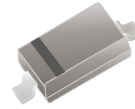


**BZT52C2V0-HF Thru. BZT52C75-HF**

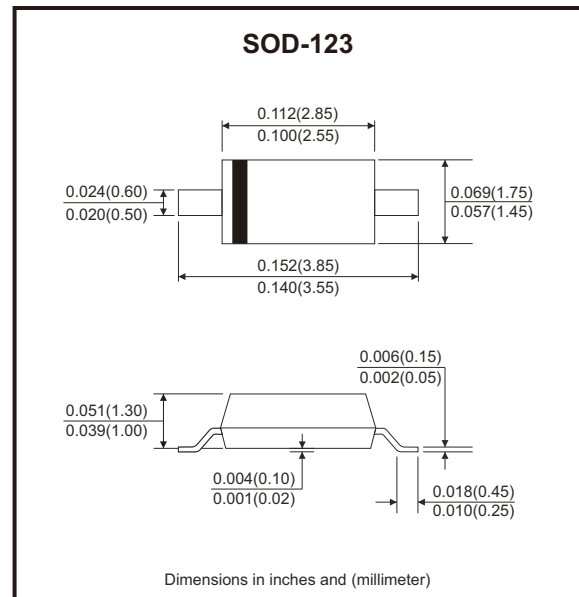
**RoHS Device**  
**Halogen Free**

**Features**

- Large selection of zener voltages: 2V~75V.
- Tight voltage tolerance:  $\pm 5\%$ .
- Ultra low-profile package well suited for automated assembly.

**Mechanical data**

- Case: Molded plastic, SOD-123.
- Polarity: Indicated by cathode band.
- Mounting position: Any.

**Circuit Diagram****Maximum Ratings** ( $T_A=25^{\circ}\text{C}$  unless otherwise noted)

| Parameter                               | Symbol          | Value       | Unit                 |
|-----------------------------------------|-----------------|-------------|----------------------|
| Forward voltage @ $I_F=10\text{mA}$     | $V_F$           | 0.9         | V                    |
| Power dissipation                       | $P_C$           | 500         | mW                   |
| Thermal resistance, junction to ambient | $R_{\theta JA}$ | 250         | $^{\circ}\text{C/W}$ |
| Thermal resistance, junction to case    | $R_{\theta JC}$ | 140         | $^{\circ}\text{C/W}$ |
| Junction temperature range              | $T_J$           | -55 to +150 | $^{\circ}\text{C}$   |
| Storage temperature range               | $T_{STG}$       | -65 to +150 | $^{\circ}\text{C}$   |

Note: 1. These ratings are limiting values above which the serviceability of the diodes may be impaired.

