



**THE DATASHEET OF  
DMP2104LP-7**

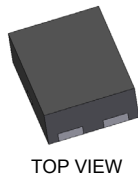


### Features

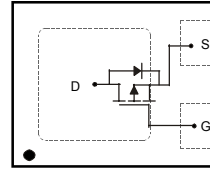
- P-Channel MOSFET
- Very Low On-Resistance
- Very Low Gate Threshold Voltage
- Low Input Capacitance
- Fast Switching Speed
- Low Input/Output Leakage
- Ultra-Small Surface Mount Package
- **Lead Free By Design/RoHS Compliant (Note 2)**
- **"Green" Device (Note 3)**
- **Qualified to AEC-Q101 Standards for High Reliability**

### Mechanical Data

- Case: DFN1411-3
- Case Material: Molded Plastic, "Green" Molding Compound. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020C
- Terminal Connections: See Diagram
- Terminals: Finish - NiPdAu over Copper lead frame. Solderable per MIL-STD-202, Method 208
- Marking Information: See Page 3
- Ordering Information: See Page 3
- Weight: 0.003 grams (approximate)



DFN1411-3


 TOP VIEW  
Internal Schematic

### Maximum Ratings @ $T_A = 25^\circ\text{C}$ unless otherwise specified

Characteristic	Symbol	Value	Units
Drain-Source Voltage	$V_{DSS}$	-20	V
Gate-Source Voltage	$V_{GSS}$	$\pm 12$	V
Continuous Drain Current (Note 1)	$I_D$	$T_A = 25^\circ\text{C}$ -1.5 $T_A = 70^\circ\text{C}$ -1.2	A

### Thermal Characteristics @ $T_A = 25^\circ\text{C}$ unless otherwise specified

Characteristic	Symbol	Value	Units
Power Dissipation (Note 1)	$P_D$	500	mW
Thermal Resistance, Junction to Ambient (Note 1)	$R_{\theta JA}$	250	$^\circ\text{C}/\text{W}$
Operating and Storage Temperature Range	$T_j, T_{STG}$	-55 to +150	$^\circ\text{C}$

### Electrical Characteristics @ $T_A = 25^\circ\text{C}$ unless otherwise specified

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
<b>OFF CHARACTERISTICS (Note 4)</b>						
Drain-Source Breakdown Voltage	$BV_{DSS}$	-20	—	—	V	$V_{GS} = 0\text{V}, I_D = -250\mu\text{A}$
Zero Gate Voltage Drain Current	$I_{DSS}$	—	—	-1.0 -5.0	$\mu\text{A}$	$T_J = 25^\circ\text{C}$ $T_J = 125^\circ\text{C}$ $V_{DS} = -20\text{V}, V_{GS} = 0\text{V}$
Gate-Source Leakage	$I_{GSS}$	—	—	$\pm 100$	nA	$V_{GS} = \pm 12\text{V}, V_{DS} = 0\text{V}$
<b>ON CHARACTERISTICS (Note 4)</b>						
Gate Threshold Voltage	$V_{GS(th)}$	-0.45	—	-1.0	V	$V_{DS} = V_{GS}, I_D = -250\mu\text{A}$
Static Drain-Source On-Resistance	$R_{DS(on)}$	—	92 134 180	150 200 240	$\text{m}\Omega$	$V_{GS} = -4.5\text{V}, I_D = -950\text{mA}$ $V_{GS} = -2.5\text{V}, I_D = -670\text{mA}$ $V_{GS} = -1.8\text{V}, I_D = -200\text{mA}$
Forward Transconductance	$g_{FS}$	—	3.1	—	S	$V_{DS} = -10\text{V}, I_D = -810\text{mA}$
Diode Forward Voltage (Note 4)	$V_{SD}$	—	—	-0.9	V	$V_{GS} = 0\text{V}, I_S = -360\text{mA}$
<b>DYNAMIC CHARACTERISTICS</b>						
Input Capacitance	$C_{iss}$	—	320	—	pF	$V_{DS} = -16\text{V}, V_{GS} = 0\text{V}$ $f = 1.0\text{MHz}$
Output Capacitance	$C_{oss}$	—	80	—	pF	
Reverse Transfer Capacitance	$C_{rss}$	—	60	—	pF	

- Notes:
1. Device mounted on FR-4 PCB with 1 inch square pads.
  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](http://www.diodes.com/products/lead_free/index.php).
  4. Short duration pulse test used to minimize self-heating effect.

