

CLL5221B THRU CLL5267B

SURFACE MOUNT SILICON  
ZENER DIODES  
500mW, 2.4 THRU 75 VOLT



SOD-80 CASE



www.centrasemi.com

#### DESCRIPTION:

The CENTRAL SEMICONDUCTOR CLL5221B series silicon Zener diodes are highly reliable voltage regulators designed for use in industrial, commercial, entertainment, and computer applications.

#### MARKING: CATHODE BAND

#### MAXIMUM RATINGS:

Power Dissipation ( $T_A=50^\circ\text{C}$ )

Operating and Storage Temperature

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

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

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

#### SYMBOL

$P_D$

$T_J, T_{stg}$

500

-65 to +200

$\pm 5$

$\pm 2$

$\pm 1$

#### UNIT

mW

$^\circ\text{C}$

%

%

%

ELECTRICAL CHARACTERISTICS: ( $T_A=25^\circ\text{C}$ )  $V_F=1.25\text{V MAX @ } I_F=200\text{mA}$  (for all types)

| TYPE     | ZENER VOLTAGE<br>$V_Z @ I_{ZT}$ |     |       | TEST CURRENT<br>$I_{ZT}$ | MAXIMUM ZENER IMPEDANCE |                   |      | MAXIMUM REVERSE CURRENT |     | MAXIMUM ZENER VOLTAGE 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   | $\%/^\circ\text{C}$                                           |
| CLL5221B | 2.280                           | 2.4 | 2.520 | 20                       | 30                      | 1200              | 0.25 | 100                     | 1.0 | -0.085                                                        |
| CLL5222B | 2.375                           | 2.5 | 2.625 | 20                       | 30                      | 1250              | 0.25 | 100                     | 1.0 | -0.085                                                        |
| CLL5223B | 2.565                           | 2.7 | 2.835 | 20                       | 30                      | 1300              | 0.25 | 75                      | 1.0 | -0.080                                                        |
| CLL5224B | 2.660                           | 2.8 | 2.940 | 20                       | 30                      | 1400              | 0.25 | 75                      | 1.0 | -0.080                                                        |
| CLL5225B | 2.850                           | 3.0 | 3.150 | 20                       | 29                      | 1600              | 0.25 | 50                      | 1.0 | -0.075                                                        |
| CLL5226B | 3.135                           | 3.3 | 3.465 | 20                       | 28                      | 1600              | 0.25 | 25                      | 1.0 | -0.070                                                        |
| CLL5227B | 3.420                           | 3.6 | 3.780 | 20                       | 24                      | 1700              | 0.25 | 15                      | 1.0 | -0.065                                                        |
| CLL5228B | 3.705                           | 3.9 | 4.095 | 20                       | 23                      | 1900              | 0.25 | 10                      | 1.0 | -0.060                                                        |
| CLL5229B | 4.085                           | 4.3 | 4.515 | 20                       | 22                      | 2000              | 0.25 | 5.0                     | 1.0 | $\pm 0.055$                                                   |
| CLL5230B | 4.465                           | 4.7 | 4.935 | 20                       | 19                      | 1900              | 0.25 | 5.0                     | 2.0 | $\pm 0.030$                                                   |
| CLL5231B | 4.845                           | 5.1 | 5.355 | 20                       | 17                      | 1600              | 0.25 | 5.0                     | 2.0 | $\pm 0.030$                                                   |
| CLL5232B | 5.320                           | 5.6 | 5.880 | 20                       | 11                      | 1600              | 0.25 | 5.0                     | 3.0 | +0.038                                                        |
| CLL5233B | 5.700                           | 6.0 | 6.300 | 20                       | 7.0                     | 1600              | 0.25 | 5.0                     | 3.5 | +0.038                                                        |
| CLL5234B | 5.890                           | 6.2 | 6.510 | 20                       | 7.0                     | 1000              | 0.25 | 5.0                     | 4.0 | +0.045                                                        |
| CLL5235B | 6.460                           | 6.8 | 7.140 | 20                       | 5.0                     | 750               | 0.25 | 3.0                     | 5.0 | +0.050                                                        |
| CLL5236B | 7.125                           | 7.5 | 7.875 | 20                       | 6.0                     | 500               | 0.25 | 3.0                     | 6.0 | +0.058                                                        |
| CLL5237B | 7.790                           | 8.2 | 8.610 | 20                       | 8.0                     | 500               | 0.25 | 3.0                     | 6.5 | +0.062                                                        |
| CLL5238B | 8.265                           | 8.7 | 9.135 | 20                       | 8.0                     | 600               | 0.25 | 3.0                     | 6.5 | +0.065                                                        |
| CLL5239B | 8.645                           | 9.1 | 9.555 | 20                       | 10                      | 600               | 0.25 | 3.0                     | 7.0 | +0.068                                                        |
| CLL5240B | 9.500                           | 10  | 10.50 | 20                       | 17                      | 600               | 0.25 | 3.0                     | 8.0 | +0.075                                                        |
| CLL5241B | 10.45                           | 11  | 11.55 | 20                       | 22                      | 600               | 0.25 | 2.0                     | 8.4 | +0.076                                                        |
| CLL5242B | 11.40                           | 12  | 12.60 | 20                       | 30                      | 600               | 0.25 | 1.0                     | 9.1 | +0.077                                                        |
| CLL5243B | 12.35                           | 13  | 13.65 | 9.5                      | 13                      | 600               | 0.25 | 0.5                     | 9.9 | +0.079                                                        |
| CLL5244B | 13.30                           | 14  | 14.70 | 9.0                      | 15                      | 600               | 0.25 | 0.1                     | 10  | +0.082                                                        |
| CLL5245B | 14.25                           | 15  | 15.75 | 8.5                      | 16                      | 600               | 0.25 | 0.1                     | 11  | +0.082                                                        |

