

# New Jersey Semi-Conductor Products, Inc.

20 STERN AVE.  
SPRINGFIELD, NEW JERSEY 07081  
U.S.A.

TELEPHONE: (973) 376-2922  
(212) 227-6005  
FAX: (973) 376-8960

## 5 Watt Surmetic 40 Silicon Zener Diodes

This is a complete series of 5 Watt Zener Diodes with tight limits and better operating characteristics that reflect the superior capabilities of silicon-oxide-passivated junctions. All this is in an axial-lead, transfer-molded plastic package that offers protection in all common environmental conditions.

### Specification Features:

- Up to 180 Watt Surge Rating @ 8.3 ms
- Maximum Limits Guaranteed on Seven Electrical Parameters

### Mechanical Characteristics:

**CASE:** Void-free, transfer-molded, thermosetting plastic

**FINISH:** All external surfaces are corrosion resistant and leads are readily solderable

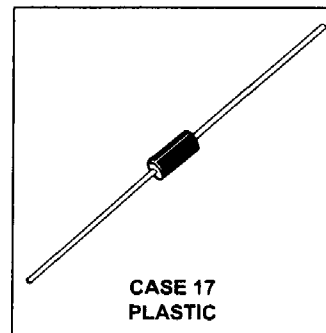
**POLARITY:** Cathode indicated by color band. When operated in zener mode, cathode will be positive with respect to anode

**MOUNTING POSITION:** Any

**WEIGHT:** 0.7 gram (approx)

**1N5333B  
through  
1N5388B**

**5 WATT  
ZENER REGULATOR  
DIODES  
3.3-200 VOLTS**



### MAXIMUM RATINGS

| Rating   | Symbol         | Value        | Unit                          |
|--|----------------|--------------|-------------------------------|
| DC Power Dissipation @ $T_L = 75^\circ\text{C}$<br>Lead Length = 3/8"<br>Derate above $75^\circ\text{C}$ | $P_D$          | 5<br>40      | Watts<br>mW/ $^\circ\text{C}$ |
| Operating and Storage Junction Temperature Range   | $T_J, T_{stg}$ | - 65 to +200 | $^\circ\text{C}$              |



New Jersey Semi-Conductor Products reserves the right to change test conditions, parameter limits and package dimensions without notice. Information furnished by New Jersey Semi-Conductor Products is believed to be both accurate and reliable at the time of going to press. However, New Jersey Semi-Conductor Products assumes no responsibility for any errors or omissions discovered in its use. New Jersey Semi-Conductor Products encourages customers to verify that data sheets are current before placing orders.

**ELECTRICAL CHARACTERISTICS** ( $T_A = 25^\circ\text{C}$  unless otherwise noted,  $V_F = 1.2 \text{ Max @ } I_F = 1 \text{ A}$  for all types)

