DC Line Filters

Vol. 12

⚠️ All specifications in this catalog and production status of products are subject to change without notice. Prior to the purchase, please contact TOKIN for updated product data.

⚠️ Please request for a specification sheet for detailed product data prior to the purchase.

⚠️ Before using the product in this catalog, please read “Precautions” and other safety precautions listed in the printed version catalog.
Contents

**DIP Type**
- Common Mode Power Line
  - SH Series .................................................. 3
  - SHO Series ............................................... 5
  - SBT-03W Series ........................................... 6
- Common Mode Signal Line
  - SBT-01W Series .......................................... 7
  - Toroidal Cores with Wound Cables ..................... 8
  - DIP Noise Filters D-03C, 03C1, 05N1, 07C1, 08C2, 08C2A ... 9
  - DIP Noise Filters D-16C ................................ 11
  - DIP Noise Filters D-37C, 40C, 42C, 45C, 47C ............ 12
  - DIP Noise Filters D-55C, 58C ............................ 14
- Common Mode for Telephone Sets
  - Noise Filters for Telephone Sets ST-101, 201, 202, 202S ... 15
  - Noise Filters for Telephone Sets ST-101A, 201A, 202A .... 16
  - Noise Filters for Telephone Sets ST-110AV, 110AH, 110BV, 110BH 17
  - Noise Filters for Telephone Sets ST-101F2, 101F4 ........ 18
  - Noise Filters for Telephone Sets ST-104A4, 204A Series ... 19
- Normal Mode
  - SBT Series ................................................ 20
  - SNT Series ............................................... 21
  - Bead Inductors (Lead Type) ............................. 22
  - Bead Inductors (Winding Type) ......................... 25
  - EMC Filter .............................................. 27
  - Tape and Reel Dimensions ............................ 28

**SMD Type**
- Common Mode Power Line
  - SBS9080 Series ......................................... 29
  - SBP Series ............................................. 30
  - DCM Series ............................................. 31
- Common Mode Signal Line
  - EMC Chip Filters M-500CT/M-600T Series ............... 33
  - Precautions ............................................. 35
  - Tape and Reel Dimensions ............................ 36

⚠️ All specifications in this catalog and production status of products are subject to change without notice. Prior to the purchase, please contact TOKIN for updated product data.
⚠️ Please request for a specification sheet for detailed product data prior to the purchase.
⚠️ Before using the product in this catalog, please read "Precautions" and other safety precautions listed in the printed version catalog.
## SH Series

**[RoHS Compliant]**

<table>
<thead>
<tr>
<th>Model</th>
<th>Rated voltage DC (V)</th>
<th>Rated current (A)</th>
<th>Inductance (µH) min.</th>
<th>DC resistance (mΩ/Line) max.</th>
<th>Operating temperature range (°C)</th>
<th>Shape and dimensions</th>
</tr>
</thead>
<tbody>
<tr>
<td>SH-101</td>
<td>150</td>
<td>3.0</td>
<td>0.35</td>
<td>16</td>
<td>-25~+80</td>
<td>Fig. 1</td>
</tr>
<tr>
<td>SH-102</td>
<td>150</td>
<td>3.0</td>
<td>1.5</td>
<td>26</td>
<td>-25~+80</td>
<td>Fig. 2</td>
</tr>
<tr>
<td>SH-201</td>
<td>150</td>
<td>3.0</td>
<td>0.5</td>
<td>16</td>
<td>-25~+80</td>
<td>Fig. 3</td>
</tr>
<tr>
<td>SH-202</td>
<td>150</td>
<td>3.0</td>
<td>1.5</td>
<td>20</td>
<td>-25~+80</td>
<td></td>
</tr>
<tr>
<td>SH-301</td>
<td>150</td>
<td>3.0</td>
<td>3.2</td>
<td>22</td>
<td>-25~+80</td>
<td></td>
</tr>
<tr>
<td>SH-302</td>
<td>150</td>
<td>3.0</td>
<td>7.5</td>
<td>26</td>
<td>-25~+80</td>
<td></td>
</tr>
<tr>
<td>SH-211</td>
<td>150</td>
<td>3.0</td>
<td>0.5</td>
<td>18</td>
<td>-25~+80</td>
<td></td>
</tr>
<tr>
<td>SH-212</td>
<td>150</td>
<td>3.0</td>
<td>1.5</td>
<td>23</td>
<td>-25~+80</td>
<td></td>
</tr>
<tr>
<td>SH-311</td>
<td>150</td>
<td>3.0</td>
<td>3.2</td>
<td>25</td>
<td>-25~+80</td>
<td></td>
</tr>
<tr>
<td>SH-312</td>
<td>150</td>
<td>3.0</td>
<td>7.5</td>
<td>30</td>
<td>-25~+80</td>
<td></td>
</tr>
<tr>
<td>SH-121</td>
<td>50</td>
<td>3.0</td>
<td>0.35</td>
<td>11</td>
<td>-25~+80</td>
<td></td>
</tr>
<tr>
<td>SH-122</td>
<td>50</td>
<td>3.0</td>
<td>1.5</td>
<td>20</td>
<td>-25~+80</td>
<td></td>
</tr>
<tr>
<td>SH-221</td>
<td>50</td>
<td>3.0</td>
<td>3.5</td>
<td>14</td>
<td>-25~+80</td>
<td></td>
</tr>
<tr>
<td>SH-222</td>
<td>50</td>
<td>3.0</td>
<td>7.5</td>
<td>20</td>
<td>-25~+80</td>
<td></td>
</tr>
<tr>
<td>SH-321</td>
<td>50</td>
<td>3.0</td>
<td>1.5</td>
<td>51</td>
<td>-25~+60</td>
<td></td>
</tr>
<tr>
<td>SH-322</td>
<td>50</td>
<td>2.4</td>
<td>1.7</td>
<td>81</td>
<td>-25~+80</td>
<td></td>
</tr>
<tr>
<td>SH-432</td>
<td>50</td>
<td>2.4</td>
<td>3.0</td>
<td>51</td>
<td>-25~+60</td>
<td></td>
</tr>
<tr>
<td>for 3 lines</td>
<td>SH-S132</td>
<td>50</td>
<td>1.0</td>
<td>1.7</td>
<td>81</td>
<td>-25~+80</td>
</tr>
</tbody>
</table>

### DC Line Filters VOL.12

1. All specifications in this catalog and production status of products are subject to change without notice. Prior to the purchase, please contact TOKIN for updated product data.
2. Please request for a specification sheet for detailed product data prior to the purchase.
3. Before using the product in this catalog, please read “Caution” and other safety precautions listed in the printed version catalog.
Impedance vs. Frequency

DC Line Filters VOL.12

4
SHO Series
[RoHS Compliant]

<table>
<thead>
<tr>
<th>Model</th>
<th>Rated voltage (DC (V))</th>
<th>Rated current (A)</th>
<th>Inductance (µH) min.</th>
<th>DC resistance (mΩ/Line) max.</th>
<th>Operating temperature range (°C)</th>
<th>D</th>
<th>T</th>
<th>ℓ</th>
</tr>
</thead>
<tbody>
<tr>
<td>SHO-101</td>
<td>50</td>
<td>4.0</td>
<td>2.0</td>
<td>15.5</td>
<td>-25~+70</td>
<td>1.1 Max.</td>
<td>7.5 Max.</td>
<td>10 ± 3</td>
</tr>
<tr>
<td>SHO-102</td>
<td>50</td>
<td>4.0</td>
<td>0.6</td>
<td>10.0</td>
<td>-25~+70</td>
<td>1.1 Max.</td>
<td>7.5 Max.</td>
<td>10 ± 3</td>
</tr>
<tr>
<td>SHO-301</td>
<td>50</td>
<td>4.0</td>
<td>12.0</td>
<td>15.5</td>
<td>-25~+70</td>
<td>1.1 Max.</td>
<td>7.5 Max.</td>
<td>10 ± 3</td>
</tr>
<tr>
<td>SHO-302</td>
<td>50</td>
<td>4.0</td>
<td>3.9</td>
<td>10.0</td>
<td>-25~+70</td>
<td>1.1 Max.</td>
<td>8.0 Max.</td>
<td>10 ± 3</td>
</tr>
<tr>
<td>SHO-303</td>
<td>50</td>
<td>5.0</td>
<td>6.0</td>
<td>8.0</td>
<td>-25~+75</td>
<td>1.1 Max.</td>
<td>8.0 Max.</td>
<td>10 ± 3</td>
</tr>
<tr>
<td>SHO-501</td>
<td>50</td>
<td>0.8</td>
<td>99.0</td>
<td>120.0</td>
<td>-25~+80</td>
<td>7.5 Max.</td>
<td>5.0 Max.</td>
<td>4 ± 2</td>
</tr>
<tr>
<td>SHO-502</td>
<td>50</td>
<td>0.8</td>
<td>12.0</td>
<td>15.5</td>
<td>-25~+80</td>
<td>7.5 Max.</td>
<td>5.0 Max.</td>
<td>4 ± 2</td>
</tr>
<tr>
<td>SHO-503</td>
<td>50</td>
<td>0.8</td>
<td>17.5</td>
<td>105.0</td>
<td>-25~+80</td>
<td>6.3 Max.</td>
<td>3.4 Max.</td>
<td>4 ± 2</td>
</tr>
</tbody>
</table>

