

**Silicon Epitaxial Planar Zener Diodes**

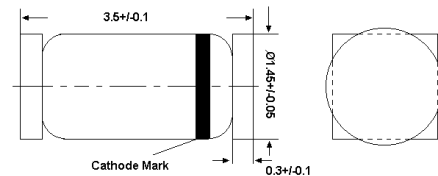
**BZTRLZ Series**

Constant voltage control applications

LS-34

**Features**

- Small surface mounting type
- High reliability



QuadromELF  
Dimensions in mm

**Absolute Maximum Ratings (T<sub>a</sub> = 25 °C)**

| Parameter                 | Symbol           | Value         | Unit |
|---------------------------|------------------|---------------|------|
| Power Dissipation         | P <sub>tot</sub> | 500           | mW   |
| Junction Temperature      | T <sub>j</sub>   | 175           | °C   |
| Storage Temperature Range | T <sub>stg</sub> | - 65 to + 175 | °C   |

**Characteristics at T<sub>a</sub> = 25 °C (V<sub>F</sub> = 1 V Max. at I<sub>F</sub> = 100 mA)**

| Type       | Zener Voltage <sup>1)</sup> |          | Operating Resistance |                 |                    | Rising Operating Resistance |                    | Reverse Current |                   |
|------------|-----------------------------|----------|----------------------|-----------------|--------------------|-----------------------------|--------------------|-----------------|-------------------|
|            | V <sub>Z</sub>              |          | at I <sub>ZT</sub>   | Z <sub>ZT</sub> | at I <sub>ZT</sub> | Z <sub>ZK</sub>             | at I <sub>ZK</sub> | I <sub>R</sub>  | at V <sub>R</sub> |
|            | Min. (V)                    | Max. (V) | (mA)                 | Max. (Ω)        | (mA)               | Max. (Ω)                    | (mA)               | Max. (μA)       | (V)               |
| BZTRLZ2V2A | 2.12                        | 2.3      | 20                   | 120             | 20                 | 2000                        | 1                  | 120             | 0.7               |
| BZTRLZ2V2B | 2.22                        | 2.41     | 20                   | 120             | 20                 | 2000                        | 1                  | 120             | 0.7               |
| BZTRLZ2V4A | 2.33                        | 2.52     | 20                   | 100             | 20                 | 2000                        | 1                  | 120             | 1                 |
| BZTRLZ2V4B | 2.43                        | 2.63     | 20                   | 100             | 20                 | 2000                        | 1                  | 120             | 1                 |
| BZTRLZ2V7A | 2.54                        | 2.75     | 20                   | 100             | 20                 | 1000                        | 1                  | 100             | 1                 |
| BZTRLZ2V7B | 2.69                        | 2.91     | 20                   | 100             | 20                 | 1000                        | 1                  | 100             | 1                 |
| BZTRLZ3V0A | 2.85                        | 3.07     | 20                   | 80              | 20                 | 1000                        | 1                  | 50              | 1                 |
| BZTRLZ3V0B | 3.01                        | 3.22     | 20                   | 80              | 20                 | 1000                        | 1                  | 50              | 1                 |
| BZTRLZ3V3A | 3.16                        | 3.38     | 20                   | 70              | 20                 | 1000                        | 1                  | 20              | 1                 |
| BZTRLZ3V3B | 3.32                        | 3.53     | 20                   | 70              | 20                 | 1000                        | 1                  | 20              | 1                 |
| BZTRLZ3V6  | 3.4                         | 3.8      | 20                   | 60              | 20                 | 1000                        | 1                  | 10              | 1                 |
| BZTRLZ3V6A | 3.455                       | 3.695    | 20                   | 60              | 20                 | 1000                        | 1                  | 10              | 1                 |
| BZTRLZ3V6B | 3.6                         | 3.845    | 20                   | 60              | 20                 | 1000                        | 1                  | 10              | 1                 |
| BZTRLZ3V9  | 3.7                         | 4.1      | 20                   | 50              | 20                 | 1000                        | 1                  | 5               | 1                 |
| BZTRLZ3V9A | 3.74                        | 4.01     | 20                   | 50              | 20                 | 1000                        | 1                  | 5               | 1                 |
| BZTRLZ3V9B | 3.89                        | 4.16     | 20                   | 50              | 20                 | 1000                        | 1                  | 5               | 1                 |
| BZTRLZ4V3  | 4                           | 4.5      | 20                   | 40              | 20                 | 1000                        | 1                  | 5               | 1                 |
| BZTRLZ4V3A | 4.04                        | 4.29     | 20                   | 40              | 20                 | 1000                        | 1                  | 5               | 1                 |
| BZTRLZ4V3B | 4.17                        | 4.43     | 20                   | 40              | 20                 | 1000                        | 1                  | 5               | 1                 |
| BZTRLZ4V3C | 4.3                         | 4.57     | 20                   | 40              | 20                 | 1000                        | 1                  | 5               | 1                 |
| BZTRLZ4V7  | 4.4                         | 4.9      | 20                   | 25              | 20                 | 900                         | 1                  | 5               | 1                 |
| BZTRLZ4V7A | 4.44                        | 4.68     | 20                   | 25              | 20                 | 900                         | 1                  | 5               | 1                 |
| BZTRLZ4V7B | 4.55                        | 4.8      | 20                   | 25              | 20                 | 900                         | 1                  | 5               | 1                 |



