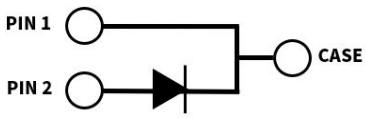
C2D10120A

Halogen-Free

RoHS compliant

Features

- 1.2 kV Schottky rectifier
- Zero reverse recovery current
- Zero forward recovery voltage
- High-frequency operation
- Temperature-independent switching behavior
- Extremely fast switching
- Positive temperature coefficient on V_F



Package Types: TO-220-2
PN's: C2D10120A

Wolfspeed, Inc. is in the process of rebranding its products and related materials pursuant to the entity name change from Cree, Inc. to Wolfspeed, Inc. During this transition period, products received may be marked with either the Cree

Applications

- Switch mode power supplies
- Power factor correction
- Motor drives

Benefits

- Replace bipolar with unipolar rectifiers
- Essentially no switching losses
- Higher efficiency
- Reduction of heat sink requirements
- Parallel devices without thermal runaway

Maximum Ratings (T_C = 25 °C Unless Otherwise Specified)

Parameter	Symbol	Value	Unit	Test Conditions	Note
Repetitive Peak Reverse Voltage	V_{RRM}	1200	V		
Surge Peak Reverse Voltage	V_{RSM}	1200			
DC Blocking Voltage	V_{DC}	1200			
Continuous Forward Current	I_F	31	A	T_C = 25 °C	
		14.5		T_C = 135 °C	
		10		T_C = 152 °C	
Repetitive Peak Forward Surge Current	I_{FRM}	50		T_C = 25 °C, t_P = 10 ms, Half Sine Wave	
Non-Repetitive Peak Forward Surge Current	I_{FSM}	250		T_C = 25 °C, t_P = 10 µs, Pulse	
Power Dissipation	P_{tot}	312	W	T_C = 25 °C	
		135		T_C = 110 °C	
Operating Junction and Storage Temperature	T_J, T_{stg}	-55 to +175	°C		
TO-220 Mounting Torque		1	Nm	M3 Screw	
		8.8	lbf-in	6-32 Screw	

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Electrical Characteristics

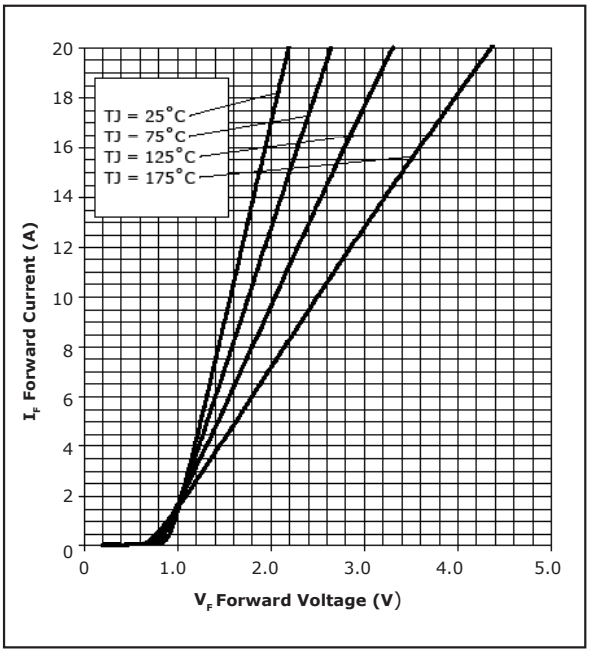
Parameter	Symbol	Typ.	Max.	Unit	Test Conditions	Note
Forward Voltage	V_F	1.6	1.8	V	I_F = 10 A, T_J = 25 °C	
		2.5	3.0		I_F = 10 A, T_J = 175 °C	
Reverse Current	I_R	10	200	µA	V_R = 1200 V, T_J = 25 °C	
		20	1000		V_R = 1200 V, T_J = 150 °C	
Total Capacitive Charge	Q_C	61		nC	V_R = 1200 V, I_F = 10 A di/dt = 500 A/µs T_J = 25 °C	
Total Capacitance	C	1000		pF	V_R = 0 V, T_J = 25 °C, f = 1 MHz	
		80			V_R = 200 V, T_J = 25 °C, f = 1 MHz	
		59			V_R = 400 V, T_J = 25 °C, f = 1 MHz	