Shape and Dimensions

Circuit Diagram

Impedance vs. Frequency
# SBT-03W Series

[RoHS Compliant]

<table>
<thead>
<tr>
<th>Model</th>
<th>Rated voltage DC (V)</th>
<th>Rated current (A)</th>
<th>Inductance (100kHz, 1mA) (µH) min.</th>
<th>DC resistance (mΩ) max.</th>
<th>Operating temperature range (°C)</th>
<th>Wire size (mm²)</th>
<th>Packaging</th>
</tr>
</thead>
<tbody>
<tr>
<td>SBT-0308W</td>
<td>50</td>
<td>3.0</td>
<td>6.75</td>
<td>20</td>
<td>-25~+85</td>
<td>0.4</td>
<td>Bulk (100 pcs.)</td>
</tr>
<tr>
<td>SBT-0310W</td>
<td>50</td>
<td>2.5</td>
<td>7.7</td>
<td>30</td>
<td>-25~+80</td>
<td>0.35</td>
<td></td>
</tr>
<tr>
<td>SBT-0315W</td>
<td>50</td>
<td>2.0</td>
<td>11.9</td>
<td>45</td>
<td>-25~+75</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* Withstanding voltage: 200VDC (one minute, between lines)  
* Insulation resistance: more than 10MΩ (100VDC, between lines)

## Shape and Dimensions

![Shape and Dimensions Diagram](image_url)

## Circuit Diagram

![Circuit Diagram](image_url)

## Impedance vs. Frequency

![Impedance vs. Frequency Graph](image_url)

---

**DC Line Filters VOL.12**

---

⚠️ All specifications in this catalog and production status of products are subject to change without notice. Prior to the purchase, please contact TOKIN for updated product data.

⚠️ Please request for a specification sheet for detailed product data prior to the purchase.

⚠️ Before using the product in this catalog, please read "Precautions" and other safety precautions listed in the printed version catalog.
## SBT-01W Series

[RoHS Compliant]

<table>
<thead>
<tr>
<th>Model</th>
<th>Rated voltage DC (V)</th>
<th>Rated current (mA)</th>
<th>Inductance (1kHz, 70mA) (µH)</th>
<th>DC resistance (mΩ) max.</th>
<th>Operating temperature range (℃)</th>
<th>Packaging</th>
</tr>
</thead>
<tbody>
<tr>
<td>SBT-0115W</td>
<td>50</td>
<td>500</td>
<td>≥5</td>
<td>30</td>
<td>-25~+70</td>
<td>Bulk (100 pcs.)</td>
</tr>
<tr>
<td>SBT-0140W</td>
<td>50</td>
<td>500</td>
<td>40±50%</td>
<td>40</td>
<td>-25~+70</td>
<td></td>
</tr>
<tr>
<td>SBT-0160W</td>
<td>50</td>
<td>500</td>
<td>60±50%</td>
<td>45</td>
<td>-25~+70</td>
<td></td>
</tr>
<tr>
<td>SBT-0180W</td>
<td>50</td>
<td>500</td>
<td>80±50%</td>
<td>55</td>
<td>-25~+70</td>
<td></td>
</tr>
</tbody>
</table>

* Withstanding voltage: 200VDC (one minute, between lines)  
* Insulation resistance: more than 10MΩ (100VDC, between lines)

### Shape and Dimensions

![Shape Diagram](image1)

### Circuit Diagram

![Circuit Diagram](image2)

### Impedance vs. Frequency

![Impedance Graph](image3)

### DC Line Filters VOL. 12

**DIP Type**

**Common Mode Signal Line**

---

⚠️ All specifications in this catalog and production status of products are subject to change without notice. Prior to the purchase, please contact TOKIN for updated product data.  
⚠️ Please request for a specification sheet for detailed product data prior to the purchase.  
⚠️ Before using the product in this catalog, please read “Precautions” and other safety precautions listed in the printed version catalog.
# Toroidal Cores with Wound Cables

[RoHS Compliant]

<table>
<thead>
<tr>
<th>Model</th>
<th>Core</th>
<th>Dimensions (mm)</th>
<th>No. of turns</th>
<th>Wire</th>
<th>Winding status</th>
<th>Frequency range (MHz)</th>
</tr>
</thead>
<tbody>
<tr>
<td>ESD-H-12E</td>
<td>ESD-R-12C</td>
<td>A:16, B:20, C:5, D:25</td>
<td>7</td>
<td>UL1007 AWG26 (ø0.4)</td>
<td>Bi-filar winding</td>
<td>~300</td>
</tr>
<tr>
<td>ESD-H-14U</td>
<td>ESD-R-14A</td>
<td>A:17.5, B:7, C:5, D:15</td>
<td>10</td>
<td>UL1609 AWG26 (ø0.4)</td>
<td>Bi-filar winding</td>
<td>~100</td>
</tr>
<tr>
<td>ESD-H-14NU</td>
<td>ESD-R-14C2</td>
<td>A:17.5, B:7, C:5, D:15</td>
<td>10</td>
<td>UL1609 AWG26 (ø0.4)</td>
<td>Bi-filar winding</td>
<td>~300</td>
</tr>
</tbody>
</table>

*Recommended soldering conditions: 350±10°C, 2 to 3 sec.*  
*Rated current: 1A*  
*Rated Voltage: 125V*

## Shape and Dimensions

**ESD-H Series**

![Shape Diagram](image1)

## Circuit Diagram

![Circuit Diagram](image2)

## Impedance vs. Frequency

![Impedance Graph](image3)

---

**DC Line Filters VOL.12**

---

*All specifications in this catalog and production status of products are subject to change without notice. Prior to the purchase, please contact TOKIN for updated product data.*  
*Please request for a specification sheet for detailed product data prior to the purchase.*  
*Before using the product in this catalog, please read “Precautions” and other safety precautions listed in the printed version catalog.*
### DIP Noise Filters

**D-03C, 03C1, 05N1, 07C1, 08C2, 08C2A**

[RoHS Compliant]

<table>
<thead>
<tr>
<th>Model</th>
<th>Circuit diagram</th>
<th>Number of terminals/Circuits</th>
<th>Rated voltage DC (V)</th>
<th>Rated current DC (mA/Line)</th>
<th>DC resistance (mΩ/Line) max.</th>
<th>Operating temperature range (˚C)</th>
</tr>
</thead>
<tbody>
<tr>
<td>D-03C</td>
<td><img src="image" alt="Circuit Diagram" /></td>
<td>4 cores 16P/2 circuits x 4</td>
<td>Common mode</td>
<td>50</td>
<td>150</td>
<td>75</td>
</tr>
<tr>
<td>D-03C1</td>
<td><img src="image" alt="Circuit Diagram" /></td>
<td>6 cores 16P/8 circuits</td>
<td>Normal mode</td>
<td>50</td>
<td>100</td>
<td>150</td>
</tr>
<tr>
<td>D-05N1</td>
<td><img src="image" alt="Circuit Diagram" /></td>
<td>6 cores 16P/8 circuits</td>
<td>Normal mode</td>
<td>50</td>
<td>100</td>
<td>10</td>
</tr>
<tr>
<td>D-07C1</td>
<td><img src="image" alt="Circuit Diagram" /></td>
<td>1 core 16P/8 circuits</td>
<td>Common mode</td>
<td>50</td>
<td>300</td>
<td>100</td>
</tr>
<tr>
<td>D-08C2</td>
<td><img src="image" alt="Circuit Diagram" /></td>
<td>1 core 8P/4 circuits</td>
<td>Common mode</td>
<td>50</td>
<td>2300</td>
<td>25</td>
</tr>
<tr>
<td>D-08C2A</td>
<td><img src="image" alt="Circuit Diagram" /></td>
<td>1 core 8P/4 circuits</td>
<td>Common mode</td>
<td>50</td>
<td>500</td>
<td>70</td>
</tr>
</tbody>
</table>

- Withstanding voltage: 200VDC (one minute, between lines)
- Insulation resistance: more than 10MΩ (100VDC, between lines)

### Shape and Dimensions

- **D-03C, 03C1**:
  - 12.5 max.
  - 60.6 ±0.25
  - 15.8 ±0.25
  - 4.0 min.

