

## EMC对策专用磁珠—TLED系列

### EMC Chip Ferrite Bead – TLED Series

Operating Temp. : -55℃~+125℃



#### 特征

- 内部印有银电极的叠层结构，铁氧体屏蔽无串扰
- 迭层独石结构具有良好的可靠性
- 具有比传统大电流磁珠更小的直流电阻，和更大的耐电流特性
- 在较宽的频率范围内具有优良的 EMI 抑制效果

#### FEATURES

- Internal silver printed layers and magnetic shielded structures to minimize crosstalk
- Monolithic structure for excellent reliability
- Smaller DC resistance and larger allowable current than PZ series
- Can be used in a wide range of frequency to suppress EMI

#### 用途

- 通讯设备、音视频设备、电脑及周边设备、汽车电子等电源线或大功率线路的噪声抑制

#### APPLICATIONS

- Noise suppression for power lines or large current signal lines of electric equipments, Such as communication equipments, computers, A/V equipments, auto electronics, and etc

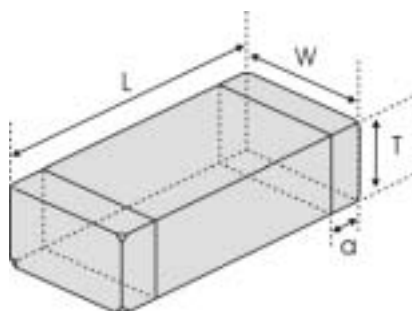
#### 产品型号

#### PRODUCT IDENTIFICATION

| <u>TLED</u> | <u>1608</u>                                                 | <u>E</u> | <u>221</u>                                                          | <u>-2R0</u> | <u>T</u>                                          | <u>F</u> |
|-------------|-------------------------------------------------------------|----------|---------------------------------------------------------------------|-------------|---------------------------------------------------|----------|
| ①           | ②                                                           | ③        | ④                                                                   | ⑤           | ⑥                                                 | ⑦        |
| ①           | 分类 Type                                                     |          | 外形尺寸(L×W) (mm)<br>External Dimensions (L×W) (mm)                    |             | 材料代号 Material Code                                |          |
| TLED        | 片式铁氧体超大电流磁珠<br>Chip Ferrite Bead For<br>Ultra Large Current |          | 1005 [0402] 1.0×0.5<br>1608 [0603] 1.65×0.8<br>2012 [0805] 2.0×1.25 |             | G, D, E, U                                        |          |
| ④           | 公称阻抗值 Nominal Impedance                                     |          | ⑤ 额定电流值 Rated Current                                               |             | ⑥ 包装 Packing                                      |          |
| Example     | Nominal Value                                               |          | 1R5 1.5A<br>2R0 2.0A                                                |             | T 编带 Tape & Reel                                  |          |
| 300         | 30Ω                                                         |          |                                                                     |             | ⑦ 无有害物质产品<br>Hazardous Substance<br>Free Products |          |
| 221         | 220Ω                                                        |          |                                                                     |             | F                                                 |          |
| 102         | 1000Ω                                                       |          |                                                                     |             |                                                   |          |

#### 外观尺寸

#### SHAPE AND DIMENSIONS



Unit: mm [inch]

| Type                | L                                         | W                       | T                       | a                       |
|---------------------|-------------------------------------------|-------------------------|-------------------------|-------------------------|
| TLED1005<br>[0402]  | 1.0±0.15<br>[.039±.006]                   | 0.5±0.15<br>[.020±.006] | 0.5±0.15<br>[.020±.006] | 0.25±0.1<br>[.010±.004] |
| TLED1608<br>[0603]  | 1.65±0.15<br>[.065±.006]                  | 0.8±0.15<br>[.031±.006] | 0.8±0.15<br>[.031±.006] | 0.3±0.2<br>[.012±.008]  |
| TLED 2012<br>[0805] | 2.0 (+0.3, -0.1)<br>[.079 (+.012, -.004)] | 1.25±0.2<br>[.049±.008] | 0.85±0.2<br>[.033±.008] | 0.5±0.3<br>[.020±.012]  |