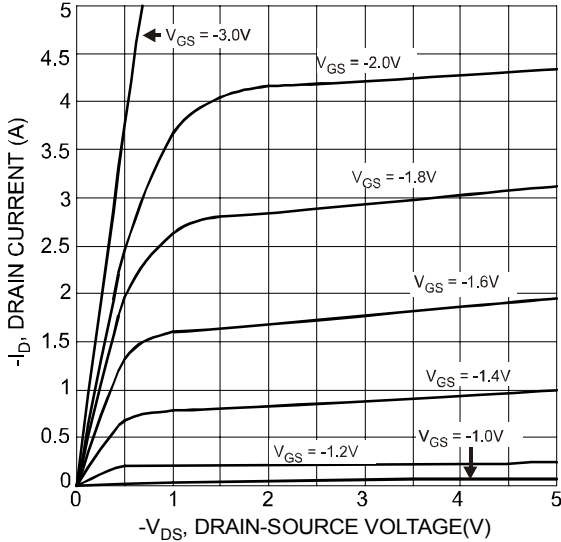


Fig. 1 Typical Output Characteristics

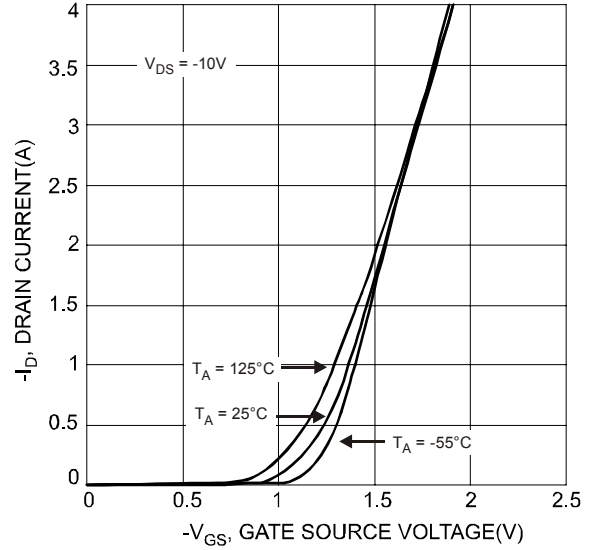


Fig. 2 Typical Transfer Characteristics

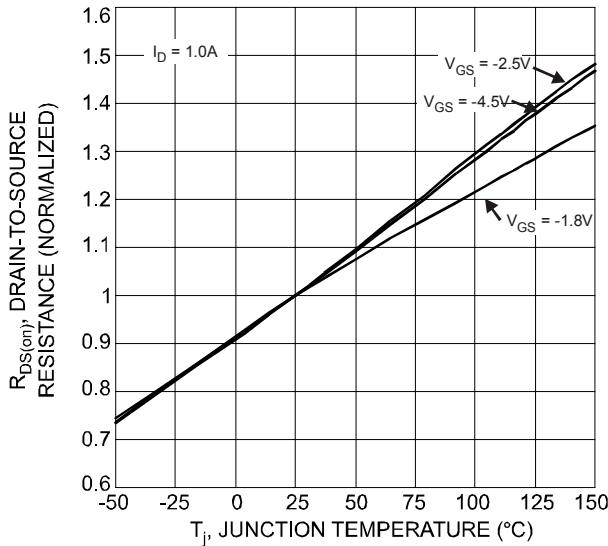


Fig. 3 On-Resistance Variation with Temperature

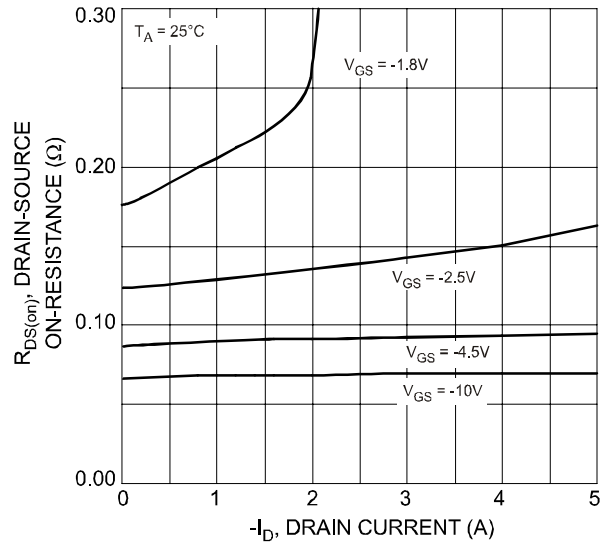


Fig. 4 On-Resistance vs. Drain Current and Gate Voltage

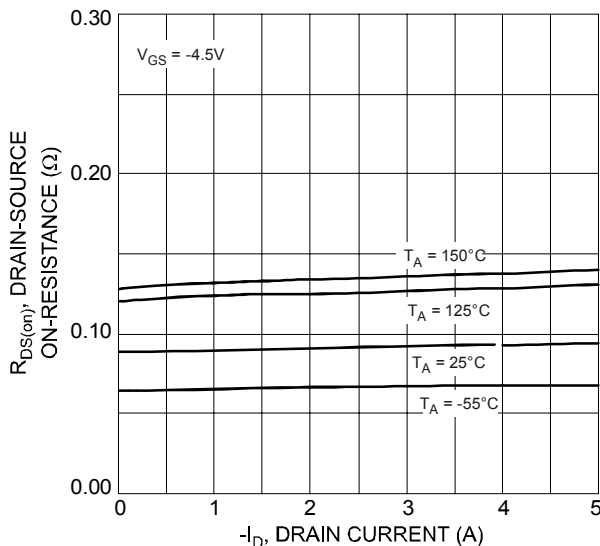


Fig. 5 Drain-Source On-Resistance vs. Drain Current and Temperature

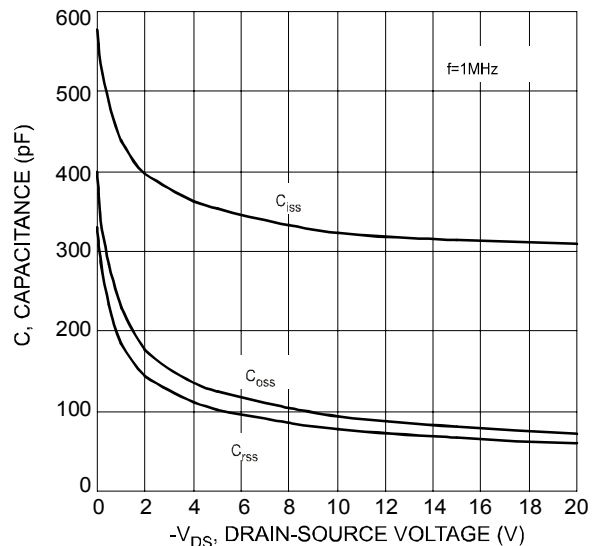


Fig. 6 Typical Capacitance

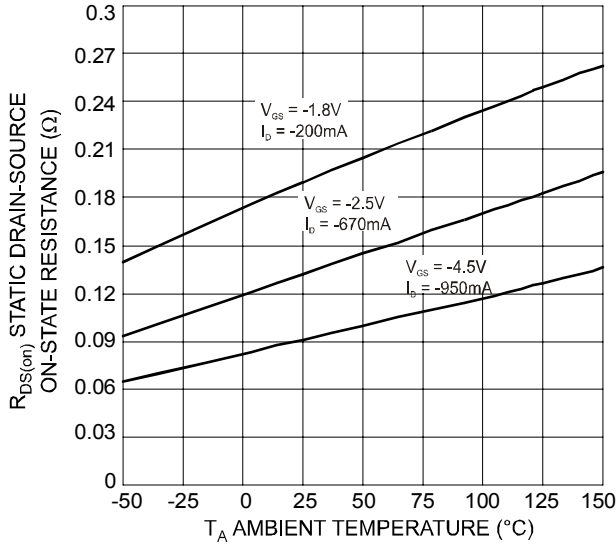