## Electrical Characteristics (TA=25°C unless otherwise noted)

| Part Number  | Zener Voltage                    |        |        |                 | Maximum<br>Zener Impedance       |                                  |                 | Temperature<br>Coefficient<br>@ I <sub>ZT</sub><br>T <sub>C</sub> (mV/°C) |      | Maximum<br>Reverse Current<br>I <sub>R</sub> @ V <sub>R</sub> |      | Marking<br>Code |
|--------------|----------------------------------|--------|--------|-----------------|----------------------------------|----------------------------------|-----------------|---------------------------------------------------------------------------|------|---------------------------------------------------------------|------|-----------------|
|              | V <sub>Z</sub> @ I <sub>ZT</sub> |        |        | I <sub>ZT</sub> | Z <sub>zT</sub> @I <sub>ZT</sub> | Z <sub>zK</sub> @I <sub>zK</sub> | I <sub>zK</sub> | Min.                                                                      | Max. | (μA)                                                          | (V)  |                 |
|              | Min(V)                           | Typ(V) | Max(V) | (mA)            | (Ω)                              | (Ω)                              | (mA)            |                                                                           |      |                                                               |      |                 |
| BZT52C2V0-HF | 1.90                             | 2.0    | 2.10   | 5.0             | 100                              | 600                              | 1.0             | -3.5                                                                      | 0    | 150                                                           | 1.0  | WY              |
| BZT52C2V2-HF | 2.09                             | 2.2    | 2.31   | 5.0             | 100                              | 600                              | 1.0             | -3.5                                                                      | 0    | 150                                                           | 1.0  | WZ              |
| BZT52C2V4-HF | 2.20                             | 2.4    | 2.60   | 5.0             | 100                              | 600                              | 1.0             | -3.5                                                                      | 0    | 50                                                            | 1.0  | WX              |
| BZT52C2V7-HF | 2.50                             | 2.7    | 2.90   | 5.0             | 100                              | 600                              | 1.0             | -3.5                                                                      | 0    | 20                                                            | 1.0  | W1              |
| BZT52C3V0-HF | 2.80                             | 3.0    | 3.20   | 5.0             | 95                               | 600                              | 1.0             | -3.5                                                                      | 0    | 10                                                            | 1.0  | W2              |
| BZT52C3V3-HF | 3.10                             | 3.3    | 3.50   | 5.0             | 95                               | 600                              | 1.0             | -3.5                                                                      | 0    | 5.0                                                           | 1.0  | W3              |
| BZT52C3V6-HF | 3.40                             | 3.6    | 3.80   | 5.0             | 90                               | 600                              | 1.0             | -3.5                                                                      | 0    | 5.0                                                           | 1.0  | W4              |
| BZT52C3V9-HF | 3.70                             | 3.9    | 4.10   | 5.0             | 90                               | 600                              | 1.0             | -3.5                                                                      | 0    | 3.0                                                           | 1.0  | W5              |
| BZT52C4V3-HF | 4.00                             | 4.3    | 4.60   | 5.0             | 90                               | 600                              | 1.0             | -3.5                                                                      | 0    | 3.0                                                           | 1.0  | W6              |
| BZT52C4V7-HF | 4.40                             | 4.7    | 5.00   | 5.0             | 80                               | 500                              | 1.0             | -3.5                                                                      | 0    | 3.0                                                           | 2.0  | W7              |
| BZT52C5V1-HF | 4.80                             | 5.1    | 5.40   | 5.0             | 60                               | 480                              | 1.0             | -2.7                                                                      | 1.2  | 2.0                                                           | 2.0  | W8              |
| BZT52C5V6-HF | 5.20                             | 5.6    | 6.00   | 5.0             | 40                               | 400                              | 1.0             | -2.0                                                                      | 2.5  | 1.0                                                           | 2.0  | W9              |
| BZT52C6V2-HF | 5.80                             | 6.2    | 6.60   | 5.0             | 10                               | 150                              | 1.0             | 0.4                                                                       | 3.7  | 3.0                                                           | 4.0  | WA              |
| BZT52C6V8-HF | 6.40                             | 6.8    | 7.14   | 5.0             | 15                               | 80                               | 1.0             | 1.2                                                                       | 4.5  | 2.0                                                           | 4.0  | WB              |
| BZT52C7V5-HF | 7.00                             | 7.5    | 7.90   | 5.0             | 15                               | 80                               | 1.0             | 2.5                                                                       | 5.3  | 1.0                                                           | 5.0  | WC              |
| BZT52C8V2-HF | 7.70                             | 8.2    | 8.70   | 5.0             | 15                               | 80                               | 1.0             | 3.2                                                                       | 6.2  | 0.7                                                           | 5.0  | WD              |
| BZT52C9V1-HF | 8.50                             | 9.1    | 9.60   | 5.0             | 15                               | 100                              | 1.0             | 3.8                                                                       | 7.0  | 0.5                                                           | 6.0  | WE              |
| BZT52C10-HF  | 9.40                             | 10     | 10.60  | 5.0             | 20                               | 150                              | 1.0             | 4.5                                                                       | 8.0  | 0.2                                                           | 7.0  | WF              |
| BZT52C11-HF  | 10.40                            | 11     | 11.60  | 5.0             | 20                               | 150                              | 1.0             | 5.4                                                                       | 9.0  | 0.1                                                           | 8.0  | WG              |
| BZT52C12-HF  | 11.40                            | 12     | 12.70  | 5.0             | 25                               | 150                              | 1.0             | 6.0                                                                       | 10.0 | 0.1                                                           | 8.0  | WH              |
| BZT52C13-HF  | 12.40                            | 13     | 14.10  | 5.0             | 30                               | 170                              | 1.0             | 7.0                                                                       | 11.0 | 0.1                                                           | 8.0  | WI              |
| BZT52C15-HF  | 13.80                            | 15     | 15.60  | 5.0             | 30                               | 200                              | 1.0             | 9.2                                                                       | 13.0 | 0.1                                                           | 10.5 | WJ              |
| BZT52C16-HF  | 15.30                            | 16     | 17.10  | 5.0             | 40                               | 200                              | 1.0             | 10.4                                                                      | 14.0 | 0.1                                                           | 11.2 | WK              |
| BZT52C18-HF  | 16.80                            | 18     | 19.10  | 5.0             | 45                               | 225                              | 1.0             | 12.4                                                                      | 16.0 | 0.1                                                           | 12.6 | WL              |
| BZT52C20-HF  | 18.80                            | 20     | 21.20  | 5.0             | 55                               | 225                              | 1.0             | 14.4                                                                      | 18.0 | 0.1                                                           | 14.0 | WM              |
| BZT52C22-HF  | 20.80                            | 22     | 23.30  | 5.0             | 55                               | 250                              | 1.0             | 16.4                                                                      | 20.0 | 0.1                                                           | 15.4 | WN              |
| BZT52C24-HF  | 22.80                            | 24     | 25.60  | 5.0             | 70                               | 250                              | 1.0             | 18.4                                                                      | 22.0 | 0.1                                                           | 16.8 | WO              |
| BZT52C27-HF  | 25.10                            | 27     | 28.90  | 2.0             | 80                               | 300                              | 0.5             | 21.4                                                                      | 25.3 | 0.1                                                           | 18.9 | WP              |
| BZT52C30-HF  | 28.00                            | 30     | 32.00  | 2.0             | 80                               | 300                              | 0.5             | 24.4                                                                      | 29.4 | 0.1                                                           | 21.0 | WQ              |
| BZT52C33-HF  | 31.00                            | 33     | 35.00  | 2.0             | 80                               | 325                              | 0.5             | 27.4                                                                      | 33.4 | 0.1                                                           | 23.1 | WR              |

