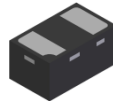


## Features

- Ultra-Small Leadless Surface Mount Package
- Ideally Suited for Automated Assembly Processes
- **Totally Lead-Free & Fully RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**

## Mechanical Data

- Case: X1-DFN1006-2
- Case Material: Molded Plastic, "Green" Molding Compound; UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminal Connections: See Marking Information
- Terminals: Finish — NiPdAu over Copper Leadframe; Solderable per MIL-STD-202, Method 208 Ⓔ4
- Weight: 0.001 grams (Approximate)



Bottom View

## Ordering Information (Note 4)

| Part Number        | Compliance | Case         | Packaging          |
|--------------------|------------|--------------|--------------------|
| (Type Number)-7*   | Commercial | X1-DFN1006-2 | 3,000/Tape & Reel  |
| (Type Number)-7B** | Commercial | X1-DFN1006-2 | 10,000/Tape & Reel |

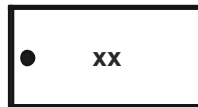
\*Add "-7" to the appropriate type number in Electrical Characteristics Table. Example: 6.2V Zener = BZT52C6V2LP-7.

\*\*Add "-7B" to the appropriate type number in Electrical Characteristics Table. Example: 6.2V Zener = BZT52C6V2LP-7B.

- 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](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

BZT52CxxLP-7



Top View  
Dot Denotes  
Cathode Side

BZT52CxxLP-7B



Top View  
Bar Denotes  
Cathode Side

xx = Product Type Marking Code

**OR**



Top View  
Bar Denotes  
Cathode Side

**Maximum Ratings** (@T<sub>A</sub> = +25°C, unless otherwise specified.)

| Characteristic                                   | Symbol         | Value | Unit |
|--------------------------------------------------|----------------|-------|------|
| Forward Voltage (Note 5) @ I <sub>F</sub> = 10mA | V <sub>F</sub> | 0.9   | V    |

**Thermal Characteristics**

| Characteristic                                                              | Symbol                            | Value       | Unit |
|-----------------------------------------------------------------------------|-----------------------------------|-------------|------|
| Power Dissipation (Note 6) T <sub>A</sub> = +25°C                           | P <sub>D</sub>                    | 250         | mW   |
| Thermal Resistance, Junction to Ambient Air (Note 6) T <sub>A</sub> = +25°C | R <sub>θJA</sub>                  | 500         | °C/W |
| Operating and Storage Temperature Range                                     | T <sub>J</sub> , T <sub>STG</sub> | -65 to +150 | °C   |