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Characteristics at T<sub>a</sub> = 25 °C (V<sub>F</sub> = 1 V Max. at I<sub>F</sub> = 100 mA)

| Type       | Zener Voltage <sup>1)</sup> |          | Operating Resistance |                 |                    | Rising Operating Resistance |                    | Reverse Current |                   |
|------------|-----------------------------|----------|----------------------|-----------------|--------------------|-----------------------------|--------------------|-----------------|-------------------|
|            | V <sub>Z</sub>              |          | at I <sub>ZT</sub>   | Z <sub>ZT</sub> | at I <sub>ZT</sub> | Z <sub>ZK</sub>             | at I <sub>ZK</sub> | I <sub>R</sub>  | at V <sub>R</sub> |
|            | Min. (V)                    | Max. (V) | (mA)                 | Max. (Ω)        | (mA)               | Max. (Ω)                    | (mA)               | Max. (μA)       | (V)               |
| BZTRLZ4V7C | 4.68                        | 4.93     | 20                   | 25              | 20                 | 900                         | 1                  | 5               | 1                 |
| BZTRLZ5V1  | 4.8                         | 5.4      | 20                   | 20              | 20                 | 800                         | 1                  | 5               | 1.5               |
| BZTRLZ5V1A | 4.81                        | 5.07     | 20                   | 20              | 20                 | 800                         | 1                  | 5               | 1.5               |
| BZTRLZ5V1B | 4.94                        | 5.2      | 20                   | 20              | 20                 | 800                         | 1                  | 5               | 1.5               |
| BZTRLZ5V1C | 5.09                        | 5.37     | 20                   | 20              | 20                 | 800                         | 1                  | 5               | 1.5               |
| BZTRLZ5V6  | 5.3                         | 6        | 20                   | 13              | 20                 | 500                         | 1                  | 5               | 2.5               |
| BZTRLZ5V6A | 5.28                        | 5.55     | 20                   | 13              | 20                 | 500                         | 1                  | 5               | 2.5               |
| BZTRLZ5V6B | 5.45                        | 5.73     | 20                   | 13              | 20                 | 500                         | 1                  | 5               | 2.5               |
| BZTRLZ5V6C | 5.61                        | 5.91     | 20                   | 13              | 20                 | 500                         | 1                  | 5               | 2.5               |
| BZTRLZ6V2  | 5.8                         | 6.6      | 20                   | 10              | 20                 | 300                         | 1                  | 5               | 3                 |
| BZTRLZ6V2A | 5.78                        | 6.09     | 20                   | 10              | 20                 | 300                         | 1                  | 5               | 3                 |
| BZTRLZ6V2B | 5.96                        | 6.27     | 20                   | 10              | 20                 | 300                         | 1                  | 5               | 3                 |
| BZTRLZ6V2C | 6.12                        | 6.44     | 20                   | 10              | 20                 | 300                         | 1                  | 5               | 3                 |
| BZTRLZ6V8  | 6.4                         | 7.2      | 20                   | 8               | 20                 | 150                         | 0.5                | 2               | 3.5               |
| BZTRLZ6V8A | 6.29                        | 6.63     | 20                   | 8               | 20                 | 150                         | 0.5                | 2               | 3.5               |
| BZTRLZ6V8B | 6.49                        | 6.83     | 20                   | 8               | 20                 | 150                         | 0.5                | 2               | 3.5               |
| BZTRLZ6V8C | 6.66                        | 7.01     | 20                   | 8               | 20                 | 150                         | 0.5                | 2               | 3.5               |
| BZTRLZ7V5  | 7                           | 7.9      | 20                   | 8               | 20                 | 120                         | 0.5                | 0.5             | 4                 |
| BZTRLZ7V5A | 6.85                        | 7.22     | 20                   | 8               | 20                 | 120                         | 0.5                | 0.5             | 4                 |
| BZTRLZ7V5B | 7.07                        | 7.45     | 20                   | 8               | 20                 | 120                         | 0.5                | 0.5             | 4                 |
