Chip RC Networks

Series: **EZAST**

Series: **EZADT**

**Features**

1. **Smallest SMD R/C networks**
   - 4 popular noise reduction circuits made from damping resistors and bypath capacitors in a smallest chip
     - EZAST: 4.0 mm × 2.1 mm × 0.65 mm, 0.8 mm pitch
     - EZADT: 3.2 mm × 1.6 mm × 0.65 mm, 0.635 mm pitch
     - EZASTB: 4.0 mm × 2.1 mm × 0.65 mm, 0.65 mm pitch
   - Smaller occupied space than discrete 0402 (1.0 mm × 0.5 mm) chips
     - EZAST, EZASTB: 70% of 0402 (1.0 mm × 0.5 mm) chips placing area
     - EZADT: 50% of 0402 (1.0 mm × 0.5 mm) chips placing area

2. **Series: EZAST, EZADT (Concave terminal type)**
   - Firm solder joint (2 times that of convex terminal)
   - Self-alignment of placement at reflow soldering

3. **Series: EZASTB (Convex terminal type)**
   - Vision recognition shall be easy

**Recommended Applications**

- Communication equipment, Digital cordless phones, Automobile phones, GSM, PHS, DECT
- Digital audio and Video equipment
- Electric musical instruments, and digital devices

---

Design, Specifications are subject to change without notice. Ask factory for technical specifications before purchase and/or use.
Whenever a doubt about safety arises from this product, please inform us immediately for technical consultation without fail.
**Explanation of Part Number**

**EZAST • EZADT**

<table>
<thead>
<tr>
<th>Code</th>
<th>Common Code</th>
<th>Dimension and Circuit Configuration</th>
<th>RC Standard Combination</th>
<th>Design Configuration</th>
<th>Resistance Tolerance</th>
<th>Suffix for Special Requirement</th>
</tr>
</thead>
<tbody>
<tr>
<td>33</td>
<td>EZA</td>
<td>S T 3 A A J Jn</td>
<td>AAA Standard</td>
<td>J ±5%</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Construction**

<table>
<thead>
<tr>
<th>EZAST</th>
<th>EZADT</th>
<th>EZASTB</th>
</tr>
</thead>
<tbody>
<tr>
<td>![EZAST Diagram]</td>
<td>![EZADT Diagram]</td>
<td>![EZASTB Diagram]</td>
</tr>
</tbody>
</table>

**Circuit Configuration**

<table>
<thead>
<tr>
<th>EZAST • EZADT</th>
<th>EZASTB</th>
</tr>
</thead>
<tbody>
<tr>
<td>![EZAST EZADT Circuit Diagram]</td>
<td>![EZASTB Circuit Diagram]</td>
</tr>
</tbody>
</table>

*Design, Specifications are subject to change without notice. Ask factory for technical specifications before purchase and/or use. Whenever a doubt about safety arises from this product, please inform us immediately for technical consultation without fail.*
Panasonic

Chip RC Networks

Dimensions in mm (not to scale)

<table>
<thead>
<tr>
<th>Item</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Resistance Values</strong></td>
<td>22 Ω, 47 Ω, 100 Ω, 220 Ω, 470 Ω, 1 kΩ</td>
</tr>
<tr>
<td><strong>Resistance Tolerance</strong></td>
<td>±5 %</td>
</tr>
<tr>
<td><strong>Temperature Coefficient of Resistor (T.C.R.)</strong></td>
<td>±200 × 10⁻⁶/°C (ppm/°C)</td>
</tr>
<tr>
<td><strong>Rated Power</strong></td>
<td>0.063 W (±70 °C)</td>
</tr>
<tr>
<td><strong>Limiting Element Voltage (Maximum Rated Continuous Working Voltage)</strong></td>
<td>25 V</td>
</tr>
<tr>
<td><strong>Capacitance Values</strong></td>
<td>22 pF, 47 pF, 100 pF (±25 °C, ±1 kHz, ±1 Vrms)</td>
</tr>
<tr>
<td><strong>Capacitance Tolerance</strong></td>
<td>±30 %/~20 %</td>
</tr>
<tr>
<td><strong>Capacitance Temperature Characteristics</strong></td>
<td>+20 %/~55 % (~25 °C to +85 °C)</td>
</tr>
<tr>
<td><strong>Dissipation Factor</strong></td>
<td>Less than 3 % (±25 °C, ±1 kHz, ±1 Vrms)</td>
</tr>
<tr>
<td><strong>Rated Voltage</strong></td>
<td>EZAST, EZASTB: 25 V, EZADT: 12 V</td>
</tr>
<tr>
<td><strong>Category Temperature Range (Operating Temperature Range)</strong></td>
<td>−25 °C to +85 °C</td>
</tr>
</tbody>
</table>

(1) For resistors operated in ambient temperature above 70 °C, rated power shall be derated. (Power Derating Curve is shown below.)

