

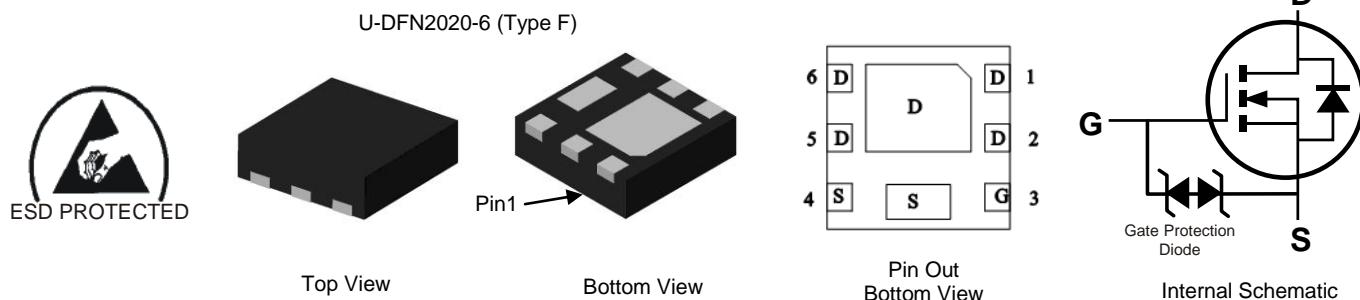
## Product Summary

BV <sub>DS</sub>	R <sub>DS(ON)</sub> Max	I <sub>D</sub> Max T <sub>A</sub> = +25°C
65V	18mΩ @ V <sub>GS</sub> = 10V	8.1A
	23mΩ @ V <sub>GS</sub> = 4.5V	7.1A

## Description and Applications

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

- DC-DC Converter
- Adaptor Switch
- Wireless Charging



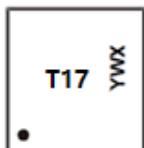
## Ordering Information (Note 4)

Part Number	Package	Quantity per Reel
DMT6017LFDF-7	U-DFN2020-6 (Type F)	3,000
DMT6017LFDF-13	U-DFN2020-6 (Type F)	10,000

Notes:

1. No purposely added lead. Fully EU Directive 2002/95/EC (RoHS), 2011/65/EU (RoHS 2) & 2015/863/EU (RoHS 3) compliant.
2. See <https://www.diodes.com/quality/lead-free/> 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



T17 = Product Type Marking Code  
YWX = Date Code Marking  
Y = Year (ex: 9 = 2019)  
W = Week (ex: a = Week 27; z Represents Week 52 and 53)  
X = Internal Code (ex: U = Monday)

### Date Code Key

Year	2019	2020	2021	2022	2023	2024	2025	2026	2027
Code	9	0	1	2	3	4	5	6	7

Week	1-26	27-52	53
Code	A-Z	a-z	z

Internal Code	Sun	Mon	Tue	Wed	Thu	Fri	Sat
Code	T	U	V	W	X	Y	Z

**Maximum Ratings** (@ $T_A = +25^\circ\text{C}$ , unless otherwise specified.)

Characteristic			Symbol	Value	Unit
Drain-Source Voltage			$V_{DSS}$	65	V
Gate-Source Voltage			$V_{GSS}$	$\pm 16$	V
Continuous Drain Current (Note 6) $V_{GS} = 10\text{V}$	Steady State	$T_A = +25^\circ\text{C}$ $T_A = +70^\circ\text{C}$	$I_D$	8.1 6.5	A
Pulsed Drain Current (10 $\mu\text{s}$ Pulse, Duty Cycle = 1%)			$I_{DM}$	50	A
Maximum Body Diode Continuous Current			$I_S$	8	A
Pulsed Body Diode Forward Current (10 $\mu\text{s}$ Pulse, Duty Cycle = 1%)			$I_{SM}$	50	A
Avalanche Current (Note 7) $L = 0.1\text{mH}$			$I_{AS}$	19	A
Avalanche Energy (Note 7) $L = 0.1\text{mH}$			$E_{AS}$	18	mJ

