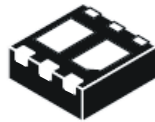


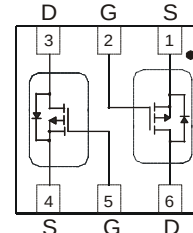
Features

- Low On-Resistance
 - 70mΩ @ $V_{GS} = -4.5V$
 - 85mΩ @ $V_{GS} = -2.5V$
 - 86mΩ (typ) @ $V_{GS} = -1.8V$
- Low Gate Threshold Voltage, -0.9V Max
- Fast Switching Speed
- Low Input/Output Leakage
- Low Profile, 0.5mm Max Height
- Lead Free/RoHS Compliant (Note 2)
- "Green" Device (Note 3)
- Qualified to AEC-Q101 Standards for High Reliability



BOTTOM VIEW

DFN2020B-6



TOP VIEW

Internal Schematic

Mechanical Data

- Case: DFN2020B-6
- Case Material: Molded Plastic, "Green" Molding Compound. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020D
- Terminal Connections: See Diagram
- Terminals: Finish – NiPdAu annealed over Copper leadframe. Solderable per MIL-STD-202, Method 208
- Marking Information: See Page 6
- Ordering Information: See Page 6
- Weight: 0.0065 grams (approximate)

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

Characteristic	Symbol	Value	Unit
Power Dissipation (Note 1)	P_D	1.4	W
Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	89	$^\circ C/W$
Operating and Storage Temperature Range	T_J, T_{STG}	-55 to +150	$^\circ C$

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

Characteristic	Symbol	Value	Units
Drain-Source Voltage	V_{DSS}	-20	V
Gate-Source Voltage	V_{GSS}	± 12	V
Drain Current (Note 1)	I_D	-3.8	A
Pulsed Drain Current (Note 4)	I_{DM}	-13	A

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}	-20	—	—	V	$V_{GS} = 0V, I_D = -250\mu A$
Zero Gate Voltage Drain Current	I_{DSS}	—	—	-1	μA	$V_{DS} = -20V, V_{GS} = 0V$
Gate-Source Leakage	I_{GSS}	—	—	± 100 ± 800	nA	$V_{GS} = \pm 8V, V_{DS} = 0V$ $V_{GS} = \pm 12V, V_{DS} = 0V$
ON CHARACTERISTICS (Note 5)						
Gate Threshold Voltage	$V_{GS(th)}$	-0.45	—	-0.9	V	$V_{DS} = V_{GS}, I_D = -250\mu A$
Static Drain-Source On-Resistance	$R_{DS(on)}$	—	54	70	mΩ	$V_{GS} = -4.5V, I_D = -2.8A$
		—	68	85		$V_{GS} = -2.5V, I_D = -2.0A$
		—	86	—		$V_{GS} = -1.8V, I_D = -1.0A$
		—	—	—		
Forward Transfer Admittance	$ Y_{fs} $	—	8	—	S	$V_{DS} = -5V, I_D = -2.8A$
Diode Forward Voltage (Note 5)	V_{SD}	—	0.7	-1.2	V	$V_{GS} = 0V, I_S = -1.6A$
DYNAMIC CHARACTERISTICS						
Input Capacitance	C_{iss}	—	632	—	pF	$V_{DS} = -10V, V_{GS} = 0V$ $f = 1.0MHz$
Output Capacitance	C_{oss}	—	65	—	pF	
Reverse Transfer Capacitance	C_{rss}	—	54	—	pF	

- Notes:
- Device mounted on FR-4 PCB, on minimum recommended, 2oz Copper pad layout.
 - No purposefully added lead.
 - Diodes Inc.'s "Green" policy can be found on our website at http://www.diodes.com/products/lead_free/index.php.
 - Repetitive rating, pulse width limited by junction temperature.
 - Short duration pulse test used to minimize self-heating effect.

