

1N5221B THRU 1N5278B

**SILICON ZENER DIODES**  
**500mW, 2.4 THRU 170 VOLT**  
**5% TOLERANCE**



**DO-35 CASE**



[www.centralemi.com](http://www.centralemi.com)

**DESCRIPTION:**

The CENTRAL SEMICONDUCTOR 1N5221B series silicon Zener diodes are highly reliable voltage regulators designed for use in industrial, commercial, entertainment and computer applications.

**MAXIMUM RATINGS:** ( $T_L = 75^\circ\text{C}$ )

Power Dissipation

Operating and Storage Junction Temperature

$V_Z$  Tolerance: Part number with "B" suffix

$V_Z$  Tolerance: Part number with "C" suffix

$V_Z$  Tolerance: Part number with "D" suffix

**SYMBOL**

$P_D$

$T_J, T_{stg}$

500

-65 to +200

$\pm 5$

$\pm 2$

$\pm 1$

**UNITS**

mW

$^\circ\text{C}$

%

%

%

**ELECTRICAL CHARACTERISTICS:** ( $T_A = 25^\circ\text{C}$ )  $V_F = 1.1\text{V MAX @ } I_F = 200\text{mA}$  (for all types)

| TYPE    | ZENER VOLTAGE<br>$V_Z @ I_{ZT}$ |     |       | TEST CURRENT | MAXIMUM ZENER IMPEDANCE |                   |               | MAXIMUM REVERSE CURRENT |     | MAXIMUM TEMPERATURE COEFFICIENT |
|---------|---------------------------------|-----|-------|--------------|-------------------------|-------------------|---------------|-------------------------|-----|---------------------------------|
|         | MIN                             | NOM | MAX   | $I_{ZT}$     | $Z_{ZT} @ I_{ZT}$       | $Z_{ZK} @ I_{ZK}$ | $I_R @ V_R$   |                         |     | $\ominus V_Z$                   |
|         | V                               | V   | V     | mA           | $\Omega$                | $\Omega$          | $\mu\text{A}$ | V                       |     | $\%/^\circ\text{C}$             |
| 1N5221B | 2.280                           | 2.4 | 2.520 | 20           | 30                      | 1200              | 0.25          | 100                     | 1.0 | -0.085                          |
| 1N5222B | 2.375                           | 2.5 | 2.625 | 20           | 30                      | 1250              | 0.25          | 100                     | 1.0 | -0.085                          |
| 1N5223B | 2.565                           | 2.7 | 2.835 | 20           | 30                      | 1300              | 0.25          | 75                      | 1.0 | -0.080                          |
| 1N5224B | 2.660                           | 2.8 | 2.940 | 20           | 30                      | 1400              | 0.25          | 75                      | 1.0 | -0.080                          |
| 1N5225B | 2.850                           | 3.0 | 3.150 | 20           | 29                      | 1600              | 0.25          | 50                      | 1.0 | -0.075                          |
| 1N5226B | 3.135                           | 3.3 | 3.465 | 20           | 28                      | 1600              | 0.25          | 25                      | 1.0 | -0.070                          |
| 1N5227B | 3.420                           | 3.6 | 3.780 | 20           | 24                      | 1700              | 0.25          | 15                      | 1.0 | -0.065                          |
| 1N5228B | 3.705                           | 3.9 | 4.095 | 20           | 23                      | 1900              | 0.25          | 10                      | 1.0 | -0.060                          |
| 1N5229B | 4.085                           | 4.3 | 4.515 | 20           | 22                      | 2000              | 0.25          | 5.0                     | 1.0 | $\pm 0.055$                     |
| 1N5230B | 4.465                           | 4.7 | 4.935 | 20           | 19                      | 1900              | 0.25          | 5.0                     | 2.0 | $\pm 0.030$                     |
| 1N5231B | 4.845                           | 5.1 | 5.355 | 20           | 17                      | 1600              | 0.25          | 5.0                     | 2.0 | $\pm 0.030$                     |
| 1N5232B | 5.320                           | 5.6 | 5.880 | 20           | 11                      | 1600              | 0.25          | 5.0                     | 3.0 | +0.038                          |
| 1N5233B | 5.700                           | 6.0 | 6.300 | 20           | 7.0                     | 1600              | 0.25          | 5.0                     | 3.5 | +0.038                          |
| 1N5234B | 5.890                           | 6.2 | 6.510 | 20           | 7.0                     | 1000              | 0.25          | 5.0                     | 4.0 | +0.045                          |
| 1N5235B | 6.460                           | 6.8 | 7.140 | 20           | 5.0                     | 750               | 0.25          | 3.0                     | 5.0 | +0.050                          |
| 1N5236B | 7.125                           | 7.5 | 7.875 | 20           | 6.0                     | 500               | 0.25          | 3.0                     | 6.0 | +0.058                          |
| 1N5237B | 7.790                           | 8.2 | 8.610 | 20           | 8.0                     | 500               | 0.25          | 3.0                     | 6.5 | +0.062                          |
| 1N5238B | 8.265                           | 8.7 | 9.135 | 20           | 8.0                     | 600               | 0.25          | 3.0                     | 6.5 | +0.065                          |
| 1N5239B | 8.645                           | 9.1 | 9.555 | 20           | 10                      | 600               | 0.25          | 3.0                     | 7.0 | +0.068                          |
| 1N5240B | 9.500                           | 10  | 10.50 | 20           | 17                      | 600               | 0.25          | 3.0                     | 8.0 | +0.075                          |
| 1N5241B | 10.45                           | 11  | 11.55 | 20           | 22                      | 600               | 0.25          | 2.0                     | 8.4 | +0.076                          |
| 1N5242B | 11.40                           | 12  | 12.60 | 20           | 30                      | 600               | 0.25          | 1.0                     | 9.1 | +0.077                          |
| 1N5243B | 12.35                           | 13  | 13.65 | 9.5          | 13                      | 600               | 0.25          | 0.5                     | 9.9 | +0.079                          |
| 1N5244B | 13.30                           | 14  | 14.70 | 9.0          | 15                      | 600               | 0.25          | 0.1                     | 10  | +0.082                          |
| 1N5245B | 14.25                           | 15  | 15.75 | 8.5          | 16                      | 600               | 0.25          | 0.1                     | 11  | +0.082                          |
| 1N5246B | 15.20                           | 16  | 16.80 | 7.8          | 17                      | 600               | 0.25          | 0.1                     | 12  | +0.083                          |