**Thermal Characteristics**

Characteristic		Symbol	Value	Unit
Total Power Dissipation (Note 5)	$T_A = +25^\circ\text{C}$	$P_D$	0.8	W
Thermal Resistance, Junction to Ambient (Note 5)		$R_{\Theta JA}$	157	$^\circ\text{C}/\text{W}$
Total Power Dissipation (Note 6)	$T_A = +25^\circ\text{C}$	$P_D$	1.76	W
Thermal Resistance, Junction to Ambient (Note 6)		$R_{\Theta JA}$	71	$^\circ\text{C}/\text{W}$
Thermal Resistance, Junction to Case (Note 6)		$R_{\Theta JC}$	10	$^\circ\text{C}/\text{W}$
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</b> (Note 8)						
Drain-Source Breakdown Voltage	$BV_{DSS}$	65	—	—	V	$V_{GS} = 0\text{V}, I_D = 10\text{mA}$
Zero Gate Voltage Drain Current	$I_{DSS}$	—	—	1	$\mu\text{A}$	$V_{DS} = 48\text{V}, V_{GS} = 0\text{V}$
Gate-Source Leakage	$I_{GSS}$	—	—	$\pm 10$	$\mu\text{A}$	$V_{GS} = \pm 12.8\text{V}, V_{DS} = 0\text{V}$
<b>ON CHARACTERISTICS</b> (Note 8)						
Gate Threshold Voltage	$V_{GS(\text{TH})}$	1	1.4	2.3	V	$V_{DS} = V_{GS}, I_D = 250\mu\text{A}$
Static Drain-Source On-Resistance	$R_{DS(\text{ON})}$	—	13.2	18	$\text{m}\Omega$	$V_{GS} = 10\text{V}, I_D = 6\text{A}$
		—	17	23		$V_{GS} = 4.5\text{V}, I_D = 4\text{A}$
Diode Forward Voltage	$V_{SD}$	—	0.7	1.2	V	$V_{GS} = 0\text{V}, I_S = 1\text{A}$
<b>DYNAMIC CHARACTERISTICS</b> (Note 9)						
Input Capacitance	$C_{iss}$	—	891	—	$\text{pF}$	$V_{DS} = 30\text{V}, V_{GS} = 0\text{V}, f = 1\text{MHz}$
Output Capacitance	$C_{oss}$	—	223	—		
Reverse Transfer Capacitance	$C_{rss}$	—	29	—		
Gate Resistance	$R_g$	—	1.57	—	$\Omega$	$V_{DS} = 0\text{V}, V_{GS} = 0\text{V}, f = 1\text{MHz}$
Total Gate Charge ( $V_{GS} = 4.5\text{V}$ )	$Q_g$	—	7.5	—	$\text{nC}$	$V_{DS} = 30\text{V}, I_D = 6\text{A}$
Total Gate Charge ( $V_{GS} = 10\text{V}$ )	$Q_g$	—	15.3	—		
Gate-Source Charge	$Q_{gs}$	—	1.8	—		
Gate-Drain Charge	$Q_{gd}$	—	3.1	—		
Turn-On Delay Time	$t_{D(\text{ON})}$	—	4.0	—	$\text{ns}$	$V_{GS} = 10\text{V}, V_{DS} = 30\text{V}, R_g = 3.3\Omega, I_D = 6\text{A}$
Turn-On Rise Time	$t_R$	—	5.9	—		
Turn-Off Delay Time	$t_{D(\text{OFF})}$	—	11.7	—		
Turn-Off Fall Time	$t_F$	—	3.3	—		
Body Diode Reverse Recovery Time	$t_{RR}$	—	21.1	—	$\text{ns}$	$I_F = 6\text{A}, di/dt = 100\text{A}/\mu\text{s}$
Body Diode Reverse Recovery Charge	$Q_{RR}$	—	11.9	—		

Notes:

- Device mounted on FR-4 substrate PCB, 2oz copper, with minimum recommended pad layout.
- Device mounted on FR-4 substrate PCB, 2oz copper, with 1inch square copper plate.
- $I_{AS}$  and  $E_{AS}$  ratings are based on low frequency and duty cycles to keep  $T_J = +25^\circ\text{C}$ .
- Short duration pulse test used to minimize self-heating effect.
- Guaranteed by design. Not subject to product testing.