**Electrical Characteristics** (@T<sub>A</sub> = +25°C, unless otherwise specified.)

| Type Number          | Marking Code | Zener Voltage Range (Note 5)     |         |         |                 | Maximum Zener Impedance f = 1kHz  |                                   |                 | Maximum Reverse Current (Note 5) |                  | Temperature Coefficient @ I <sub>ZTC</sub> mV/°C |      | Test Current I <sub>ZTC</sub> mA |
|----------------------|--------------|----------------------------------|---------|---------|-----------------|-----------------------------------|-----------------------------------|-----------------|----------------------------------|------------------|--------------------------------------------------|------|----------------------------------|
|                      |              | V <sub>Z</sub> @ I <sub>ZT</sub> |         |         | I <sub>ZT</sub> | Z <sub>ZT</sub> @ I <sub>ZT</sub> | Z <sub>ZK</sub> @ I <sub>ZK</sub> | I <sub>ZK</sub> | I <sub>R</sub>                   | @ V <sub>R</sub> | Min                                              | Max  |                                  |
|                      |              | Nom (V)                          | Min (V) | Max (V) | mA              | Ω                                 | mA                                | μA              | V                                |                  |                                                  |      |                                  |
| BZT52C2V4LP          | WX           | 2.4                              | 2.20    | 2.60    | 5               | 100                               | 600                               | 1.0             | 50                               | 1.0              | -3.5                                             | 0    | 5                                |
| BZT52C2V7LP          | W1           | 2.7                              | 2.5     | 2.9     | 5               | 100                               | 600                               | 1.0             | 20                               | 1.0              | -3.5                                             | 0    | 5                                |
| BZT52C3V0LP          | W2           | 3.0                              | 2.8     | 3.2     | 5               | 95                                | 600                               | 1.0             | 10                               | 1.0              | -3.5                                             | 0    | 5                                |
| BZT52C3V3LP          | W3           | 3.3                              | 3.1     | 3.5     | 5               | 95                                | 600                               | 1.0             | 5                                | 1.0              | -3.5                                             | 0    | 5                                |
| BZT52C3V6LP          | W4           | 3.6                              | 3.4     | 3.8     | 5               | 90                                | 600                               | 1.0             | 5                                | 1.0              | -3.5                                             | 0    | 5                                |
| BZT52C3V9LP          | W5           | 3.9                              | 3.7     | 4.1     | 5               | 90                                | 600                               | 1.0             | 3                                | 1.0              | -3.5                                             | 0    | 5                                |
| BZT52C4V3LP          | W6           | 4.3                              | 4.0     | 4.6     | 5               | 90                                | 600                               | 1.0             | 3                                | 1.0              | -3.5                                             | 0    | 5                                |
| BZT52C4V7LP          | W7           | 4.7                              | 4.4     | 5.0     | 5               | 80                                | 500                               | 1.0             | 3                                | 2.0              | -3.5                                             | 0.2  | 5                                |
| BZT52C5V1LP          | 9Y           | 5.1                              | 4.8     | 5.4     | 5               | 60                                | 480                               | 1.0             | 2.0                              | 2.0              | -2.7                                             | 1.2  | 5                                |
| BZT52C5V6LP          | 9A           | 5.6                              | 5.2     | 6.0     | 5               | 40                                | 400                               | 1.0             | 1.0                              | 2.0              | -2                                               | 2.5  | 5                                |
| BZT52C6V2LP          | 9B           | 6.2                              | 5.8     | 6.6     | 5               | 10                                | 150                               | 1.0             | 3.0                              | 4.0              | 0.4                                              | 3.7  | 5                                |
| BZT52C6V8LP (Note 7) | 9C           | 6.8                              | 6.4     | 7.2     | 5               | 15                                | 80                                | 1.0             | 2.0                              | 4.0              | 1.2                                              | 4.5  | 5                                |
| BZT52C7V5LP          | 9D           | 7.5                              | 7.0     | 7.9     | 5               | 15                                | 80                                | 1.0             | 1.0                              | 5.0              | 2.5                                              | 5.3  | 5                                |
| BZT52C8V2LP          | 9E           | 8.2                              | 7.7     | 8.7     | 5               | 15                                | 80                                | 1.0             | 0.7                              | 5.0              | 3.2                                              | 6.2  | 5                                |
| BZT52C9V1LP          | 9F           | 9.1                              | 8.5     | 9.6     | 5               | 15                                | 100                               | 1.0             | 0.5                              | 6.0              | 3.8                                              | 7.0  | 5                                |
| BZT52C10LP           | 9G           | 10                               | 9.4     | 10.6    | 5               | 20                                | 150                               | 1.0             | 0.2                              | 7.0              | 4.5                                              | 8.0  | 5                                |
| BZT52C11LP           | 9H           | 11                               | 10.4    | 11.6    | 5               | 20                                | 150                               | 1.0             | 0.1                              | 8.0              | 5.4                                              | 9.0  | 5                                |
| BZT52C12LP           | 9J           | 12                               | 11.4    | 12.7    | 5               | 25                                | 150                               | 1.0             | 0.1                              | 8.0              | 6.0                                              | 10.0 | 5                                |
| BZT52C13LP           | 9K           | 13                               | 12.4    | 14.1    | 5               | 30                                | 170                               | 1.0             | 0.1                              | 8.0              | 7.0                                              | 11.0 | 5                                |
| BZT52C15LP           | 9L           | 15                               | 13.8    | 15.6    | 5               | 30                                | 200                               | 1.0             | 0.1                              | 10.5             | 9.2                                              | 13.0 | 5                                |
| BZT52C16LP           | 9M           | 16                               | 15.3    | 17.1    | 5               | 40                                | 200                               | 1.0             | 0.1                              | 11.2             | 10.4                                             | 14.0 | 5                                |
| BZT52C18LP           | 9N           | 18                               | 16.8    | 19.1    | 5               | 45                                | 225                               | 1.0             | 0.1                              | 12.6             | 12.4                                             | 16.0 | 5                                |
| BZT52C20LP           | 9P           | 20                               | 18.8    | 21.2    | 5               | 55                                | 225                               | 1.0             | 0.1                              | 14.0             | 14.4                                             | -    | 5                                |
| BZT52C22LP           | 9R           | 22                               | 20.8    | 23.3    | 5               | 55                                | 250                               | 1.0             | 0.1                              | 15.4             | 16.4                                             | -    | 5                                |
| BZT52C24LP           | 9S           | 24                               | 22.8    | 25.6    | 5               | 70                                | 250                               | 1.0             | 0.1                              | 16.8             | 18.4                                             | -    | 5                                |
| BZT52C36LP           | 9W           | 36                               | 34.0    | 38.0    | 2               | 90                                | 350                               | 0.5             | 0.1                              | 25.2             | 36.5                                             | -    | 5                                |
| BZT52C39LP           | 9X           | 39                               | 37.0    | 41.0    | 2               | 130                               | 350                               | 0.5             | 0.1                              | 27.3             | 36.8                                             | -    | 5                                |

