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## Contact us

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Address: A1208, Overseas Decoration Building, #122 Zhenhua RD., Futian, Shenzhen, China

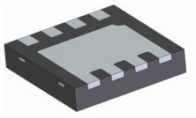
## Features

- 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
- **Totally Lead-Free & Fully RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**

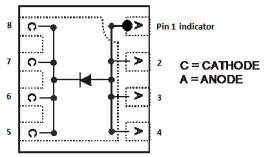
## Mechanical Data

- Case: U-DFN3030-8
- 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 lead frame. Solderable per MIL-STD-202, Method 208 e4
- Polarity: See Diagram
- Weight: 0.0172 grams (approximate)

U-DFN3030-8



Bottom View



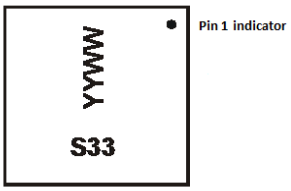

Top View
Schematic and Pin Configuration

## Ordering Information (Note 4)

| Part Number | Case | Packaging |
|---|---|---|
| B3L30LP-7 | U-DFN3030-8 | 3000/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 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 http://www.diodes.com/products/packages.html.

## Marking Information




S33 = Product marking code
YYWW = Date code marking
YY = Last digit of year (ex: 13 for 2013)
WW = Week code (01 ~ 53)

## Maximum Ratings (@$T_A$ = +25°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<br>Working Peak Reverse Voltage<br>DC Blocking Voltage | $V_{RRM}$<br>$V_{RWM}$<br>$V_R$ | 30 | V |
| RMS Reverse Voltage | $V_{R(RMS)}$ | 21 | V |
| Average Rectified Output Current | $I_O$ | 3.0 | A |
| Non-Repetitive Peak Forward Surge Current<br>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 | °C/W |
| Thermal Resistance Junction to Ambient Air | (Note 5) | $R_{\theta JA}$ | 130 | — | °C/W |
| Power Dissipation | (Note 6)<br>(Note 7)<br>(Note 8) | $P_D$ | —<br>—<br>— | 2.5<br>4.0<br>4.5 | W |
| Operating and Storage Temperature Range | | $T_J$, $T_{STG}$ | -65 to +150 | | °C |

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

| Characteristic | Symbol | Min | Typ | Max | Unit | Test Condition |
|---|---|---|---|---|---|---|
| Reverse Breakdown Voltage (Note 9) | $V_{(BR)R}$ | 30 | — | — | V | $I_R$ = 5.0mA |
| Forward Voltage | $V_F$ | — | 0.28 | — | V | $I_F$ = 0.5A, $T_J$ = +25°C |
| | | — | 0.30 | 0.35 | | $I_F$ = 1.0A, $T_J$ = +25°C |
| | | — | 0.18 | 0.29 | | $I_F$ = 1.0A, $T_J$ = +125°C |
| | | — | 0.33 | 0.40 | | $I_F$ = 2.0A, $T_J$ = +25°C |
| | | — | 0.22 | 0.37 | | $I_F$ = 2.0A, $T_J$ = +125°C |
| | | — | 0.35 | 0.45 | | $I_F$ = 3.0A, $T_J$ = +25°C |
| | | — | 0.26 | 0.42 | | $I_F$ = 3.0A, $T_J$ = +125°C |
| Reverse Current (Note 9) | $I_R$ | — | 0.27 | 1.0 | mA | $T_J$ = +25°C, $V_R$ = 30V |
| | | — | 55 | 90 | mA | $T_J$ = +100°C, $V_R$ = 30V |

Notes:
5. FR-4 PCB, 2 oz. Copper, minimum recommended pad layout per http://www.diodes.com. $T_A$ = +25°C.
6. Device mounted on FR-4 PCB, 25mm$^2$ pad area.
7. Device mounted on FR-4 PCB, 75mm$^2$ pad area.
8. Aluminum PCB with copper mounting pad area of 75mm$^2$.
9. Short duration pulse test used to minimize self-heating effect.