| BZTRLZ7V5C | 7.29                        | 7.67     | 20                   | 8               | 20                 | 120                         | 0.5                | 0.5             | 4                 |
| BZTRLZ8V2  | 7.7                         | 8.7      | 20                   | 8               | 20                 | 120                         | 0.5                | 0.5             | 5                 |
| BZTRLZ8V2A | 7.53                        | 7.92     | 20                   | 8               | 20                 | 120                         | 0.5                | 0.5             | 5                 |
| BZTRLZ8V2B | 7.78                        | 8.19     | 20                   | 8               | 20                 | 120                         | 0.5                | 0.5             | 5                 |
| BZTRLZ8V2C | 8.03                        | 8.45     | 20                   | 8               | 20                 | 120                         | 0.5                | 0.5             | 5                 |
| BZTRLZ9V1  | 8.5                         | 9.6      | 20                   | 8               | 20                 | 120                         | 0.5                | 0.5             | 6                 |
| BZTRLZ9V1A | 8.29                        | 8.73     | 20                   | 8               | 20                 | 120                         | 0.5                | 0.5             | 6                 |
| BZTRLZ9V1B | 8.57                        | 9.01     | 20                   | 8               | 20                 | 120                         | 0.5                | 0.5             | 6                 |
| BZTRLZ9V1C | 8.83                        | 9.3      | 20                   | 8               | 20                 | 120                         | 0.5                | 0.5             | 6                 |
| BZTRLZ10   | 9.4                         | 10.6     | 20                   | 8               | 20                 | 120                         | 0.5                | 0.2             | 7                 |
| BZTRLZ10A  | 9.12                        | 9.59     | 20                   | 8               | 20                 | 120                         | 0.5                | 0.2             | 7                 |
| BZTRLZ10B  | 9.41                        | 9.9      | 20                   | 8               | 20                 | 120                         | 0.5                | 0.2             | 7                 |
| BZTRLZ10C  | 9.7                         | 10.2     | 20                   | 8               | 20                 | 120                         | 0.5                | 0.2             | 7                 |
| BZTRLZ10D  | 9.94                        | 10.44    | 20                   | 8               | 20                 | 120                         | 0.5                | 0.2             | 7                 |
| BZTRLZ11   | 10.4                        | 11.6     | 10                   | 10              | 10                 | 120                         | 0.5                | 0.2             | 8                 |
| BZTRLZ11A  | 10.18                       | 10.71    | 10                   | 10              | 10                 | 120                         | 0.5                | 0.2             | 8                 |
| BZTRLZ11B  | 10.5                        | 11.05    | 10                   | 10              | 10                 | 120                         | 0.5                | 0.2             | 8                 |
| BZTRLZ11C  | 10.82                       | 11.38    | 10                   | 10              | 10                 | 120                         | 0.5                | 0.2             | 8                 |
| BZTRLZ12   | 11.4                        | 12.6     | 10                   | 12              | 10                 | 110                         | 0.5                | 0.2             | 9                 |
| BZTRLZ12A  | 11.13                       | 11.71    | 10                   | 12              | 10                 | 110                         | 0.5                | 0.2             | 9                 |
| BZTRLZ12B  | 11.44                       | 12.03    | 10                   | 12              | 10                 | 110                         | 0.5                | 0.2             | 9                 |
| BZTRLZ12C  | 11.74                       | 12.35    | 10                   | 12              | 10                 | 110                         | 0.5                | 0.2             | 9                 |
| BZTRLZ13   | 12.4                        | 14.1     | 10                   | 14              | 10                 | 110                         | 0.5                | 0.2             | 10                |

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Characteristics at  $T_a = 25\text{ }^\circ\text{C}$  ( $V_F = 1\text{ V Max. at } I_F = 100\text{ mA}$ )