- **D-05N1**: 12.5 max.
- **D-07C1**: 25.5 max.
- **D-08C2**: 21 max.
- **D-08C2A**: 16 max.

---

**Note:**
- All specifications in this catalog and production status of products are subject to change without notice. Prior to the purchase, please contact TOKIN for updated product data.
- Please request for a specification sheet for detailed product data prior to the purchase.
- Before using the product in this catalog, please read "Precautions" and other safety precautions listed in the printed version catalog.
DIP Type
Common Mode Signal Line

Impedance vs. Frequency

![Impedance vs. Frequency Graph]

DC Line Filters VOL.12
10
DIP Noise Filters
D-16C
[RoHS Compliant]

<table>
<thead>
<tr>
<th>Model</th>
<th>Circuit diagram</th>
<th>Number of terminals/Circuits</th>
<th>Rated voltage DC (V)</th>
<th>Rated current DC (mA/Line)</th>
<th>DC resistance (mΩ/Line) max.</th>
<th>Operating temperature range (°C)</th>
</tr>
</thead>
<tbody>
<tr>
<td>D-16C</td>
<td><img src="image" alt="Circuit Diagram" /></td>
<td>6P/4 circuits Common mode</td>
<td>50</td>
<td>100</td>
<td>50</td>
<td>-20~+70</td>
</tr>
</tbody>
</table>

* Withstanding voltage: 200VDC (one minute, between lines)  
* Insulation resistance: more than 10MΩ (100VDC, between lines)

Shape and Dimensions

![Shape and Dimensions Diagram](image)

Impedance vs. Frequency

![Impedance vs. Frequency Graph](image)
DIP Noise Filters
D-37C, 40C, 42C, 45C, 47C
[RoHS Compliant]

<table>
<thead>
<tr>
<th>Model</th>
<th>Circuit diagram</th>
<th>Number of terminals/Circuits</th>
<th>Rated voltage DC (V)</th>
<th>Rated current DC (mA/Line)</th>
<th>DC resistance (mΩ/Line) max.</th>
<th>Operating temperature range (˚C)</th>
</tr>
</thead>
<tbody>
<tr>
<td>D-37C</td>
<td><img src="image1" alt="Circuit Diagram" /></td>
<td>1 core 20P/10 circuits Common mode</td>
<td>50</td>
<td>300</td>
<td>200</td>
<td>-20~+70</td>
</tr>
<tr>
<td>D-40C</td>
<td><img src="image2" alt="Circuit Diagram" /></td>
<td>1 core 6P/3 circuits Common mode</td>
<td>50</td>
<td>300</td>
<td>200</td>
<td>-20~+70</td>
</tr>
<tr>
<td>D-42C</td>
<td><img src="image3" alt="Circuit Diagram" /></td>
<td>1 core 10P/5 circuits Common mode</td>
<td>50</td>
<td>300</td>
<td>200</td>
<td>-20~+70</td>
</tr>
<tr>
<td>D-45C</td>
<td><img src="image4" alt="Circuit Diagram" /></td>
<td>1 core 16P/8 circuits Common mode</td>
<td>50</td>
<td>300</td>
<td>150</td>
<td>-20~+70</td>
</tr>
<tr>
<td>D-47C</td>
<td><img src="image5" alt="Circuit Diagram" /></td>
<td>1 core 20P/10 circuits Common mode</td>
<td>50</td>
<td>300</td>
<td>200</td>
<td>-20~+70</td>
</tr>
</tbody>
</table>

* Withstanding voltage: 200VDC (one minute, between lines)  
* Insulation resistance: more than 10MΩ (100VDC, between lines)

Shape and Dimensions

![Shape Diagram](image6)

DC Line Filters VOL.12
12

⚠️ All specifications in this catalog and production status of products are subject to change without notice. Prior to the purchase, please contact TOKIN for updated product data.

⚠️ Please request for a specification sheet for detailed product data prior to the purchase.

⚠️ Before using the product in this catalog, please read “Precautions” and other safety precautions listed in the printed version catalog.
Impedance vs. Frequency

DC Line Filters VOL.12

DIP Type

Common Mode Signal Line

- All specifications in this catalog and production status of products are subject to change without notice. Prior to the purchase, please contact TOKIN for updated product data.
- Please request for a specification sheet for detailed product data prior to the purchase.
- Before using the product in this catalog, please read “Precautions” and other safety precautions listed in the printed version catalog.
DIP Noise Filters
D-55C, 58C
[RoHS Compliant]

<table>
<thead>
<tr>
<th>Model</th>
<th>Circuit diagram</th>
<th>Number of terminals/Circuits</th>
<th>Rated voltage DC (V)</th>
<th>Rated current DC (mA/Line)</th>
<th>DC resistance (mΩ/Line) max.</th>
<th>Operating temperature range (°C)</th>
</tr>
</thead>
<tbody>
<tr>
<td>D-55C</td>
<td><img src="image1" alt="Circuit Diagram" /></td>
<td>10P15 circuits Common mode</td>
<td>50</td>
<td>300</td>
<td>200</td>
<td>-20 to +70</td>
</tr>
<tr>
<td>D-58C</td>
<td><img src="image2" alt="Circuit Diagram" /></td>
<td>16P18 circuits Common mode</td>
<td>50</td>
<td>300</td>
<td>200</td>
<td>-20 to +70</td>
</tr>
</tbody>
</table>

Withstanding voltage: 200VDC (one minute, between lines)  
Insulation resistance: more than 10MΩ (100VDC, between lines)

Shape and Dimensions

<table>
<thead>
<tr>
<th>Model</th>
<th>Number of Circuits</th>
<th>ℓ</th>
<th>L</th>
</tr>
</thead>
<tbody>
<tr>
<td>D-55C</td>
<td>5</td>
<td>10.16</td>
<td>18 max.</td>
</tr>
<tr>
<td>D-58C</td>
<td>8</td>
<td>17.78</td>
<td>25 max.</td>
</tr>
</tbody>
</table>

Impedance vs. Frequency

---

DC Line Filters VOL.12

![Image](image3)
Noise Filters for Telephone Sets
ST-101, 201, 202, 202S
[RoHS Compliant]

<table>
<thead>
<tr>
<th>Model</th>
<th>Frequency range (MHz)</th>
<th>Impedance (kΩ) min.</th>
<th>Rated voltage DC (V)</th>
<th>Rated current (mA)</th>
<th>DC resistance (Ω/mΩ/Line) max.</th>
<th>Operating temperature range (˚C)</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>ST-101</td>
<td>0.5~7</td>
<td>3 (at 0.5 MHz)</td>
<td>50</td>
<td>200</td>
<td>180</td>
<td>−20~+75</td>
<td>AM band</td>
</tr>
<tr>
<td>ST-201</td>
<td>7~40</td>
<td>1.5 (at 7 MHz)</td>
<td>50</td>
<td>200</td>
<td>100</td>
<td>−20~+75</td>
<td>FM band</td>
</tr>
<tr>
<td>ST-202</td>
<td>7~100</td>
<td>0.6 (at 100 MHz)</td>
<td>50</td>
<td>1000</td>
<td>40</td>
<td>−20~+75</td>
<td>FM band</td>
</tr>
<tr>
<td>ST-202S</td>
<td>7~100</td>
<td>0.6 (at 100 MHz)</td>
<td>50</td>
<td>1000</td>
<td>35</td>
<td>−20~+75</td>
<td>FM band</td>
</tr>
</tbody>
</table>

* Withstanding voltage: 500VDC (one minute, between lines)  
* Insulation resistance: more than 10MΩ (250VDC, between lines)  
* Recommended soldering conditions: 350x10˚C, 2 to 3 sec.

