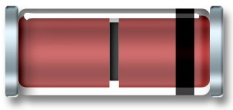
# 1N821UR-1 thru 1N829UR-1 & 1N821AUR-1 thru 1N829AUR-1

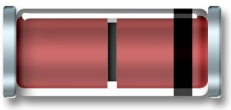
## Temperature Compensated Zener Reference Diode Series

Rev. V3

### Features

- 1N821UR-1, 1N823UR-1, 1N825UR-1, 1N827UR-1 and 1N829UR-1 available in JAN, JANTX, JANTXV and JANS per MIL-PRF-19500/159
- "A" commercial versions can be up screened
- Metallurgically Bonded, Double Plug Construction
- 500 mW Power Handling
- Glass Surface Mount (MELF) DO-213AA Style Package
- Also Available in a Hermetically sealed axial DO-35





### Electrical Specifications: $T_A$ = +25°C (unless otherwise specified)

| JEDEC Type # | Nominal Zener Voltage $V_Z$ @ $I_{ZT}$ | Zener Test Current $I_{ZT}$ | Maximum Zener Impedance[1] | Voltage Temperature Stability $\Delta V_{ZT}$ max.[2] | Effective Temperature Coefficient |
|---|---|---|---|---|---|
| | V | mA | Ω | mV | %/°C |
| 1N821UR-1<br>1N821AUR-1 | 5.89 - 6.51 | 7.5 | 15<br>10 | 96 | 0.01 |
| 1N823UR-1<br>1N823AUR-1 | 5.89 - 6.51 | 7.5 | 15<br>10 | 48 | 0.005 |
| 1N825UR-1<br>1N825AUR-1 | 5.89 - 6.51 | 7.5 | 15<br>10 | 19 | 0.002 |
| 1N826UR-1 | 6.2 - 6.9 | 7.5 | 15 | 20 | 0.002 |
| 1N827UR-1<br>1N827AUR-1 | 5.89 - 6.51 | 7.5 | 15<br>10 | 9 | 0.001 |
| 1N828UR-1 | 6.2 - 6.9 | 7.5 | 15 | 10 | 0.001 |
| 1N829UR-1<br>1N829AUR-1 | 5.89 - 6.51 | 7.5 | 15<br>10 | 5 | 0.0005 |

1. Zener impedance is derived by superimposing on $I_{ZT}$ A 60Hz rms a.c. current equal to 10% of $I_{ZT}$.
2. The maximum allowable change observed over the entire temperature range i.e., the diode voltage will not exceed the specified mV at any discrete temperature between the established limits, per JEDEC standard No. 5.

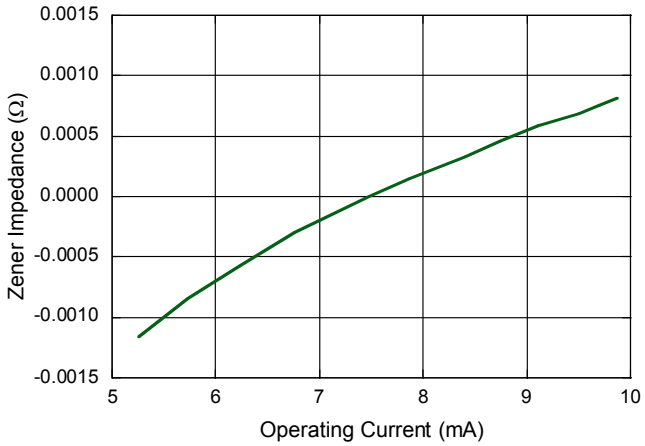
### Absolute Maximum Ratings

| Parameter | Absolute Maximum |
|---|---|
| DC Power Dissipation | 500 mW @ $T_A$ = +25°C |
| Power Derating | 3.33 mW/°C above $T_A$ = +25°C |
| Operating & Storage Temperature | -55°C to +175°C |
| Maximum Zener Current (1) | 70 mA dc |

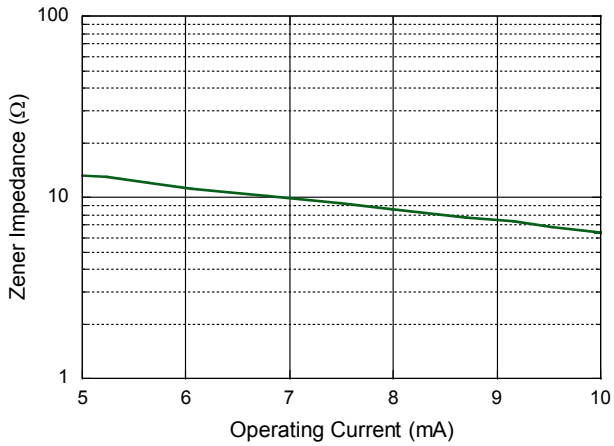
Note 1: To guarantee voltage temperature stability, it is necessary to maintain the proper $I_Z$ = 7.5 mA dc.

## Typical Performance Curves

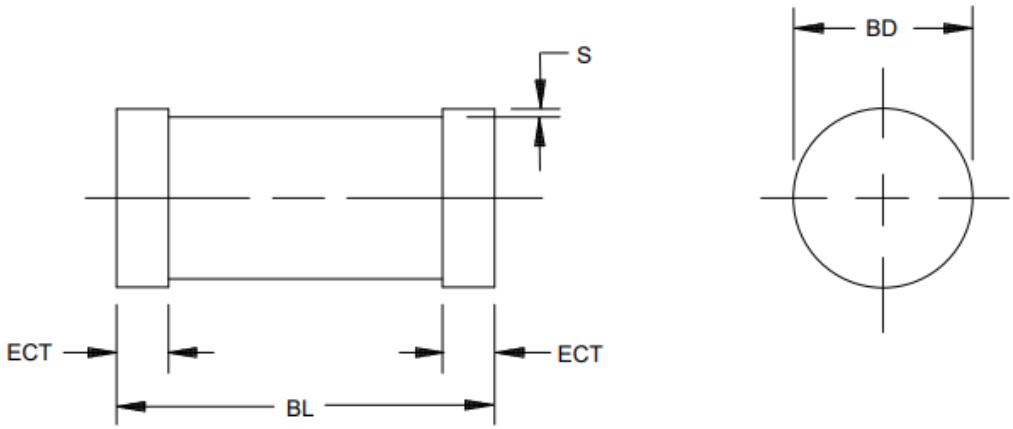
***Change in Temperature Coefficient***




***Zener Impedance***



## Outline Drawing (DO-213AA)




| Symbol | Dimensions | | | |
|---|---|---|---|---|
| | Inches | | Millimeters | |
| | Min | Max | Min | Max |
| BD | .063 | .067 | 1.60 | 1.70 |
| BL | .130 | .146 | 3.30 | 3.71 |
| ECT | .016 | .022 | 0.41 | 0.56 |
| S | .001 min | | 0.03 min | |

NOTES:
1. Dimensions are in inches. Millimeters are given for general information only.
* 2. In accordance with ASME Y14.5, diameters are equivalent to ϕx symbology.
* 3. Dimension S is optional however the glass body diameter shall not exceed endcap diameter.

* FIGURE 2. Physical dimensions of DO-213AA package (1N821UR-1 through 1N829UR-1).