

## Features

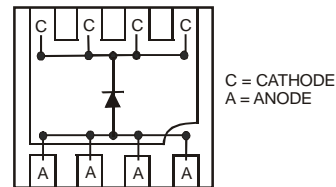
- Guard Ring Die Construction for Transient Protection
- Low Power Loss, High Efficiency
- Low Forward Voltage Drop
- For Use in Low Voltage, High Frequency Inverters, Free Wheeling, and Polarity Protection Applications
- High Forward Surge Current Capability
- **Lead Free by Design, RoHS Compliant (Note 1)**
- **"Green" Device (Note 3)**



Bottom View

## Mechanical Data

- Case: DFN3030-8
- Case Material: Molded Plastic, "Green" Molding Compound. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020D
- Terminals: Finish - NiPdAu over Copper lead frame. Solderable per MIL-STD-202, Method 208
- Polarity: See Diagram
- Marking Information: See Page 2
- Ordering Information: See Page 2
- Weight: 0.0172 grams (approximate)


 BOTTOM VIEW  
Schematic and Pin Configuration

## Maximum Ratings @ $T_A = 25^\circ\text{C}$ unless otherwise specified

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

Characteristic	Symbol	Value	Unit
Peak Repetitive Reverse Voltage	$V_{RRM}$	30	V
Working Peak Reverse Voltage	$V_{RWM}$		
DC Blocking Voltage	$V_R$		
RMS Reverse Voltage	$V_{R(RMS)}$	21	V
Average Rectified Output Current	$I_O$	3.0	A
Non-Repetitive Peak Forward Surge Current 8.3ms Single half sine-wave Superimposed on Rated Load	$I_{FSM}$	30	A

## Thermal Characteristics

Characteristic	Symbol	Typ	Max	Unit
Thermal Resistance Junction to Soldering Point	$R_{\theta JS}$	—	3	$^\circ\text{C/W}$
Thermal Resistance Junction to Ambient Air (Note 2)	$R_{\theta JA}$	130	—	$^\circ\text{C/W}$
Power Dissipation (Note 5) (Note 6) (Note 7)	$P_D$	—	2.5 4.0 4.5	W
Operating and Storage Temperature Range	$T_J, T_{STG}$	-65 to +150		$^\circ\text{C}$

## Electrical Characteristics @ $T_A = 25^\circ\text{C}$ unless otherwise specified

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Reverse Breakdown Voltage (Note 4)	$V_{(BR)R}$	30	—	—	V	$I_R = 5.0\text{mA}$
Forward Voltage	$V_F$	—	0.28	—	V	$I_F = 0.5\text{A}, T_J = 25^\circ\text{C}$
		—	0.30	0.35		$I_F = 1.0\text{A}, T_J = 25^\circ\text{C}$
		—	0.18	0.29		$I_F = 1.0\text{A}, T_J = 125^\circ\text{C}$
		—	0.33	0.40		$I_F = 2.0\text{A}, T_J = 25^\circ\text{C}$
		—	0.22	0.37		$I_F = 2.0\text{A}, T_J = 125^\circ\text{C}$
		—	0.35	0.45		$I_F = 3.0\text{A}, T_J = 25^\circ\text{C}$
		—	0.26	0.42		$I_F = 3.0\text{A}, T_J = 125^\circ\text{C}$
Reverse Current (Note 4)	$I_R$	—	0.27	1.0	mA	$T_J = 25^\circ\text{C}, V_R = 30\text{V}$
		—	55	90		$T_J = 100^\circ\text{C}, V_R = 30\text{V}$

- Notes:
1. No purposefully added lead.
  2. FR-4 PCB, 2 oz. Copper, minimum recommended pad layout per <http://www.diodes.com/datasheets/ap02001.pdf>.  $T_A = 25^\circ\text{C}$ .
  3. Diodes Inc.'s "Green" policy can be found on our website at [http://www.diodes.com/products/lead\\_free/index.php](http://www.diodes.com/products/lead_free/index.php).
  4. Short duration pulse test used to minimize self-heating effect.
  5. Device mounted on FR-4 PCB, 25mm<sup>2</sup> pad area.
  6. Device mounted on FR-4 PCB, 75mm<sup>2</sup> pad area.
  7. Aluminum PCB with copper mounting pad area of 75mm<sup>2</sup>.

