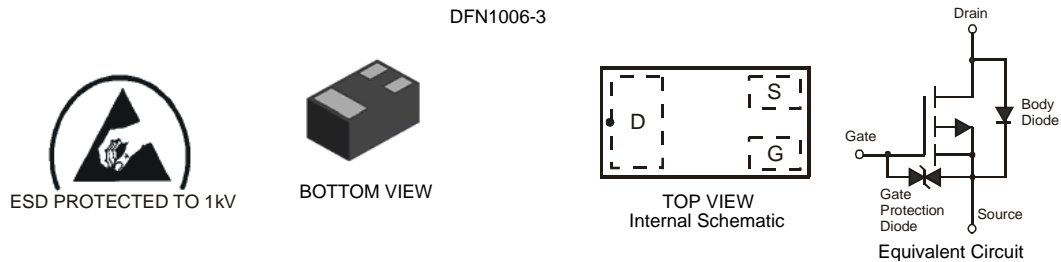


Features

- 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 2)**
- **"Green" Device (Note 4)**
- **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-020D
- Terminals: Finish — NiPdAu over Copper leadframe. Solderable per MIL-STD-202, Method 208
- Terminal Connections: See Diagram
- Marking Information: See Page 3
- Ordering Information: See Page 3
- Weight: 0.001 grams (approximate)



Maximum Ratings @ $T_A = 25^\circ C$ unless otherwise specified

Characteristic	Symbol	Value	Units
Drain-Source Voltage	V_{DSS}	-50	V
Gate-Source Voltage	V_{GSS}	± 8	V
Drain Current (Note 1) Steady $T_A = 25^\circ C$	I_D	-200	mA
Pulsed Drain Current (Note 3)	I_{DM}	-700	mA

Thermal Characteristics

Characteristic	Symbol	Value	Units
Total Power Dissipation (Note 1)	P_D	425	mW
Thermal Resistance, Junction to Ambient @ $T_A = 25^\circ C$ (Note 1)	$R_{\theta JA}$	294	$^\circ C/W$
Operating and Storage Temperature Range	T_J, T_{STG}	-55 to +150	$^\circ C$

Electrical Characteristics @ $T_A = 25^\circ C$ unless otherwise specified

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
OFF CHARACTERISTICS (Note 5)						
Drain-Source Breakdown Voltage	BV_{DSS}	-50	—	—	V	$V_{GS} = 0V, I_D = -250\mu A$
Zero Gate Voltage Drain Current	I_{DSS}	—	—	-10	μA	$V_{DS} = -50V, V_{GS} = 0V$
Gate-Source Leakage	I_{GSS}	—	—	± 500	nA	$V_{GS} = \pm 8V, V_{DS} = 0V$
ON CHARACTERISTICS (Note 5)						
Gate Threshold Voltage	$V_{GS(th)}$	-0.7	—	-1.0	V	$V_{DS} = V_{GS}, I_D = -250\mu A$
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 5)	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:
1. Device mounted on FR-4 PCB. $t \leq 5$ sec.
 2. No purposefully added lead.
 3. Pulse width $\leq 10\mu S$, Duty Cycle $\leq 1\%$.
 4. Diodes Inc.'s "Green" policy can be found on our website at http://www.diodes.com/products/lead_free/index.php.
 5. Short duration pulse test used to minimize self-heating effect.