| Type      | Zener Voltage <sup>1)</sup> |          |             | Operating Resistance |             | Rising Operating Resistance |             | Reverse Current        |          |
|-----------|-----------------------------|----------|-------------|----------------------|-------------|-----------------------------|-------------|------------------------|----------|
|           | $V_Z$                       |          | at $I_{ZT}$ | $Z_{ZT}$             | at $I_{ZT}$ | $Z_{ZK}$                    | at $I_{ZK}$ | $I_R$                  | at $V_R$ |
|           | Min. (V)                    | Max. (V) | (mA)        | Max. ( $\Omega$ )    | (mA)        | Max. ( $\Omega$ )           | (mA)        | Max. ( $\mu\text{A}$ ) | (V)      |
| BZTRLZ13A | 12.11                       | 12.75    | 10          | 14                   | 10          | 110                         | 0.5         | 0.2                    | 10       |
| BZTRLZ13B | 12.55                       | 13.21    | 10          | 14                   | 10          | 110                         | 0.5         | 0.2                    | 10       |
| BZTRLZ13C | 12.99                       | 13.66    | 10          | 14                   | 10          | 110                         | 0.5         | 0.2                    | 10       |
| BZTRLZ15  | 13.8                        | 15.6     | 10          | 16                   | 10          | 110                         | 0.5         | 0.2                    | 11       |
| BZTRLZ15A | 13.44                       | 14.13    | 10          | 16                   | 10          | 110                         | 0.5         | 0.2                    | 11       |
| BZTRLZ15B | 13.89                       | 14.62    | 10          | 16                   | 10          | 110                         | 0.5         | 0.2                    | 11       |
| BZTRLZ15C | 14.35                       | 15.09    | 10          | 16                   | 10          | 110                         | 0.5         | 0.2                    | 11       |
| BZTRLZ16  | 15.3                        | 17.1     | 10          | 18                   | 10          | 150                         | 0.5         | 0.2                    | 12       |
| BZTRLZ16A | 14.8                        | 15.57    | 10          | 18                   | 10          | 150                         | 0.5         | 0.2                    | 12       |
| BZTRLZ16B | 15.25                       | 16.04    | 10          | 18                   | 10          | 150                         | 0.5         | 0.2                    | 12       |
| BZTRLZ16C | 15.69                       | 16.51    | 10          | 18                   | 10          | 150                         | 0.5         | 0.2                    | 12       |
| BZTRLZ18  | 16.8                        | 19.1     | 10          | 23                   | 10          | 150                         | 0.5         | 0.2                    | 13       |
| BZTRLZ18A | 16.22                       | 17.06    | 10          | 23                   | 10          | 150                         | 0.5         | 0.2                    | 13       |
| BZTRLZ18B | 16.82                       | 17.7     | 10          | 23                   | 10          | 150                         | 0.5         | 0.2                    | 13       |
| BZTRLZ18C | 17.42                       | 18.33    | 10          | 23                   | 10          | 150                         | 0.5         | 0.2                    | 13       |
| BZTRLZ20  | 18.8                        | 21.2     | 10          | 28                   | 10          | 200                         | 0.5         | 0.2                    | 15       |
| BZTRLZ20A | 18.02                       | 18.96    | 10          | 28                   | 10          | 200                         | 0.5         | 0.2                    | 15       |
| BZTRLZ20B | 18.63                       | 19.59    | 10          | 28                   | 10          | 200                         | 0.5         | 0.2                    | 15       |
| BZTRLZ20C | 19.23                       | 20.22    | 10          | 28                   | 10          | 200                         | 0.5         | 0.2                    | 15       |
| BZTRLZ20D | 19.72                       | 20.72    | 10          | 28                   | 10          | 200                         | 0.5         | 0.2                    | 15       |
| BZTRLZ22  | 20.8                        | 23.3     | 5           | 30                   | 5           | 200                         | 0.5         | 0.2                    | 17       |
| BZTRLZ22A | 20.15                       | 21.2     | 5           | 30                   | 5           | 200                         | 0.5         | 0.2                    | 17       |
| BZTRLZ22B | 20.64                       | 21.71    | 5           | 30                   | 5           | 200                         | 0.5         | 0.2                    | 17       |
| BZTRLZ22C | 21.08                       | 22.17    | 5           | 30                   | 5           | 200                         | 0.5         | 0.2                    | 17       |
| BZTRLZ22D | 21.52                       | 22.63    | 5           | 30                   | 5           | 200                         | 0.5         | 0.2                    | 17       |
| BZTRLZ24  | 22.8                        | 25.6     | 5           | 35                   | 5           | 200                         | 0.5         | 0.2                    | 19       |
| BZTRLZ24A | 22.05                       | 23.18    | 5           | 35                   | 5           | 200                         | 0.5         | 0.2                    | 19       |
| BZTRLZ24B | 22.61                       | 23.77    | 5           | 35                   | 5           | 200                         | 0.5         | 0.2                    | 19       |
| BZTRLZ24C | 23.12                       | 24.31    | 5           | 35                   | 5           | 200                         | 0.5         | 0.2                    | 19       |
| BZTRLZ24D | 23.63                       | 24.85    | 5           | 35                   | 5           | 200                         | 0.5         | 0.2                    | 19       |
| BZTRLZ27  | 25.1                        | 28.9     | 5           | 45                   | 5           | 250                         | 0.5         | 0.2                    | 21       |
| BZTRLZ27A | 24.26                       | 25.52    | 5           | 45                   | 5           | 250                         | 0.5         | 0.2                    | 21       |
| BZTRLZ27B | 24.97                       | 26.26    | 5           | 45                   | 5           | 250                         | 0.5         | 0.2                    | 21       |
| BZTRLZ27C | 25.63                       | 26.95    | 5           | 45                   | 5           | 250                         | 0.5         | 0.2                    | 21       |
| BZTRLZ27D | 26.29                       | 27.64    | 5           | 45                   | 5           | 250                         | 0.5         | 0.2                    | 21       |
| BZTRLZ30  | 28                          | 32       | 5           | 55                   | 5           | 250                         | 0.5         | 0.2                    | 23       |
| BZTRLZ30A | 26.99                       | 28.39    | 5           | 55                   | 5           | 250                         | 0.5         | 0.2                    | 23       |
| BZTRLZ30B | 27.70                       | 29.13    | 5           | 55                   | 5           | 250                         | 0.5         | 0.2                    | 23       |
| BZTRLZ30C | 28.36                       | 29.82    | 5           | 55                   | 5           | 250                         | 0.5         | 0.2                    | 23       |
| BZTRLZ30D | 29.02                       | 30.51    | 5           | 55                   | 5           | 250                         | 0.5         | 0.2                    | 23       |
| BZTRLZ33  | 31                          | 35       | 5           | 65                   | 5           | 250                         | 0.5         | 0.2                    | 25       |
| BZTRLZ33A | 29.68                       | 31.22    | 5           | 65                   | 5           | 250                         | 0.5         | 0.2                    | 25       |
| BZTRLZ33B | 30.32                       | 31.88    | 5           | 65                   | 5           | 250                         | 0.5         | 0.2                    | 25       |