Shape and Dimensions/Circuit Diagram

Installation Examples

- Installation at rosette or circuit input/output
- Insertion in Driver/Receive circuit in telephone

Design Examples

- ST, LFT, HFT

Impedance vs. Frequency

DC Line Filters VOL.12

All specifications in this catalog and production status of products are subject to change without notice. Prior to the purchase, please contact TOKIN for updated product data.
Please request for a specification sheet for detailed product data prior to the purchase.
Before using the product in this catalog, please read "Precautions" and other safety precautions listed in the printed version catalog.
Noise Filters for Telephone Sets
ST-101A, 201A, 202A
[RoHS Compliant]

<table>
<thead>
<tr>
<th>Model</th>
<th>Frequency range (MHz)</th>
<th>Impedance (kΩ) min.</th>
<th>Rated voltage DC (V)</th>
<th>Rated current (mA)</th>
<th>DC resistance (mΩ/Line) max.</th>
<th>Operating temperature range (°C)</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>ST-101A</td>
<td>0.5~7</td>
<td>3</td>
<td>50</td>
<td>200</td>
<td>250</td>
<td>–20~+65</td>
<td>AM band</td>
</tr>
<tr>
<td>ST-201A</td>
<td>7~40</td>
<td>1.5</td>
<td>50</td>
<td>200</td>
<td>150</td>
<td>–20~+65</td>
<td>FM band</td>
</tr>
<tr>
<td>ST-202A</td>
<td>7~100</td>
<td>0.6</td>
<td>50</td>
<td>1000</td>
<td>50</td>
<td>–20~+65</td>
<td>FM band</td>
</tr>
</tbody>
</table>

- Withstanding voltage: 500VDC (one minute, between lines)
- Insulation resistance: more than 10MΩ (100VDC, between lines)

Shape and Dimensions/Circuit Diagram

Installation Examples

Design Examples

Impedance vs. Frequency
# Noise Filters for Telephone Sets

**ST-110AV, 110AH, 110BV, 110BH**

[RoHS Compliant]

<table>
<thead>
<tr>
<th>Model</th>
<th>Frequency range (MHz)</th>
<th>Impedance (kΩ) min.</th>
<th>Rated voltage DC (V)</th>
<th>Rated current (mA)</th>
<th>DC resistance (Ω/Line) max.</th>
<th>Operating temperature range (˚C)</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>ST-110AV</td>
<td>0.5~7</td>
<td>27</td>
<td>50</td>
<td>300</td>
<td>3</td>
<td>–20~+75</td>
<td>AM band</td>
</tr>
<tr>
<td>ST-110AH</td>
<td>0.5~7</td>
<td>27</td>
<td>50</td>
<td>300</td>
<td>3</td>
<td>–20~+75</td>
<td>AM band</td>
</tr>
<tr>
<td>ST-110BV</td>
<td>0.5~7 (Resonant)</td>
<td>150</td>
<td>50</td>
<td>150</td>
<td>7.5</td>
<td>–20~+75</td>
<td>AM band</td>
</tr>
<tr>
<td>ST-110BH</td>
<td>0.5~7</td>
<td>150 (Resonant)</td>
<td>50</td>
<td>150</td>
<td>7.5</td>
<td>–20~+75</td>
<td>AM band</td>
</tr>
</tbody>
</table>

*Withstanding voltage: 500VDC (one minute, between lines)  * Insulation resistance: more than 10MΩ (250VDC, between lines)

## Shape and Dimensions/Circuit Diagram

**ST-110AV, ST-110BV**

- Installation Examples
  - Telephone set
  - Terminal (facsimile, card reader, etc)
  - Installed filter
  - Rosette
  - Installation position
  - Telephone line
  - Line terminal unit

**ST-110AH, ST-110BH**

- Design Examples
  - Insertion at rosette or circuit input/output
  - ST, LFT, HFT
  - Installation at rosette or circuit input/output
  - Telephone line

## Impedance vs. Frequency

![Impedance vs. Frequency Graph](image)

---

**DC Line Filters VOL.12**

17

---

- All specifications in this catalog and production status of products are subject to change without notice. Prior to the purchase, please contact TOKIN for updated product data.
- Please request for a specification sheet for detailed product data prior to the purchase.
- Before using the product in this catalog, please read "Precautions" and other safety precautions listed in the printed version catalog.
Noise Filters for Telephone Sets
ST-101F2, 101F4
[RoHS Compliant]

<table>
<thead>
<tr>
<th>Model</th>
<th>Frequency range (MHz)</th>
<th>Impedance (kΩ) min.</th>
<th>Rated voltage DC (V)</th>
<th>Rated current (mA)</th>
<th>DC resistance (ΩLine) max.</th>
<th>Operating temperature range (˚C)</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>ST-101F2</td>
<td>0.5–7</td>
<td>40 (at 600 kHz)</td>
<td>50</td>
<td>200</td>
<td>2.7</td>
<td>–20–+75</td>
<td>AM band</td>
</tr>
<tr>
<td>ST-101F4</td>
<td>0.5–7</td>
<td>60 (at 600 kHz)</td>
<td>50</td>
<td>200</td>
<td>3.5</td>
<td>–20–+75</td>
<td>AM band</td>
</tr>
</tbody>
</table>

*Withstanding voltage: 500VDC (one minute, between lines)  *Insulation resistance: more than 10MΩ (250VDC between lines)

Shape and Dimensions/Circuit Diagram

Installation Examples

Design Examples

Impedance vs. Frequency
# Noise Filters for Telephone Sets

**ST-104A4, 204A Series**

[RoHS Compliant]

<table>
<thead>
<tr>
<th>Model</th>
<th>Frequency range (MHz)</th>
<th>Impedance (kΩ) min.</th>
<th>Rated voltage DC (V)</th>
<th>Rated current (mA)</th>
<th>DC resistance (Ω/Line) max</th>
<th>Operating temperature range (°C)</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>ST-104A4</td>
<td>0.5~7</td>
<td>3.0</td>
<td>50</td>
<td>500</td>
<td>0.36</td>
<td>–20~+75</td>
<td>AM band</td>
</tr>
<tr>
<td>ST-204A1</td>
<td>7~100</td>
<td>0.25</td>
<td>50</td>
<td>500</td>
<td>0.10</td>
<td>–20~+75</td>
<td>FM band</td>
</tr>
<tr>
<td>ST-204A3</td>
<td>7~40</td>
<td>1.0</td>
<td>50</td>
<td>500</td>
<td>0.17</td>
<td>–20~+75</td>
<td>FM band</td>
</tr>
<tr>
<td>ST-204A4</td>
<td>7~40</td>
<td>0.6</td>
<td>(at 7 MHz) REF</td>
<td>50</td>
<td>0.12</td>
<td>–20~+75</td>
<td>FM band</td>
</tr>
</tbody>
</table>

• Withstanding voltage: 500VDC (one minute, between lines)
• Insulation resistance: more than 10MΩ (250VDC, between lines)

---

**DC Line Filters VOL.12**

---

**Installation Examples**

- Telephone set
- Terminal (fax machine, card reader, etc)
- Installed filter:
  - ST-201
  - ST-101
  - ST-201A
  - ST-101A
  - ST-202
  - ST-102
  - ST-202A
  - ST-102A
  - ST-203
  - ST-103
  - ST-204
  - ST-104
  - ST-110A
  - ST-204A1
  - ST-204A3
  - ST-204A4
  - ST-202S
  - ST-104A4
  - ST-204A1
  - ST-204A3
  - ST-204A4

**Design Examples**

1. Installation at rosette or circuit input/output
2. Insertion in Driver/Receiver circuit in telephone

**Impedance vs. Frequency**

---

**Precautions**

- All specifications in this catalog and production status of products are subject to change without notice. Prior to the purchase, please contact TOKIN for updated product data.
- Please request a specification sheet for detailed product data prior to the purchase.
- Before using the product in this catalog, please read “Precautions” and other safety precautions listed in the printed version catalog.
SBT Series
[RoHS Compliant]

<table>
<thead>
<tr>
<th>Model</th>
<th>Rated voltage DC (V)</th>
<th>Rated current (mA)</th>
<th>Inductance (1kHz, 70mA) (µH)</th>
<th>DC resistance (mΩ) max.</th>
<th>Operating temperature range (°C)</th>
<th>Packaging</th>
</tr>
</thead>
<tbody>
<tr>
<td>SBT-0206</td>
<td>50</td>
<td>500</td>
<td>8±50%</td>
<td>20</td>
<td>-25~+70</td>
<td>Bulk (100pcs.)</td>
</tr>
<tr>
<td>SBT-0210</td>
<td>50</td>
<td>500</td>
<td>10±50%</td>
<td>20</td>
<td>-25~+70</td>
<td></td>
</tr>
<tr>
<td>SBT-0240</td>
<td>50</td>
<td>500</td>
<td>40±35%</td>
<td>34</td>
<td>-25~+70</td>
<td></td>
</tr>
<tr>
<td>SBT-0260</td>
<td>50</td>
<td>500</td>
<td>60±35%</td>
<td>50</td>
<td>-25~+70</td>
<td></td>
</tr>
</tbody>
</table>

* Taping (2000 pcs./ reel x 6); Flat taping (1000 pcs./ box x 10)

Shape and Dimensions

![Diagram of SBT Series](image)

**Impedance vs. Frequency**

DC Line Filters VOL.12

20

⚠️ All specifications in this catalog and production status of products are subject to change without notice. Prior to the purchase, please contact TOKIN for updated product data.

⚠️ Please request for a specification sheet for detailed product data prior to the purchase.