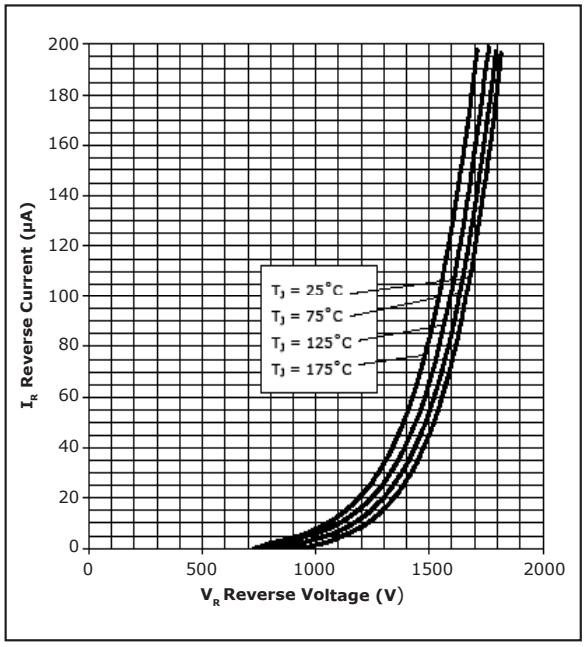
Note: This is a majority carrier diode, so there is no reverse recovery charge.

Thermal Characteristics

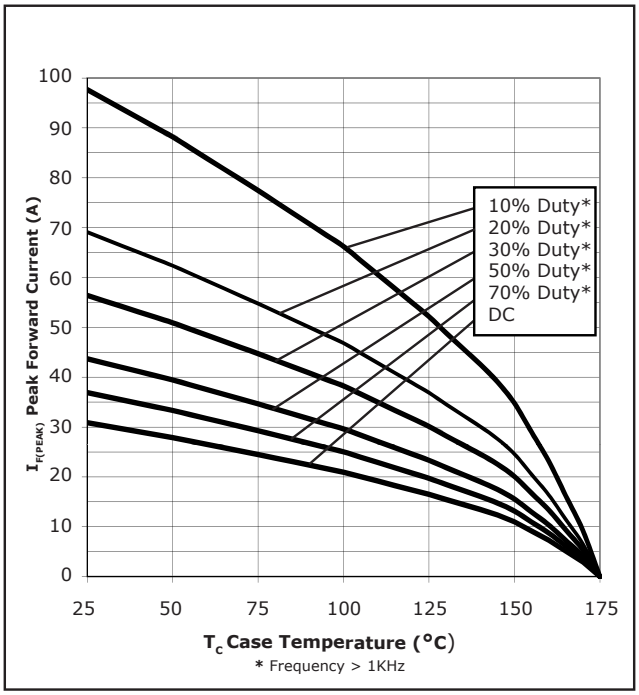
Parameter	Symbol	Typ.	Unit
Thermal Resistance from Junction to Case	$R_{\theta JC}$	0.48	°C/W

