Product Summary

V_{RRM} (V)	Io (A)	$V_{F(MAX)}$ (V) @ +25°C	$I_{R(MAX)}$ (mA) @ +25°C
30	4	0.5	0.1

Description and Applications

The SBRT4U30LP provides very low V_F and excellent reverse leakage stability at high temperatures. It is ideal for use as bypass diode and rectifier, freewheel diode or blocking diode in applications such as:

- Solar panels
- Blocking diodes
- Bypass diodes
- Boost diodes
- Recirculating diodes

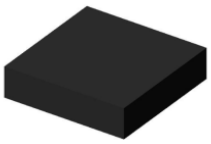
Features and Benefits

- Patented TrenchSBR® technology provides superior avalanche capability versus Schottky diodes, ensuring more rugged and reliable end applications.
- Reduced ultra-low forward voltage drop (V_F). Better efficiency and cooler operation.
- Reduced high-temperature reverse leakage. Increased reliability against thermal runaway failure in high-temperature operation.
- **Totally Lead-Free & Fully RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**
- **For automotive applications requiring specific change control (i.e.: parts qualified to AEC-Q100/101/104/200, PPAP capable, and manufactured in IATF 16949 certified facilities), please refer to the related automotive grade (Q-suffix) part. A listing can be found at https://www.diodes.com/products/automotive/automotive-products/.**
- **This part is qualified to JEDEC standards (as references in AEC-Q) for High Reliability. https://www.diodes.com/quality/product-definitions/**

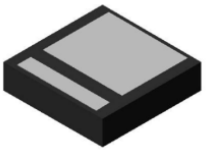
Mechanical Data

- Package: U-DFN2020-2
- Package 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 e4
- Polarity: See Below
- Weight: 6.757mg (Approximate)

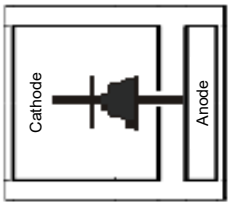
U-DFN2020-2 (Type B)



Top View



Bottom View



Top View
Internal Schematic

Ordering Information (Note 4)

Orderable Part Number	Package	Packing	
		Qty.	Carrier
SBRT4U30LP-7	U-DFN2020-2 (Type B)	3,000	Tape & Reel

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/.

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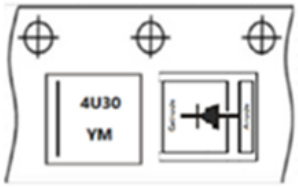
Marking Information

4U30 = Product Type Marking Code
YM = Date Code Marking
Y = Year (ex: M = 2025)
M = Month (ex: 8 = August)
Bar = Cathode

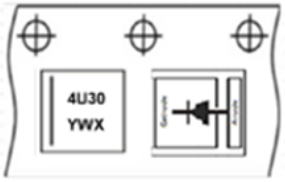


Date Code Key

Year	2014	-	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
Code	B	-	M	N	P	R	S	T	U	V	W	X

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

4U30 = Product Type Marking Code
YWX = Date Code Marking
Y = Year (ex: 5 = 2025)
W = Week (ex: a = Week 27; z Represents Weeks 52 and 53)
X = Internal Code (ex: U = Monday)
Bar = Cathode



Date Code Key

Year	2014	-	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
Code	4	-	5	6	7	8	9	0	1	2	3	4

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°C, unless otherwise specified.)

Single phase, half wave, 60Hz, resistive or inductive load.
For capacitive load, derate current by 20%.

Characteristic	Symbol	Value	Unit
Peak Repetitive Reverse Voltage Working Peak Reverse Voltage DC Blocking Voltage	V_{RRM} V_{RWM} V_{RM}	30	V
Average Rectified Output Current	I_O	4	A
Non-Repetitive Peak Forward Surge Current 8.3ms Single Half Sine Wave Superimposed on Rated Load	I_{FSM}	45	A

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Thermal Characteristics

Characteristic		Symbol	Value	Unit
Typical Thermal Resistance Junction to Case (Note 5)		$R_{\theta JC}$	5	°C/W
Typical Thermal Resistance Junction to Ambient (Note 5)		$R_{\theta JA}$	65	°C/W
Operating Temperature Range	$V_R \le 80\% V_{RRM}$	T_J	-55 to +150	°C
	$V_R \le 50\% V_{RRM}$		≤ +175	
	DC Forward Mode (Note 7)		≤ +200	
Storage Temperature Range		T_{STG}	-55 to +150	°C

Electrical Characteristics (@T_A = +25°C, unless otherwise specified.)