⚠️ Before using the product in this catalog, please read "Precautions" and other safety precautions listed in the printed version catalog.
SNT Series
[RoHS Compliant]

Tape and Reel Dimensions (see page 28)

<table>
<thead>
<tr>
<th>Model</th>
<th>Rated current* (A)</th>
<th>Inductance (µH) min.</th>
<th>DC resistance (mΩ) max.</th>
<th>Operating temperature range (°C)</th>
<th>Packaging</th>
</tr>
</thead>
<tbody>
<tr>
<td>SNT-S10D</td>
<td>3.0</td>
<td>1.5</td>
<td>25</td>
<td>-20~+60</td>
<td>Bulk (100pcs.)</td>
</tr>
<tr>
<td>SNT-S30D</td>
<td>1.5</td>
<td>6</td>
<td>25</td>
<td>-20~+60</td>
<td></td>
</tr>
<tr>
<td>SNT-S30D</td>
<td>0.5</td>
<td>13</td>
<td>95</td>
<td>-20~+60</td>
<td></td>
</tr>
<tr>
<td>SNT-D10D</td>
<td>3.0</td>
<td>2.5</td>
<td>25</td>
<td>-20~+60</td>
<td></td>
</tr>
<tr>
<td>SNT-D20D</td>
<td>1.5</td>
<td>10</td>
<td>45</td>
<td>-20~+60</td>
<td></td>
</tr>
<tr>
<td>SNT-D30D</td>
<td>0.5</td>
<td>20</td>
<td>50</td>
<td>-20~+60</td>
<td></td>
</tr>
</tbody>
</table>

*The rated current is for the wire and it is different from the inductance guaranteeing values.

Taping (1000 pcs./ reel) • Flat taping (SNT-S type: 1000 pcs./ reel), (SNT-D type: 500 pcs./ reel)

Shape and Dimensions

Design Examples

For noise suppression in the secondary low-voltage power supply circuit

Impedance vs. Frequency

Model Packaging

Operating temperature range (°C)

Rated current* (A)

Inductance (µH) min.

DC resistance (mΩ) max.

-20~+60

6.0 max. (D type)

5.0 max. (S type)

12.7 max.

5.0±0.2

5.0±1.0

9.5 max. (ø0.5)

Impedance vs. Frequency

DC power supply circuits

All specifications in this catalog and production status of products are subject to change without notice. Prior to the purchase, please contact TOKIN for updated product data.

Please request for a specification sheet for detailed product data prior to the purchase.

Before using the product in this catalog, please read “Precautions” and other safety precautions listed in the printed version catalog.
**Bead Inductors (Lead Type)**

**[RoHS Compliant]**

<table>
<thead>
<tr>
<th>Model</th>
<th>Rated current DC (A)</th>
<th>Impedance (Ω)</th>
<th>Operating temperature range (°C)</th>
</tr>
</thead>
<tbody>
<tr>
<td>B-01-Series</td>
<td>2 (at 1 MHz)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>B-02-Series</td>
<td>5 (at 1 MHz)</td>
<td>4 (at 1 MHz)</td>
<td>-20 ~ +70</td>
</tr>
<tr>
<td>B-03-Series</td>
<td>5 (at 1 MHz)</td>
<td>3 (at 1 MHz)</td>
<td></td>
</tr>
<tr>
<td>B-06-Series</td>
<td>40 (at 10 MHz)</td>
<td>40 (at 10 MHz)</td>
<td></td>
</tr>
</tbody>
</table>

Note: Rated current values are not guaranteed by impedance levels; these values are permissible levels when the lead wire temperature rise is 20°C.

<table>
<thead>
<tr>
<th>Model</th>
<th>Shape</th>
<th>Packaging</th>
</tr>
</thead>
<tbody>
<tr>
<td>B-01-R</td>
<td>Single-bead, radial-lead</td>
<td>Bulk type (100 pcs./bag)</td>
</tr>
<tr>
<td>B-01-RT</td>
<td>Single-bead, radial-lead</td>
<td>Tape type (2000 pcs./reel)</td>
</tr>
<tr>
<td>B-01-RF</td>
<td>Single-bead, radial-lead</td>
<td>Tape type (2000 pcs./box)</td>
</tr>
<tr>
<td>B-01-RS</td>
<td>Single-bead, radial-lead</td>
<td>Bulk type (100 pcs./bag)</td>
</tr>
<tr>
<td>B-01-RTS</td>
<td>Single-bead, radial-lead</td>
<td>Tape type (2000 pcs./reel)</td>
</tr>
<tr>
<td>B-01-RS</td>
<td>Single-bead, axial-lead</td>
<td>Bulk type (100 pcs./bag)</td>
</tr>
<tr>
<td>B-01-A1</td>
<td>Single-bead, axial-lead</td>
<td>Bulk type (200 pcs./bag)</td>
</tr>
<tr>
<td>B-01-A2</td>
<td>Single-bead, axial-lead</td>
<td>Bulk type (250 pcs./bag)</td>
</tr>
<tr>
<td>B-01-AT</td>
<td>Single-bead, axial-lead</td>
<td>Tape type (5000 pcs./reel)</td>
</tr>
<tr>
<td>B-01-ATF</td>
<td>Single-bead, axial-lead</td>
<td>Tape type (1000 pcs./box)</td>
</tr>
<tr>
<td>B-01-ATF</td>
<td>Single-bead, axial-lead</td>
<td>Tape type (1000 pcs./box)</td>
</tr>
<tr>
<td>B-02-R</td>
<td>Double-bead, radial-lead</td>
<td>Bulk type (100 pcs./bag)</td>
</tr>
<tr>
<td>B-02-RT</td>
<td>Double-bead, radial-lead</td>
<td>Tape type (2000 pcs./reel)</td>
</tr>
<tr>
<td>B-02-RF</td>
<td>Double-bead, radial-lead</td>
<td>Tape type (1000 pcs./box)</td>
</tr>
<tr>
<td>B-03-R</td>
<td>Double-bead, radial-lead</td>
<td>Tape type (2000 pcs./reel)</td>
</tr>
<tr>
<td>B-03-R</td>
<td>Double-bead, radial-lead</td>
<td>Tape type (1000 pcs./box)</td>
</tr>
<tr>
<td>B-06-R-25</td>
<td>Double-bead, radial-lead</td>
<td>Bulk type (100 pcs./bag)</td>
</tr>
<tr>
<td>B-06-R-25</td>
<td>Double-bead, radial-lead</td>
<td>Bulk type (1000 pcs./ree)</td>
</tr>
<tr>
<td>B-06-R-50</td>
<td>Double-bead, radial-lead</td>
<td>Bulk type (1000 pcs./box)</td>
</tr>
<tr>
<td>B-06-R-50</td>
<td>Double-bead, radial-lead</td>
<td>Bulk type (1500 pcs./box)</td>
</tr>
</tbody>
</table>

**DC Line Filters VOL.12**

- All specifications in this catalog and production status of products are subject to change without notice. Prior to the purchase, please contact TOKIN for updated product data.
- Please request for a specification sheet for detailed product data prior to the purchase.
- Before using the product in this catalog, please read "Precautions" and other safety precautions listed in the printed version catalog.
DIP Type

Shape and Dimensions

- **B-01-R Series**
  - Normal Mode
  - 6.0 max.
  - ø0.65
  - Tin coated soft copper wire

- **B-02-R Series**
  - Normal Mode
  - 10.5 max.
  - ø0.65
  - Tin coated soft copper wire

- **B-06-R-25 Series**
  - Normal Mode
  - 7.0 max.
  - ø0.65
  - Tin coated soft copper wire

- **B-01-RS Series**
  - Normal Mode
  - 8.0 max.
  - ø0.65
  - Tin coated soft copper wire

- **B-03-R Series**
  - Normal Mode
  - 8.5 max.
  - ø0.65
  - Tin coated soft copper wire

- **B-06-R-50 Series**
  - Normal Mode
  - 7.0 max.
  - ø0.65
  - Tin coated soft copper wire

- **B-01-A Series**
  - Normal Mode
  - 6.0 max.
  - ø0.65
  - Tin coated soft copper wire

- **B-01-A1**
  - Normal Mode
  - 12.5x0.8
  - ø0.65
  - Tin coated soft copper wire

- **B-01-A2**
  - Normal Mode
  - 10x0.8
  - ø0.65
  - Tin coated soft copper wire

---

⚠️ All specifications in this catalog and production status of products are subject to change without notice. Prior to the purchase, please contact TOKIN for updated product data.

⚠️ Please request for a specification sheet for detailed product data prior to the purchase.

⚠️ Before using the product in this catalog, please read "Precautions" and other safety precautions listed in the printed version catalog.
Tape and Reel Dimensions

● B-01-RT • RTF

● B-02-RT • RTF/B-03-RT

● B-01-RTS • RTSF

● B-06-RTF-25

● B-01-AT • ATF

● B-06-RTF-50

● B-01-AT1F

DC Line Filters VOL.12

24

⚠️ All specifications in this catalog and production status of products are subject to change without notice. Prior to the purchase, please contact TOKIN for updated product data.

