

**DUAL P-CHANNEL ENHANCEMENT MODE MOSFET**
**Product Summary**

BV <sub>DSS</sub>	R <sub>DS(ON)</sub> Max	I <sub>D</sub> Max T <sub>A</sub> = +25°C
-20V	75mΩ @ V <sub>GS</sub> = -4.5V	-3.8A
	137mΩ @ V <sub>GS</sub> = -2.5V	-3.0A

**Description**

This MOSFET is designed to minimize on-state resistance (R<sub>DS(ON)</sub>) and yet maintain superior switching performance, making it ideal for high efficiency power management applications.

**Applications**

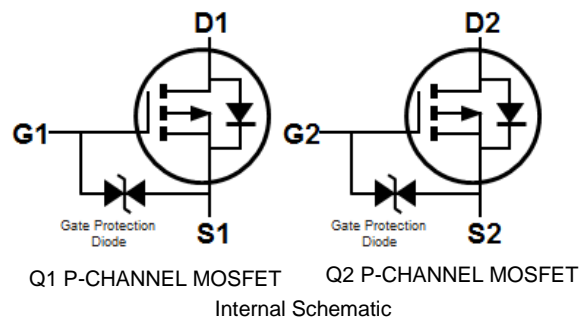
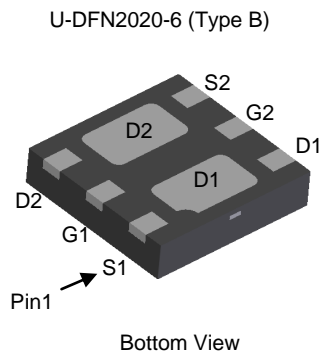
- Load Switch
- Power Management Functions
- Portable Power Adaptors

**Features**

- Low On-Resistance
- Low Input Capacitance
- Low Profile, 0.6mm Max Height
- ESD Protected Gate
- **Totally Lead-Free & Fully RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**

**Mechanical Data**

- Case: U-DFN2020-6 (Type B)
- 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
- Terminals Connections: See Diagram Below
- Weight: 0.0065 grams (Approximate)

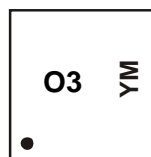

**Ordering Information** (Note 4)

Part Number	Case	Packaging
DMP2075UFDB -7	U-DFN2020-6 (Type B)	3,000/Tape & Reel
DMP2075UFDB -13	U-DFN2020-6 (Type B)	10,000/Tape & Reel

- Notes:
1. No purposely added lead. Fully EU Directive 2002/95/EC (RoHS) & 2011/65/EU (RoHS 2) compliant.
  2. See [http://www.diodes.com/quality/lead\\_free.html](http://www.diodes.com/quality/lead_free.html) for more information about Diodes Incorporated's definitions of Halogen- and Antimony-free, "Green" and Lead-free.
  3. Halogen- and Antimony-free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.
  4. For packaging details, go to our website at <https://www.diodes.com/design/support/packaging/diodes-packaging/>.

**Marking Information**

U-DFN2020-6 (Type B)



O3 = Product Type Marking Code  
YM = Date Code Marking  
Y = Year (ex: E = 2017)  
M = Month (ex: 9 = September)

Date Code Key

Year	2017	2018	2019	2020	2021	2022	2023	2024	2025
Code	E	F	G	H	I	J	K	L	M

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

**Maximum Ratings** (@T<sub>A</sub> = +25°C, unless otherwise specified.)

Characteristic			Symbol	Value	Unit
Drain-Source Voltage			V <sub>DSS</sub>	-20	V
Gate-Source Voltage			V <sub>GSS</sub>	±8	V
Continuous Drain Current (Note 5) V <sub>GS</sub> = 4.5V	Steady State	T <sub>A</sub> = +25°C T <sub>A</sub> = +70°C	I <sub>D</sub>	-3.8 -3.0	A
Maximum Continuous Body Diode Forward Current (Note 5)			I <sub>S</sub>	-1.0	A
Pulsed Drain Current (10μs Pulse, Duty Cycle = 1%)			I <sub>DM</sub>	-25	A
Avalanche Current (Note 7) L = 0.1mH			I <sub>AS</sub>	-13	A
Avalanche Energy (Note 7) L = 0.1mH			E <sub>AS</sub>	8.5	mJ