## Electrical Characteristics (TA=25°C unless otherwise noted)

| Part Number | Zener Voltage                    |        |        |                 | Maximum<br>Zener Impedance       |                                  |                 | Temperature<br>Coefficient<br>@ I <sub>ZT</sub><br>T <sub>C</sub> (mV/°C) |      | Maximum<br>Reverse Current<br>I <sub>R</sub> @ V <sub>R</sub> |      | Marking<br>Code |
|-------------|----------------------------------|--------|--------|-----------------|----------------------------------|----------------------------------|-----------------|---------------------------------------------------------------------------|------|---------------------------------------------------------------|------|-----------------|
|             | V <sub>Z</sub> @ I <sub>ZT</sub> |        |        | I <sub>ZT</sub> | Z <sub>ZT</sub> @I <sub>ZT</sub> | Z <sub>ZK</sub> @I <sub>ZK</sub> | I <sub>ZK</sub> | Min.                                                                      | Max. | (μA)                                                          | (V)  |                 |
|             | Min(V)                           | Typ(V) | Max(V) | (mA)            | (Ω)                              | (Ω)                              | (mA)            |                                                                           |      |                                                               |      |                 |
| BZT52C36-HF | 34.00                            | 36     | 38.00  | 2.0             | 90                               | 350                              | 0.5             | 30.4                                                                      | 37.4 | 0.1                                                           | 25.2 | WS              |
| BZT52C39-HF | 37.00                            | 39     | 41.00  | 2.0             | 130                              | 350                              | 0.5             | 33.4                                                                      | 41.2 | 0.1                                                           | 27.3 | WT              |
| BZT52C43-HF | 40.00                            | 43     | 46.00  | 2.0             | 100                              | 700                              | 1.0             | 10.0                                                                      | 12.0 | 0.1                                                           | 32.0 | WU              |
| BZT52C47-HF | 44.00                            | 47     | 50.00  | 2.0             | 100                              | 750                              | 1.0             | 10.0                                                                      | 12.0 | 0.1                                                           | 35.0 | WV              |
| BZT52C51-HF | 48.00                            | 51     | 54.00  | 2.0             | 100                              | 750                              | 1.0             | 10.0                                                                      | 12.0 | 0.1                                                           | 38.0 | WW              |
| BZT52C56-HF | 53.20                            | 56     | 58.80  | 2.0             | 200                              | 400                              | 0.5             | 10.0                                                                      | 12.0 | 0.045                                                         | 39.2 | WX•             |
| BZT52C62-HF | 58.90                            | 62     | 65.10  | 2.0             | 215                              | 423                              | 0.5             | 10.0                                                                      | 12.0 | 0.045                                                         | 43.4 | 6E              |
| BZT52C68-HF | 64.60                            | 68     | 71.40  | 2.0             | 240                              | 447                              | 0.5             | 10.0                                                                      | 12.0 | 0.045                                                         | 47.6 | 6F              |
| BZT52C75-HF | 71.25                            | 75     | 78.75  | 2.0             | 255                              | 470                              | 0.5             | 10.0                                                                      | 12.0 | 0.045                                                         | 52.5 | 6H              |