## 规格特性

## SPECIFICATIONS

## TLED1005 TYPE

| Part Number<br>型号  | Impedance<br>阻抗 | Z Test Frequency<br>阻抗的测试频率 | Max. DC Resistance<br>直流电阻 | Max. Rated Current<br>额定电流 | Thickness<br>厚度         |
|--------------------|-----------------|-----------------------------|----------------------------|----------------------------|-------------------------|
| Units 单位           | $\Omega$        | MHz                         | m $\Omega$                 | mA                         | mm [inch]               |
| Symbol 符号          | Z               | Freq.                       | DCR                        | I <sub>r</sub>             | T                       |
| TLED1005D100-2R0TF | 0~30            | 100                         | 45                         | 2000                       | 0.5±0.15<br>[.020±.006] |
| TLED1005D300-1R7TF | 30±25%          | 100                         | 50                         | 1700                       |                         |
| TLED1005D600-1R5TF | 60±25%          | 100                         | 75                         | 1500                       |                         |
| TLED1005D121-1R2TF | 120±25%         | 100                         | 90                         | 1200                       |                         |
| TLED1005D221-R90TF | 220±25%         | 100                         | 160                        | 900                        |                         |

## TLED1608 TYPE

| Part Number<br>型号  | Impedance<br>阻抗 | Z Test Frequency<br>阻抗的测试频率 | Max. DC Resistance<br>直流电阻 | Max. Rated Current<br>额定电流 | Thickness<br>厚度         |
|--------------------|-----------------|-----------------------------|----------------------------|----------------------------|-------------------------|
| Units 单位           | $\Omega$        | MHz                         | m $\Omega$                 | mA                         | mm [inch]               |
| Symbol 符号          | Z               | Freq.                       | DCR                        | I <sub>r</sub>             | T                       |
| TLED1608G300-1R8TF | 30±25%          | 100                         | 60                         | 1800                       | 0.8±0.15<br>[.031±.006] |
| TLED1608G600-1R2TF | 60±25%          | 100                         | 100                        | 1200                       |                         |
| TLED1608G101-1R0TF | 100±25%         | 100                         | 150                        | 1000                       |                         |
| TLED1608U220-6R0TF | 22±25%          | 100                         | 10                         | 6000                       |                         |
| TLED1608U600-4R0TF | 60±25%          | 100                         | 20                         | 4000                       |                         |
| TLED1608U700-4R0TF | 70±25%          | 100                         | 20                         | 4000                       |                         |
| TLED1608U331-1R5TF | 330±25%         | 100                         | 70                         | 1500                       |                         |
| TLED1608U391-1R2TF | 390±25%         | 100                         | 120                        | 1200                       |                         |
| TLED1608U471-1R2TF | 470±25%         | 100                         | 120                        | 1200                       |                         |
| TLED1608E101-3R0TF | 100±25%         | 100                         | 30                         | 3000                       |                         |
| TLED1608E181-2R0TF | 180±25%         | 100                         | 50                         | 2000                       |                         |
| TLED1608E221-2R0TF | 220±25%         | 100                         | 50                         | 2000                       |                         |
| TLED1608E601-1R0TF | 600±25%         | 100                         | 150                        | 1000                       |                         |

