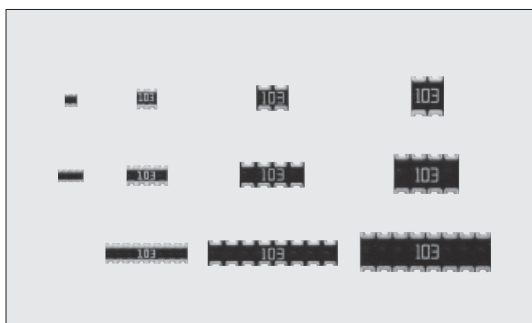


## CN 片式网络电阻器 Chip Networks (Concave Termination)



外观颜色：黑色(电阻CN1E2, CN1E4)，绿色(Jumper)  
Coating color: Black (Resistor)、Green (Jumper)  
CN1E2、CN1E4、Jumper: 没有标识  
CN1E2、CN1E4、Jumper: No marking

### ■ 特点 Features

- 比贴片电阻具有更高的安装密度。
- 部件安装次数的减少降低了安装成本。
- 有2联，4联，8联装的表面安装电阻阵列。
- 拥有±1%的精确度。
- 在回流焊接时具有更好的自定位性能。
- 安装时易于进行图像识别。
- 适用于回流焊接和波峰焊接。
- 端子无铅品，对应欧盟RoHS。电极、电阻膜层、玻璃中所含铅玻璃，不包含在欧盟RoHS指令中。
- 对应(取得数据)AEC-Q200。(CN1J4)
- More advancement in the mounting density than individual chip resistors.
- Mounting cost reduction by decreasing the number of parts mounting times.
- 2, 4 and 8 elements of SMD resistor arrays are available.
- Precision type ±1% is available.
- Higher self-alignment effect in reflow-soldering process.
- Suitable for an image recognition mounter due to square corner design.
- Suitable for both reflow and flow solderings.
- Products with lead free termination meet EU-RoHS requirements. EU-RoHS regulation is not intended for Pb-glass contained in electrode, resistor element and glass.
- AEC-Q200 Qualified (CN1J4).

### ■ 参考规格 Reference Standards

IEC 60115-1

JIS C 5201-1

### ■ 额定值 Ratings

| 型号<br>Type                                         | 额定功率<br>Power Rating<br>(W/Element) | 电阻值范围<br>Resistance Range (Ω) |               |               | 电阻温度系数<br>T.C.R. (×10 <sup>-6</sup> /K) |                                | 最高<br>使用电压<br>Max.<br>Working<br>Voltage | 最高<br>过载电压<br>Max.<br>Overload<br>Voltage | 额定周围温度<br>Max. Overload<br>Voltage | 使用温度范围<br>Max. Overload<br>Voltage | 编带和包装数/卷<br>Taping & Q'ty/Reel (pcs) |       |
|----------------------------------------------------|-------------------------------------|-------------------------------|---------------|---------------|-----------------------------------------|--------------------------------|------------------------------------------|-------------------------------------------|------------------------------------|------------------------------------|--------------------------------------|-------|
|                                                    |                                     | F: ±1%<br>E24 • E96           | G: ±2%<br>E24 | J: ±5%<br>E24 | F: ±1%                                  | J: ±5%<br>G: ±2%               |                                          |                                           |                                    |                                    | TD                                   | TE    |
| CN1E2<br>CN1E4<br>CN1J2<br>CN1J4<br>CN1J8          | 0.063                               | —                             | —             | 10~100k       | —                                       | —                              | 25V                                      | 50V                                       | +70℃                               | -55℃~+125℃                         | 10,000                               | —     |
| CN2A2<br>CN2A4<br>CN2A8<br>CN2B2<br>CN2B4<br>CN2B8 | 0.063                               | 10~1M                         | 10~1M         | 10~1M<br>1~1M | ±100: R ≥ 10Ω                           | ±200: R ≥ 10Ω<br>±400: R < 10Ω | 50V                                      | 100V                                      |                                    |                                    | 5,000                                | —     |
|                                                    | 0.1                                 | 10~1M                         |               | 10~1M         | ±200: R ≥ 10Ω                           | ±400: R < 10Ω                  | 100V                                     | 200V                                      |                                    |                                    | —                                    | 4,000 |
|                                                    | 0.125                               | 10~1M                         |               | 10~1M         | ±200: R ≥ 10Ω                           | ±400: R < 10Ω                  | 200V                                     | 400V                                      |                                    |                                    | —                                    | 4,000 |
|                                                    | —                                   | —                             | —             | —             | —                                       | —                              | —                                        | —                                         | —                                  | —                                  | —                                    | 2,000 |