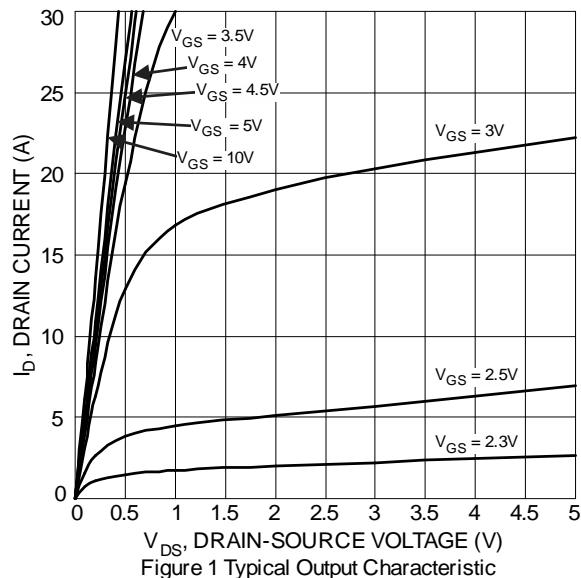


Figure 1 Typical Output Characteristic

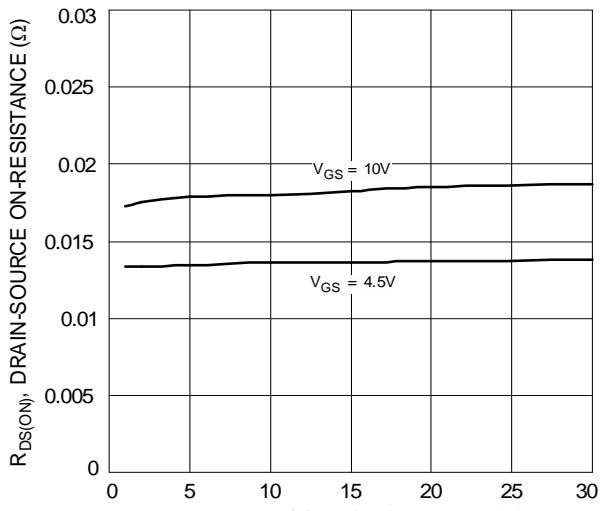


Figure 3 Typical On-Resistance vs.  
Drain Current and Gate Voltage

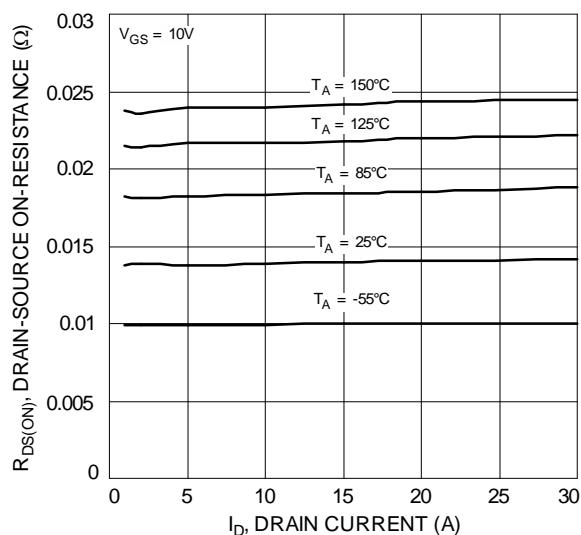


Figure 5 Typical On-Resistance vs.  