## TLED2012 TYPE

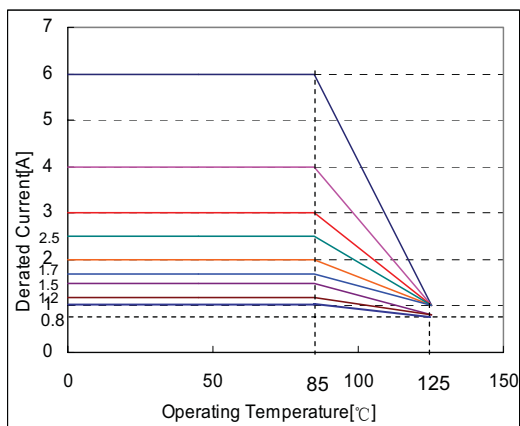
| Part Number<br>型号  | Impedance<br>阻抗 | Z Test Frequency<br>阻抗的测试频率 | Max. DC Resistance<br>直流电阻 | Max. Rated Current<br>额定电流 | Thickness<br>厚度         |
|--------------------|-----------------|-----------------------------|----------------------------|----------------------------|-------------------------|
| Units 单位           | $\Omega$        | MHz                         | m $\Omega$                 | mA                         | mm [inch]               |
| Symbol 符号          | Z               | Freq.                       | DCR                        | I <sub>r</sub>             | T                       |
| TLED2012D220-6R0TF | 22±25%          | 100                         | 10                         | 6000                       | 0.85±0.2<br>[.033±.008] |
| TLED2012U300-6R0TF | 30±25%          | 100                         | 10                         | 6000                       |                         |
| TLED2012U600-4R0TF | 60±25%          | 100                         | 20                         | 4000                       |                         |
| TLED2012E121-4R0TF | 120±25%         | 100                         | 20                         | 4000                       |                         |
| TLED2012E221-3R0TF | 220±25%         | 100                         | 40                         | 3000                       |                         |
| TLED2012E331-2R5TF | 330±25%         | 100                         | 50                         | 2500                       |                         |
| TLED2012E601-2R0TF | 600±25%         | 100                         | 90                         | 2000                       |                         |
| TLED2012E102-1R5TF | 1000±25%        | 100                         | 120                        | 1500                       |                         |

## 电气特性

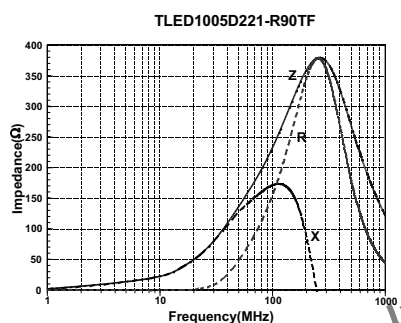
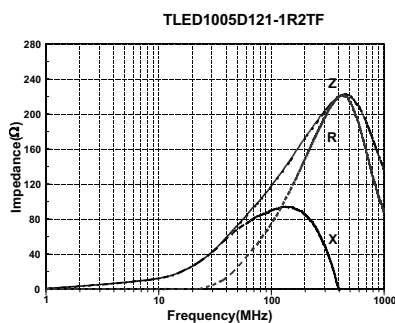
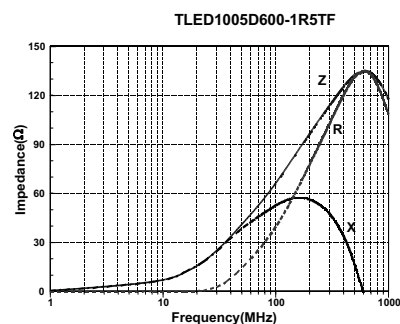
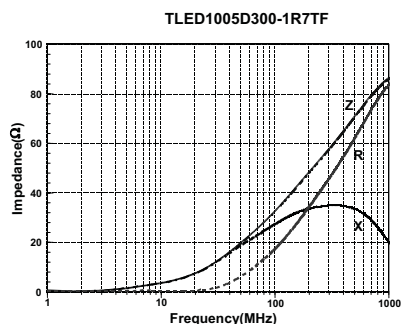
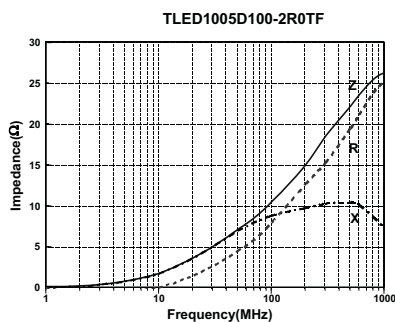
## DETAIL ELECTRICAL CHARACTERISTICS