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Forward Voltage Drop (Note 6)	V_F	—	—	0.5	V	I_F = 4A, T_J = +25°C
Leakage Current (Note 6)	I_R	—	—	100	μA	V_R = 30V, T_J = +25°C
		—	5	—	mA	V_R = 30V, T_J = +125°C

Notes: 5. Device mounted on FR-4 PCB pad layout 1-inch 2oz copper.
6. Short duration pulse test used to minimize self-heating effect.
7. Maximum junction temperature guaranteed for two hours

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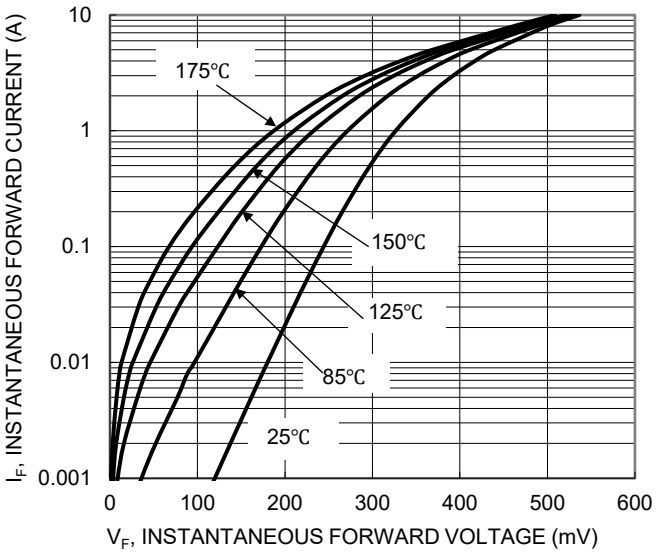

