

# DTZ Series

## シリコンエピタキシャルプレーナ形 200mW 定電圧ダイオード Silicon Epitaxial Planar 200mW Zener Diodes

### ● 特長

- 1) 小型面実装タイプである (DSM)。
- 2) チップマウンターによる自動実装が可能。
- 3) 高信頼である。

### ● Features

- 1) Small surface mount type (DSM).
- 2) Mounted by pick and place machine.
- 3) High reliability.

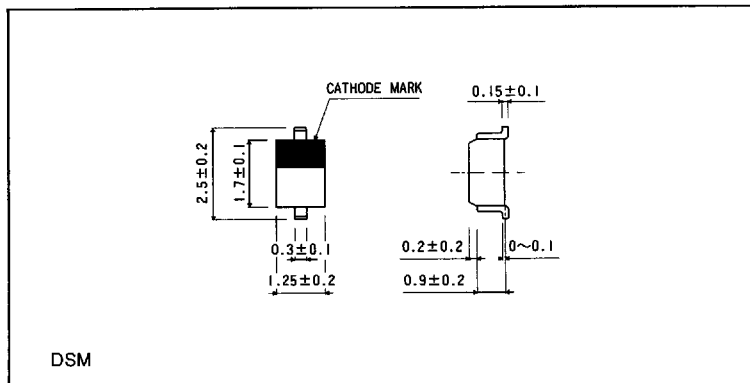
### ● 用途

定電圧制御用

### ● Applications

Voltage regulator.

### ● 外形寸法図/Dimensions (Unit : mm)



### ● 絶対最大定格/Absolute Maximum Ratings (Ta=25°C)

| Parameter | Symbol | Limits   | Unit |
|-----------|--------|----------|------|
| 許容損失      | P      | 200      | mW   |
| 接合部温度     | TJ     | 150      | °C   |
| 保存温度      | Tstg   | -55~+150 | °C   |

### ● 電気的特性/Electrical Characteristics (Ta=25°C)

| Type    | ツェナー電圧細区分 |       |         | 動作抵抗   |         | 立上り動作抵抗 |         | 逆方向電流   |        |     |
|---------|-----------|-------|---------|--------|---------|---------|---------|---------|--------|-----|
|         | Vz (V)    |       | Iz (mA) | Zz (Ω) | Iz (mA) | Zzk (Ω) | Iz (mA) | IR (μA) | VR (V) |     |
|         | Min.      | Max.  |         | Max.   |         | Max.    |         |         |        |     |
| DTZ 2.0 | A         | 1.880 | 2.100   | 5      | 100     | 5       | 1000    | 0.5     | 120    | 0.5 |
|         | B         | 2.020 | 2.200   |        |         |         |         |         |        |     |
| DTZ 2.2 | A         | 2.120 | 2.300   | 5      | 100     | 5       | 1000    | 0.5     | 120    | 0.7 |
|         | B         | 2.220 | 2.410   |        |         |         |         |         |        |     |
| DTZ 2.4 | A         | 2.330 | 2.520   | 5      | 100     | 5       | 1000    | 0.5     | 120    | 1.0 |
|         | B         | 2.430 | 2.630   |        |         |         |         |         |        |     |
| DTZ 2.7 | A         | 2.540 | 2.750   | 5      | 110     | 5       | 1000    | 0.5     | 100    | 1.0 |
|         | B         | 2.690 | 2.910   |        |         |         |         |         |        |     |
| DTZ 3.0 | A         | 2.850 | 3.070   | 5      | 120     | 5       | 1000    | 0.5     | 50     | 1.0 |
|         | B         | 3.010 | 3.220   |        |         |         |         |         |        |     |
| DTZ 3.3 | A         | 3.160 | 3.380   | 5      | 120     | 5       | 1000    | 0.5     | 20     | 1.0 |
|         | B         | 3.320 | 3.530   |        |         |         |         |         |        |     |