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Characteristics at  $T_a = 25^\circ\text{C}$  ( $V_F = 1\text{ V Max. at } I_F = 100\text{ mA}$ )

| Type      | Zener Voltage <sup>1)</sup> |          | Operating Resistance |                   |             | Rising Operating Resistance |             | Reverse Current        |          |
|-----------|-----------------------------|----------|----------------------|-------------------|-------------|-----------------------------|-------------|------------------------|----------|
|           | $V_Z$                       |          | at $I_{ZT}$          | $Z_{ZT}$          | at $I_{ZT}$ | $Z_{ZK}$                    | at $I_{ZK}$ | $I_R$                  | at $V_R$ |
|           | Min. (V)                    | Max. (V) | (mA)                 | Max. ( $\Omega$ ) | (mA)        | Max. ( $\Omega$ )           | (mA)        | Max. ( $\mu\text{A}$ ) | (V)      |
| BZTRLZ33C | 30.9                        | 32.5     | 5                    | 65                | 5           | 250                         | 0.5         | 0.2                    | 25       |
| BZTRLZ33D | 31.49                       | 33.11    | 5                    | 65                | 5           | 250                         | 0.5         | 0.2                    | 25       |
| BZTRLZ36  | 34                          | 38       | 5                    | 75                | 5           | 250                         | 0.5         | 0.2                    | 27       |
| BZTRLZ36A | 32.14                       | 33.79    | 5                    | 75                | 5           | 250                         | 0.5         | 0.2                    | 27       |
| BZTRLZ36B | 32.79                       | 34.49    | 5                    | 75                | 5           | 250                         | 0.5         | 0.2                    | 27       |
| BZTRLZ36C | 33.4                        | 35.13    | 5                    | 75                | 5           | 250                         | 0.5         | 0.2                    | 27       |
| BZTRLZ36D | 34.01                       | 35.77    | 5                    | 75                | 5           | 250                         | 0.5         | 0.2                    | 27       |
| BZTRLZ39  | 37                          | 41       | 5                    | 85                | 5           | 250                         | 0.5         | 0.2                    | 30       |
| BZTRLZ39A | 34.68                       | 36.47    | 5                    | 85                | 5           | 250                         | 0.5         | 0.2                    | 30       |
| BZTRLZ39B | 35.36                       | 37.19    | 5                    | 85                | 5           | 250                         | 0.5         | 0.2                    | 30       |
| BZTRLZ39C | 36                          | 37.85    | 5                    | 85                | 5           | 250                         | 0.5         | 0.2                    | 30       |
| BZTRLZ39D | 36.63                       | 38.52    | 5                    | 85                | 5           | 250                         | 0.5         | 0.2                    | 30       |

<sup>1)</sup> Tested with pulses  $t_p = 20\text{ ms}$ .