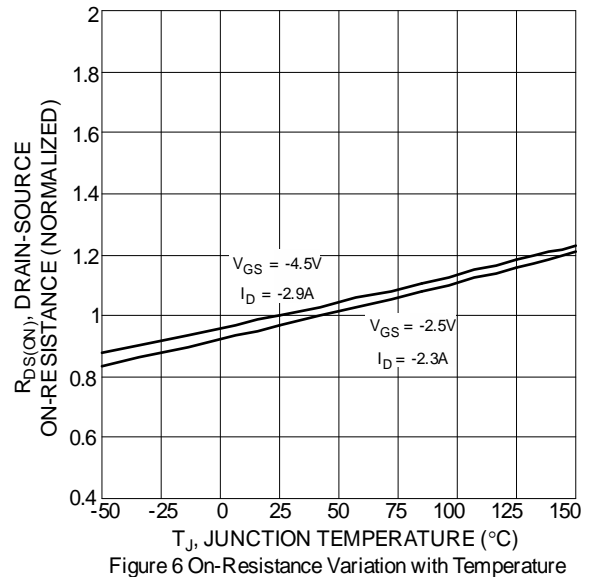
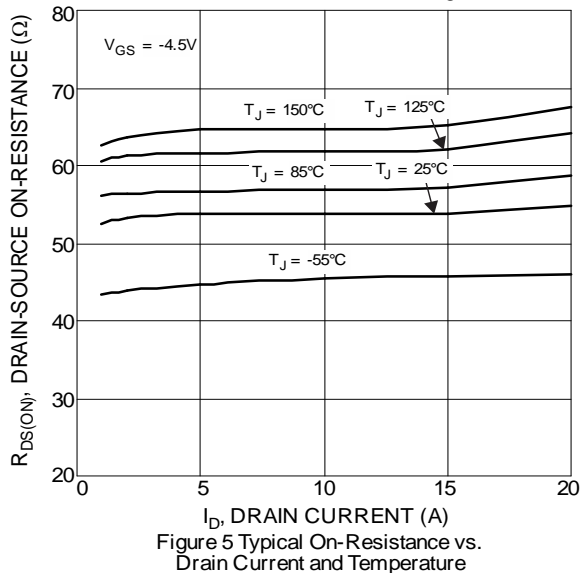
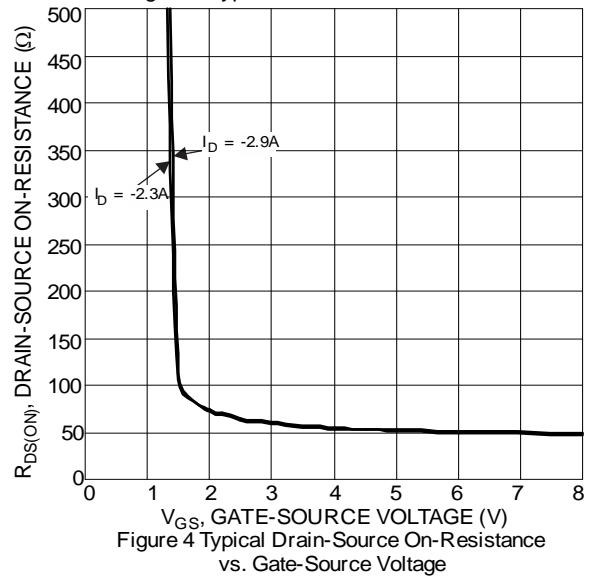
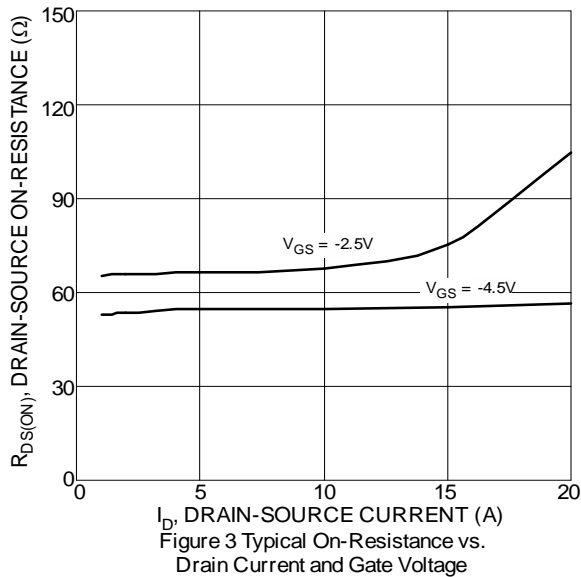
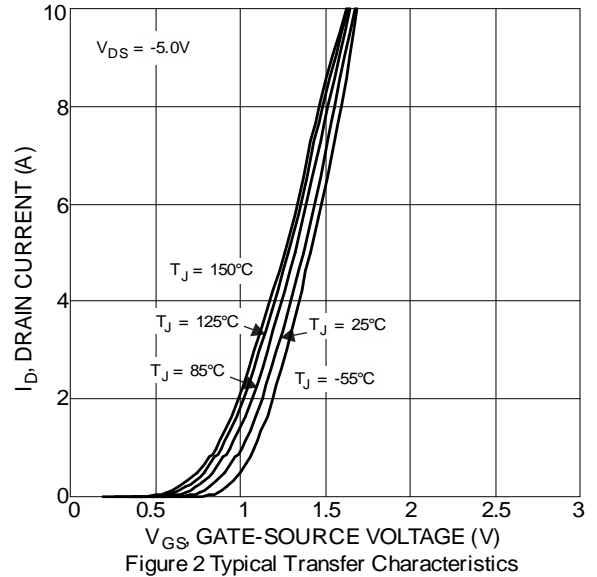
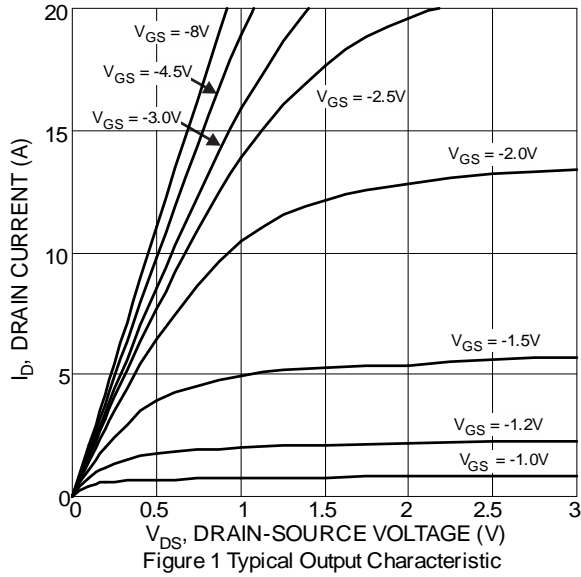
**Thermal Characteristics**