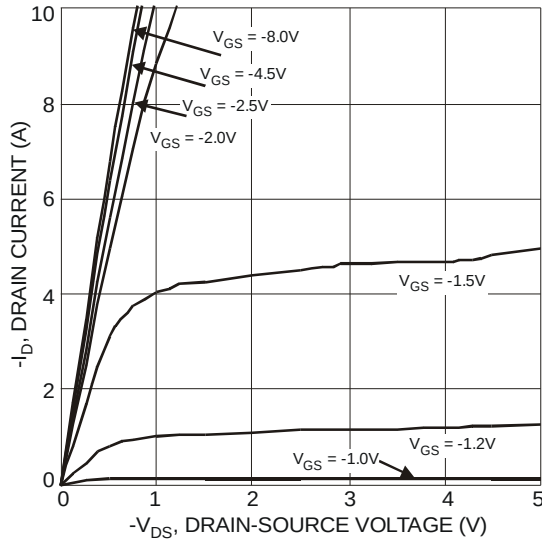


Fig. 1 Typical Output Characteristics

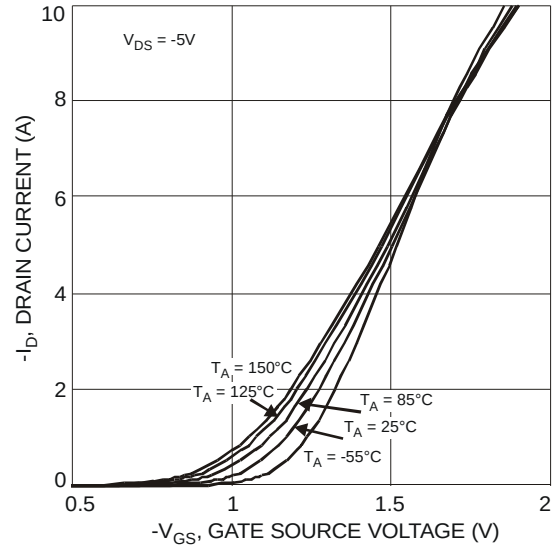


Fig. 2 Typical Transfer Characteristics

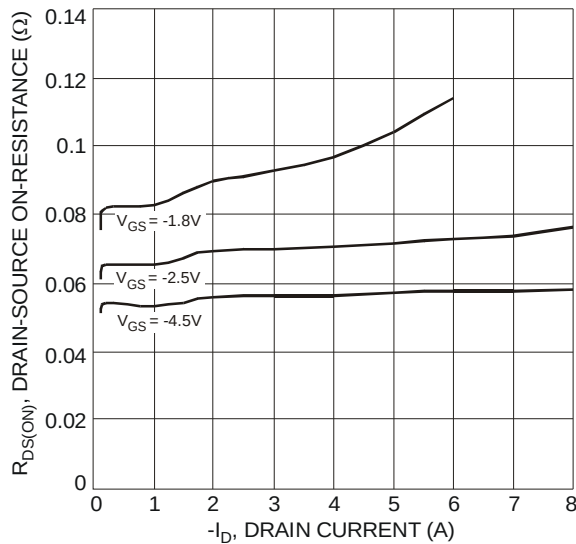


Fig. 3 Typical On-Resistance vs. Drain Current and Gate Voltage

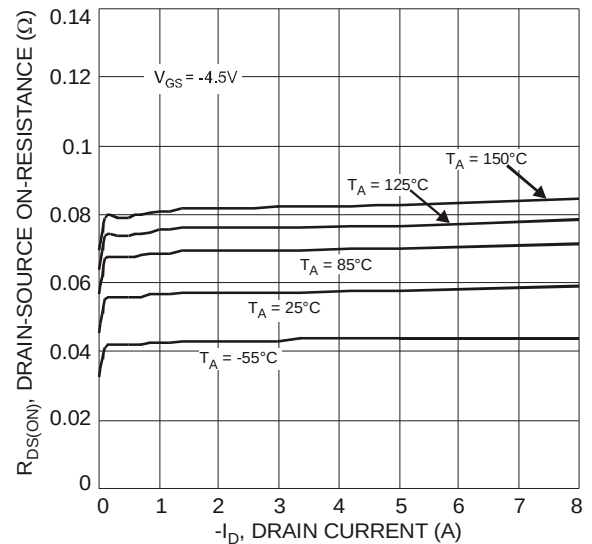