## Rated Current

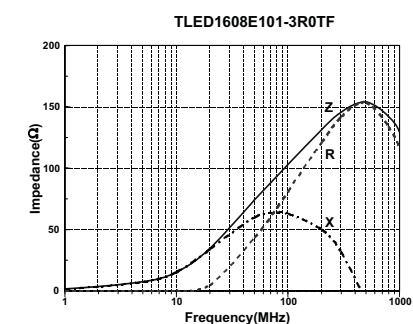
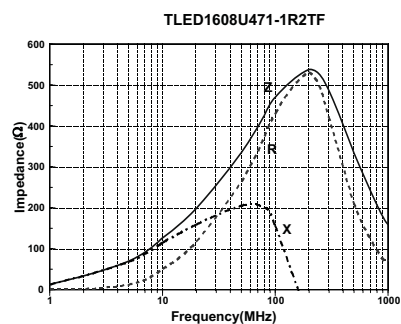
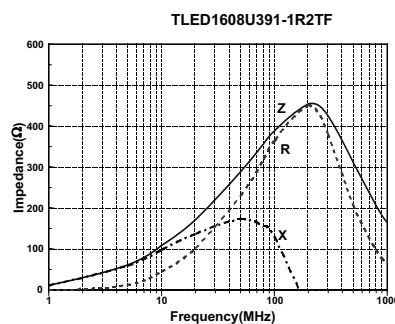
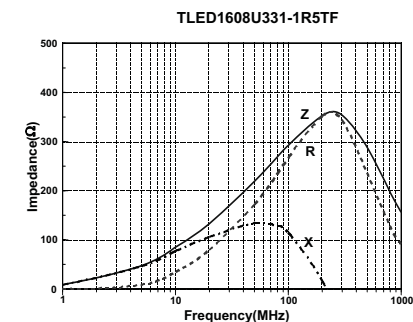
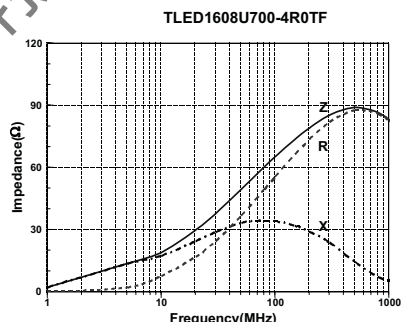
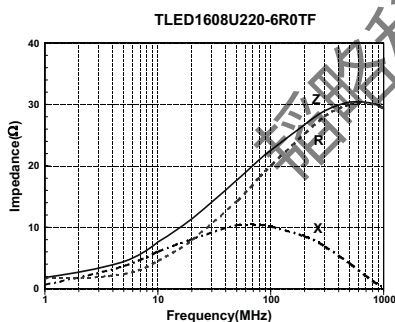
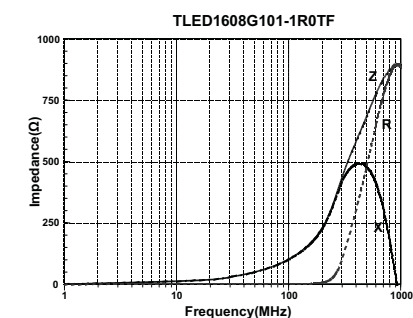
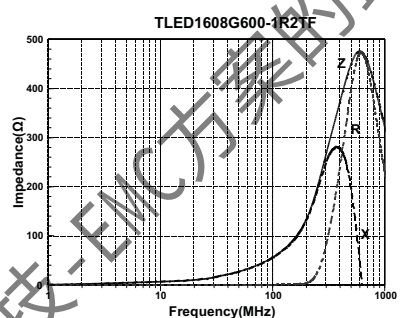
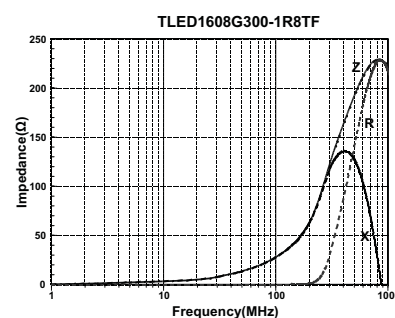
In operating temperatures exceeding +85°C, derating of current is necessary for chip ferrite beads for which rated current is 1000mA and over. Please apply the derating curve shown in chart according to the operating temperature.