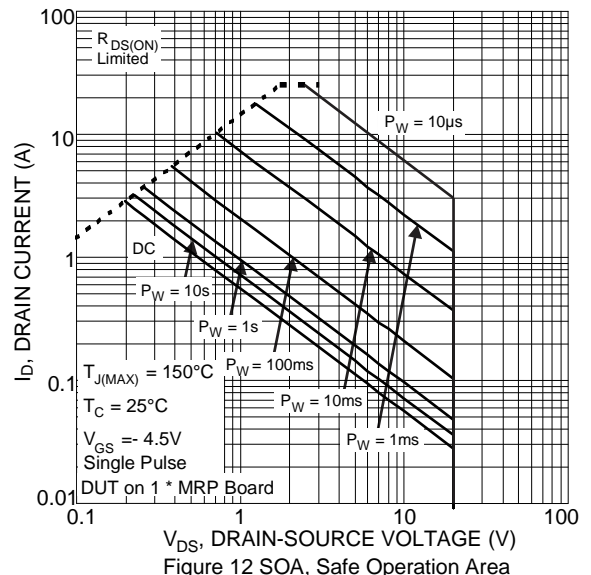
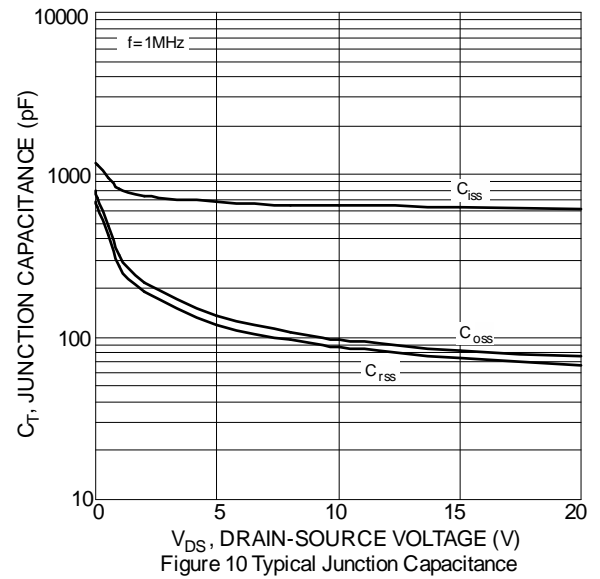
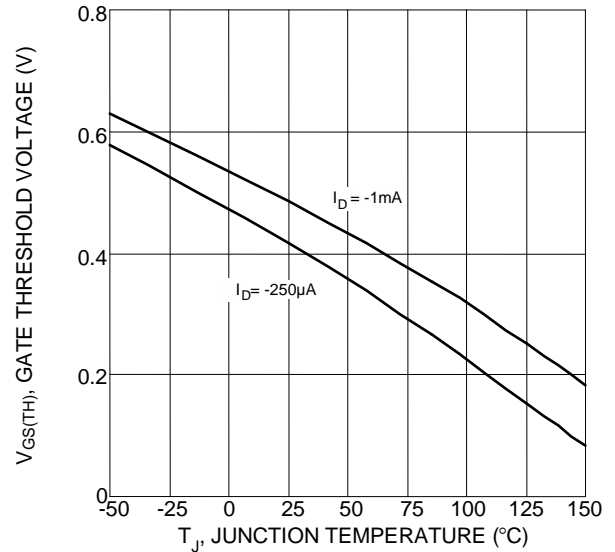
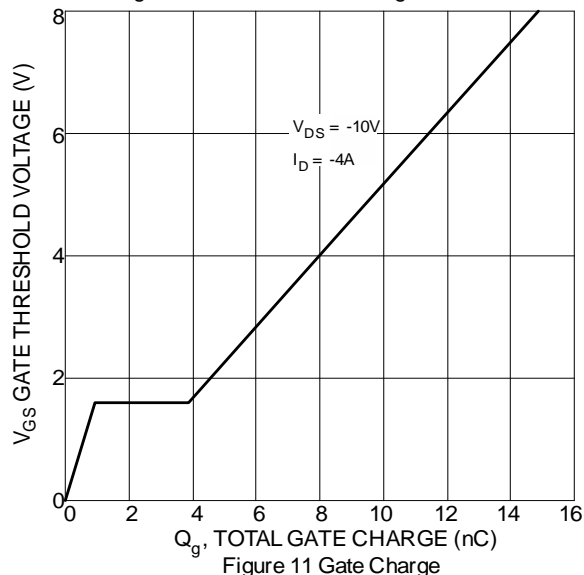
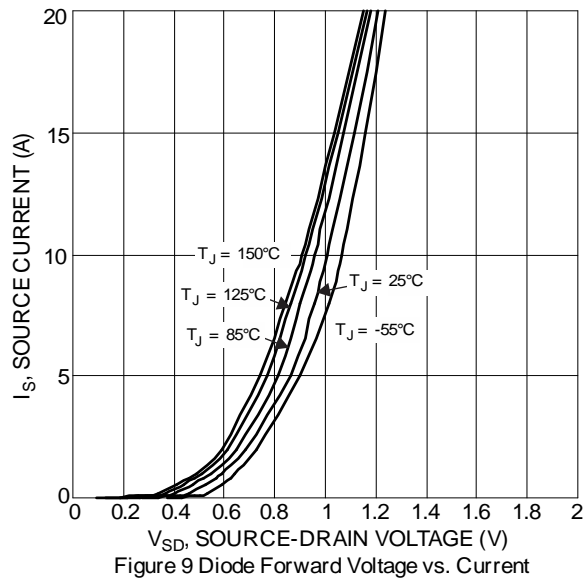
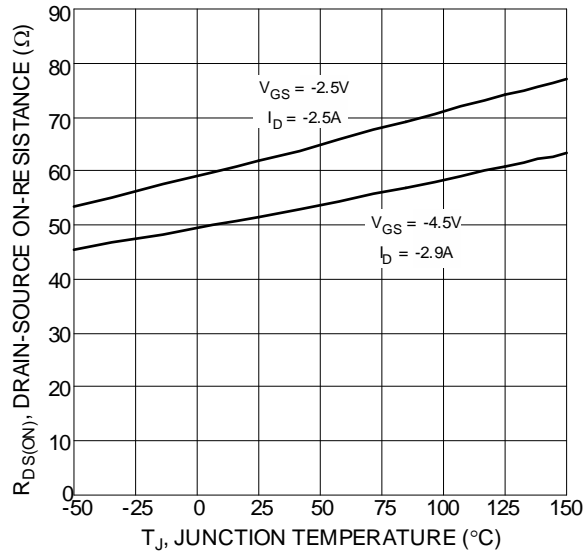
Characteristic		Symbol	Value	Unit
Total Power Dissipation (Note 5)	T <sub>A</sub> = +25°C	P <sub>D</sub>	0.7	W
Thermal Resistance, Junction to Ambient (Note 5)	Steady State	R <sub>θJA</sub>	178	°C/W
Total Power Dissipation (Note 6)	T <sub>A</sub> = +25°C	P <sub>D</sub>	1.4	W
Thermal Resistance, Junction to Ambient (Note 6)	Steady State	R <sub>θJA</sub>	92	°C/W
Thermal Resistance, Junction to Case (Note 6)		R <sub>θJC</sub>	22	
Operating and Storage Temperature Range		T <sub>J</sub> , T <sub>STG</sub>	-55 to +150	°C