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CLL5221B THRU CLL5267B

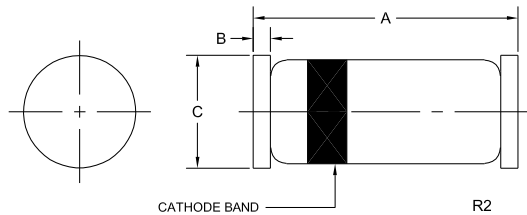
SURFACE MOUNT SILICON  
ZENER DIODES  
500mW, 2.4 THRU 75 VOLT



ELECTRICAL CHARACTERISTICS - Continued: ( $T_A=25^\circ\text{C}$ )  $V_F=1.25\text{V MAX @ } I_F=200\text{mA}$  (for all types)

| TYPE     | ZENER VOLTAGE<br>$V_Z @ I_{ZT}$ |     |       | TEST CURRENT | MAXIMUM ZENER IMPEDANCE |                   |      | MAXIMUM REVERSE CURRENT |    | MAXIMUM ZENER VOLTAGE TEMPERATURE COEFFICIENT |
|----------|---------------------------------|-----|-------|--------------|-------------------------|-------------------|------|-------------------------|----|-----------------------------------------------|
|          | MIN                             | NOM | MAX   | $I_{ZT}$     | $Z_{ZT} @ I_{ZT}$       | $Z_{ZK} @ I_{ZK}$ |      | $I_R @ V_R$             |    | $\theta V_Z$                                  |
|          | V                               | V   | V     | mA           | $\Omega$                | $\Omega$          | mA   | $\mu\text{A}$           | V  | %/ $^\circ\text{C}$                           |
| CLL5246B | 15.20                           | 16  | 16.80 | 7.8          | 17                      | 600               | 0.25 | 0.1                     | 12 | +0.083                                        |
| CLL5247B | 16.15                           | 17  | 17.85 | 7.4          | 19                      | 600               | 0.25 | 0.1                     | 13 | +0.084                                        |
| CLL5248B | 17.10                           | 18  | 18.90 | 7.0          | 21                      | 600               | 0.25 | 0.1                     | 14 | +0.085                                        |
| CLL5249B | 18.05                           | 19  | 19.95 | 6.6          | 23                      | 600               | 0.25 | 0.1                     | 14 | +0.086                                        |
| CLL5250B | 19.00                           | 20  | 21.00 | 6.2          | 25                      | 600               | 0.25 | 0.1                     | 15 | +0.086                                        |
| CLL5251B | 20.90                           | 22  | 23.10 | 5.6          | 29                      | 600               | 0.25 | 0.1                     | 17 | +0.087                                        |
| CLL5252B | 22.80                           | 24  | 25.20 | 5.2          | 33                      | 600               | 0.25 | 0.1                     | 18 | +0.088                                        |
| CLL5253B | 23.75                           | 25  | 26.25 | 5.0          | 35                      | 600               | 0.25 | 0.1                     | 19 | +0.089                                        |
| CLL5254B | 25.65                           | 27  | 28.35 | 4.6          | 41                      | 600               | 0.25 | 0.1                     | 21 | +0.090                                        |
| CLL5255B | 26.60                           | 28  | 29.40 | 4.5          | 44                      | 600               | 0.25 | 0.1                     | 21 | +0.091                                        |
| CLL5256B | 28.50                           | 30  | 31.50 | 4.2          | 49                      | 600               | 0.25 | 0.1                     | 23 | +0.091                                        |
| CLL5257B | 31.35                           | 33  | 34.65 | 3.8          | 58                      | 700               | 0.25 | 0.1                     | 25 | +0.092                                        |
| CLL5258B | 34.20                           | 36  | 37.80 | 3.4          | 70                      | 700               | 0.25 | 0.1                     | 27 | +0.093                                        |
| CLL5259B | 37.05                           | 39  | 40.95 | 3.2          | 80                      | 800               | 0.25 | 0.1                     | 30 | +0.094                                        |
| CLL5260B | 40.85                           | 43  | 45.15 | 3.0          | 93                      | 900               | 0.25 | 0.1                     | 33 | +0.095                                        |
| CLL5261B | 44.65                           | 47  | 49.35 | 2.7          | 105                     | 100               | 0.25 | 0.1                     | 36 | +0.095                                        |
| CLL5262B | 48.45                           | 51  | 53.55 | 2.5          | 125                     | 1100              | 0.25 | 0.1                     | 39 | +0.096                                        |
| CLL5263B | 53.20                           | 56  | 58.80 | 2.2          | 150                     | 1300              | 0.25 | 0.1                     | 43 | +0.096                                        |
| CLL5264B | 57.00                           | 60  | 63.00 | 2.1          | 170                     | 1400              | 0.25 | 0.1                     | 46 | +0.097                                        |
| CLL5265B | 58.90                           | 62  | 65.10 | 2.0          | 185                     | 1400              | 0.25 | 0.1                     | 47 | +0.097                                        |
| CLL5266B | 64.60                           | 68  | 71.40 | 1.8          | 230                     | 1600              | 0.25 | 0.1                     | 52 | +0.097                                        |
| CLL5267B | 71.25                           | 75  | 78.75 | 1.7          | 270                     | 1700              | 0.25 | 0.1                     | 56 | +0.098                                        |