Drain Current and Temperature

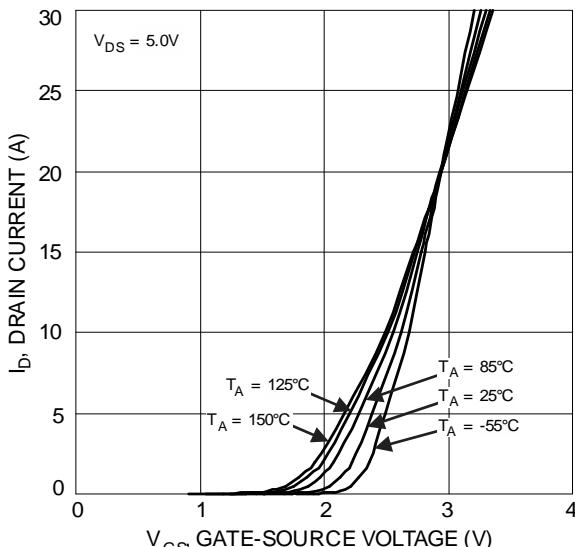


Figure 2 Typical Transfer Characteristics

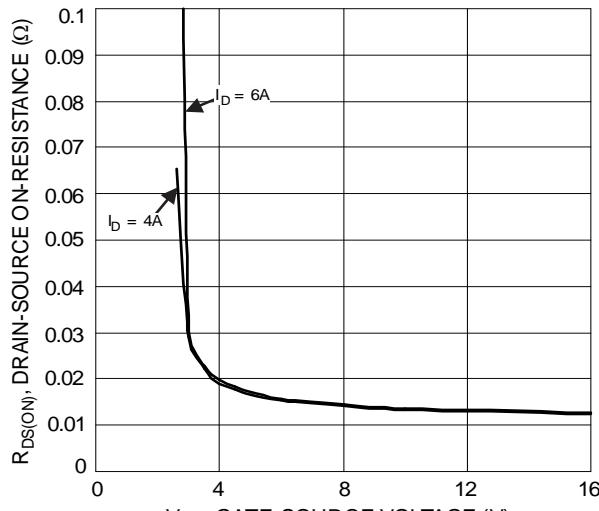


Figure 4 Typical Drain-Source On-Resistance  
vs. Gate-Source Voltage

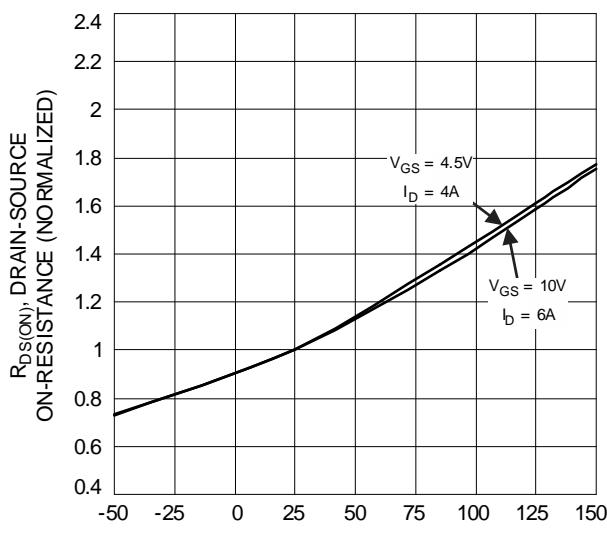