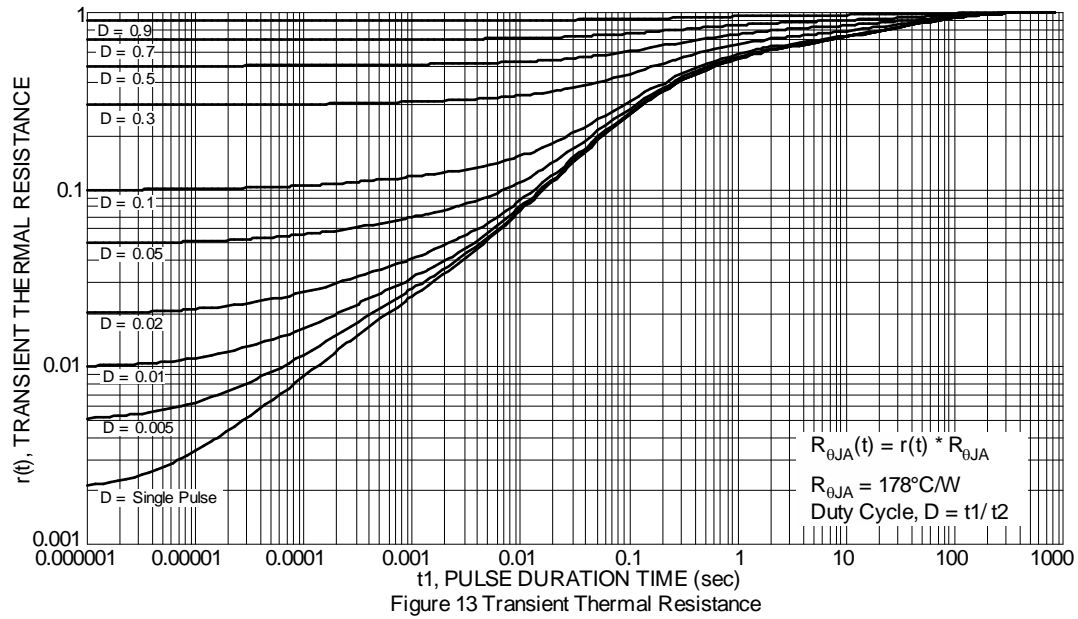
**Electrical Characteristics** (@T<sub>A</sub> = +25°C, unless otherwise specified.)