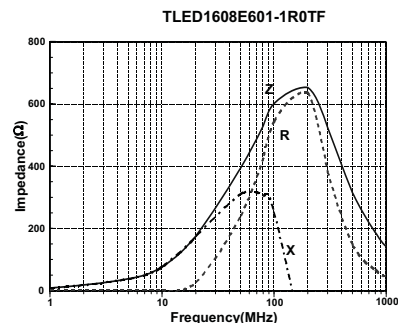
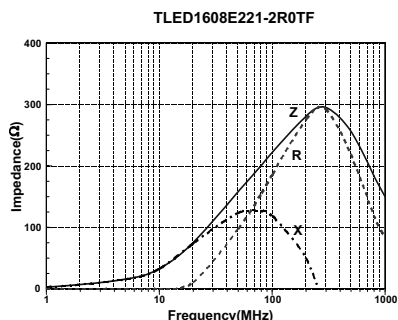
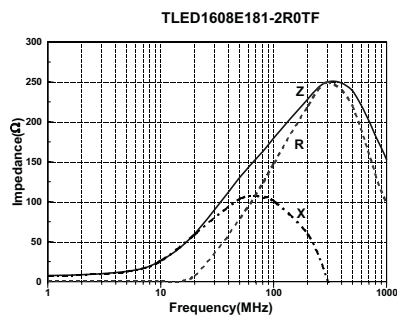
TLED1005 Series



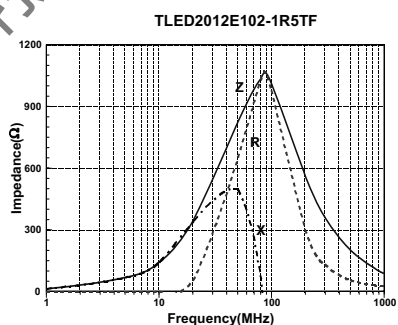
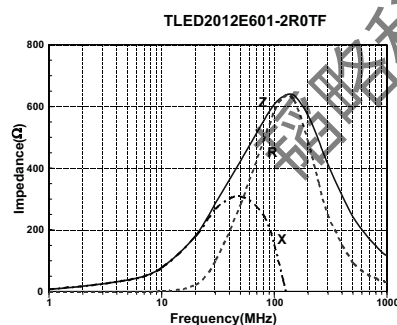
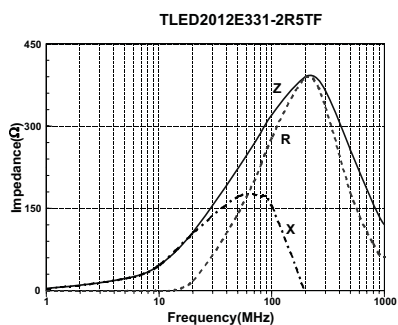
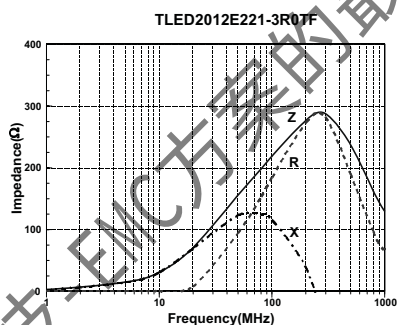
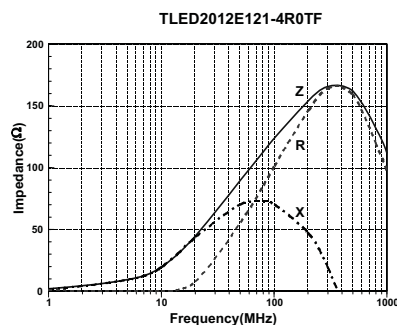
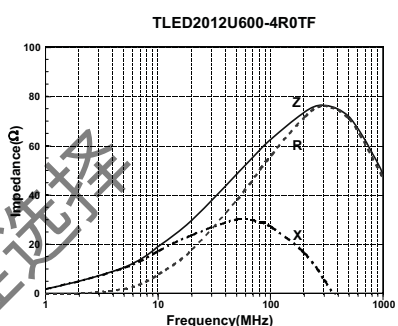
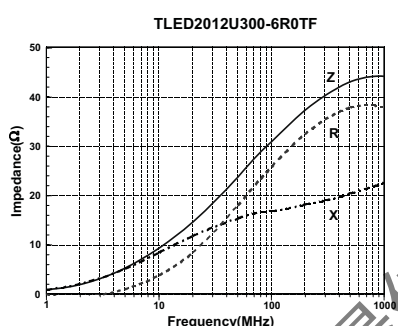
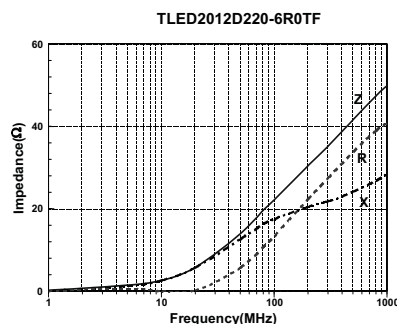
TLED1608 TYPE