(2) Rated Voltage for resistor shall be determined from Rated Power × Resistance Value, or Limiting Element Voltage (Max. Rated Continuous Working Voltage) whichever less.

(3) In measuring at 1 MHz, Capacitance and Dissipation Factor are different.

Power Derating Curve

For resistors operated in ambient temperatures above 70 °C, power rating shall be derated in accordance with the figure on the right.
\textbf{Attenuation Characteristics}

\begin{itemize}
  \item **EZAST** \cdot **EZASTB**
  \begin{figure}
  \centering
  \includegraphics[width=\textwidth]{Attenuation_Curves.png}
  \caption{Attenuation Characteristics}
  \end{figure}

  \item **EZADT**
  \begin{figure}
  \centering
  \includegraphics[width=\textwidth]{Attenuation_Curves.png}
  \caption{Attenuation Characteristics}
  \end{figure}

\end{itemize}

\textbf{Packaging Method}

\textbf{Standard Quantity}

<table>
<thead>
<tr>
<th>Type</th>
<th>Thickness (mm)</th>
<th>Weight (mg)</th>
<th>Embossed Taping</th>
<th>Punched (Paper) Taping</th>
</tr>
</thead>
<tbody>
<tr>
<td>EZAST</td>
<td>0.65 \pm 0.10</td>
<td>17</td>
<td>4000 pcs./reel</td>
<td></td>
</tr>
<tr>
<td>EZADT</td>
<td>0.65 \pm 0.10</td>
<td>11</td>
<td>5000 pcs./reel</td>
<td></td>
</tr>
<tr>
<td>EZASTB</td>
<td>0.65 \pm 0.10</td>
<td>18</td>
<td>4000 pcs./reel</td>
<td></td>
</tr>
</tbody>
</table>

\textbf{Taping Dimensions}

\textbf{Taping Reel}

\begin{figure}
  \centering
  \includegraphics[width=\textwidth]{Taping_Reel.png}
  \caption{Taping Reel}
  \end{figure}

\textbf{Embossed Taping}

\begin{figure}
  \centering
  \includegraphics[width=\textwidth]{Embossed_Taping.png}
  \caption{Embossed Taping}
  \end{figure}

Design. Specifications are subject to change without notice. Ask factory for technical specifications before purchase and/or use. Whenever a doubt about safety arises from this product, please inform us immediately for technical consultation without fail.
### Recommended Land Pattern Design

#### EZAST

<table>
<thead>
<tr>
<th>Dimensions (mm)</th>
<th>Type</th>
<th>W</th>
<th>T</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>EZADT</td>
<td>9.0</td>
<td>11.4</td>
</tr>
</tbody>
</table>

#### EZADT

<table>
<thead>
<tr>
<th>Dimensions (mm)</th>
<th>Type</th>
<th>ϕA</th>
<th>ϕB</th>
<th>ϕC</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>EZADT</td>
<td>180.0</td>
<td>0</td>
<td>60</td>
</tr>
</tbody>
</table>

#### EZASTB

- Design to make GND pattern as large as possible, because high frequency noise is removed from GND terminals of chip RC network.

Design, Specifications are subject to change without notice. Ask factory for technical specifications before purchase and/or use. Whenever a doubt about safety arises from this product, please inform us immediately for technical consultation without fail.
1. Soldering

Recommendation for soldering method is noted below.

- **Reflow Soldering**
  - Precaution and recommendations are described below.
  - Please inquire with us when you use different conditions.
  - Please measure a temperature of terminations and study solderability of every type of board, before actual use.

![Reflow Soldering Graph]

- **Flow Soldering**
  - We cannot recommend the flow soldering to Chip RC Networks: EZAST, EZADT, EZASTB, because a solder bridge may occur owing to narrow 0.8 mm, 0.635 mm, 0.65 mm pitch.
  - Iron soldering
    1. Solder at 280 °C max. and 3 seconds max. with the soldering iron tip.
    2. The soldering iron tip shall not touch the protective coating of the part.
  - Use rosin type flux. Do not use high-activity flux (the chlorine content is 0.2 wt% or more).
  - Allow enough preheating so that the difference of soldering temperature and temperature of surface of the part is 100 °C or less. This temperature difference shall be maintained by rapid cooling by immersion into solvent.
  - Use of more solder results in more mechanical stress to the part resulting in cracking or impaired characteristics. Avoid excessive amount of solder.

2. Cleaning

- Residual flux after board washing may cause solder migration. Carefully check the status of board washing. Study type and amount of flux to be used when no washing is made. Study type of water-soluble flux and cleaning agent and drying condition when water washing is made. Confirm they will not cause any trouble.

3. Others

- Take necessary precautions to avoid any abnormal stress caused by the bending of board.
- Do not use the product in dewy atmosphere.
- Peculiar characteristic of dielectric materials of high dielectric constant may reduce static capacitance by a few percent relative to that at shipment.

(*) This product has circuits on both sides. Do not use adhesives, because we are afraid that characteristics are impaired by adhesives.