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1N5221B THRU 1N5278B

SILICON ZENER DIODES  
500mW, 2.4 THRU 170 VOLT  
5% TOLERANCE



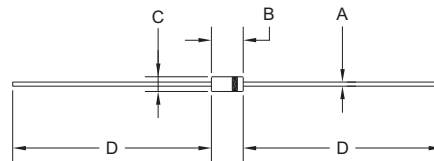
ELECTRICAL CHARACTERISTICS - Continued: ( $T_A=25^\circ\text{C}$ )  $V_F=1.1\text{V MAX}$  @  $I_F=200\text{mA}$  (for all types)

| TYPE    | ZENER VOLTAGE<br>$V_Z$ @ $I_{ZT}$ |     |       | TEST CURRENT<br>$I_{ZT}$ | MAXIMUM ZENER IMPEDANCE |                     |      | MAXIMUM REVERSE CURRENT |     | MAXIMUM TEMPERATURE COEFFICIENT<br>$\Theta V_Z$ |
|---------|-----------------------------------|-----|-------|--------------------------|-------------------------|---------------------|------|-------------------------|-----|-------------------------------------------------|
|         | MIN                               | NOM | MAX   |                          | $Z_{ZT}$ @ $I_{ZT}$     | $Z_{ZK}$ @ $I_{ZK}$ |      | $I_R$ @ $V_R$           |     |                                                 |
|         | V                                 | V   | V     |                          | $\Omega$                | $\Omega$            | mA   | $\mu\text{A}$           | V   | %/ $^\circ\text{C}$                             |
| 1N5247B | 16.15                             | 17  | 17.85 | 7.4                      | 19                      | 600                 | 0.25 | 0.1                     | 13  | +0.084                                          |
| 1N5248B | 17.10                             | 18  | 18.90 | 7.0                      | 21                      | 600                 | 0.25 | 0.1                     | 14  | +0.085                                          |
| 1N5249B | 18.05                             | 19  | 19.95 | 6.6                      | 23                      | 600                 | 0.25 | 0.1                     | 14  | +0.086                                          |
| 1N5250B | 19.00                             | 20  | 21.00 | 6.2                      | 25                      | 600                 | 0.25 | 0.1                     | 15  | +0.086                                          |
| 1N5251B | 20.90                             | 22  | 23.10 | 5.6                      | 29                      | 600                 | 0.25 | 0.1                     | 17  | +0.087                                          |
| 1N5252B | 22.80                             | 24  | 25.20 | 5.2                      | 33                      | 600                 | 0.25 | 0.1                     | 18  | +0.088                                          |
| 1N5253B | 23.75                             | 25  | 26.25 | 5.0                      | 35                      | 600                 | 0.25 | 0.1                     | 19  | +0.089                                          |
| 1N5254B | 25.65                             | 27  | 28.35 | 4.6                      | 41                      | 600                 | 0.25 | 0.1                     | 21  | +0.090                                          |
| 1N5255B | 26.60                             | 28  | 29.40 | 4.5                      | 44                      | 600                 | 0.25 | 0.1                     | 21  | +0.091                                          |
| 1N5256B | 28.50                             | 30  | 31.50 | 4.2                      | 49                      | 600                 | 0.25 | 0.1                     | 23  | +0.091                                          |
| 1N5257B | 31.35                             | 33  | 34.65 | 3.8                      | 58                      | 700                 | 0.25 | 0.1                     | 25  | +0.092                                          |
| 1N5258B | 34.20                             | 36  | 37.80 | 3.4                      | 70                      | 700                 | 0.25 | 0.1                     | 27  | +0.093                                          |
| 1N5259B | 37.05                             | 39  | 40.95 | 3.2                      | 80                      | 800                 | 0.25 | 0.1                     | 30  | +0.094                                          |
| 1N5260B | 40.85                             | 43  | 45.15 | 3.0                      | 93                      | 900                 | 0.25 | 0.1                     | 33  | +0.095                                          |
| 1N5261B | 44.65                             | 47  | 49.35 | 2.7                      | 105                     | 1000                | 0.25 | 0.1                     | 36  | +0.095                                          |