## Rating and Characteristic Curves (BZT52C2V0-HF Thru. BZT52C75-HF)

Fig.1 - Power Derating Curve

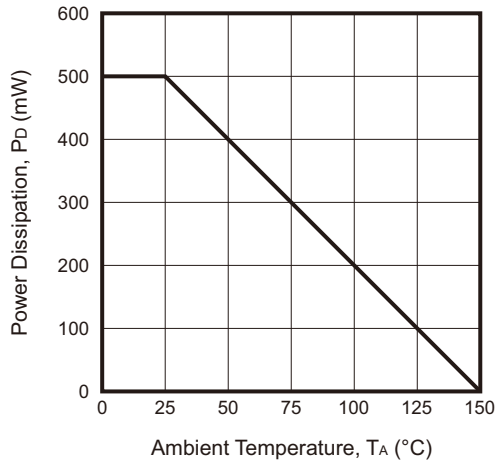


Fig.2 - Typical Zener Breakdown Characteristics

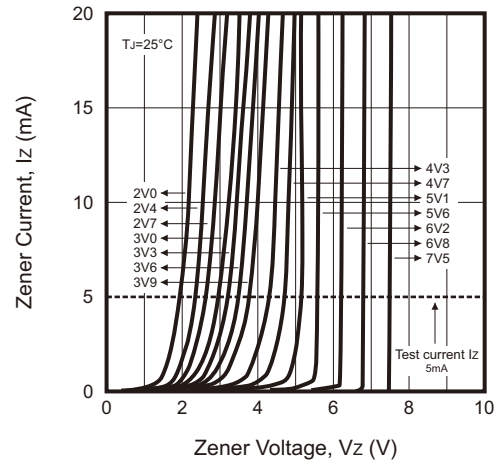


Fig.3 - Typical Zener Breakdown Characteristics