Fig. 4 Typical Drain-Source On-Resistance vs. Drain Current and Temperature

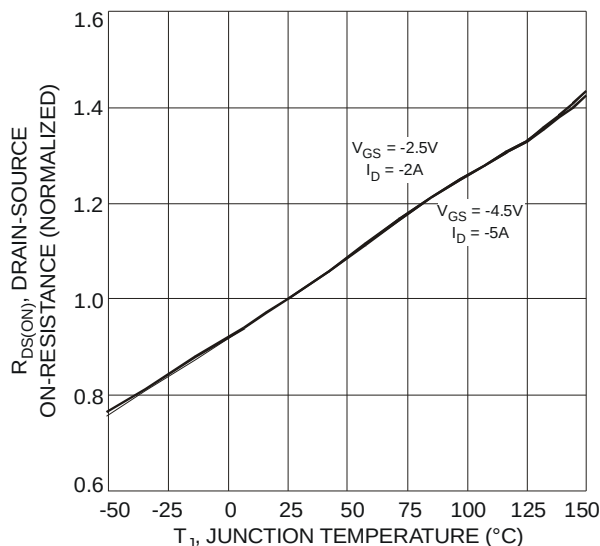


Fig. 5 On-Resistance Variation with Temperature

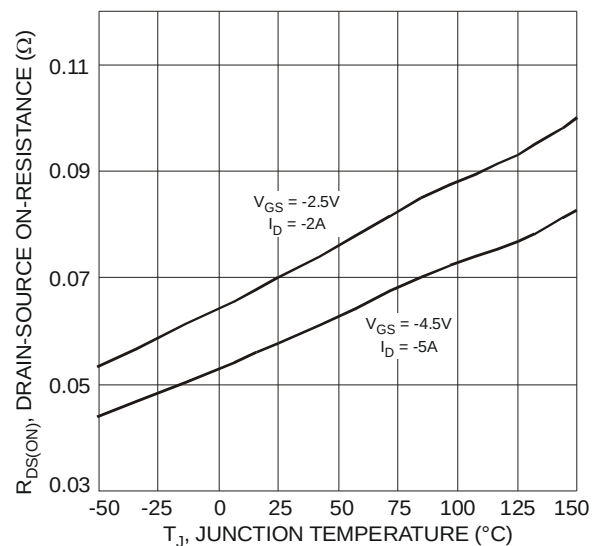
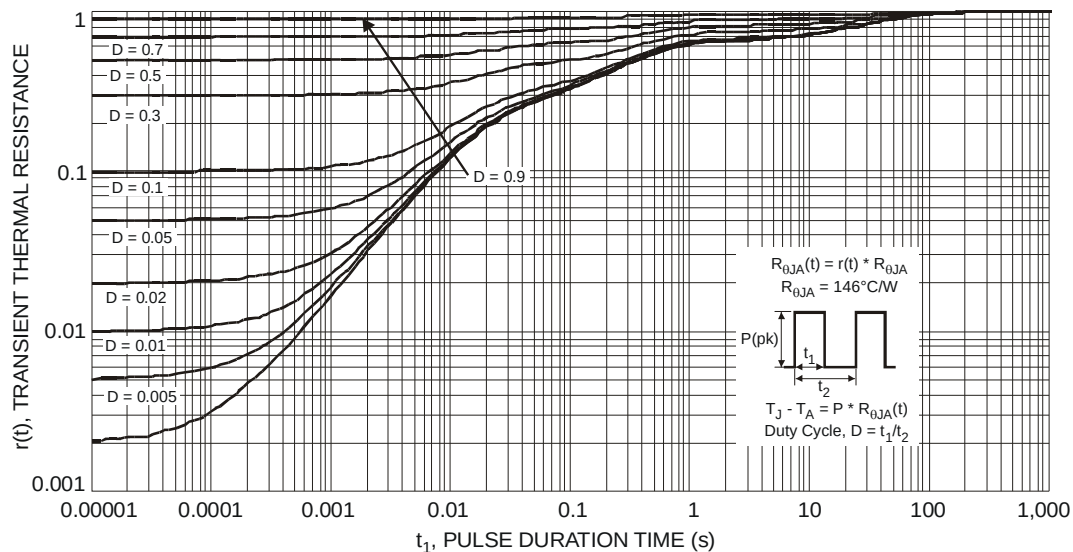
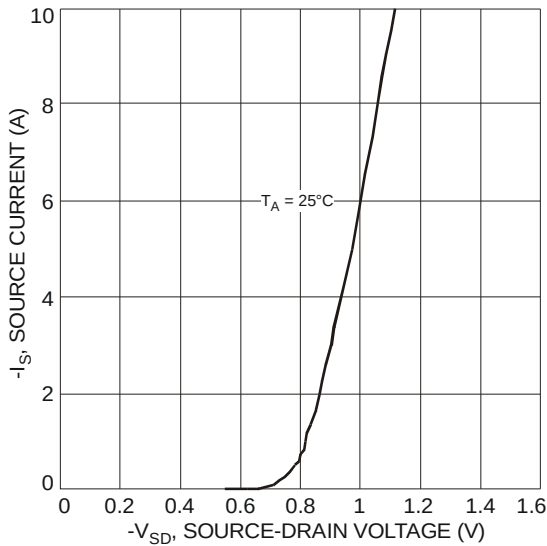
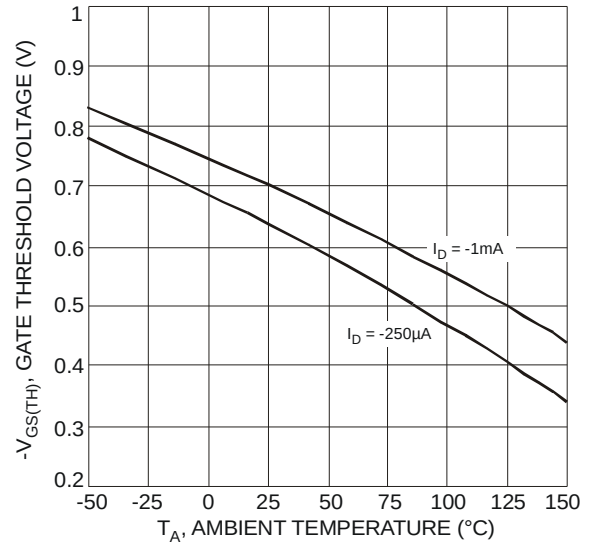
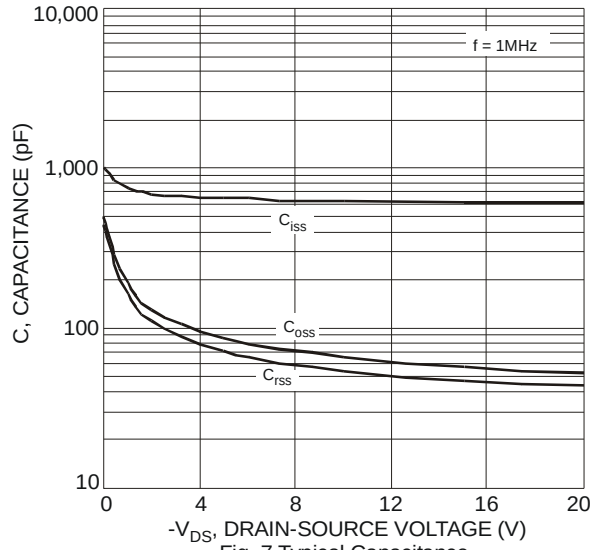