| 1N5262B | 48.45                             | 51  | 53.55 | 2.5                      | 125                     | 1100                | 0.25 | 0.1                     | 39  | +0.096                                          |
| 1N5263B | 53.20                             | 56  | 58.80 | 2.2                      | 150                     | 1300                | 0.25 | 0.1                     | 43  | +0.096                                          |
| 1N5264B | 57.00                             | 60  | 63.00 | 2.1                      | 170                     | 1400                | 0.25 | 0.1                     | 46  | +0.097                                          |
| 1N5265B | 58.90                             | 62  | 65.10 | 2.0                      | 185                     | 1400                | 0.25 | 0.1                     | 47  | +0.097                                          |
| 1N5266B | 64.60                             | 68  | 71.40 | 1.8                      | 230                     | 1600                | 0.25 | 0.1                     | 52  | +0.097                                          |
| 1N5267B | 71.25                             | 75  | 78.75 | 1.7                      | 270                     | 1700                | 0.25 | 0.1                     | 56  | +0.098                                          |
| 1N5268B | 77.90                             | 82  | 86.10 | 1.5                      | 330                     | 2000                | 0.25 | 0.1                     | 62  | +0.098                                          |
| 1N5269B | 82.65                             | 87  | 91.35 | 1.4                      | 370                     | 2200                | 0.25 | 0.1                     | 68  | +0.099                                          |
| 1N5270B | 86.45                             | 91  | 95.55 | 1.4                      | 400                     | 2300                | 0.25 | 0.1                     | 69  | +0.099                                          |
| 1N5271B | 95.00                             | 100 | 105.0 | 1.3                      | 500                     | 2600                | 0.25 | 0.1                     | 76  | +0.110                                          |
| 1N5272B | 104.5                             | 110 | 115.5 | 1.1                      | 750                     | 3000                | 0.25 | 0.1                     | 84  | +0.110                                          |
| 1N5273B | 114.0                             | 120 | 126.0 | 1.0                      | 900                     | 4000                | 0.25 | 0.1                     | 91  | +0.110                                          |
| 1N5274B | 123.5                             | 130 | 136.5 | 0.95                     | 1100                    | 4500                | 0.25 | 0.1                     | 99  | +0.110                                          |
| 1N5275B | 133.0                             | 140 | 147.0 | 0.90                     | 1300                    | 4500                | 0.25 | 0.1                     | 106 | +0.110                                          |
| 1N5276B | 142.5                             | 150 | 157.5 | 0.85                     | 1500                    | 5000                | 0.25 | 0.1                     | 114 | +0.110                                          |
| 1N5277B | 152.0                             | 160 | 168.0 | 0.80                     | 1700                    | 5500                | 0.25 | 0.1                     | 122 | +0.110                                          |
| 1N5278B | 161.5                             | 170 | 178.5 | 0.74                     | 1900                    | 5500                | 0.25 | 0.1                     | 129 | +0.110                                          |

#### DO-35 CASE - MECHANICAL OUTLINE

| SYMBOL | DIMENSIONS |       |             |      |
|--------|------------|-------|-------------|------|
|        | INCHES     |       | MILLIMETERS |      |
|        | MIN        | MAX   | MIN         | MAX  |
| A      | 0.018      | 0.022 | 0.46        | 0.56 |
| B      | 0.120      | 0.200 | 3.05        | 5.08 |
| C      | 0.060      | 0.090 | 1.52        | 2.29 |
| D      | 1.000      | -     | 25.40       | -    |

DO-35 (REV: R1)



R3 (11-September 2013)

## OUTSTANDING SUPPORT AND SUPERIOR SERVICES



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### PRODUCT SUPPORT

Central's operations team provides the highest level of support to insure product is delivered on-time.