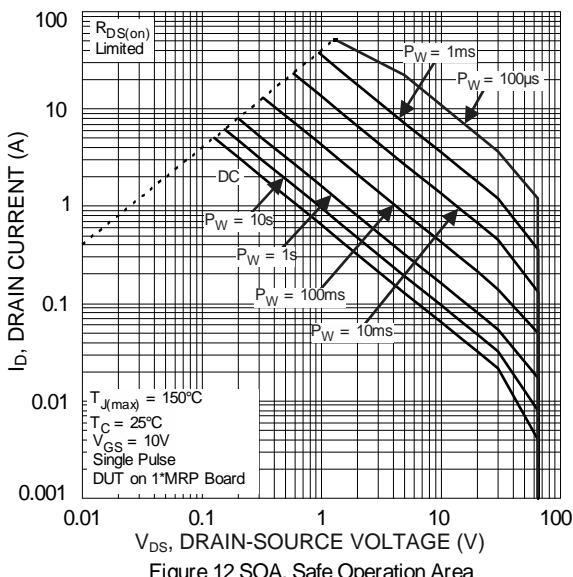
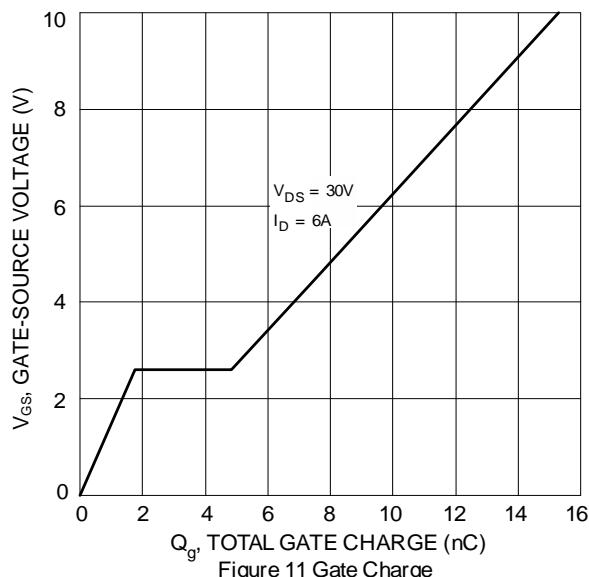
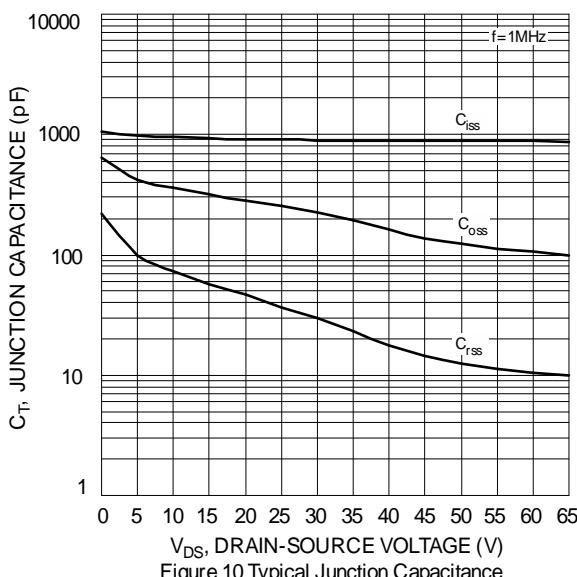
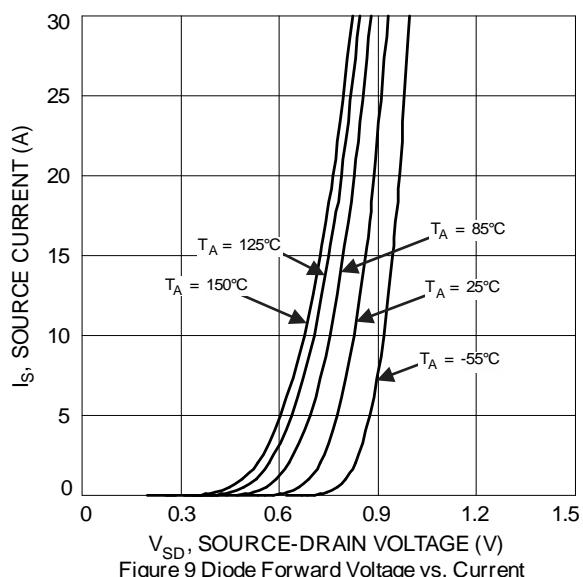
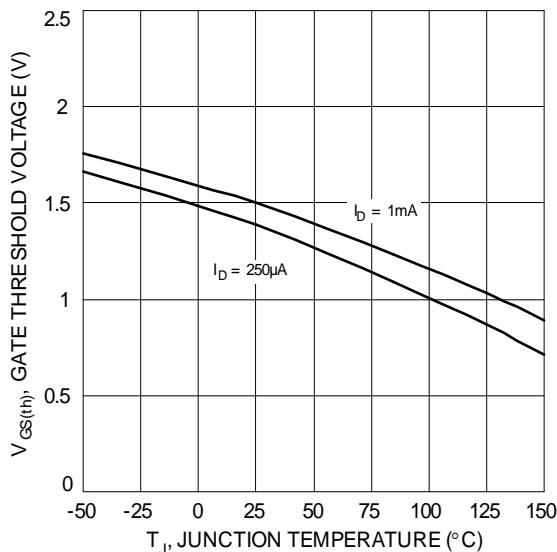
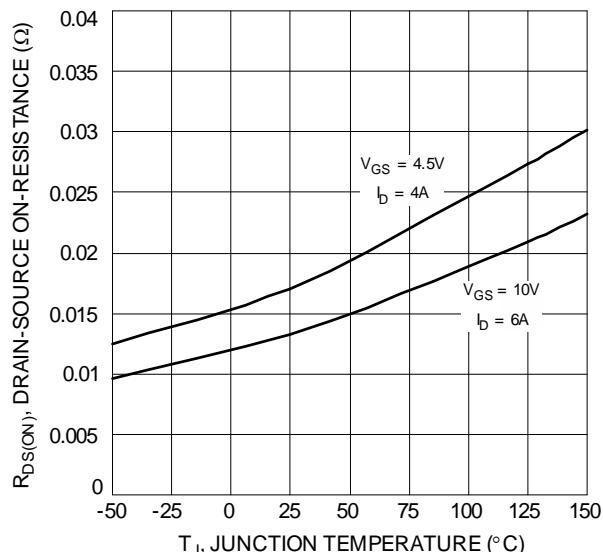