⚠️ Please request for a specification sheet for detailed product data prior to the purchase.

⚠️ Before using the product in this catalog, please read "Precautions" and other safety precautions listed in the printed version catalog.
### Bead Inductors (Winding Type)

**[RoHS Compliant]**

<table>
<thead>
<tr>
<th>Model</th>
<th>Rated current DC(A)</th>
<th>Core</th>
<th>Wire</th>
<th>No. of turns</th>
</tr>
</thead>
<tbody>
<tr>
<td>B-1</td>
<td>1.5</td>
<td>B-20F-28</td>
<td>Teflon wire (ø0.26 : single) / Color: White</td>
<td>2T</td>
</tr>
<tr>
<td>B-3</td>
<td>3.5</td>
<td>B-20L-48B</td>
<td>Teflon wire (ø0.51 : single) / Color: Red</td>
<td>2T</td>
</tr>
<tr>
<td>B-4</td>
<td>1.5</td>
<td>B-20L-44</td>
<td>Teflon wire (ø0.26 : single) / Color: White</td>
<td>2T</td>
</tr>
<tr>
<td>B-5</td>
<td>1.5</td>
<td>B-20L-44</td>
<td>Teflon wire (ø0.26 : single) / Color: White</td>
<td>3T</td>
</tr>
<tr>
<td>B-7</td>
<td>2.5</td>
<td>B-20F-28</td>
<td>Teflon wire (ø0.32 : single) / Color: Green</td>
<td>2T</td>
</tr>
<tr>
<td>B-8</td>
<td>2.5</td>
<td>B-20L-48B</td>
<td>Teflon wire (ø0.4 : single) / Color: Blue</td>
<td>2T</td>
</tr>
<tr>
<td>B-9</td>
<td>2.5</td>
<td>B-20L-44</td>
<td>Teflon wire (ø0.4 : single) / Color: Yellow</td>
<td>3T</td>
</tr>
<tr>
<td>B-10</td>
<td>2.5</td>
<td>B-20L-48B</td>
<td>Teflon wire (ø0.4 : single) / Color: Black</td>
<td>4T</td>
</tr>
<tr>
<td>B-6-22B</td>
<td>2.0</td>
<td>—</td>
<td>Soft copper wire (ø0.6)</td>
<td>—</td>
</tr>
<tr>
<td>B-6-31B</td>
<td>2.0</td>
<td>—</td>
<td>Soft copper wire (ø0.6)</td>
<td>—</td>
</tr>
</tbody>
</table>

Note: Rated current values are not guaranteed by impedance levels; these values are permissible levels when the lead wire temperature rise is 20°C.

### Shape and Dimensions

- **B-6-22B**
  - (Clock pulse oscillating section)
  - Model [a] [b] [c]
    - B-1 5.5 5 9
    - B-3 8 5 9
    - B-4 10.5 5 9
    - B-5 11 5 9
    - B-7 6 5 9

- **B-6-31B**
  - Model [a] [b] [c]
    - B-1,3,4,5,7 6 [max.] 5 [max.] 9
    - B-8,9,10 [max.] 8 [max.] 5 [max.] 9

### DC Line Filters VOL.12

25
DIP Type

Normal Mode

Impedance vs. Frequency

B-1

B-3

B-4

B-5

B-7

B-8

B-9

B-10

B-6-22B

B-6-31B

Impedance vs. Frequency

DC Line Filters VOL.12

26

⚠️

All specifications in this catalog and production status of products are subject to change without notice. Prior to the purchase, please contact TOKIN for updated product data.

Please request for a specification sheet for detailed product data prior to the purchase.

Before using the product in this catalog, please read "Precautions" and other safety precautions listed in the printed version catalog.
**DFD Series**

[RoHS Compliant]

<table>
<thead>
<tr>
<th>Model</th>
<th>Rated voltage DC (V)</th>
<th>Rated current DC (A)</th>
<th>DC resistance (mΩ) max.</th>
<th>Operating temperature range (°C)</th>
</tr>
</thead>
<tbody>
<tr>
<td>DFD-104P</td>
<td>50</td>
<td>2.0</td>
<td>100</td>
<td>-25 to 85</td>
</tr>
<tr>
<td>DFD-104S</td>
<td>50</td>
<td>2.0</td>
<td>100</td>
<td>-25 to 85</td>
</tr>
</tbody>
</table>

- Withstanding voltage: 125VDC, 5 sec. between terminal 1 and 2
- Insulation resistance: more than 500MΩ (100VDC, one minute)

---

**Shape and Dimensions/Circuit Diagram**

- **DFD-104P**
  - 11 max.
  - 43
  - 12
  - 104 (ø0.5)
  - 8.5 max.
  - 5.08±0.3

- **DFD-104S**
  - 16 max.
  - 104 (ø0.5)
  - 8.5 max.
  - 5.08±0.3

---

**Attenuation Characteristics**

- Output Impedance and Input Impedance: 50Ω

---

⚠️

- All specifications in this catalog and production status of products are subject to change without notice. Prior to the purchase, please contact TOKIN for updated product data.
- Please request for a specification sheet for detailed product data prior to the purchase.
- Before using the product in this catalog, please read “Precautions” and other safety precautions listed in the printed version catalog.
**Tape and Reel Dimensions**

**SBT Series**

Tape and Reel Dimensions

![SBT Series Tape and Reel Dimensions Diagram]

**SNT Series**

Tape and Reel Dimensions

![SNT Series Tape and Reel Dimensions Diagram]
# SBS9080 Series

[RoHS Compliant]

<table>
<thead>
<tr>
<th>Model</th>
<th>Rated voltage DC (V)</th>
<th>Rated current DC (A)</th>
<th>Inductance (at 100KHz) [µH] min.</th>
<th>DC resistance (mΩ/Line) max.</th>
<th>Operating temperature range (˚C)</th>
</tr>
</thead>
<tbody>
<tr>
<td>SBS9080-509T</td>
<td>50</td>
<td>5.0</td>
<td>0.9</td>
<td>15</td>
<td>-25~+50</td>
</tr>
<tr>
<td>SBS9080-524T</td>
<td>50</td>
<td>5.0</td>
<td>2.4</td>
<td>15</td>
<td>-25~+50</td>
</tr>
</tbody>
</table>

- Withstanding voltage: 125V DC for one minute between lines
- Insulation resistance: More than 100MΩ (100V DC, between lines)

## Tape and Reel Dimensions

- (see page 36)

## Precautions

- (see page 35)

## Shape and Dimensions

![Shape and Dimensions Diagram]

## Circuit Diagram

![Circuit Diagram]

## Recommended Land Pattern

![Recommended Land Pattern]

## Impedance vs. Frequency

![Impedance vs. Frequency Graph]

---

**SBS9080 Series**

**[RoHS Compliant]**

- Tape and Reel Dimensions (see page 36)
- Precautions (see page 35)

---

**SBS9080 Series**

**[RoHS Compliant]**

- Tape and Reel Dimensions (see page 36)
- Precautions (see page 35)
SBP Series
[RoHS Compliant]

Tape and Reel Dimensions (see page 36)  Precautions (see page 35)

<table>
<thead>
<tr>
<th>Model</th>
<th>Rated voltage DC (V)</th>
<th>Rated current DC (A)</th>
<th>Impedance (at 100MHz) (Ω) min.</th>
<th>DC resistance (mΩ/Line) max.</th>
<th>Operating temperature range (˚C)</th>
</tr>
</thead>
<tbody>
<tr>
<td>SBP-5001T</td>
<td>50</td>
<td>5.0</td>
<td>500</td>
<td>7</td>
<td>−25~+70</td>
</tr>
</tbody>
</table>

Withstanding voltage: 200V DC for one minute between lines  Insulation resistance: More than 10MΩ DC, between lines

Shape and Dimensions

Circuit Diagram

Recommended Land Pattern

Impedance vs. Frequency

DC Line Filters VOL.12

30

*All specifications in this catalog and production status of products are subject to change without notice. Prior to the purchase, please contact TOKIN for updated product data.
*Please request for a specification sheet for detailed product data prior to the purchase.
*Before using the product in this catalog, please read “Precautions” and other safety precautions listed in the printed version catalog.
DCM Series

**[RoHS Compliant]**

- Tape and Reel Dimensions (see page 36)
- Precautions (see page 35)

### Model Specifications

<table>
<thead>
<tr>
<th>Model</th>
<th>Rated voltage (V)</th>
<th>Rated current (A)</th>
<th>LμH(min)</th>
<th>Rdc(mΩ)max</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>DCM5-01</td>
<td>50</td>
<td>0.2</td>
<td>2540</td>
<td>3180</td>
<td>EES</td>
</tr>
<tr>
<td>DCM5-02</td>
<td>50</td>
<td>0.5</td>
<td>520</td>
<td>510</td>
<td>EES</td>
</tr>
<tr>
<td>DCM5-03</td>
<td>50</td>
<td>1.0</td>
<td>210</td>
<td>190</td>
<td>EES</td>
</tr>
<tr>
<td>DCM5-04</td>
<td>50</td>
<td>2.0</td>
<td>30</td>
<td>30</td>
<td>EES</td>
</tr>
</tbody>
</table>

*Inductance measurement condition: f = 10KHz/0.1V
Insulation resistance: more than 100MΩ(250V DC, 1min, between lines)
Operating temperature range(°C): -20 to 110 (includes the selftemp. rise.)
Look: By number-of-turns adjustment, to products other than the above-mentioned characteristic is also possible, please consult.
Common mode winding with section bobbin.
*Withstanding voltage: 250V DC for one minute between lines.