| Type    | ツェナー電圧細区分          |       |                        |                       | 動作抵抗                   |                        | 立上り動作抵抗                |                        | 逆方向電流                 |     |
|---------|--------------------|-------|------------------------|-----------------------|------------------------|------------------------|------------------------|------------------------|-----------------------|-----|
|         | V <sub>Z</sub> (V) |       | I <sub>Z</sub><br>(mA) | Z <sub>Z</sub><br>(Ω) |                        | Z <sub>Zk</sub><br>(Ω) |                        | I <sub>R</sub><br>(μA) | V <sub>R</sub><br>(V) |     |
|         | Min.               | Max.  |                        | Max.                  | I <sub>Z</sub><br>(mA) | Max.                   | I <sub>Z</sub><br>(mA) |                        |                       |     |
| DTZ 3.6 | A                  | 3.455 | 3.695                  | 5                     | 100                    | 5                      | 1000                   | 1                      | 10                    | 1.0 |
|         | B                  | 3.600 | 3.845                  |                       |                        |                        |                        |                        |                       |     |
| DTZ 3.9 | A                  | 3.740 | 4.010                  | 5                     | 100                    | 5                      | 1000                   | 1                      | 5                     | 1.0 |
|         | B                  | 3.890 | 4.160                  |                       |                        |                        |                        |                        |                       |     |
| DTZ 4.3 | A                  | 4.04  | 4.29                   | 5                     | 100                    | 5                      | 1000                   | 1                      | 5                     | 1.0 |
|         | B                  | 4.17  | 4.43                   |                       |                        |                        |                        |                        |                       |     |
|         | C                  | 4.30  | 4.57                   |                       |                        |                        |                        |                        |                       |     |
| DTZ 4.7 | A                  | 4.42  | 4.61                   | 5                     | 100                    | 5                      | 800                    | 0.5                    | 2                     | 1.0 |
|         | B                  | 4.55  | 4.75                   |                       |                        |                        |                        |                        |                       |     |
|         | C                  | 4.69  | 4.90                   |                       |                        |                        |                        |                        |                       |     |
| DTZ 5.1 | A                  | 4.84  | 5.04                   | 5                     | 80                     | 5                      | 500                    | 0.5                    | 2                     | 1.5 |
|         | B                  | 4.98  | 5.20                   |                       |                        |                        |                        |                        |                       |     |
|         | C                  | 5.14  | 5.37                   |                       |                        |                        |                        |                        |                       |     |
| DTZ 5.6 | A                  | 5.31  | 5.55                   | 5                     | 60                     | 5                      | 200                    | 0.5                    | 1                     | 2.5 |
|         | B                  | 5.49  | 5.73                   |                       |                        |                        |                        |                        |                       |     |
|         | C                  | 5.67  | 5.92                   |                       |                        |                        |                        |                        |                       |     |
| DTZ 6.2 | A                  | 5.86  | 6.12                   | 5                     | 60                     | 5                      | 100                    | 0.5                    | 1                     | 3.0 |
|         | B                  | 6.06  | 6.33                   |                       |                        |                        |                        |                        |                       |     |
|         | C                  | 6.26  | 6.53                   |                       |                        |                        |                        |                        |                       |     |
| DTZ 6.8 | A                  | 6.47  | 6.73                   | 5                     | 40                     | 5                      | 60                     | 0.5                    | 0.5                   | 3.5 |
|         | B                  | 6.65  | 6.93                   |                       |                        |                        |                        |                        |                       |     |
|         | C                  | 6.86  | 7.14                   |                       |                        |                        |                        |                        |                       |     |
| DTZ 7.5 | A                  | 7.06  | 7.36                   | 5                     | 30                     | 5                      | 60                     | 0.5                    | 0.5                   | 4.0 |
|         | B                  | 7.28  | 7.60                   |                       |                        |                        |                        |                        |                       |     |
|         | C                  | 7.52  | 7.84                   |                       |                        |                        |                        |                        |                       |     |
| DTZ 8.2 | A                  | 7.76  | 8.10                   | 5                     | 30                     | 5                      | 60                     | 0.5                    | 0.5                   | 5.0 |
|         | B                  | 8.02  | 8.36                   |                       |                        |                        |                        |                        |                       |     |
|         | C                  | 8.28  | 8.64                   |                       |                        |                        |                        |                        |                       |     |
| DTZ 9.1 | A                  | 8.56  | 8.93                   | 5                     | 30                     | 5                      | 60                     | 0.5                    | 0.5                   | 6.0 |
|         | B                  | 8.85  | 9.23                   |                       |                        |                        |                        |                        |                       |     |
|         | C                  | 9.15  | 9.55                   |                       |                        |                        |                        |                        |                       |     |
| DTZ 10  | A                  | 9.45  | 9.87                   | 5                     | 30                     | 5                      | 60                     | 0.5                    | 0.1                   | 7.0 |
|         | B                  | 9.77  | 10.21                  |                       |                        |                        |                        |                        |                       |     |
|         | C                  | 10.11 | 10.55                  |                       |                        |                        |                        |                        |                       |     |
| DTZ 11  | A                  | 10.44 | 10.88                  | 5                     | 30                     | 5                      | 60                     | 0.5                    | 0.1                   | 8.0 |
|         | B                  | 10.76 | 11.22                  |                       |                        |                        |                        |                        |                       |     |
|         | C                  | 11.10 | 11.56                  |                       |                        |                        |                        |                        |                       |     |
| DTZ 12  | A                  | 11.42 | 11.90                  | 5                     | 30                     | 5                      | 80                     | 0.5                    | 0.1                   | 9.0 |
|         | B                  | 11.74 | 12.24                  |                       |                        |                        |                        |                        |                       |     |
|         | C                  | 12.08 | 12.60                  |                       |                        |                        |                        |                        |                       |     |
| DTZ 13  | A                  | 12.47 | 13.03                  | 5                     | 37                     | 5                      | 80                     | 0.5                    | 0.1                   | 10  |
|         | B                  | 12.91 | 13.49                  |                       |                        |                        |                        |                        |                       |     |
|         | C                  | 13.37 | 13.96                  |                       |                        |                        |                        |                        |                       |     |
| DTZ 15  | A                  | 13.84 | 14.46                  | 5                     | 42                     | 5                      | 80                     | 0.5                    | 0.1                   | 11  |
|         | B                  | 14.34 | 14.98                  |                       |                        |                        |                        |                        |                       |     |
|         | C                  | 14.85 | 15.52                  |                       |                        |                        |                        |                        |                       |     |
| DTZ 16  | A                  | 15.37 | 16.01                  | 5                     | 50                     | 5                      | 80                     | 0.5                    | 0.1                   | 12  |
|         | B                  | 15.85 | 16.51                  |                       |                        |                        |                        |                        |                       |     |
|         | C                  | 16.35 | 17.09                  |                       |                        |                        |                        |                        |                       |     |
| DTZ 18  | A                  | 16.94 | 17.70                  | 5                     | 65                     | 5                      | 80                     | 0.5                    | 0.1                   | 13  |
|         | B                  | 17.56 | 18.35                  |                       |                        |                        |                        |                        |                       |     |
|         | C                  | 18.21 | 19.03                  |                       |                        |                        |                        |                        |                       |     |