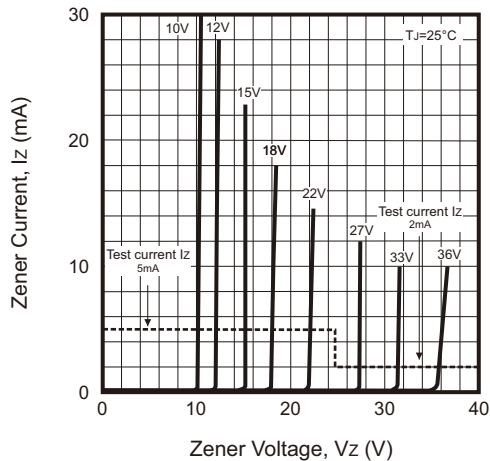


Fig.4 - Typical Zener Breakdown Characteristics

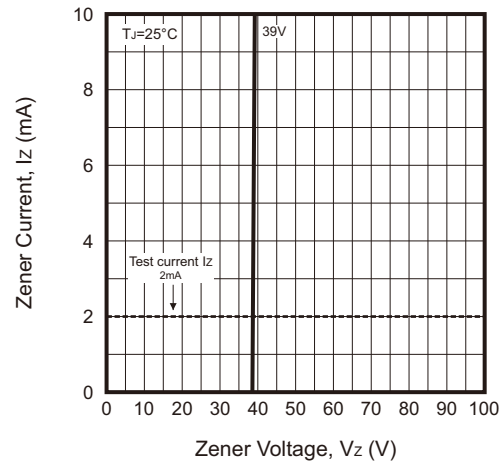


Fig.5 - Typical Temperature Coefficient of Zener Voltage

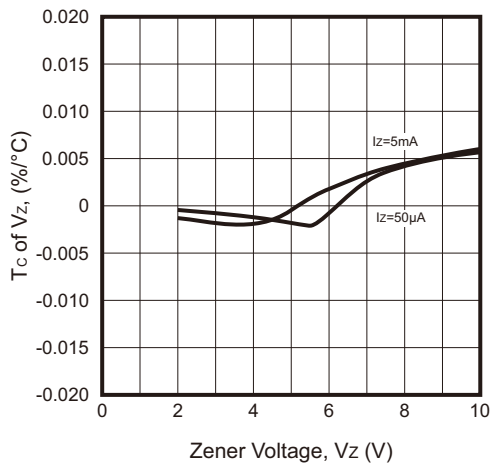
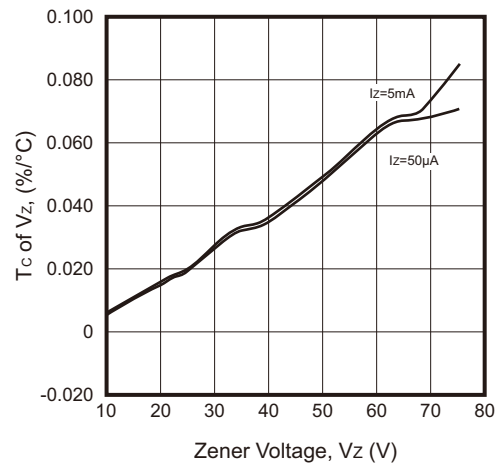
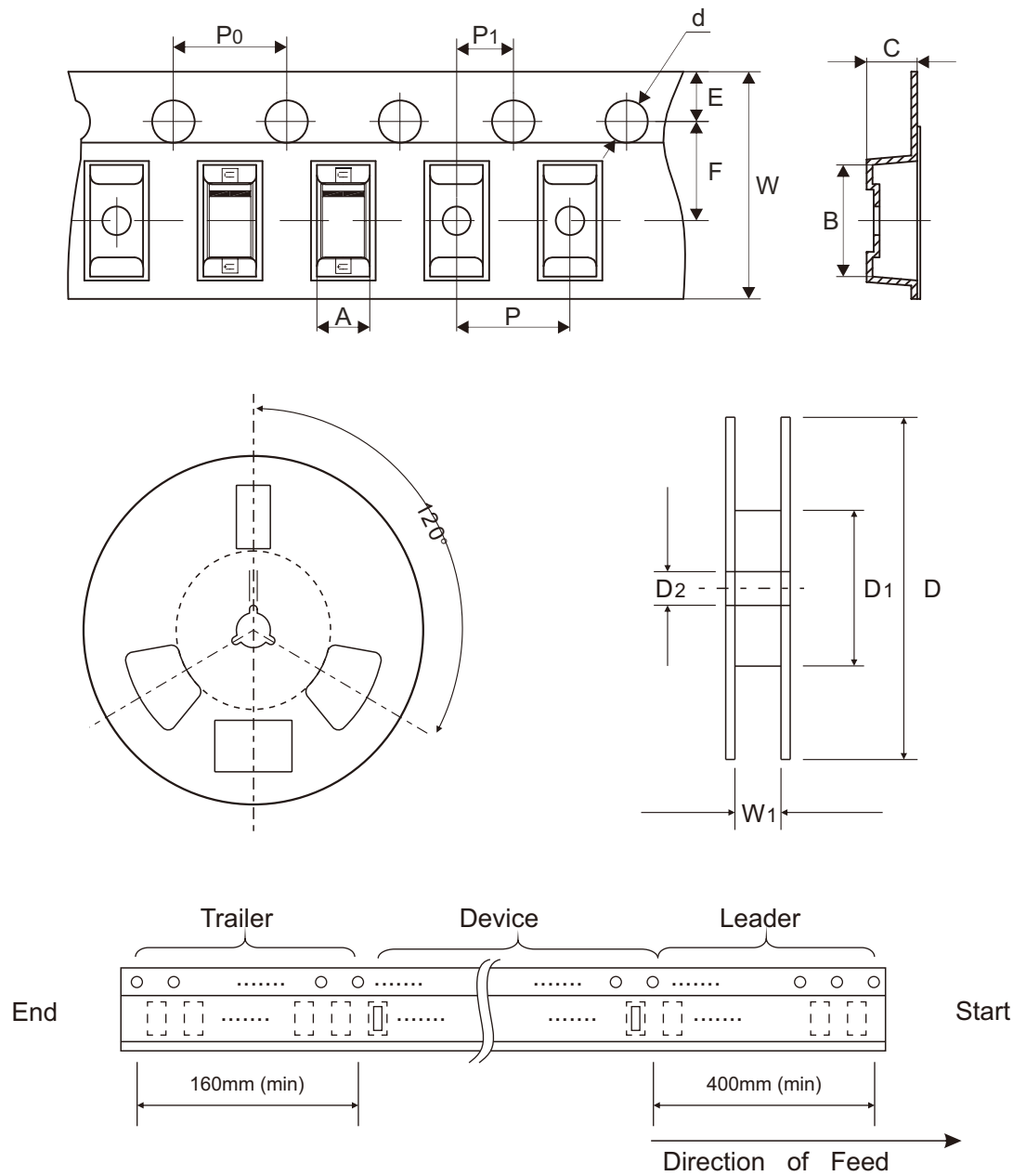