Fig. 7 Static Drain-Source On-State Resistance vs. Ambient Temperature

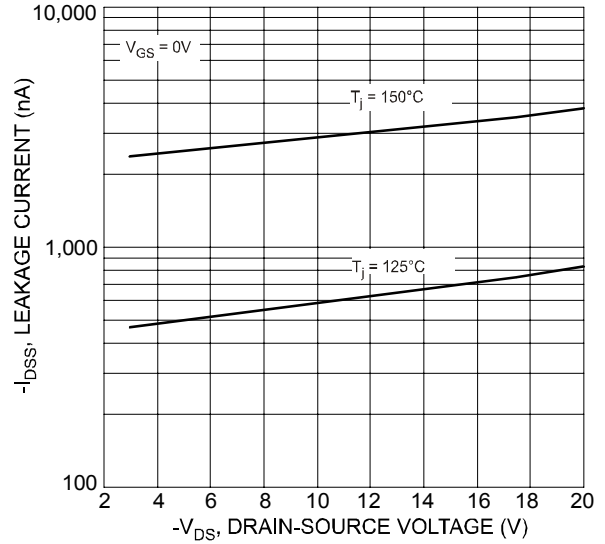


Fig. 8 Drain-Source Leakage Current vs. Voltage

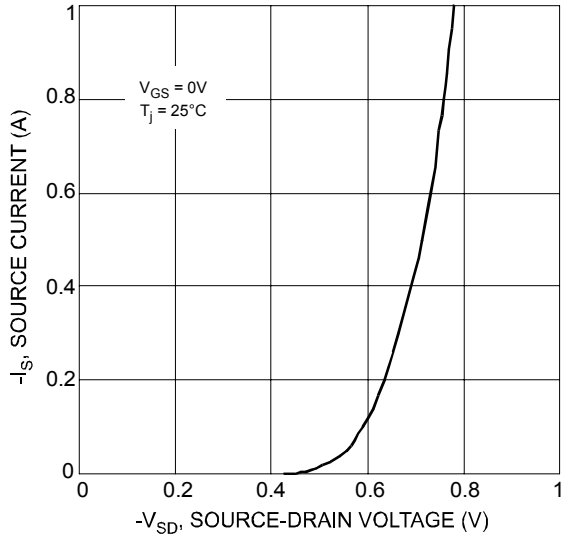


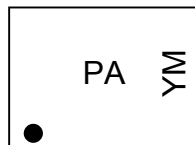
Fig. 9 Diode Forward Voltage vs. Current

**Ordering Information** (Note 5)

Part Number	Case	Packaging
DMP2104LP-7	DFN1411-3	3000/Tape & Reel

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

**Marking Information**



PA = Marking Code  
YM = Date Code Marking  
Y = Year ex: U = 2007  
M = Month ex: 9 = September

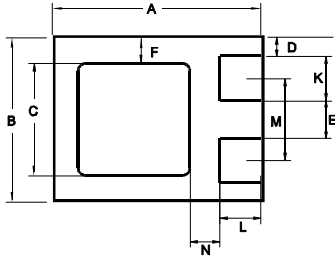
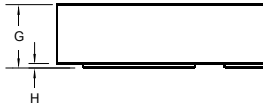