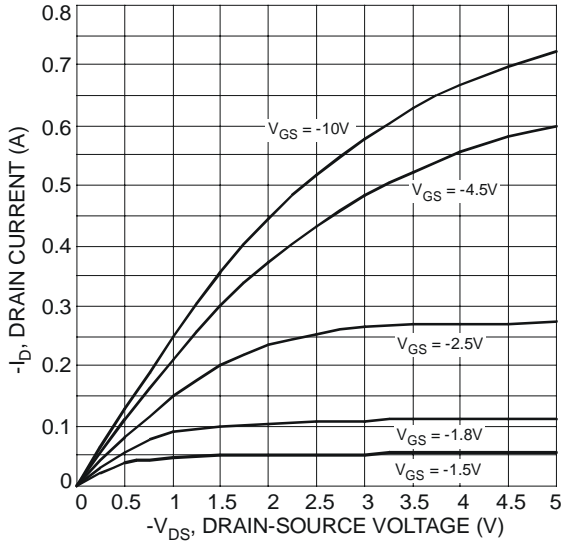


Fig. 1 Typical Output Characteristics

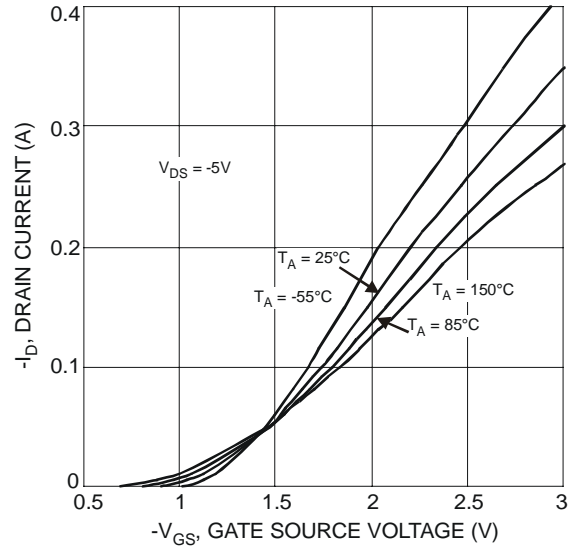


Fig. 2 Typical Transfer Characteristics

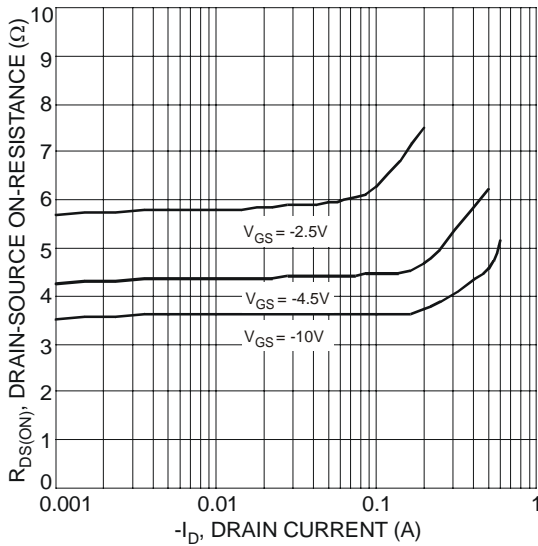


Fig. 3 Typical On-Resistance vs. Drain Current and Gate Voltage

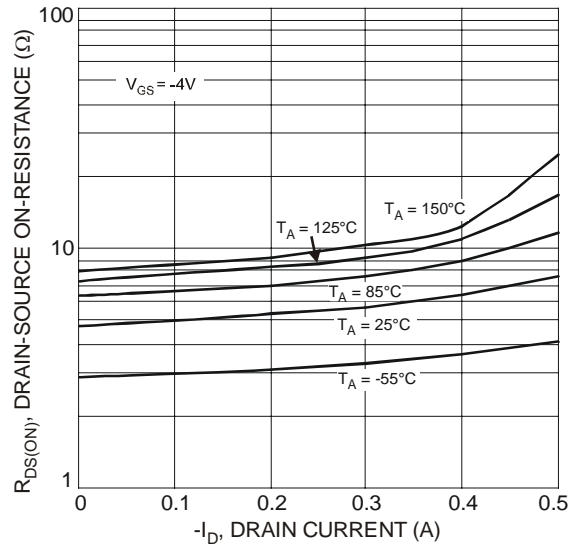


Fig. 4 Typical Drain-Source On-Resistance vs. Drain Current and Temperature

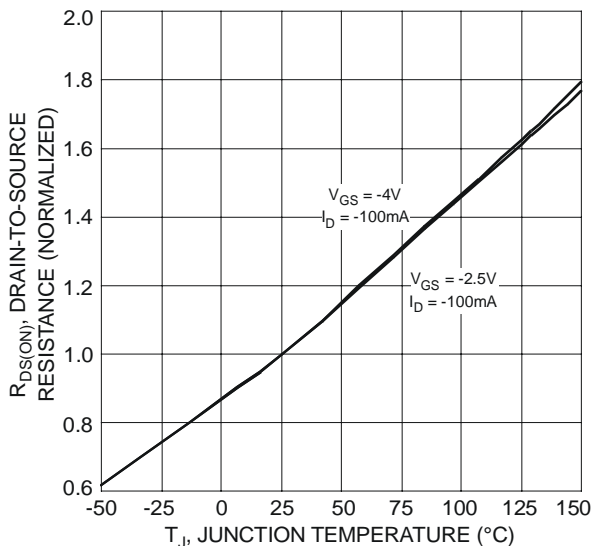