Fig.6 - Typical Temperature Coefficient of Zener Voltage



Reel Taping Specification



| SOD-123 | SYMBOL | A                 | B                 | C                 | d                 | D                 | D1                | D2                |
|---------|--------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
|         | (mm)   | $1.85 \pm 0.10$   | $3.94 \pm 0.10$   | $1.57 \pm 0.10$   | $1.55 \pm 0.05$   | $178.00 \pm 1.00$ | $54.00 \pm 0.50$  | $13.00 \pm 0.50$  |
|         | (inch) | $0.073 \pm 0.004$ | $0.155 \pm 0.004$ | $0.062 \pm 0.004$ | $0.061 \pm 0.002$ | $7.008 \pm 0.039$ | $2.126 \pm 0.020$ | $0.512 \pm 0.020$ |

| SOD-123 | SYMBOL | E                 | F                 | P                 | P1                | P0                | W                       | W1                |
|---------|--------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------------|-------------------|
|         | (mm)   | $1.75 \pm 0.10$   | $3.50 \pm 0.05$   | $4.00 \pm 0.10$   | $2.00 \pm 0.05$   | $4.00 \pm 0.10$   | $8.00 + 0.30 - 0.10$    | $9.50 \pm 1.00$   |
|         | (inch) | $0.069 \pm 0.004$ | $0.138 \pm 0.002$ | $0.157 \pm 0.004$ | $0.079 \pm 0.002$ | $0.157 \pm 0.004$ | $0.315 + 0.012 - 0.004$ | $0.374 \pm 0.039$ |

Marking Code

| Part Number         | Marking Code |
|---------------------|--------------|
| BZT52Cxxx-HF series | See Page 2~3 |

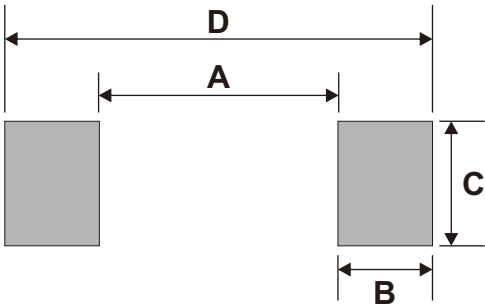


XX/XX• = Product type marking code

█ = Cathode band

Suggested P.C.B. PAD Layout

| SIZE | SOD-123 |        |
|------|---------|--------|
|      | (mm)    | (inch) |
| A    | 2.36    | 0.093  |
| B    | 0.91    | 0.036  |
| C    | 1.22    | 0.048  |
| D    | 4.19    | 0.165  |



Standard Packaging

| Case Type | REEL PACK       |                     |
|-----------|-----------------|---------------------|
|           | REEL<br>( pcs ) | Reel Size<br>(inch) |
| SOD-123   | 3,000           | 7                   |