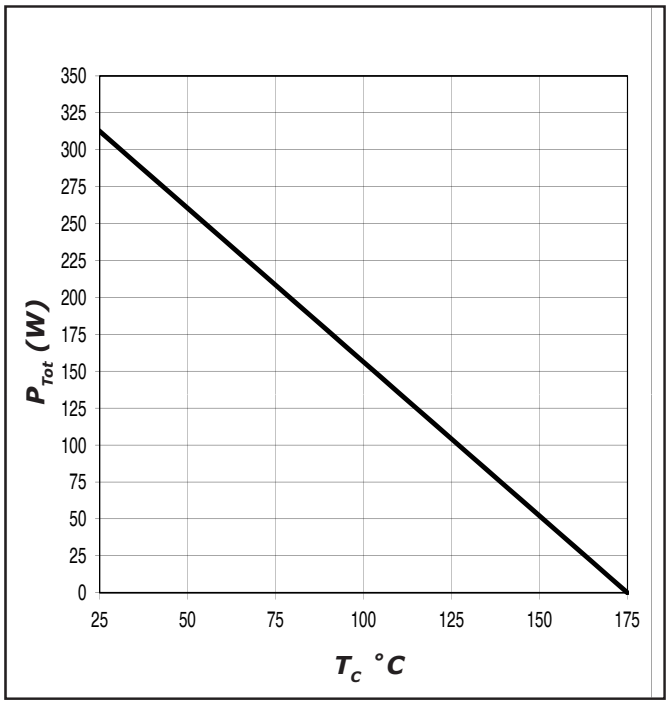
Typical Performance





Typical Performance





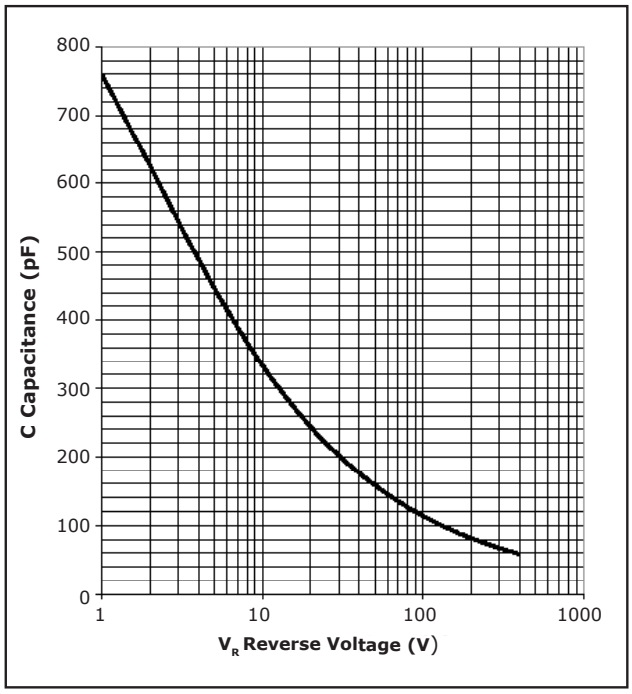
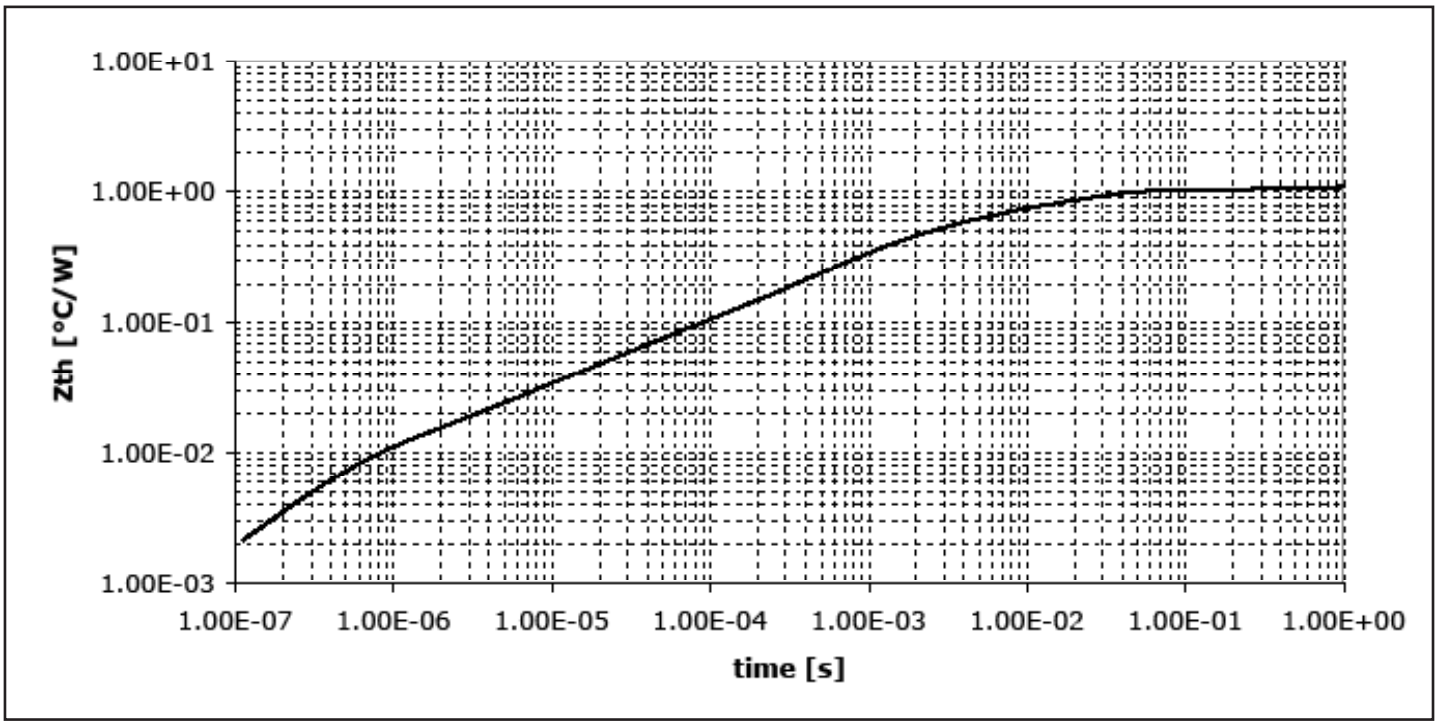
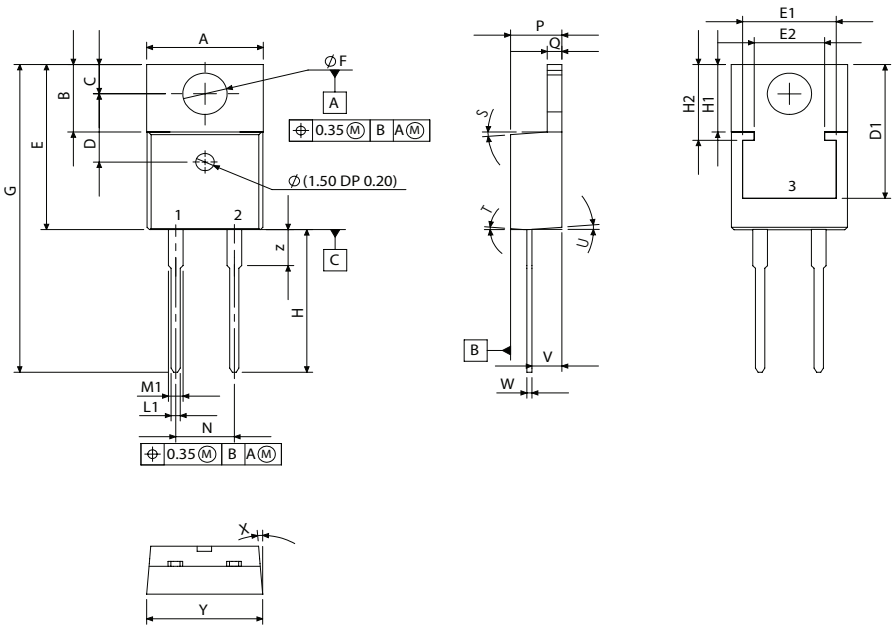