Date Code Key

Year	2007	2008	2009	2010	2011	2012
Code	U	V	W	X	Y	Z

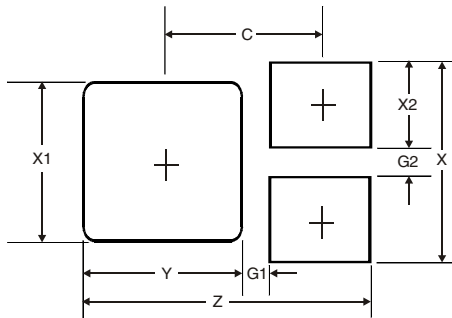
Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Code	1	2	3	4	5	6	7	8	9	O	N	D

**Package Outline Dimensions**



DFN1411-3			
Dim	Min	Max	Typ
A	1.35	1.48	1.40
B	1.05	1.18	1.10
C	0.65	0.85	0.75
D	—	—	0.125
E	—	—	0.25
F	—	—	0.175
G	0.47	0.53	0.50
H	0	0.05	0.02
K	0.25	0.35	0.30
L	0.22	0.33	0.275
M	—	—	0.55
N	—	—	0.20
All Dimensions in mm			

**Suggested Pad Layout**



Dimensions	Value (in mm)
Z	1.38
G1	0.15
G2	0.15
X	0.95
X1	0.75
X2	0.40
Y	0.75
C	0.76

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