Figure 6 On-Resistance Variation with Temperature



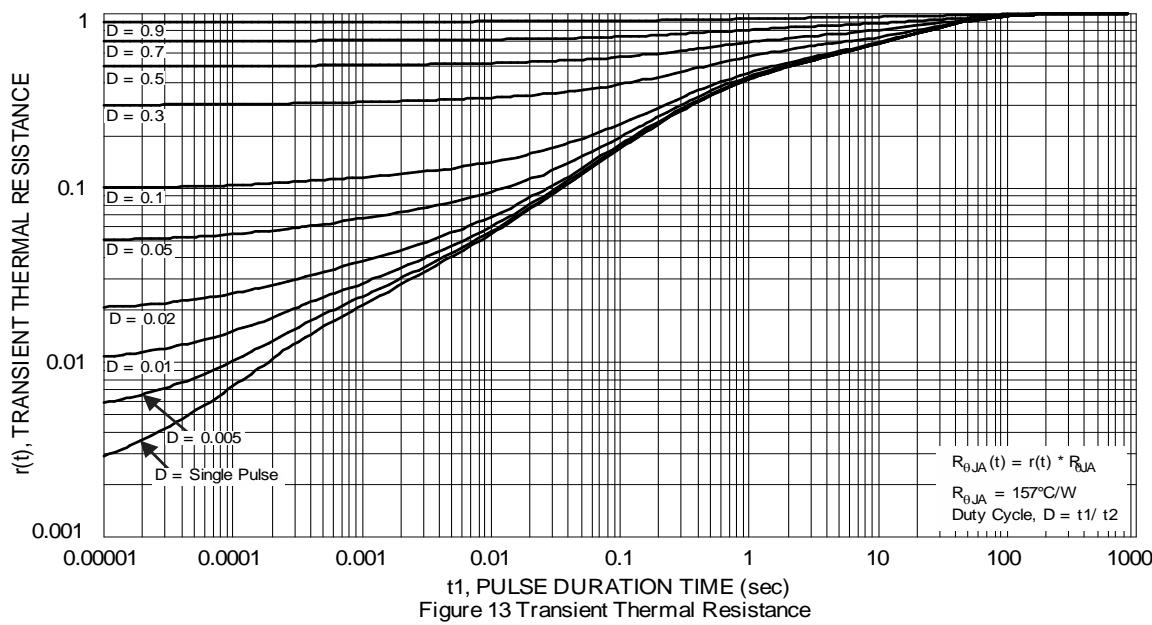
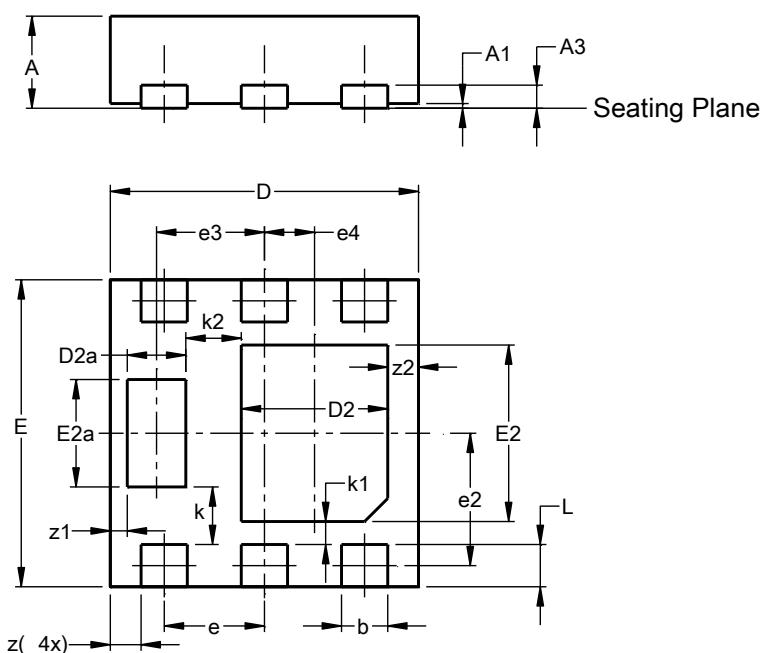