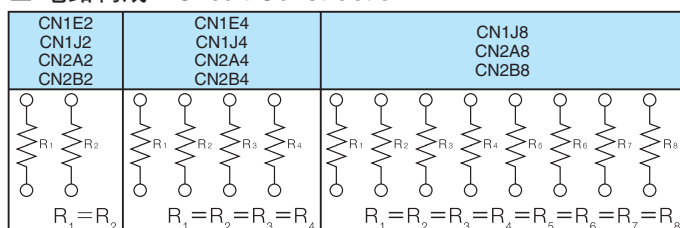
按照额定功率使用时，比单一的贴片电阻的发热温度高，在使用时请加以注意。

Please note that network resistors generate higher heat rather than single flat chip resistor even under rated power output.

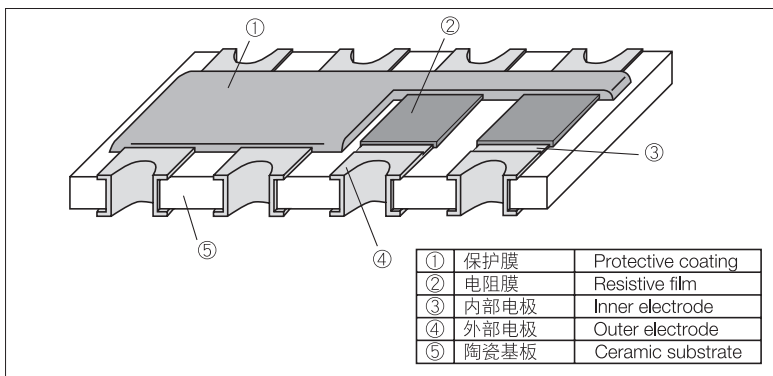
额定电压是√额定功率×公称电阻值所算出的值或表中最高使用电压两者中小的值为额定电压。

Rated voltage = √Power Rating × Resistance value or Max. working voltage, whichever is lower.

### ■ 电路构成 Circuit Construction



### ■ 结构图 Construction



### ■ 品名构成 Type Designation

#### 实例 Example

| 品种<br>Product<br>Code | 形状<br>Size           | 元件数<br>Number of<br>Resistors | 端子表面材质<br>Terminal<br>Surface Material | 二次加工<br>Taping                                   | 公称电阻值<br>Nominal<br>Resistance | 电阻值允许偏差<br>Resistance<br>Tolerance |
|-----------------------|----------------------|-------------------------------|----------------------------------------|--------------------------------------------------|--------------------------------|------------------------------------|
| CN                    | 1E<br>1J<br>2A<br>2B | 2<br>4<br>8                   | T: Sn<br>(L: Sn/Pb)                    | TD: Paper<br>TE: Plastic<br>embossed<br>BK: Bulk | F: 4 digits<br>G, J: 3 digits  | F: ±1%<br>G: ±2%<br>J: ±5%         |

端子表面材质，以无铅品为准。

欲知关于此产品含有的环境负荷物质详情(除EU-RoHS以外)，请与我们联系。

编带细节请参考卷末附录C。

The terminal surface material lead free is standard.

Contact us when you have control request for environmental hazardous material other than the substance specified by EU-RoHS.

For further information on taping, please refer to APPENDIX C on the back pages.

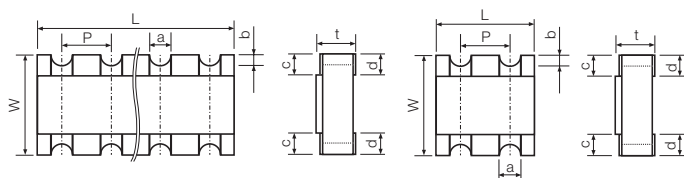
### ■ 用途 Applications

- 用于数字电路的阻尼电阻，推挽电阻和终端电阻。
- 限制LED的电流。
- 用于SDRAM的终端(适用于1~10Ω的5%)。
- Resistors for Damping, Pull-up/Pull-down, Termination for digital circuits.
- LED current limiting.
- Terminals for SDRAM. (1~10Ω, 5% available)