| JEDEC Type No. (Note 1) | Nominal Zener Voltage $V_Z @ I_{ZT}$ Volts (Note 2) | Test Current $I_{ZT}$ mA | Max Zener Impedance             |  | Max Reverse Leakage Current     |             | Max Surge Current $i_{R, \text{Amps}}$ (Note 3) | Max Voltage Regulation $\Delta V_Z$ , Volt (Note 4) | Maximum Regulator Current $I_{ZM}$ mA (Note 5) |
|-------------------------|---|--------------------------|---------------------------------|--|---------------------------------|-------------|---|---|--|
|                         |   |                          | $Z_{ZT} @ I_{ZT}$ Ohms (Note 2) | $Z_{ZK} @ I_{ZK} = 1 \text{ mA}$ Ohms (Note 2) | $I_R @ V_R$ $\mu\text{A}$ Volts |             |   |   |  |
| <b>1N5333B</b>          | <b>3.3</b>  | <b>380</b>               | <b>3</b>                        | <b>400</b>                                     | <b>300</b>                      | <b>1</b>    | <b>20</b>                                       | <b>0.85</b>   | <b>1440</b>                                    |
| 1N5334B                 | 3.6   | 350                      | 2.5                             | 500  | 150                             | 1           | 18.7  | 0.8   | 1320   |
| 1N5335B                 | 3.9   | 320                      | 2                               | 500  | 50                              | 1           | 17.6  | 0.54  | 1220   |
| 1N5336B                 | 4.3   | 290                      | 2                               | 500  | 10                              | 1           | 16.4  | 0.49  | 1100   |
| <b>1N5337B</b>          | <b>4.7</b>  | <b>260</b>               | <b>2</b>                        | <b>450</b>                                     | <b>5</b>                        | <b>1</b>    | <b>15.3</b>                                     | <b>0.44</b>   | <b>1010</b>                                    |
| <b>1N5338B</b>          | <b>5.1</b>  | <b>240</b>               | <b>1.5</b>                      | <b>400</b>                                     | <b>1</b>                        | <b>1</b>    | <b>14.4</b>                                     | <b>0.39</b>   | <b>930</b>                                     |
| <b>1N5339B</b>          | <b>5.6</b>  | <b>220</b>               | <b>1</b>                        | <b>400</b>                                     | <b>1</b>                        | <b>2</b>    | <b>13.4</b>                                     | <b>0.25</b>   | <b>865</b>                                     |
| 1N5340B                 | 6   | 200                      | 1                               | 300  | 1                               | 3           | 12.7  | 0.19  | 790  |
| <b>1N5341B</b>          | <b>6.2</b>  | <b>200</b>               | <b>1</b>                        | <b>200</b>                                     | <b>1</b>                        | <b>3</b>    | <b>12.4</b>                                     | <b>0.1</b>  | <b>765</b>                                     |
| <b>1N5342B</b>          | <b>6.8</b>  | <b>175</b>               | <b>1</b>                        | <b>200</b>                                     | <b>10</b>                       | <b>5.2</b>  | <b>11.5</b>                                     | <b>0.15</b>   | <b>700</b>                                     |
| 1N5343B                 | 7.5   | 175                      | 1.5                             | 200  | 10                              | 5.7         | 10.7  | 0.15  | 630  |
| 1N5344B                 | 8.2   | 150                      | 1.5                             | 200  | 10                              | 6.2         | 10  | 0.2   | 580  |
| 1N5345B                 | 8.7   | 150                      | 2                               | 200  | 10                              | 6.6         | 9.5   | 0.2   | 545  |
| 1N5346B                 | 9.1   | 150                      | 2                               | 150  | 7.5                             | 6.9         | 9.2   | 0.22  | 520  |
| <b>1N5347B</b>          | <b>10</b>   | <b>125</b>               | <b>2</b>                        | <b>125</b>                                     | <b>5</b>                        | <b>7.6</b>  | <b>8.6</b>                                      | <b>0.22</b>   | <b>475</b>                                     |
| 1N5348B                 | 11  | 125                      | 2.5                             | 125  | 5                               | 8.4         | 8   | 0.25  | 430  |
| <b>1N5349B</b>          | <b>12</b>   | <b>100</b>               | <b>2.5</b>                      | <b>125</b>                                     | <b>2</b>                        | <b>9.1</b>  | <b>7.5</b>                                      | <b>0.25</b>   | <b>395</b>                                     |
| <b>1N5350B</b>          | <b>13</b>   | <b>100</b>               | <b>2.5</b>                      | <b>100</b>                                     | <b>1</b>                        | <b>9.9</b>  | <b>7</b>  | <b>0.25</b>   | <b>365</b>                                     |
| 1N5351B                 | 14  | 100                      | 2.5                             | 75   | 1                               | 10.6        | 6.7   | 0.25  | 340  |
| <b>1N5352B</b>          | <b>15</b>   | <b>75</b>                | <b>2.5</b>                      | <b>75</b>                                      | <b>1</b>                        | <b>11.5</b> | <b>6.3</b>                                      | <b>0.25</b>   | <b>315</b>                                     |
| <b>1N5353B</b>          | <b>16</b>   | <b>75</b>                | <b>2.5</b>                      | <b>75</b>                                      | <b>1</b>                        | <b>12.2</b> | <b>6</b>  | <b>0.3</b>  | <b>295</b>                                     |