#### SOD-80 CASE - MECHANICAL OUTLINE



| DIMENSIONS |        |       |             |      |
|------------|--------|-------|-------------|------|
| SYMBOL     | INCHES |       | MILLIMETERS |      |
|            | MIN    | MAX   | MIN         | MAX  |
| A          | 0.130  | 0.146 | 3.30        | 3.71 |
| B          | 0.014  |       | 0.35        |      |
| C (DIA)    | 0.049  | 0.067 | 1.25        | 1.70 |

SOD-80 (REV:R2)

MARKING: CATHODE BAND

R7 (9-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)



<http://www.centrasemi.com>

# Product End of Life Notification

|                           |          |
|---------------------------|----------|
| <b>PDN ID:</b>            | PDN01084 |
| <b>Notification Date:</b> | 5/31/18  |
| <b>Last Buy Date:</b>     | 11/30/18 |
| <b>Last Shipment Date</b> | 5/31/19  |

Summary: All extreme low and high voltage Zener diodes in the SOD-80 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> |
|----------------------------|--------------------|
| CLL5225B BK                | N/A                |
| CLL5225B TR                | N/A                |
| CLL5226B BK                | N/A                |
| CLL5226B TR                | N/A                |
| CLL5226C BK                | N/A                |
| CLL5226C TR                | N/A                |
| CLL5227B BK                | N/A                |
| CLL5227B TR                | N/A                |
| CLL5228B BK                | N/A                |
| CLL5228B TR                | N/A                |
| CLL5229B BK                | N/A                |
| CLL5229B TR                | N/A                |
| CLL5229D BK                | N/A                |
| CLL5230-3 TR               | N/A                |
| CLL5230B BK                | N/A                |
| CLL5230B TR                | N/A                |
| CLL5230C BK                | N/A                |
| CLL5230C TR                | N/A                |
| CLL5231B BK                | N/A                |
| CLL5231B TR                | N/A                |
| CLL5231C BK                | N/A                |
| CLL5231C TR                | N/A                |
| CLL5232B BK                | N/A                |
| CLL5232B TR                | N/A                |
| CLL5232D BK                | N/A                |
| CLL5232D TR                | N/A                |
| CLL5233B BK                | N/A                |
| CLL5233B TR                | N/A                |
| CLL5234B BK                | N/A                |
| CLL5234B TR                | N/A                |
| CLL5234C TR                | N/A                |
| CLL5234D BK                | N/A                |
| CLL5234D TR                | N/A                |
| CLL5235B BK                | N/A                |
| CLL5235B TR                | N/A                |
| CLL5262B BK                | N/A                |
| CLL5262B TR                | 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>

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|                           |          |
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| <b>Last Shipment Date</b> | 5/31/19  |

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

| <u>Central Part Number</u> | <u>Replacement</u> |
|----------------------------|--------------------|
| CLL5263B BK                | N/A                |
| CLL5263B TR                | N/A                |
| CLL5264B TR                | N/A                |
| CLL5265B TR                | N/A                |
| CLL5265C TR                | N/A                |
| CLL5266B TR                | N/A                |
| CLL5267B 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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