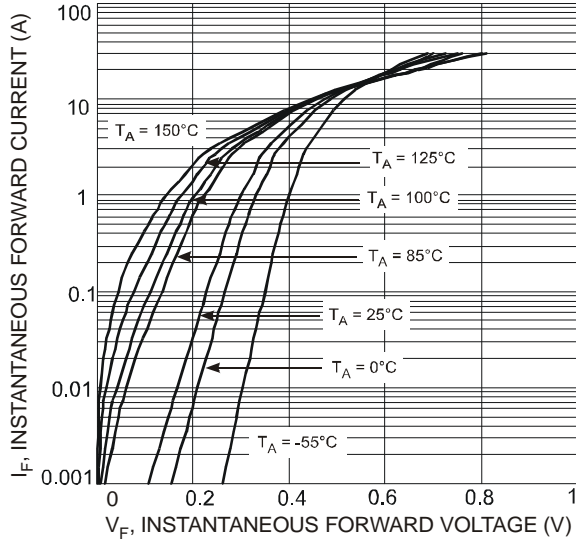


Fig. 1 Typical Forward Characteristics

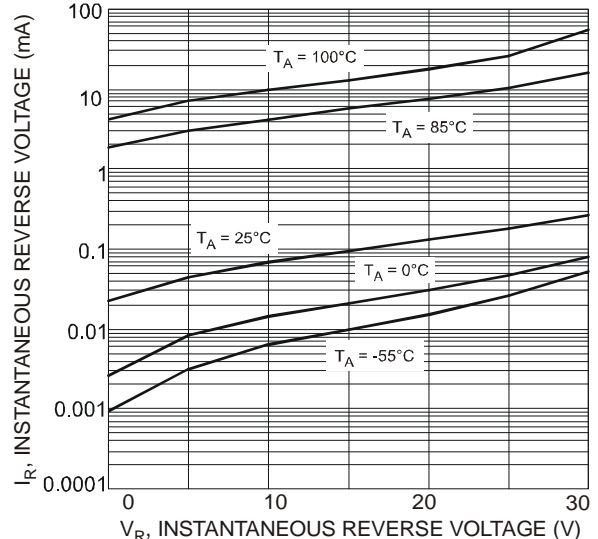


Fig. 2 Typical Reverse Characteristics

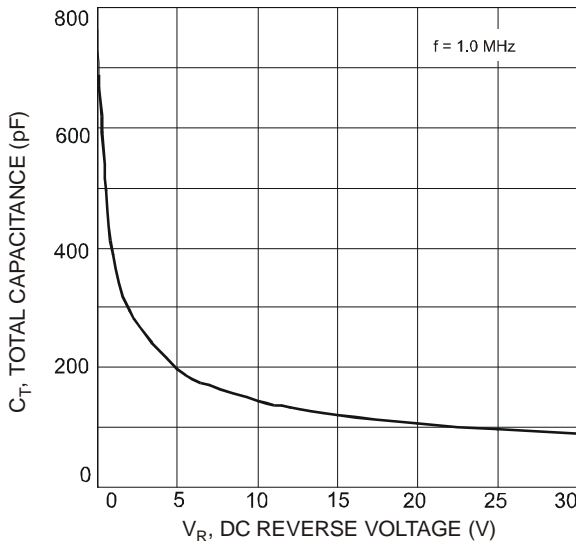


Fig. 3 Total Capacitance vs. Reverse Voltage

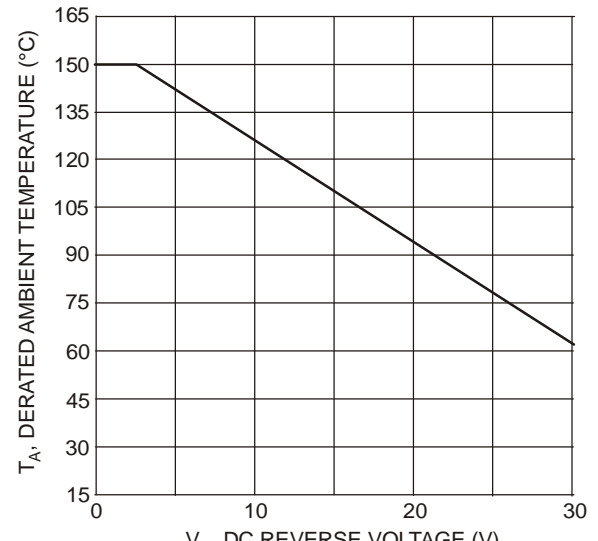


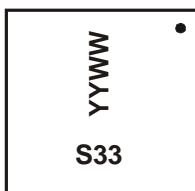
Fig. 4 Operating Temperature Derating

**Ordering Information** (Note 6)

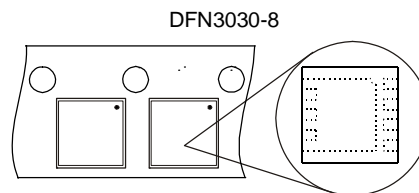
Part Number	Case	Packaging
B3L30LP-7	DFN3030-8	3000/Tape & Reel

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

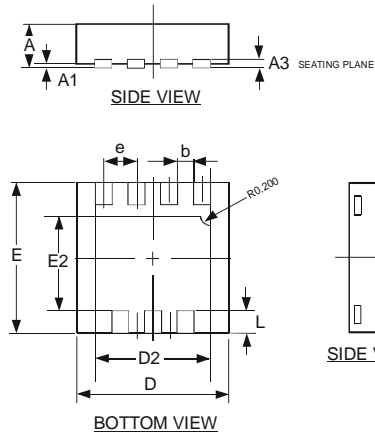
**Marking Information**



S33 = Product marking code  
YYWW = Date code marking  
YY = Last digit of year ex: 06 for 2006  
WW = Week code 01 to 52

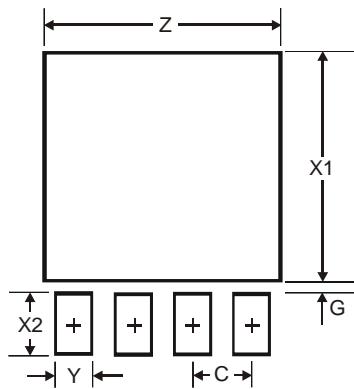


## Package Outline Dimensions



DFN3030-8			
Dim	Min	Max	Typ
A	0.57	0.63	0.60
A1	0	0.05	0.02
A3	—	—	0.15
b	0.29	0.39	0.34
D	2.90	3.10	3.00
D2	2.19	2.39	2.29
e	—	—	0.65
E	2.90	3.10	3.00
E2	1.64	1.84	1.74
L	0.30	0.60	0.45
<b>All Dimensions in mm</b>			

## Suggested Pad Layout



Dimensions	Value (in mm)
Z	2.59
G	0.11
X1	2.49
X2	0.65
Y	0.39
C	0.65

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