TLED1608 TYPE



TLED2012 TYPE

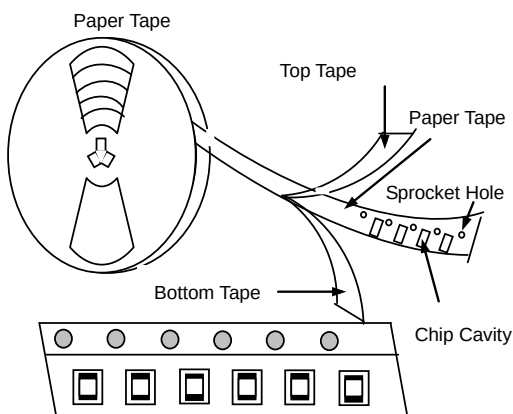


## Tape Carrier Packaging

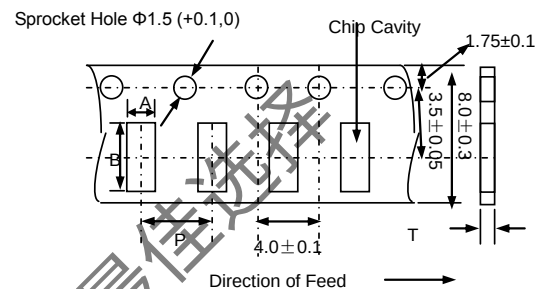
### Tape carrier packaging quantity

| Type     | 1005[0402]     | 1608[0603]     | 2012[0805]     |
|----------|----------------|----------------|----------------|
| T(mm)    | $0.5 \pm 0.15$ | $0.8 \pm 0.15$ | $0.85 \pm 0.2$ |
| Tape     | Paper Tape     | Paper Tape     | Paper Tape     |
| Quantity | 10K            | 4K             | 4K             |

### Taping Drawings (Unit: mm)

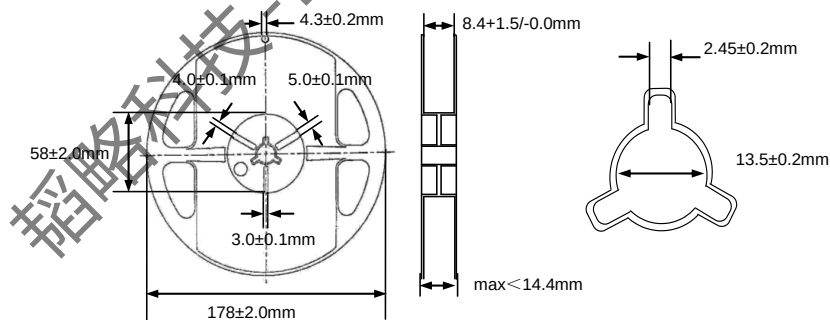


### Taping Dimensions (Unit: mm)



| Type       | A              | B              | P             | T max | H  |
|------------|----------------|----------------|---------------|-------|----|
| 1005[0402] | $0.65 \pm 0.2$ | $1.15 \pm 0.2$ | $2.0 \pm 0.1$ | 0.80  | 10 |
| 1608[0603] | $1.0 \pm 0.2$  | $1.8 \pm 0.2$  | $4.0 \pm 0.1$ | 1.1   | 10 |
| 2012[0805] | $1.5 \pm 0.2$  | $2.3 \pm 0.2$  | $4.0 \pm 0.1$ | 1.1   | 10 |

### Reel Dimensions (Unit: mm)



## Storage

- Package must be stored at  $40^\circ\text{C}$  or less and 70% RH or less.
- The solderability of the external electrode may be deteriorated if packages are stored where they are exposed to dust or harmful gas (e.g. HCl, sulfurous gas of  $\text{H}_2\text{S}$ ).
- Packaging material may be deformed if package are stored where they are exposed to heat or direct sunlight.