| Type   | ツェナー電圧細区分          |       |                     | 動作抵抗               |                     | 立上り動作抵抗             |                     | 逆方向電流               |                    |    |
|--------|--------------------|-------|---------------------|--------------------|---------------------|---------------------|---------------------|---------------------|--------------------|----|
|        | V <sub>Z</sub> (V) |       | I <sub>Z</sub> (mA) | Z <sub>Z</sub> (Ω) | I <sub>Z</sub> (mA) | Z <sub>Zk</sub> (Ω) | I <sub>Z</sub> (mA) | I <sub>R</sub> (μA) | V <sub>R</sub> (V) |    |
|        | Min.               | Max.  |                     | Max.               |                     | Max.                |                     | Max.                |                    |    |
| DTZ 20 | A                  | 18.86 | 19.70               | 5                  | 85                  | 5                   | 100                 | 0.5                 | 0.1                | 15 |
|        | B                  | 19.52 | 20.39               |                    |                     |                     |                     |                     |                    |    |
|        | C                  | 20.21 | 21.08               |                    |                     |                     |                     |                     |                    |    |
| DTZ 22 | A                  | 20.88 | 21.77               | 5                  | 100                 | 5                   | 100                 | 0.5                 | 0.1                | 17 |
|        | B                  | 21.54 | 22.47               |                    |                     |                     |                     |                     |                    |    |
|        | C                  | 22.23 | 23.17               |                    |                     |                     |                     |                     |                    |    |
| DTZ 24 | A                  | 22.93 | 23.96               | 5                  | 120                 | 5                   | 120                 | 0.5                 | 0.1                | 19 |
|        | B                  | 23.72 | 24.78               |                    |                     |                     |                     |                     |                    |    |
|        | C                  | 25.54 | 25.57               |                    |                     |                     |                     |                     |                    |    |
| DTZ 27 | A                  | 25.20 | 26.50               | 5                  | 150                 | 5                   | 150                 | 0.5                 | 0.1                | 21 |
|        | B                  | 26.19 | 27.53               |                    |                     |                     |                     |                     |                    |    |
|        | C                  | 27.21 | 28.61               |                    |                     |                     |                     |                     |                    |    |
| DTZ 30 | A                  | 28.22 | 29.66               | 5                  | 200                 | 5                   | 200                 | 0.5                 | 0.1                | 23 |
|        | B                  | 29.19 | 30.69               |                    |                     |                     |                     |                     |                    |    |
|        | C                  | 30.20 | 31.74               |                    |                     |                     |                     |                     |                    |    |
| DTZ 33 | A                  | 31.18 | 32.78               | 5                  | 250                 | 5                   | 250                 | 0.5                 | 0.1                | 25 |
|        | B                  | 32.15 | 33.79               |                    |                     |                     |                     |                     |                    |    |
|        | C                  | 33.13 | 34.83               |                    |                     |                     |                     |                     |                    |    |
| DTZ 36 | A                  | 34.12 | 35.86               | 5                  | 300                 | 5                   | 300                 | 0.5                 | 0.1                | 27 |
|        | B                  | 35.07 | 36.87               |                    |                     |                     |                     |                     |                    |    |
|        | C                  | 36.07 | 37.91               |                    |                     |                     |                     |                     |                    |    |