Figure 13 Transient Thermal Resistance

## Package Outline Dimensions

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

U-DFN2020-6 (Type F)

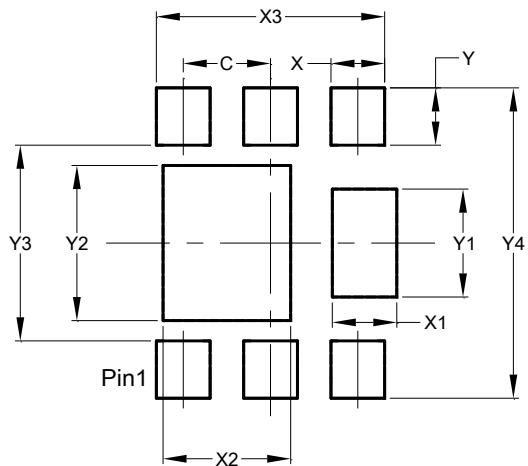


U-DFN2020-6 (Type F)			
Dim	Min	Max	Typ
<b>A</b>	0.57	0.63	0.60
<b>A1</b>	0.00	0.05	0.03
<b>A3</b>	-	-	0.15
<b>b</b>	0.25	0.35	0.30
<b>D</b>	1.95	2.05	2.00
<b>D2</b>	0.85	1.05	0.95
<b>D2a</b>	0.33	0.43	0.38
<b>E</b>	1.95	2.05	2.00
<b>E2</b>	1.05	1.25	1.15
<b>E2a</b>	0.65	0.75	0.70
<b>e</b>	0.65	BSC	
<b>e2</b>	0.863	BSC	
<b>e3</b>	0.70	BSC	
<b>e4</b>	0.325	BSC	
<b>k</b>	0.37	BSC	
<b>k1</b>	0.15	BSC	
<b>k2</b>	0.36	BSC	
<b>L</b>	0.225	0.325	0.275
<b>z</b>	0.20	BSC	
<b>z1</b>	0.110	BSC	
<b>z2</b>	0.20	BSC	
All Dimensions in mm			

## Suggested Pad Layout

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

U-DFN2020-6 (Type F)



Dimensions	Value (in mm)
<b>C</b>	0.650
<b>X</b>	0.400
<b>X1</b>	0.480
<b>X2</b>	0.950
<b>X3</b>	1.700
<b>Y</b>	0.425
<b>Y1</b>	0.800
<b>Y2</b>	1.150
<b>Y3</b>	1.450
<b>Y4</b>	2.300

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