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
<b>OFF CHARACTERISTICS</b> (Note 8)						
Drain-Source Breakdown Voltage	BV <sub>DSS</sub>	-20	—	—	V	V <sub>GS</sub> = 0V, I <sub>D</sub> = -250μA
Zero Gate Voltage Drain Current T <sub>J</sub> = +25°C	I <sub>DSS</sub>	—	—	-1.0	μA	V <sub>DS</sub> = -20V, V <sub>GS</sub> = 0V
Gate-Source Leakage	I <sub>GSS</sub>	—	—	±10	μA	V <sub>GS</sub> = ±8V, V <sub>DS</sub> = 0V
<b>ON CHARACTERISTICS</b> (Note 8)						
Gate Threshold Voltage	V <sub>GS(TH)</sub>	-0.35	—	-1.4	V	V <sub>DS</sub> = V <sub>GS</sub> , I <sub>D</sub> = -250μA
Static Drain-Source On-Resistance	R <sub>DS(ON)</sub>	—	53	75	mΩ	V <sub>GS</sub> = -4.5V, I <sub>D</sub> = -2.9A
		—	64	137		V <sub>GS</sub> = -2.5V, I <sub>D</sub> = -2.3A
Diode Forward Voltage	V <sub>SD</sub>	—	-0.7	-1.2	V	V <sub>GS</sub> = 0V, I <sub>S</sub> = -3.0A
<b>DYNAMIC CHARACTERISTICS</b> (Note 9)						
Input Capacitance	C <sub>ISS</sub>	—	642	—	pF	V <sub>DS</sub> = -10V, V <sub>GS</sub> = 0V, f = 1.0MHz
Output Capacitance	C <sub>OSS</sub>	—	98	—	pF	
Reverse Transfer Capacitance	C <sub>RSS</sub>	—	87	—	pF	
Gate Resistance	R <sub>g</sub>	—	26.5	—	Ω	V <sub>DS</sub> = 0V, V <sub>GS</sub> = 0V, f = 1MHz
Total Gate Charge (V <sub>GS</sub> = -4.5V)	Q <sub>g</sub>	—	8.8	—	nC	V <sub>DS</sub> = -10V, I <sub>D</sub> = -3.7A
Total Gate Charge (V <sub>GS</sub> = -8V)		—	0.9	—	nC	
Gate-Source Charge	Q <sub>gs</sub>	—	2.9	—	nC	
Gate-Drain Charge	Q <sub>gd</sub>	—	5.5	—	nC	
Turn-On Delay Time	t <sub>D(ON)</sub>	—	22.6	—	ns	V <sub>DD</sub> = -10V, V <sub>GS</sub> = -4.5V, R <sub>L</sub> = 3.3Ω, R <sub>g</sub> = 1Ω
Turn-On Rise Time	t <sub>r</sub>	—	34.1	—	ns	
Turn-Off Delay Time	t <sub>D(OFF)</sub>	—	34.3	—	ns	
Turn-Off Fall Time	t <sub>f</sub>	—	13	—	ns	
Body Diode Reverse Recovery Time	t <sub>RR</sub>	—	3.3	—	ns	I <sub>S</sub> = -3.0A, dI/dt = 100A/μs
Body Diode Reverse Recovery Charge	Q <sub>RR</sub>	—	642	—	nC	I <sub>S</sub> = -3.0A, dI/dt = 100A/μs