### Shape and Dimensions

**DCM5 Series**

![Shape and Dimensions Diagram](image)

### Recommended Land Pattern

**DCM5 Series**

![Recommended Land Pattern Diagram](image)

### Circuit Diagram

**DCM5 Series**

![Circuit Diagram](image)

---

DC Line Filters VOL.12

31
SMD Type
Common Mode Power Line

Impedance vs. Frequency

DCM5-01

DCM5-02

DCM5-03

DCM5-04

Impedance (Ω)

Frequency (MHz)

Impedance (Ω)

Frequency (MHz)

Impedance (Ω)

Frequency (MHz)

Impedance (Ω)

Frequency (MHz)

DC Line Filters VOL.12
32

⚠️ All specifications in this catalog and production status of products are subject to change without notice. Prior to the purchase, please contact TOKIN for updated product data.
⚠️ Please request for a specification sheet for detailed product data prior to the purchase.
⚠️ Before using the product in this catalog, please read “Precautions” and other safety precautions listed in the printed version catalog.
### EMC Chip Filters

#### M-500CT/M-600T Series

[RoHS Compliant]

- **M-500CT Series**

<table>
<thead>
<tr>
<th>Model</th>
<th>Rated voltage DC (V)</th>
<th>Rated current DC (A)</th>
<th>Impedance (Ω) min.</th>
<th>DC resistance (mΩ) max.</th>
<th>Operating temperature range (˚C)</th>
</tr>
</thead>
<tbody>
<tr>
<td>M-521CT</td>
<td>50</td>
<td>1.0</td>
<td>700 (at 10 MHz)</td>
<td>100</td>
<td>-25 to +85</td>
</tr>
<tr>
<td>M-522CT</td>
<td>50</td>
<td>1.0</td>
<td>200 (at 20 MHz)</td>
<td>100</td>
<td>-25 to +85</td>
</tr>
<tr>
<td>M-523CT</td>
<td>50</td>
<td>1.5</td>
<td>200 (at 20 MHz)</td>
<td>65</td>
<td>-25 to +85</td>
</tr>
<tr>
<td>M-524CT</td>
<td>50</td>
<td>0.5</td>
<td>700 (at 10 MHz)</td>
<td>100</td>
<td>-25 to +85</td>
</tr>
<tr>
<td>M-532CT</td>
<td>50</td>
<td>0.5</td>
<td>450 (at 100 MHz)</td>
<td>90</td>
<td>-25 to +85</td>
</tr>
<tr>
<td>M-538CT</td>
<td>50</td>
<td>0.1</td>
<td>800 (at 100 MHz)</td>
<td>220</td>
<td>-25 to +70</td>
</tr>
<tr>
<td>M-542CT</td>
<td>50</td>
<td>0.5</td>
<td>200 (at 10 MHz)</td>
<td>120</td>
<td>-20 to +75</td>
</tr>
<tr>
<td>M-543CT</td>
<td>50</td>
<td>1.0</td>
<td>700 (at 10 MHz)</td>
<td>100</td>
<td>-25 to +85</td>
</tr>
</tbody>
</table>

- **M-600T Series**

<table>
<thead>
<tr>
<th>Model</th>
<th>Rated voltage DC (V)</th>
<th>Rated current DC (A)</th>
<th>Impedance (Ω) min.</th>
<th>DC resistance (mΩ) max.</th>
<th>Operating temperature range (˚C)</th>
</tr>
</thead>
<tbody>
<tr>
<td>M-608T</td>
<td>50</td>
<td>0.1</td>
<td>300 (at 100 MHz)</td>
<td>80</td>
<td>-20 to +80</td>
</tr>
<tr>
<td>M-614T</td>
<td>50</td>
<td>0.1</td>
<td>1000 (at 50 MHz)</td>
<td>120</td>
<td>-20 to +80</td>
</tr>
<tr>
<td>M-620T</td>
<td>50</td>
<td>0.1</td>
<td>1000 (at 30 MHz)</td>
<td>160</td>
<td>-20 to +80</td>
</tr>
</tbody>
</table>

- **Shade and Dimensions**

San shot: M-521CT, M-522CT, M-523CT, M-524CT

San shot: M-532CT

San shot: M-538CT

San shot: M-542CT

San shot: M-543CT

San shot: M-608T, M-614T, M-620T

- **DC Line Filters VOL.12**

---

**Tape and Reel Compliant (see page 36-38)**  
**Precautions (see page 35)**

---

**M-500CT Series**

- Model: M-521CT, M-522CT, M-523CT, M-524CT
- Rated voltage DC (V): 50, 50, 50, 80
- Rated current DC (A): 1.0, 1.0, 1.5, 0.5
- Impedance (Ω) min.: 700 (at 10 MHz), 200 (at 20 MHz), 200 (at 20 MHz), 700 (at 10 MHz)
- DC resistance (mΩ) max.: 100, 100, 65, 100
- Operating temperature range (˚C): -25 to +85, -25 to +85, -25 to +85, -25 to +85

**M-600T Series**

- Model: M-608T, M-614T, M-620T
- Rated voltage DC (V): 50, 50, 50
- Rated current DC (A): 0.1, 0.1, 0.1
- Impedance (Ω) min.: 300 (at 100 MHz), 1000 (at 50 MHz), 1000 (at 30 MHz)
- DC resistance (mΩ) max.: 80, 120, 160
- Operating temperature range (˚C): -20 to +80, -20 to +80, -20 to +80

**Shape and Dimensions**

- M-521CT, M-522CT, M-523CT, M-524CT
- M-532CT
- M-538CT
- M-542CT
- M-543CT
- M-608T, M-614T, M-620T

---

**Insulation resistance: more than 10MΩ (100V DC, between lines)**

---

**All specifications in this catalog and production status of products are subject to change without notice. Prior to the purchase, please contact TOKIN for updated product data.**

**Please request a specification sheet for detailed product data prior to the purchase.**

**Before using the product in this catalog, please read "Precautions" and other safety precautions listed in the printed version catalog.**
SMD Type
Common Mode Signal Line

Circuit Diagram

- M-521CT, M-523CT, M-524CT
- M-532CT, M-538CT
- M-542CT
- M-543CT
- M-608T, M-614T, M-620T

Recommended Land Pattern

- M-521CT, M-522CT, M-523CT, M-524CT
- M-532CT, M-538CT
- M-542CT, M-543CT
- M-608T, M-614T, M-620T

Impedance vs. Frequency

- M-500CT Series
- M-600T Series

DC Line Filters VOL.12
34

⚠️ All specifications in this catalog and production status of products are subject to change without notice. Prior to the purchase, please contact TOKIN for updated product data.
⚠️ Please request for a specification sheet for detailed product data prior to the purchase.
⚠️ Before using the product in this catalog, please read "Precautions" and other safety precautions listed in the printed version catalog.
Precautions

Shelf Life

Use within 6 months. If the product is used after a storage period of 6 months or longer, confirm its solderability before use.

Recommended Soldering Conditions

- Soldering irons:
  Tip temperature: 350±5°C
  Duration of heat: approx. 4 seconds
- Flow soldering: not suitable
- Reflow soldering: Refer to the following temperature profile.
- Standard thickness of cream Solder = 150μm – 200μm.

Recommended reflow profile shown below are data obtained from reflow equipment used at TOKIN. The Solderability may differ greatly depending on reflow equipment type, reflow condition, land pattern area and the amount of cream Solder. Please check the solderability thoroughly before actual reflow operation.

