	—	7.3	—	pF	
Reverse Transfer Capacitance	C_{rss}	—	2.5	—	pF	

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.

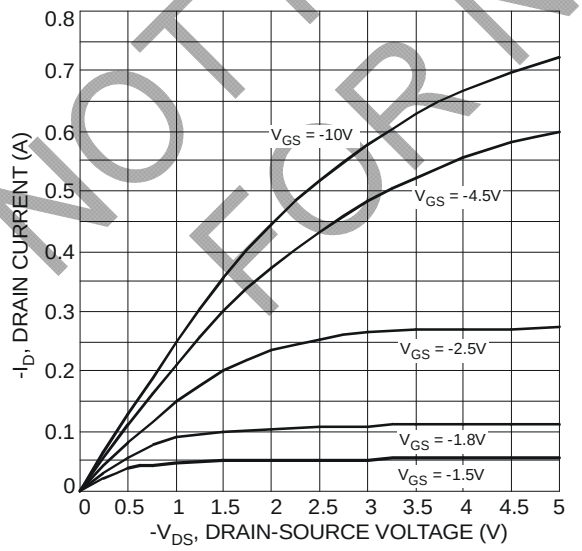


Fig. 1 Typical Output Characteristics

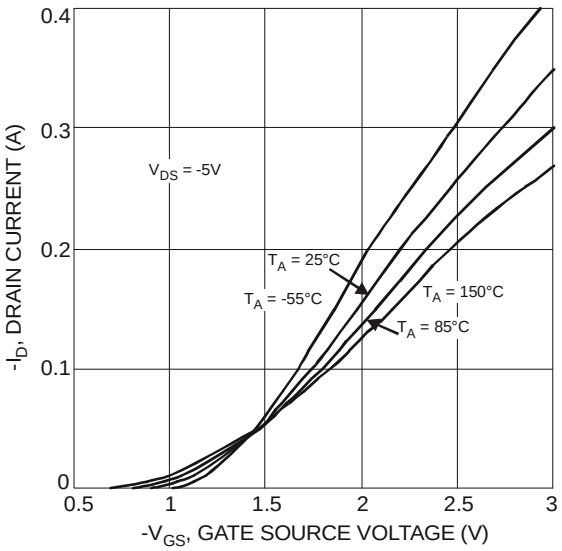


Fig. 2 Typical Transfer Characteristics

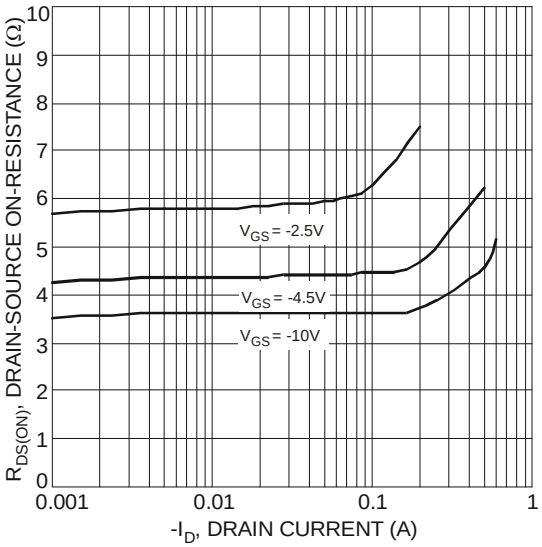


Fig. 3 Typical On-Resistance
vs. Drain Current and Gate Voltage