- Notes:
- Device mounted on on 1" x 1" FR-4 PCB with high coverage 2oz. Copper, single sided.
  - Short duration pulse test used to minimize self-heating effect
  - I<sub>AS</sub> and E<sub>AS</sub> ratings are based on low frequency and duty cycles to keep T<sub>J</sub> = +25°C.
  - Short duration pulse test used to minimize self-heating effect.
  - Guaranteed by design. Not subject to product testing.



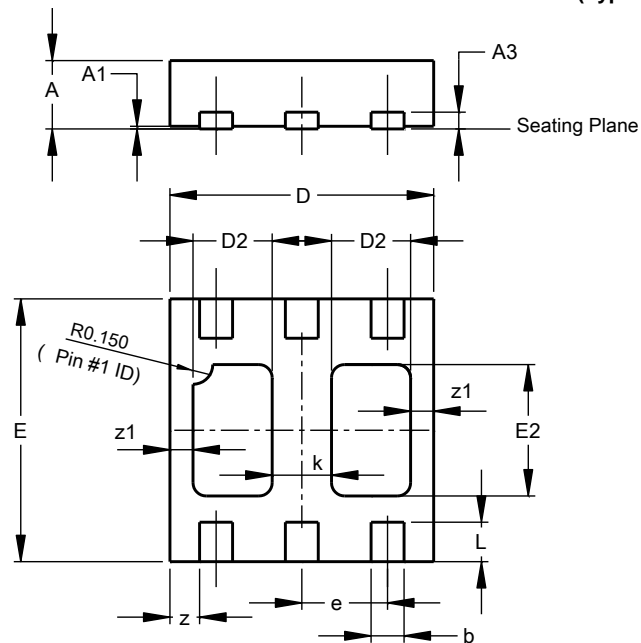




## Package Outline Dimensions

Please see <http://www.diodes.com/package-outlines.html> for the latest version.

**U-DFN2020-6 (Type B)**

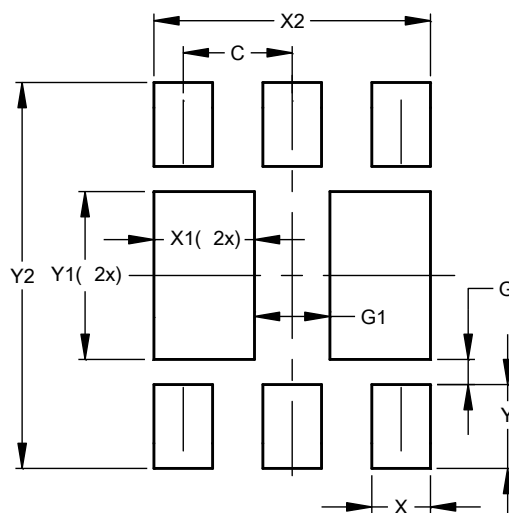


<b>U-DFN2020-6</b>			
<b>Type B</b>			
<b>Dim</b>	<b>Min</b>	<b>Max</b>	<b>Typ</b>
<b>A</b>	0.545	0.605	0.575
<b>A1</b>	0.00	0.05	0.02
<b>A3</b>	-	-	0.13
<b>b</b>	0.20	0.30	0.25
<b>D</b>	1.95	2.075	2.00
<b>D2</b>	0.50	0.70	0.60
<b>e</b>	-	-	0.65
<b>E</b>	1.95	2.075	2.00
<b>E2</b>	0.90	1.10	1.00
<b>k</b>	-	-	0.45
<b>L</b>	0.25	0.35	0.30
<b>z</b>	-	-	0.225
<b>z1</b>	-	-	0.175
<b>All Dimensions in mm</b>			

## Suggested Pad Layout

Please see <http://www.diodes.com/package-outlines.html> for the latest version.

**U-DFN2020-6 (Type B)**



Dimensions	Value (in mm)
C	0.650
G	0.150
G1	0.450
X	0.350
X1	0.600
X2	1.650
Y	0.500
Y1	1.000
Y2	2.300

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