Reflow Profile 1 (for SBP-5001T)

Reflow Profile 2 (for lead-free type)

⚠️ All specifications in this catalog and production status of products are subject to change without notice. Prior to the purchase, please contact TOKIN for updated product data.
⚠️ Please request for a specification sheet for detailed product data prior to the purchase.
⚠️ Before using the product in this catalog, please read “Precautions” and other safety precautions listed in the printed version catalog.
**Tape and Reel Dimensions**

**SBS9080 (1000pcs./reel)**

**Dimensions of indented square hole plastic tape**

<table>
<thead>
<tr>
<th>A</th>
<th>B</th>
<th>W</th>
<th>F</th>
<th>E</th>
<th>P1</th>
<th>P2</th>
<th>P3</th>
<th>D0</th>
<th>T1</th>
<th>T2</th>
<th>K</th>
</tr>
</thead>
<tbody>
<tr>
<td>±0.3</td>
<td>±0.3</td>
<td>±0.3</td>
<td>±0.1</td>
<td>±0.1</td>
<td>±0.1</td>
<td>±0.1</td>
<td>±0.1</td>
<td>0.2</td>
<td>0.2</td>
<td>0.6</td>
<td>0.2</td>
</tr>
<tr>
<td>9.5</td>
<td>10.5</td>
<td>16</td>
<td>7.6</td>
<td>1.76</td>
<td>12</td>
<td>2.0</td>
<td>4.0</td>
<td>1.5</td>
<td>0.6</td>
<td>7.2</td>
<td>7.0</td>
</tr>
</tbody>
</table>

**Reel dimensions**

<table>
<thead>
<tr>
<th>A</th>
<th>N</th>
<th>W1</th>
<th>W2</th>
</tr>
</thead>
<tbody>
<tr>
<td>±0.5</td>
<td>255</td>
<td></td>
<td></td>
</tr>
<tr>
<td>330</td>
<td>79</td>
<td>16</td>
<td>25</td>
</tr>
</tbody>
</table>

**SBP-5001T (1000pcs./reel)**

**Dimensions of indented square hole plastic tape**

<table>
<thead>
<tr>
<th>A</th>
<th>B</th>
<th>W</th>
<th>F</th>
<th>E</th>
<th>P1</th>
<th>P2</th>
<th>P3</th>
<th>D0</th>
<th>T1</th>
<th>T2</th>
<th>K</th>
</tr>
</thead>
<tbody>
<tr>
<td>±0.3</td>
<td>±0.3</td>
<td>±0.3</td>
<td>±0.1</td>
<td>±0.1</td>
<td>±0.1</td>
<td>±0.1</td>
<td>±0.1</td>
<td>0.2</td>
<td>0.2</td>
<td>0.6</td>
<td>0.2</td>
</tr>
<tr>
<td>9.5</td>
<td>10.5</td>
<td>16</td>
<td>7.6</td>
<td>1.76</td>
<td>12</td>
<td>2.0</td>
<td>4.0</td>
<td>1.5</td>
<td>0.6</td>
<td>7.2</td>
<td>7.0</td>
</tr>
</tbody>
</table>

**Reel dimensions**

<table>
<thead>
<tr>
<th>A</th>
<th>N</th>
<th>W1</th>
<th>W2</th>
</tr>
</thead>
<tbody>
<tr>
<td>±6t</td>
<td>255</td>
<td></td>
<td></td>
</tr>
<tr>
<td>330</td>
<td>79</td>
<td>16</td>
<td>25</td>
</tr>
</tbody>
</table>

**M-521CT/M-522CT/M-523CT/M-524CT (conforms to EIAJ RC-1009) (1500pcs./reel)**

**Dimensions of indented square hole plastic tape**

<table>
<thead>
<tr>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
<th>P1</th>
<th>P2</th>
<th>P3</th>
<th>D0</th>
<th>T1</th>
<th>T2</th>
<th>K</th>
</tr>
</thead>
<tbody>
<tr>
<td>±0.3</td>
<td>±0.3</td>
<td>±0.3</td>
<td>±0.1</td>
<td>±0.1</td>
<td>±0.1</td>
<td>±0.1</td>
<td>±0.1</td>
<td>0.2</td>
<td>0.2</td>
<td>0.6</td>
<td>0.2</td>
<td></td>
</tr>
<tr>
<td>9.5</td>
<td>10.5</td>
<td>16</td>
<td>7.6</td>
<td>1.76</td>
<td>12</td>
<td>2.0</td>
<td>4.0</td>
<td>1.5</td>
<td>0.6</td>
<td>7.2</td>
<td>7.0</td>
<td></td>
</tr>
</tbody>
</table>

**Reel dimensions**

<table>
<thead>
<tr>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>r</th>
<th>W1</th>
<th>W2</th>
</tr>
</thead>
<tbody>
<tr>
<td>±3.0</td>
<td>±2.0</td>
<td>±0.2</td>
<td>±0.8</td>
<td>±0.5</td>
<td>—</td>
<td>max.</td>
<td>max.</td>
</tr>
<tr>
<td>330</td>
<td>79</td>
<td>13</td>
<td>21</td>
<td>2.0</td>
<td>1.0</td>
<td>25</td>
<td>16</td>
</tr>
</tbody>
</table>

---

- All specifications in this catalog and production status of products are subject to change without notice. Prior to the purchase, please contact TOKIN for updated product data.
- Please request for a specification sheet for detailed product data prior to the purchase.
- Before using the product in this catalog, please read "Precautions" and other safety precautions listed in the printed version catalog.
M-532CT (conforms to EIAJ RC-1009) (1000pcs./reel)

Dimensions of indented square hole plastic tape

Reel dimensions

M-538CT (conforms to EIAJ RC-1009) (1500pcs./reel)

Dimensions of indented square hole plastic tape

Reel dimensions

M-542CT (conforms to EIAJ RC-1009) (1000pcs./reel)

Dimensions of indented square hole plastic tape

Reel dimensions

DC Line Filters VOL.12

37
M-608T/M-614T/M-620T (conforms to EIAJ RC-1009) (1500pcs./reel)

Dimensions of indented square hole plastic tape

<table>
<thead>
<tr>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
<th>T1</th>
<th>T2</th>
<th>W1</th>
<th>W2</th>
<th>øD0</th>
</tr>
</thead>
<tbody>
<tr>
<td>±0.3</td>
<td>±0.3</td>
<td>±0.1</td>
<td>±0.1</td>
<td>±0.1</td>
<td>±0.1</td>
<td>±0.1</td>
<td>±0.1</td>
<td>±0.1</td>
<td>±0.1</td>
<td>max</td>
</tr>
<tr>
<td>6.4</td>
<td>10.2</td>
<td>16.0</td>
<td>7.5</td>
<td>1.75</td>
<td>8.0</td>
<td>2.0</td>
<td>4.0</td>
<td>1.5</td>
<td>0.6</td>
<td>6.5</td>
</tr>
</tbody>
</table>

Reel dimensions

DCM5 Series (2000pcs./reel)

Dimensions of indented square hole plastic tape

<table>
<thead>
<tr>
<th>Model</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
<th>G</th>
<th>H</th>
</tr>
</thead>
<tbody>
<tr>
<td>DCM5</td>
<td>16±0.3</td>
<td>8.3</td>
<td>8.3</td>
<td>7.5</td>
<td>1.75</td>
<td>5.2</td>
<td>0.38±0.05</td>
<td></td>
</tr>
</tbody>
</table>

DC Line Filters VOL.12

38
Precautions

- The names of the products and the specifications in this catalog are subject to change without notice for the sake of improvement. The manufacturer also reserves the right to discontinue any of these products. At the time of delivery, please ask for specifications sheets to check the contents in order to use the products properly and safely.
- Descriptions in this catalog regarding product characteristics and quality are based solely on discrete components. When using these components, be sure to check the specifications with the component in question mounted on the products.
- The manufacturer’s warranty will not cover any disadvantage or damage caused by improper use of the products that deviates from the characteristics, specifications, or conditions for use described in this catalog.
- The products in this catalog are intended for use in ordinary electronic products. If any of these products are to be used in special applications requiring extremely high reliability, such as in aviation equipment and nuclear power controllers where product defects might pose a safety risk, please consult your TOKIN sales representatives.
- Though the manufacturer has taken all possible precautions to ensure the quality and reliability of its products, improper use of products may result in bodily injury, fire, or similar accident. If you have any questions regarding the use of the products in question, please consult your TOKIN sales representatives.
- Please be advised that the manufacturer accepts no responsibility for any infraction by users of the manufacturer’s products on third party patents or industrial copyrights. The manufacturer is responsible only when such infractions are attributable to the structural design of the product and its manufacturing process.
- Export Control
  For customers outside Japan
  TOKIN products should not be used or sold for use in the development, production, stockpiling or utilization of any conventional weapons or mass-destuctive weapons(nuclear weapons, chemical or biological weapons, or missiles), or any other weapons.
  For customers in Japan
  For products which are controlled items subject to the “Foreign Exchange and Foreign Trade Law” of Japan, the export license specified by the law is required for export.
- This catalog is current as of April 2017.