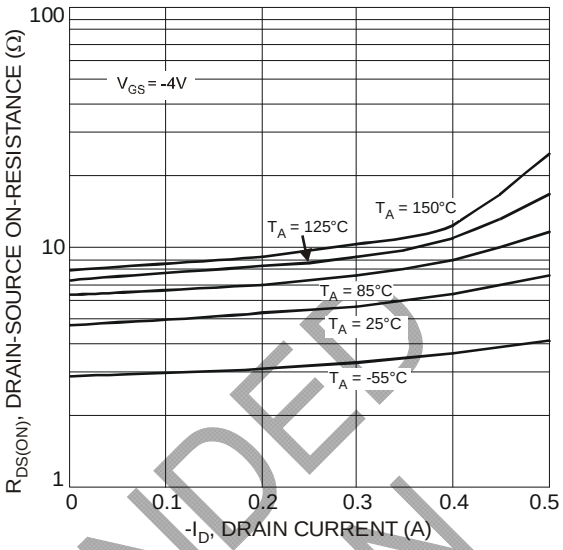


Fig. 4 Typical Drain-Source On-Resistance
vs. Drain Current and Temperature

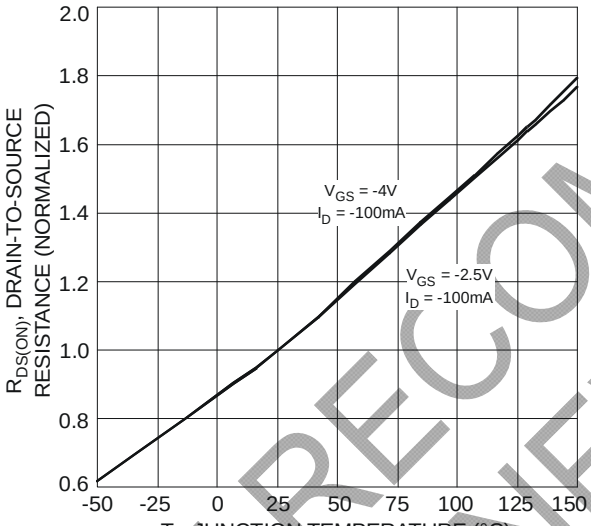


Fig. 5 On-Resistance Variation with Temperature

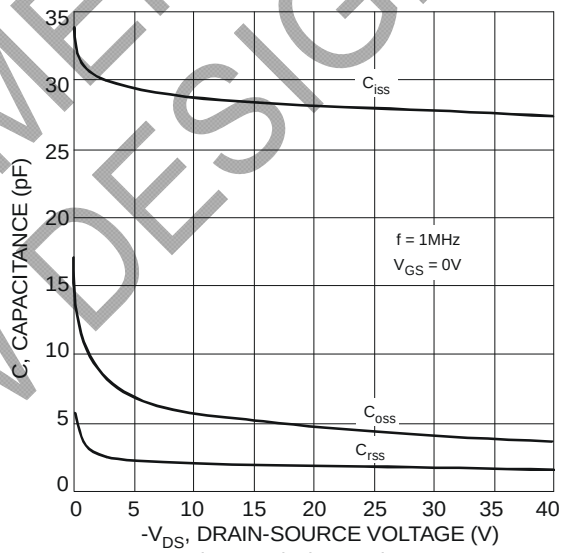


Fig. 6 Typical Capacitance

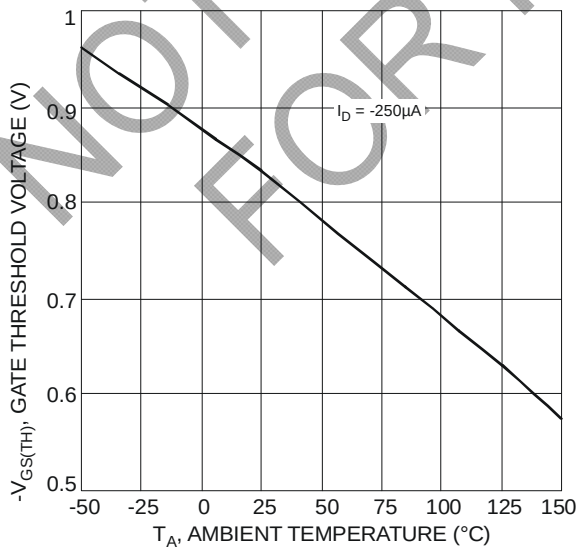


Fig. 7 Gate Threshold Variation vs. Ambient Temperature