- Supply management (Customer portals)
- Inventory bonding
- Consolidated shipping options
- Custom bar coding for shipments
- Custom product packing

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### DESIGNER SUPPORT/SERVICES

Central's applications engineering team is ready to discuss your design challenges. Just ask.

- Free quick ship samples (2<sup>nd</sup> day air)
- Online technical data and parametric search
- SPICE models
- Custom electrical curves
- Environmental regulation compliance
- Customer specific screening
- Up-screening capabilities
- Special wafer diffusions
- PbSn plating options
- Package details
- Application notes
- Application and design sample kits
- Custom product and package development

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### REQUESTING PRODUCT PLATING

1. If requesting Tin/Lead plated devices, add the suffix "TIN/LEAD" to the part number when ordering (example: 2N2222A TIN/LEAD).
2. If requesting Lead (Pb) Free plated devices, add the suffix "PBFREE" to the part number when ordering (example: 2N2222A PBFREE).

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### CONTACT US

#### Corporate Headquarters & Customer Support Team

Central Semiconductor Corp.  
145 Adams Avenue  
Hauppauge, NY 11788 USA  
Main Tel: (631) 435-1110  
Main Fax: (631) 435-1824  
Support Team Fax: (631) 435-3388  
[www.centrasemi.com](http://www.centrasemi.com)

**Worldwide Field Representatives:**  
[www.centrasemi.com/wwreps](http://www.centrasemi.com/wwreps)

**Worldwide Distributors:**  
[www.centrasemi.com/wwdistributors](http://www.centrasemi.com/wwdistributors)

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For the latest version of Central Semiconductor's **LIMITATIONS AND DAMAGES DISCLAIMER**, which is part of Central's Standard Terms and Conditions of sale, visit: [www.centrasemi.com/terms](http://www.centrasemi.com/terms)

# Product End of Life Notification

|                           |          |
|---------------------------|----------|
| <b>PDN ID:</b>            | PDN01089 |
| <b>Notification Date:</b> | 5/02/18  |
| <b>Last Buy Date:</b>     | 11/02/18 |
| <b>Last Shipment Date</b> | 5/02/19  |

Summary: All high voltage 500mW Zener diodes in the DO-35 package are discontinued and now classified as End of Life (EOL).

Although Central Semiconductor Corp. makes every effort to continue to produce devices that have been proclaimed EOL (End of Life) by other manufacturers, it is an accepted industry practice to discontinue certain devices when customer demand falls below a minimum level of sustainability. Accordingly, the following product(s) have been transitioned to End of Life status as part of Central's ongoing Product Management Process. Any replacement products are noted below. The effective date for placing last purchase orders will be six (6) months from the date of this notice and twelve (12) months from the notice date for final shipments, and minimum order quantities may apply. The last purchase and shipment dates may be extended if inventory is available.

| <u>Central Part Number</u> | <u>Replacement</u> |
|----------------------------|--------------------|
| 1N5263B BK                 | N/A                |
| 1N5263B TR                 | N/A                |
| 1N5264B BK                 | N/A                |
| 1N5264B TR                 | N/A                |
| 1N5265B BK                 | N/A                |
| 1N5265B TR                 | N/A                |
| 1N5266B BK                 | N/A                |
| 1N5266B TR                 | N/A                |
| 1N5267B BK                 | N/A                |
| 1N5267B TR                 | N/A                |
| 1N5268B AP                 | N/A                |
| 1N5268B BK                 | N/A                |
| 1N5268B TR                 | N/A                |
| 1N5269B AP                 | N/A                |
| 1N5269B BK                 | N/A                |
| 1N5269B TR                 | N/A                |
| 1N5270B AP                 | N/A                |
| 1N5270B BK                 | N/A                |
| 1N5270B TR                 | N/A                |
| 1N5271B AP                 | N/A                |
| 1N5271B BK                 | N/A                |
| 1N5271B TR                 | N/A                |
| 1N5272B AP                 | N/A                |
| 1N5272B BK                 | N/A                |
| 1N5272B TR                 | N/A                |
| 1N5273B AP                 | N/A                |
| 1N5273B BK                 | N/A                |
| 1N5273B TR                 | N/A                |
| 1N5274 TR                  | N/A                |
| 1N5274B BK                 | N/A                |
| 1N5274B TR                 | N/A                |
| 1N5275B BK                 | N/A                |
| 1N5275B TR                 | N/A                |
| 1N5276B BK                 | N/A                |
| 1N5276B TR                 | N/A                |
| 1N5277B BK                 | N/A                |
| 1N5277B TR                 | N/A                |
| 1N5278B BK                 | N/A                |