- Notes:
5. Short duration pulse test used to minimize self-heating effect.
  6. Device mounted on FR-4 PCB with minimum recommended pad layout, as shown in Diodes Incorporated's Suggested Pad Layout document, which can be found on our website at <http://www.diodes.com>.
  7. Device can withstand a repetitive, 1A pulse with t<sub>p</sub> = 300μs and T = 3s (forward or reverse direction).

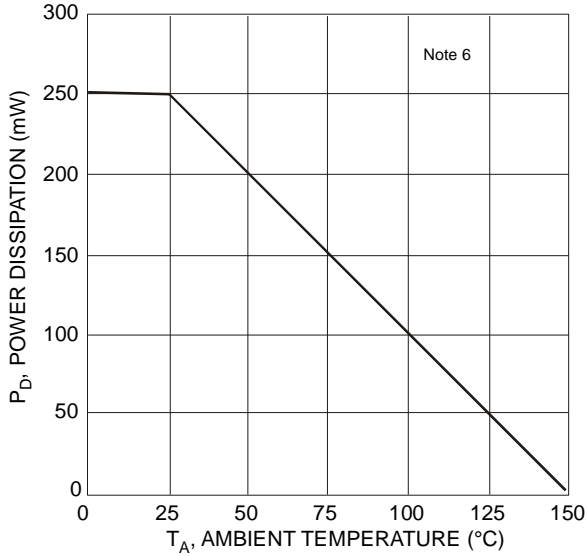


Fig. 1 Power Derating Curve