Fig. 5 On-Resistance Variation with Temperature

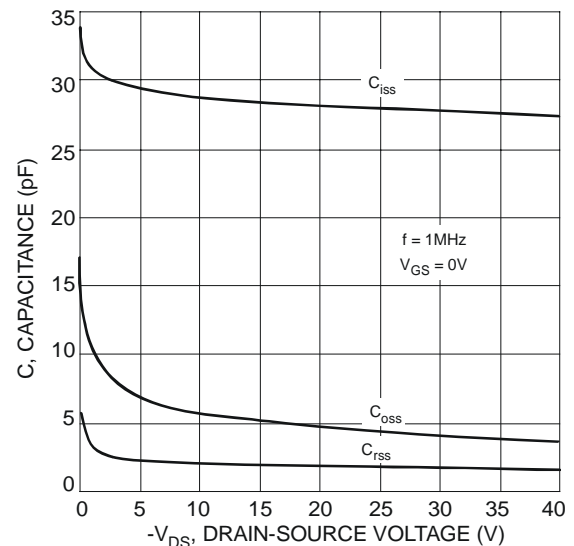


Fig. 6 Typical Capacitance

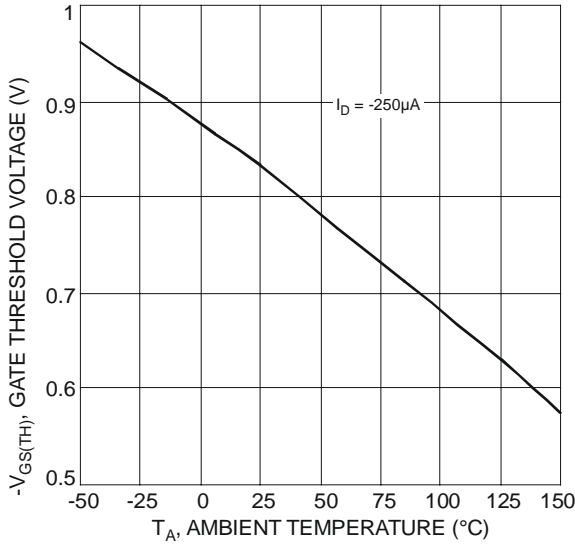


Fig. 7 Gate Threshold Variation vs. Ambient Temperature

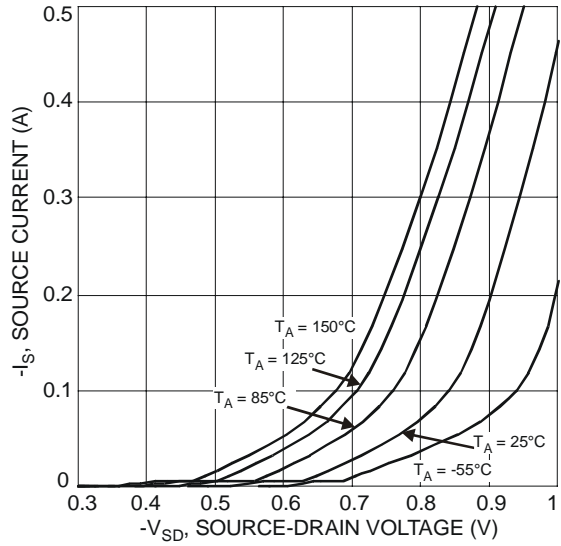


Fig. 8 Diode Forward Voltage vs. Current

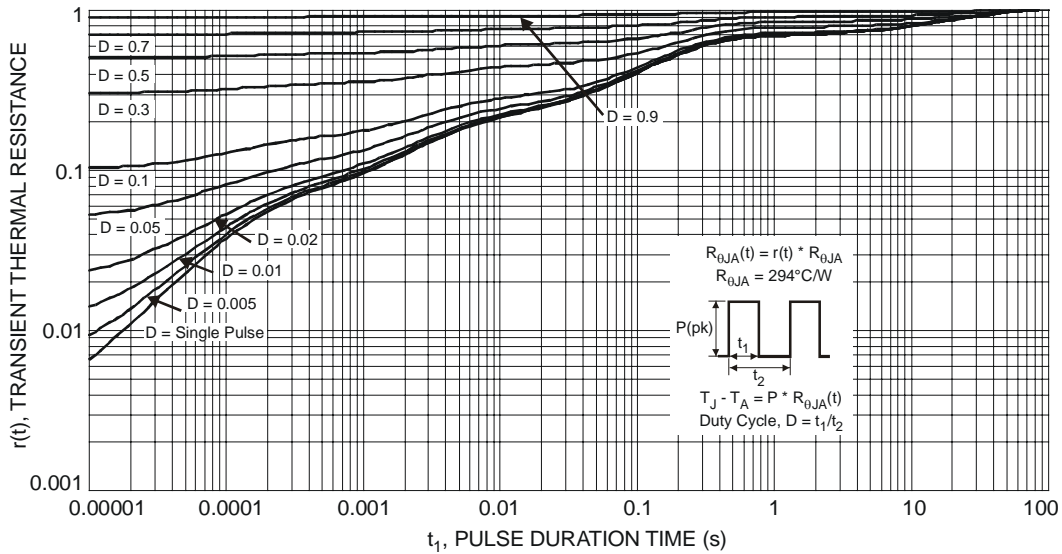


Fig. 9 Transient Thermal Response

Ordering Information (Note 6)

Part Number	Case	Packaging
DMP57D5UFB -7	DFN1006-3	3000/Tape & Reel