\*\*\* CONTINUED \*\*\*

DISCLAIMER: This End of Life (EOL) notification is in accordance with JEDEC standard JESD48 - Product Discontinuance. Central Semiconductor Corp. will make every effort to offer life-time buy (LTB) opportunities and/or offer replacement devices to existing customers for discontinued devices, however, one or both may not be possible for all devices. Please contact your local Central Semiconductor sales representative for LTB opportunities/additional information.



<http://www.centrasemi.com>

## Product End of Life Notification

|                           |          |
|---------------------------|----------|
| <b>PDN ID:</b>            | PDN01089 |
| <b>Notification Date:</b> | 5/02/18  |
| <b>Last Buy Date:</b>     | 11/02/18 |
| <b>Last Shipment Date</b> | 5/02/19  |

\*\*\* CONTINUED FROM PRIOR PAGE \*\*\*

| <u>Central Part Number</u> | <u>Replacement</u> |
|----------------------------|--------------------|
| 1N5278B TR                 | N/A                |
| 1N5279B BK                 | N/A                |
| 1N5279B TR                 | N/A                |
| 1N5280B BK                 | N/A                |
| 1N5280B TR                 | N/A                |
| 1N5281B BK                 | N/A                |
| 1N5281B TR                 | N/A                |

Central would be happy to assist you by providing additional information or technical data to help locate an alternate source if we have no replacement available. Please email your requests to [engineering@centrasemi.com](mailto:engineering@centrasemi.com).

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Компания «Океан Электроники» предлагает заключение долгосрочных отношений при поставках импортных электронных компонентов на взаимовыгодных условиях!

Наши преимущества:

- Поставка оригинальных импортных электронных компонентов напрямую с производств Америки, Европы и Азии, а так же с крупнейших складов мира;
- Широкая линейка поставок активных и пассивных импортных электронных компонентов (более 30 млн. наименований);
- Поставка сложных, дефицитных, либо снятых с производства позиций;
- Оперативные сроки поставки под заказ (от 5 рабочих дней);
- Экспресс доставка в любую точку России;
- Помощь Конструкторского Отдела и консультации квалифицированных инженеров;
- Техническая поддержка проекта, помощь в подборе аналогов, поставка прототипов;
- Поставка электронных компонентов под контролем ВП;
- Система менеджмента качества сертифицирована по Международному стандарту ISO 9001;
- При необходимости вся продукция военного и аэрокосмического назначения проходит испытания и сертификацию в лаборатории (по согласованию с заказчиком);
- Поставка специализированных компонентов военного и аэрокосмического уровня качества (Xilinx, Altera, Analog Devices, Intersil, Interpoint, Microsemi, Actel, Aeroflex, Peregrine, VPT, Syfer, Eurofarad, Texas Instruments, MS Kennedy, Miteq, Cobham, E2V, MA-COM, Hittite, Mini-Circuits, General Dynamics и др.);

Компания «Океан Электроники» является официальным дистрибьютором и эксклюзивным представителем в России одного из крупнейших производителей разъемов военного и аэрокосмического назначения «JONHON», а так же официальным дистрибьютором и эксклюзивным представителем в России производителя высокотехнологичных и надежных решений для передачи СВЧ сигналов «FORSTAR».



## JONHON

«JONHON» (основан в 1970 г.)

Разъемы специального, военного и аэрокосмического назначения:

(Применяются в военной, авиационной, аэрокосмической, морской, железнодорожной, горно- и нефтедобывающей отраслях промышленности)

«FORSTAR» (основан в 1998 г.)

ВЧ соединители, коаксиальные кабели,  
кабельные сборки и микроволновые компоненты:

(Применяются в телекоммуникациях гражданского и специального назначения, в средствах связи, РЛС, а так же военной, авиационной и аэрокосмической отраслях промышленности).



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