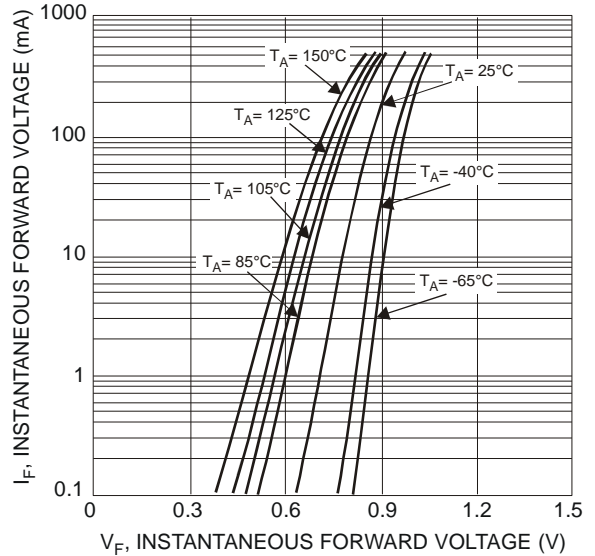


Fig. 2 Typical Forward Characteristics

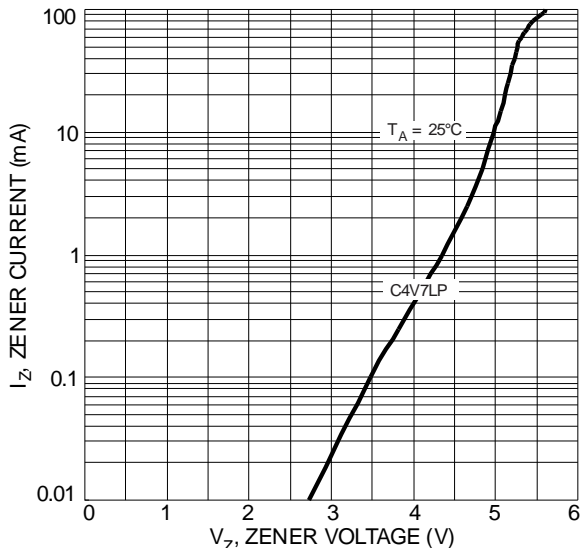


Fig. 3 Typical Reverse Characteristics

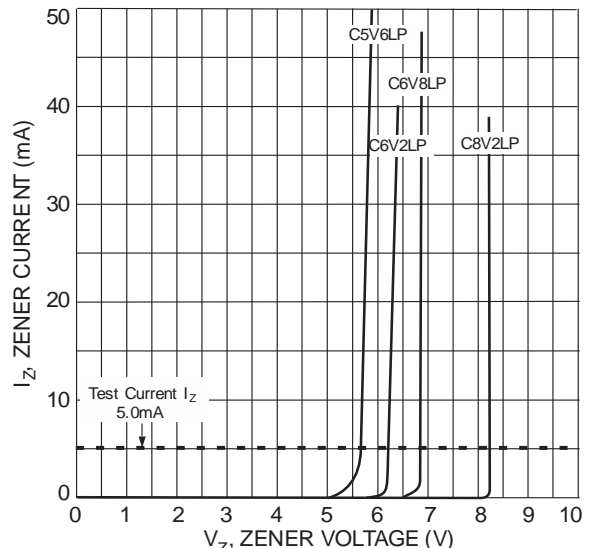


Fig. 4 Typical Zener Breakdown Characteristics

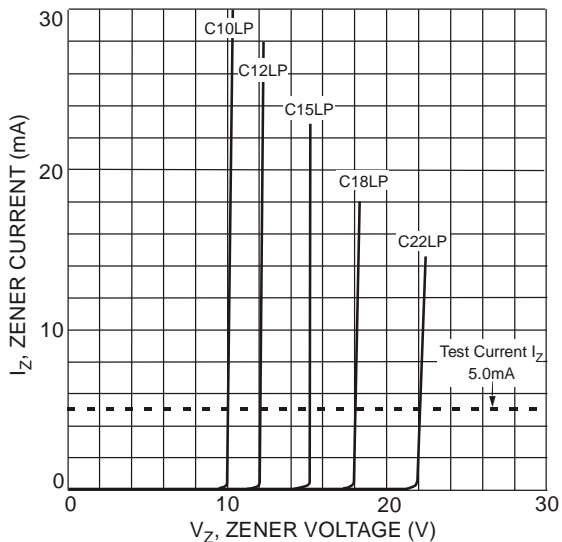


Fig. 5 Typical Zener Breakdown Characteristics

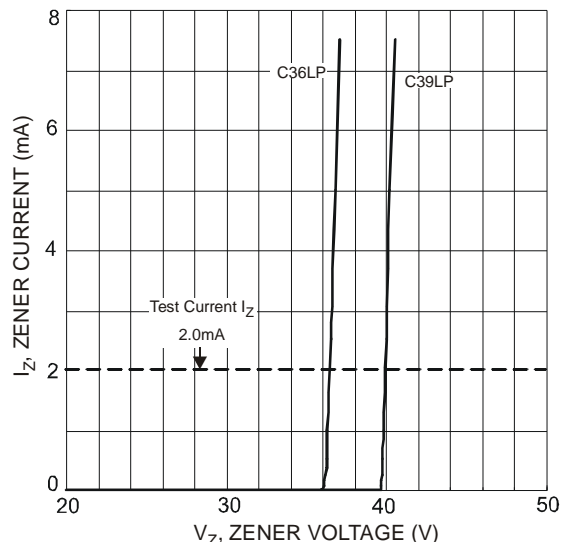


Fig. 6 Typical Zener Breakdown Characteristics



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