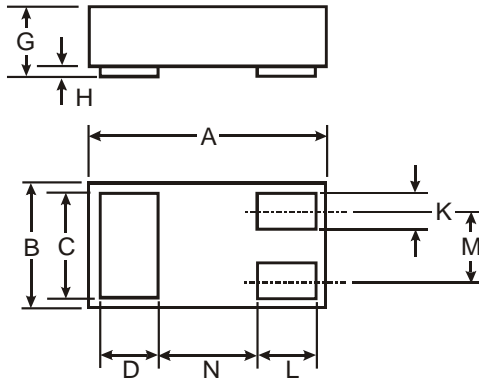
Notes: 6. For packaging details, go to our website at <http://www.diodes.com/datasheets/ap02007.pdf>.

Marking Information



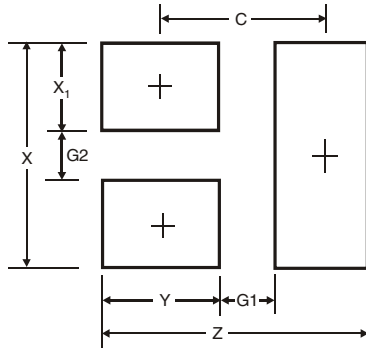
DP = Product Type Marking Code
Dot Denotes Drain Side

Package Outline Dimensions



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			

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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