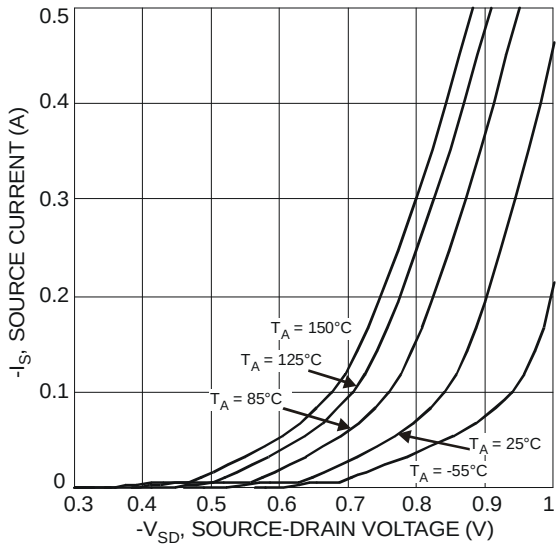


Fig. 8 Diode Forward Voltage vs. Current

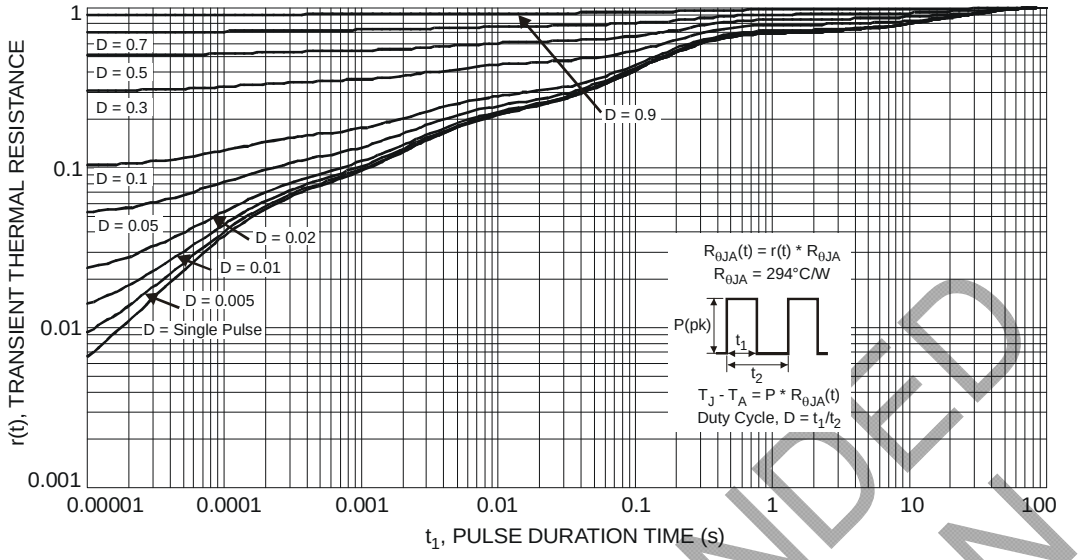
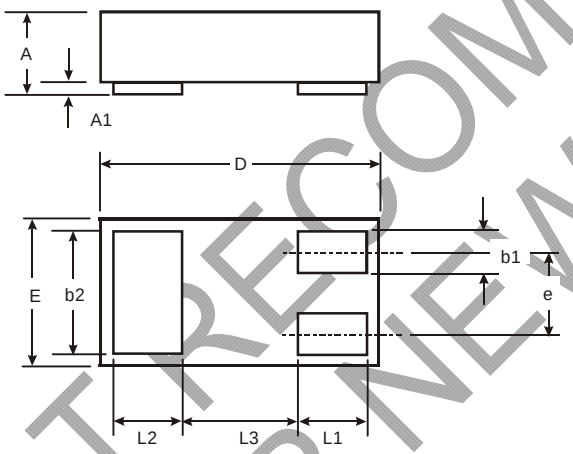


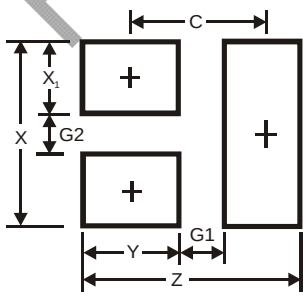
Fig. 9 Transient Thermal Response

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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