2. ツェナー電圧細分類 (V<sub>Z</sub>) は通電後 40ms で測定します。

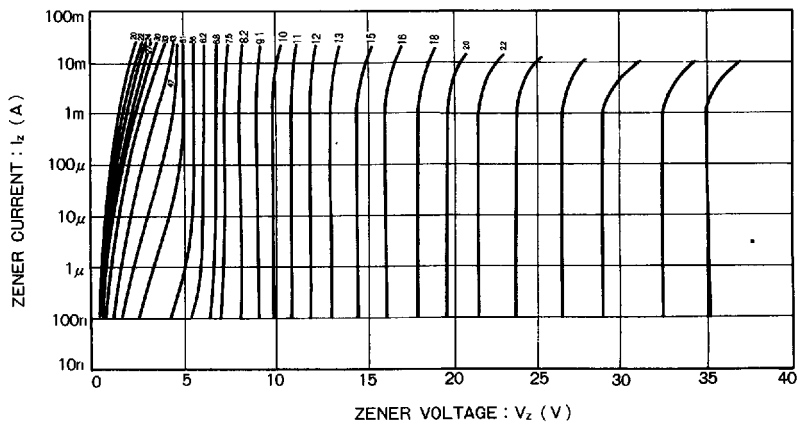
3. 動作抵抗 (Z<sub>Z</sub>, Z<sub>Zk</sub>) は規定電流 (I<sub>Z</sub>) に微小交流電流を重畳して測定します。