Figure 1. Typical Forward Characteristics

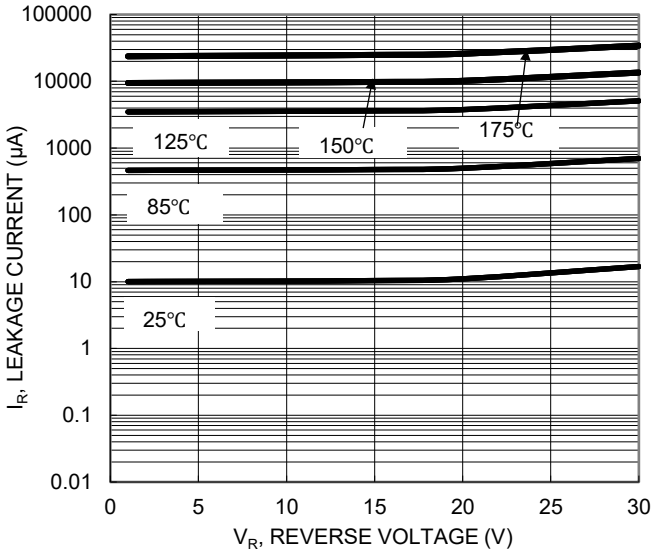

Figure 2. Typical Reverse Characteristics

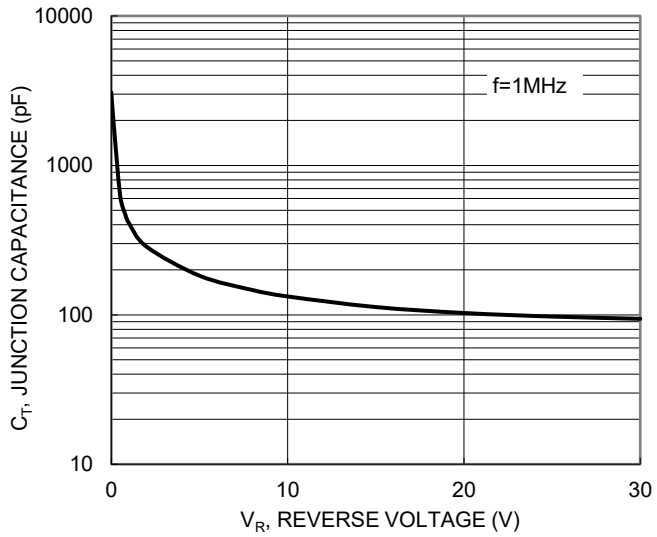

Figure 3. Typical Junction Capacitance

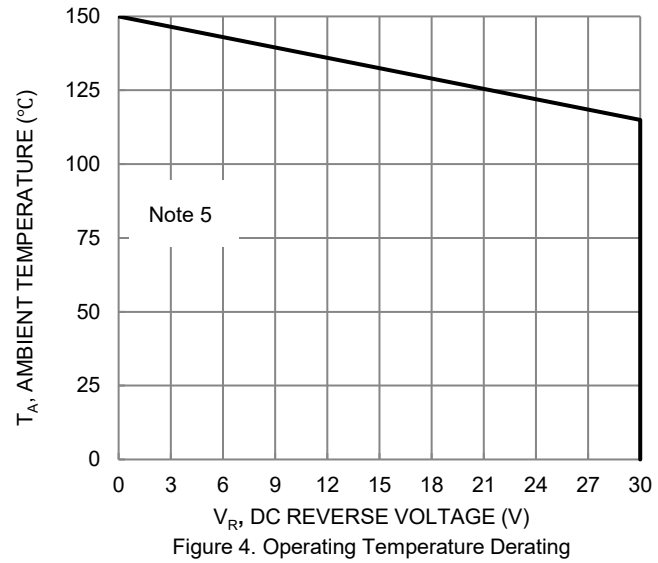

Figure 4. Operating Temperature Derating

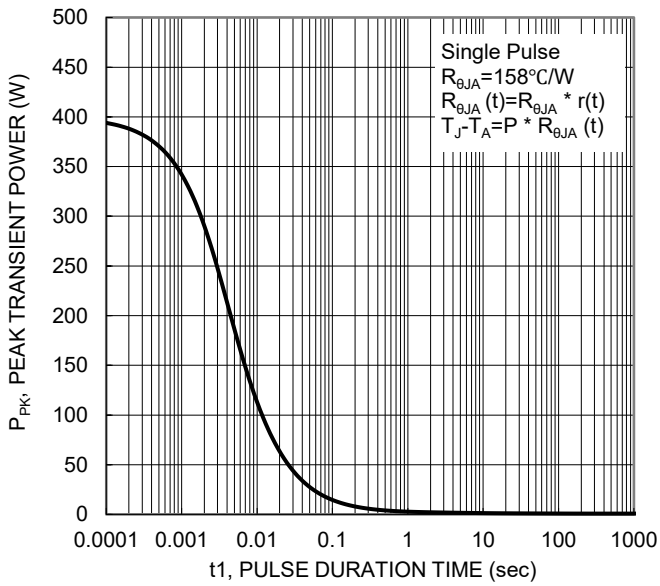

Figure 5. Single Pulse Maximum Power Dissipation

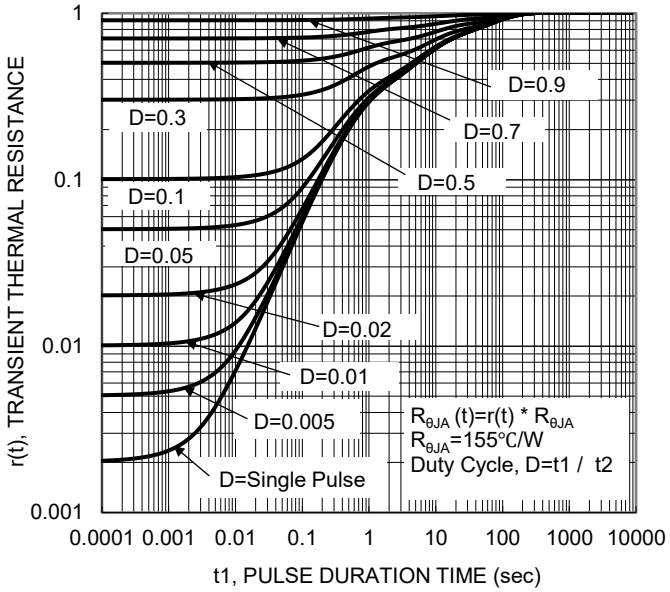

Figure 6. Transient Thermal Resistance

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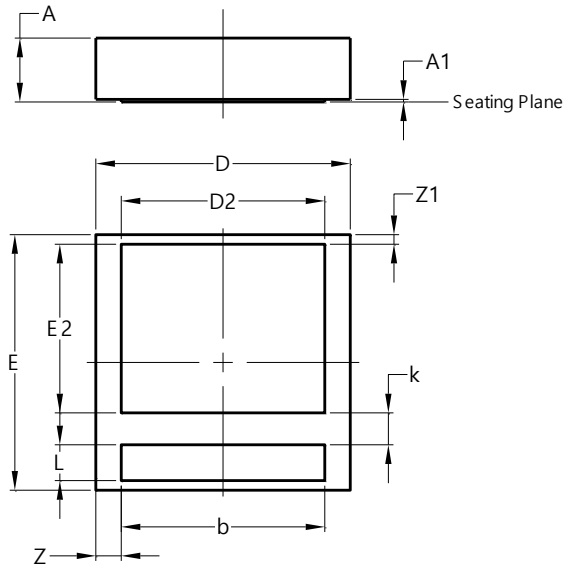
Package Outline Dimensions

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

U-DFN2020-2 (Type B)

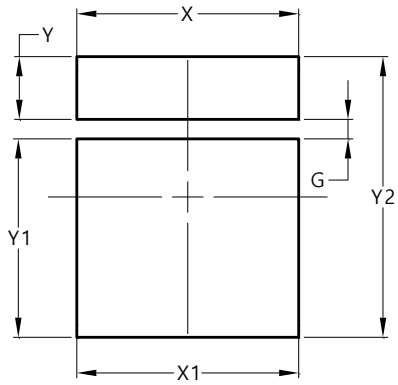


U-DFN2020-2 (Type B)			
Dim	**Min**	**Max**	**Typ**
A	0.47	0.53	0.50
A1	0.00	0.05	0.02
b	1.55	1.65	1.60
D	1.95	2.05	2.00
D2	1.50	1.70	1.60
E	1.95	2.05	2.00
E2	1.22	1.42	1.32
k	0.25 BSC		
L	0.23	0.33	0.28
Z	0.20 BSC		
Z1	0.075 BSC		
All Dimensions in mm			

Suggested Pad Layout

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

U-DFN2020-2 (Type B)



Dimensions	Value (in mm)
G	0.150
X	1.700
X1	1.700
Y	0.480
Y1	1.520
Y2	2.150

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