| 1N5354B                 | 17  | 70                       | 2.5                             | 75   | 0.5                             | 12.9        | 5.8   | 0.35  | 280  |
| 1N5355B                 | 18  | 65                       | 2.5                             | 75   | 0.5                             | 13.7        | 5.5   | 0.4   | 265  |
| 1N5356B                 | 19  | 65                       | 3                               | 75   | 0.5                             | 14.4        | 5.3   | 0.4   | 250  |
| 1N5357B                 | 20  | 65                       | 3                               | 75   | 0.5                             | 15.2        | 5.1   | 0.4   | 237  |
| <b>1N5358B</b>          | <b>22</b>   | <b>50</b>                | <b>3.5</b>                      | <b>75</b>                                      | <b>0.5</b>                      | <b>16.7</b> | <b>4.7</b>                                      | <b>0.45</b>   | <b>216</b>                                     |
| <b>1N5359B</b>          | <b>24</b>   | <b>50</b>                | <b>3.5</b>                      | <b>100</b>                                     | <b>0.5</b>                      | <b>18.2</b> | <b>4.4</b>                                      | <b>0.55</b>   | <b>198</b>                                     |
| 1N5360B                 | 25  | 50                       | 4                               | 110  | 0.5                             | 19          | 4.3   | 0.55  | 190  |
| <b>1N5361B</b>          | <b>27</b>   | <b>50</b>                | <b>5</b>                        | <b>120</b>                                     | <b>0.5</b>                      | <b>20.6</b> | <b>4.1</b>                                      | <b>0.6</b>  | <b>176</b>                                     |
| 1N5362B                 | 28  | 50                       | 6                               | 130  | 0.5                             | 21.2        | 3.9   | 0.6   | 170  |
| 1N5363B                 | 30  | 40                       | 8                               | 140  | 0.5                             | 22.8        | 3.7   | 0.6   | 158  |
| 1N5364B                 | 33  | 40                       | 10                              | 150  | 0.5                             | 25.1        | 3.5   | 0.6   | 144  |
| <b>1N5365B</b>          | <b>36</b>   | <b>30</b>                | <b>11</b>                       | <b>160</b>                                     | <b>0.5</b>                      | <b>27.4</b> | <b>3.3</b>                                      | <b>0.65</b>   | <b>132</b>                                     |
| 1N5366B                 | 39  | 30                       | 14                              | 170  | 0.5                             | 29.7        | 3.1   | 0.65  | 122  |
| 1N5367B                 | 43  | 30                       | 20                              | 190  | 0.5                             | 32.7        | 2.8   | 0.7   | 110  |
| <b>1N5368B</b>          | <b>47</b>   | <b>25</b>                | <b>25</b>                       | <b>210</b>                                     | <b>0.5</b>                      | <b>35.8</b> | <b>2.7</b>                                      | <b>0.8</b>  | <b>100</b>                                     |
| 1N5369B                 | 51  | 25                       | 27                              | 230  | 0.5                             | 38.8        | 2.5   | 0.9   | 93   |
| 1N5370B                 | 56  | 20                       | 35                              | 280  | 0.5                             | 42.6        | 2.3   | 1   | 86   |
| 1N5371B                 | 60  | 20                       | 40                              | 350  | 0.5                             | 42.5        | 2.2   | 1.2   | 79   |
| 1N5372B                 | 62  | 20                       | 42                              | 400  | 0.5                             | 47.1        | 2.1   | 1.35  | 76   |
| 1N5373B                 | 68  | 20                       | 44                              | 500  | 0.5                             | 51.7        | 2   | 1.5   | 70   |
| 1N5374B                 | 75  | 20                       | 45                              | 620  | 0.5                             | 56          | 1.9   | 1.6   | 63   |
| 1N5375B                 | 82  | 15                       | 65                              | 720  | 0.5                             | 62.2        | 1.8   | 1.8   | 58   |
| 1N5376B                 | 87  | 15                       | 75                              | 760  | 0.5                             | 66          | 1.7   | 2   | 54.5   |
| 1N5377B                 | 91  | 15                       | 75                              | 760  | 0.5                             | 69.2        | 1.6   | 2.2   | 52.5   |
| 1N5378B                 | 100   | 12                       | 90                              | 800  | 0.5                             | 76          | 1.5   | 2.5   | 47.5   |
| 1N5379B                 | 110   | 12                       | 125                             | 1000   | 0.5                             | 83.6        | 1.4   | 2.5   | 43   |
| 1N5380B                 | 120   | 10                       | 170                             | 1150   | 0.5                             | 91.2        | 1.3   | 2.5   | 39.5   |
| 1N5381B                 | 130   | 10                       | 190                             | 1250   | 0.5                             | 98.8        | 1.2   | 2.5   | 36.6   |
| 1N5382B                 | 140   | 8                        | 230                             | 1500   | 0.5                             | 106         | 1.2   | 2.5   | 34   |