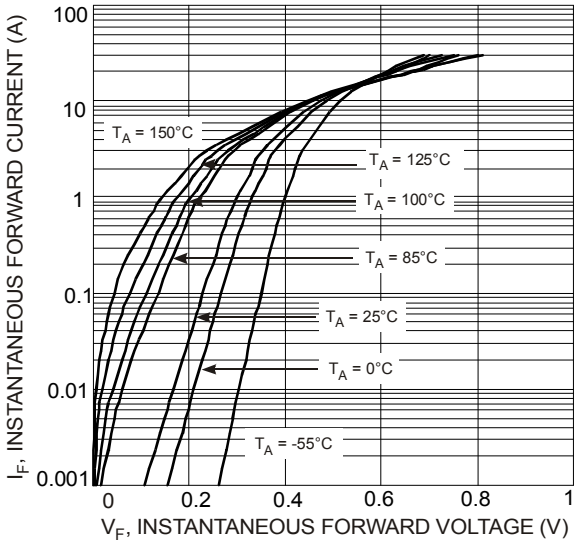



Fig. 1 Typical Forward Characteristics

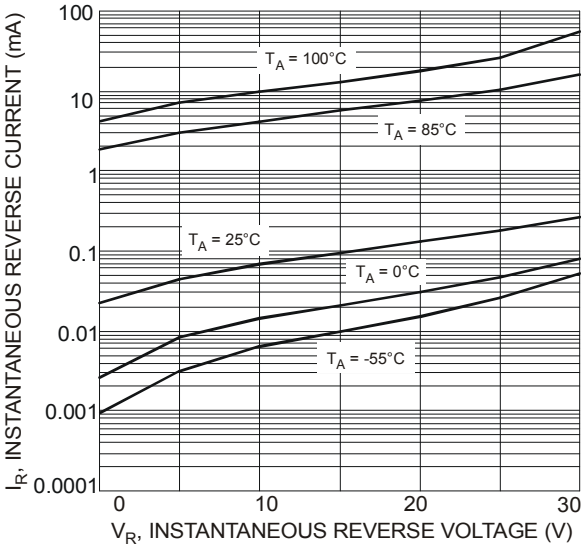



Fig. 2 Typical Reverse Characteristics

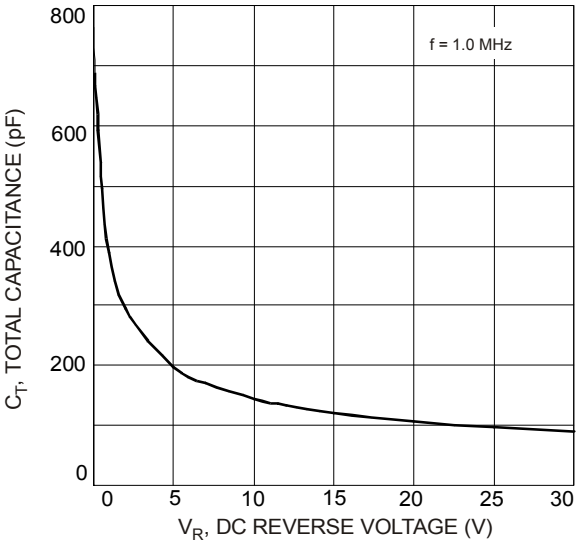



Fig. 3 Total Capacitance vs. Reverse Voltage

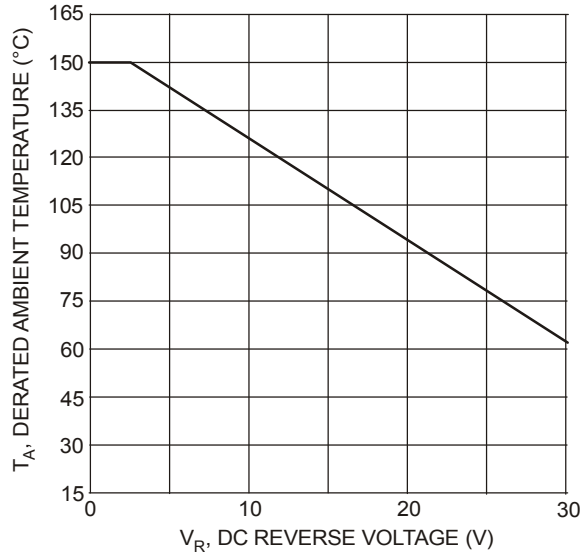
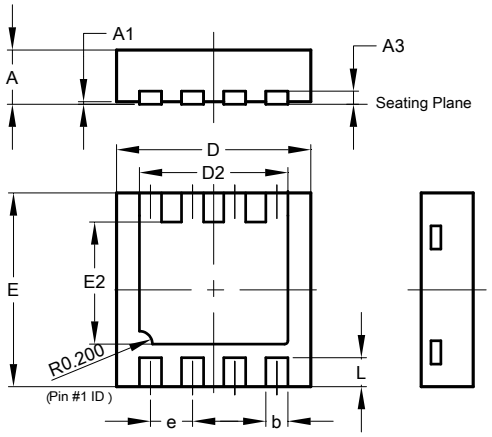



Fig. 4 Operating Temperature Derating

## Package Outline Dimensions

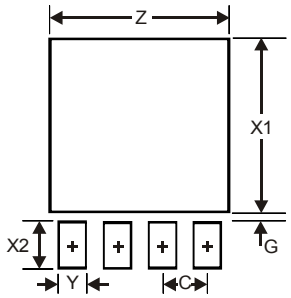
Please see AP02002 at http://www.diodes.com/datasheets/ap02002.pdf for latest version.




| U-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 |
| **All Dimensions in mm** | | | |

## Suggested Pad Layout

Please see AP02001 at http://www.diodes.com/datasheets/ap02001.pdf for the latest version.




| 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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