Fig. 6 On-Resistance Variation with Temperature

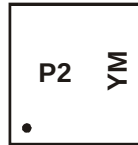


Ordering Information (Note 6)

Part Number	Case	Packaging
DMP2160UFDB-7	DFN2020B-6	3000/Tape & Reel

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

Marking Information



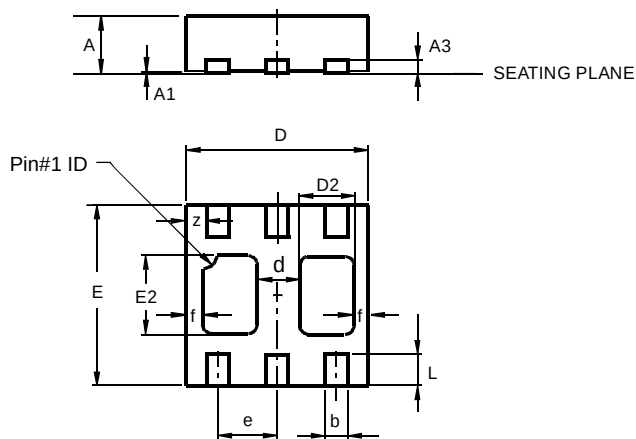
P2 = Marking Code
 YM = Date Code Marking
 Y = Year (ex: V = 2008)
 M = Month (ex: 9 = September)
 Dot denotes Pin 1

Date Code Key

Year	2008	2009	2010	2011	2012	2013	2014	2015
Code	V	W	X	Y	Z	A	B	C

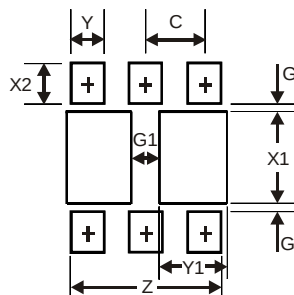
Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Code	1	2	3	4	5	6	7	8	9	O	N	D

Package Outline Dimensions



DFN2020B-6			
Dim	Min	Max	Typ
A	0.47	0.53	0.50
A1	0	0.05	0.02
A3	—	—	0.13
b	0.20	0.30	0.25
D	1.95	2.075	2.00
d	—	—	0.45
D2	0.50	0.70	0.60
e	—	—	0.65
E	1.95	2.075	2.00
E2	0.90	1.10	1.00
f	—	—	0.15
L	0.25	0.35	0.30
z	—	—	0.225
All Dimensions in mm			

Suggested Pad Layout



Dimensions	Value (in mm)
Z	1.67
G	0.20
G1	0.40
X1	1.0
X2	0.45
Y	0.37
Y1	0.70
C	0.65

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