Figure 5. Capacitance vs. Reverse Voltage

Typical Performance



Package Dimensions



SYMBOL	MIN (mm)	MAX (mm)
A	9.677	10.414
B	5.969	6.477
C	2.540	3.048
D	5.664	8.560
D1	12.450 REF	
E	14.986	15.621
E1	8.120 REF	
E2	6.100 REF	
F	3.632	3.886
G	28.067	29.134
H	12.700	13.970
H1	6.223 REF	
H2	7.040 REF	
L1	0.635	0.914
M1	1.143	1.397
N	4.953	5.207
P	4.191	4.699
Q	1.219	1.372
S	3°	6°
T	3°	6°
U	3°	6°
V	2.388	2.794
W	0.356	0.635
W1	0.356	0.520
X	3°	5.5°
Y	9.779	10.414
Z	3.302	3.810

1	CATHODE
2	ANODE
3	CATHODE

NOTE
1. ALL METAL SURFACES ARE TIN PLATED (MATTE), EXCEPT AREA OF CUT.
2. DIMENSIONING & TOLERANCING CONFORM TO ASME Y14.5M-1994.
3. ALL DIMENSIONS ARE LISTED IN MILLIMETERS. ANGLES ARE IN DEGREES.
4. PACKAGE BURR FLASH SIZE (0.5 mm) IS NOT INCLUDED IN THE DIMENSIONS

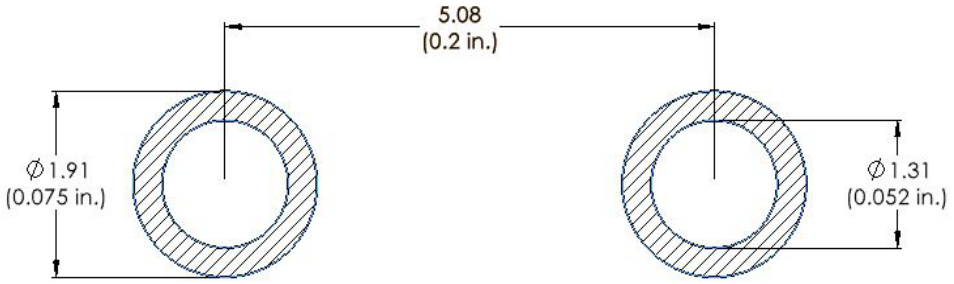
Wolfspeed

TITLE: PACKAGE OUTLINE DRAWING: TO 220-2L

REVISION NO. 01 | A4

Date: 02/19/22 | SCALE:1:1 | SHEET 1 OF 1

Recommended Solder Pad Layout



Part Number	Package	Marking
C2D10120A	TO-220-2	C2D10120

Revision History

Current Revision	Date of Release	Description of Changes
7	January-2024	Updated Wolfspeed branding, package drawing, and solder pad layout

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REACh Compliance

REACh substances of high concern (SVHCs) information is available for this product. Since the European Chemical Agency (ECHA) has published notice of their intent to frequently revise the SVHC listing for the foreseeable future, please contact your Wolfspeed representative to ensure you get the most up-to-date REACh SVHC Declaration. REACh banned substance information (REACh Article 67) is also available upon request.

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