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## ● 標印仕様

| 電 圧 | A |   | B |   | C |   | 電 圧 | A |   | B |   | C |   |
|-----|---|---|---|---|---|---|-----|---|---|---|---|---|---|
| 2.0 | 0 | 1 | 0 | 2 | — | — | 9.1 | L | 1 | L | 2 | L | 3 |
| 2.2 | 1 | 1 | 1 | 2 | — | — | 10  | 0 | 4 | 0 | 5 | 0 | 6 |
| 2.4 | 2 | 1 | 2 | 2 | — | — | 11  | 1 | 4 | 1 | 5 | 1 | 6 |
| 2.7 | 3 | 1 | 3 | 2 | — | — | 12  | 2 | 4 | 2 | 5 | 2 | 6 |
| 3.0 | 4 | 1 | 4 | 2 | — | — | 13  | 3 | 4 | 3 | 5 | 3 | 6 |
| 3.3 | 5 | 1 | 5 | 2 | — | — | 15  | 4 | 4 | 4 | 5 | 4 | 6 |
| 3.6 | 6 | 1 | 6 | 2 | — | — | 16  | 5 | 4 | 5 | 5 | 5 | 6 |
| 3.9 | 7 | 1 | 7 | 2 | — | — | 18  | 6 | 4 | 6 | 5 | 6 | 6 |
| 4.3 | 8 | 1 | 8 | 2 | 8 | 3 | 20  | 7 | 4 | 7 | 5 | 7 | 6 |
| 4.7 | 9 | 1 | 9 | 2 | 9 | 3 | 22  | 8 | 4 | 8 | 5 | 8 | 6 |
| 5.1 | A | 1 | A | 2 | A | 3 | 24  | 9 | 4 | 9 | 5 | 9 | 6 |
| 5.6 | C | 1 | C | 2 | C | 3 | 27  | A | 4 | A | 5 | A | 6 |
| 6.2 | E | 1 | E | 2 | E | 3 | 30  | C | 4 | C | 5 | C | 6 |
| 6.8 | F | 1 | F | 2 | F | 3 | 33  | E | 4 | E | 5 | E | 6 |
| 7.5 | H | 1 | H | 2 | H | 3 | 36  | F | 4 | F | 5 | F | 6 |
| 8.2 | J | 1 | J | 2 | J | 3 |     |   |   |   |   |   |   |

● 電気的特性曲線 / Electrical Characteristics (Ta=25°C)



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Fig.1 ツェナー特性

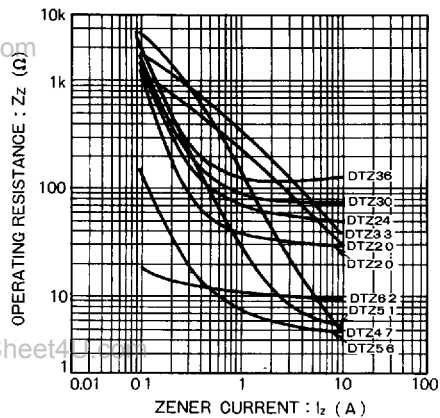


Fig.2  $Z_z - I_z$  特性

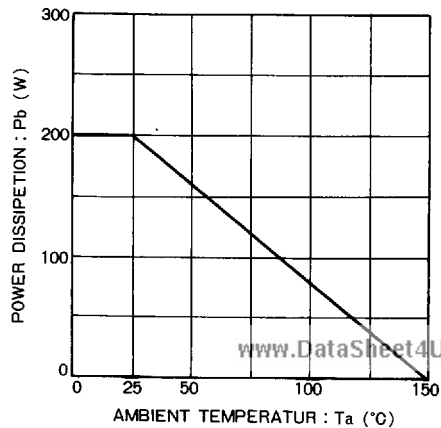


Fig.3 ディレーティングカーブ