### ■ Jumper规格 Jumper Ratings

| 型号<br>Type                                                                             | 电阻值<br>Resistance   | 额定电流<br>Current Rating | 最大浪涌电流<br>Max. Surge Current |
|----------------------------------------------------------------------------------------|---------------------|------------------------|------------------------------|
| CNZ1E2<br>CNZ1E4<br>CNZ1J2<br>CNZ1J4<br>CNZ1J8<br>CNZ2A2<br>CNZ2A4<br>CNZ2B2<br>CNZ2B4 | 50mΩ以下<br>50mΩ max. | 0.5A<br><br>1A         | 2A<br><br>3A<br>4A           |

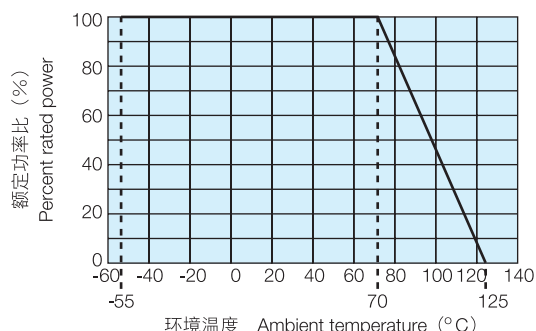
## 外形尺寸 Dimensions



| 型号 Type<br>(Inch Size Code) | 尺寸 Dimensions (mm) |         |         |       |          |         |            |           | Weight (g)<br>(1000pcs) |
|-----------------------------|--------------------|---------|---------|-------|----------|---------|------------|-----------|-------------------------|
|                             | L±0.2              | W±0.2   | c       | d±0.1 | t        | a (top) | a (bottom) | b±0.1     | P                       |
| CN1E2<br>(0402×2)           | 1.0±0.1            | 1.0±0.1 | 0.2±0.1 | 0.25  | 0.35±0.1 | 0.3±0.1 | 0.3±0.1    | 0.07±0.05 | (0.50)                  |
| CN1E4<br>(0402×4)           | 2.0±0.1            | 1.0±0.1 | 0.2±0.1 | 0.25  | 0.45±0.1 | 0.3±0.1 | 0.3±0.1    | 0.07±0.05 | (0.50)                  |
| CN1J2<br>(0603×2)           | 1.6±0.2            | 1.6±0.2 | 0.3±0.2 | 0.40  | 0.5±0.1  | 0.5±0.1 | 0.4±0.15   | 0.15      | (0.80)                  |
| CN1J4<br>(0603×4)           | 3.2±0.2            | 1.6±0.2 | 0.3±0.2 | 0.40  | 0.5±0.1  | 0.5±0.1 | 0.4±0.15   | 0.15      | (0.80)                  |
| CN1J8<br>(0603×8)           | 6.4±0.2            | 1.6±0.2 | 0.3±0.2 | 0.40  | 0.5±0.1  | 0.5±0.1 | 0.4±0.15   | 0.15      | (0.80)                  |
| CN2A2<br>(0805×2)           | 2.54±0.2           | 2.0±0.2 | 0.4±0.2 | 0.55  | 0.6±0.1  | 0.8±0.1 | 0.75±0.15  | 0.15      | (1.27)                  |
| CN2A4<br>(0805×4)           | 5.08±0.2           | 2.0±0.2 | 0.4±0.2 | 0.55  | 0.6±0.1  | 0.8±0.1 | 0.75±0.15  | 0.15      | (1.27)                  |
| CN2A8<br>(0805×8)           | 10.16±0.2          | 2.0±0.2 | 0.4±0.2 | 0.55  | 0.6±0.1  | 0.8±0.1 | 0.75±0.15  | 0.15      | (1.27)                  |
| CN2B2<br>(1205×2)           | 2.54±0.2           | 3.2±0.2 | 0.5±0.3 | 0.55  | 0.6±0.1  | 0.8±0.1 | 0.75±0.15  | 0.15      | (1.27)                  |
| CN2B4<br>(1205×4)           | 5.08±0.2           | 3.2±0.2 | 0.5±0.3 | 0.55  | 0.6±0.1  | 0.8±0.1 | 0.75±0.15  | 0.15      | (1.27)                  |
| CN2B8<br>(1205×8)           | 10.16±0.2          | 3.2±0.2 | 0.5±0.3 | 0.55  | 0.6±0.1  | 0.8±0.1 | 0.75±0.15  | 0.15      | (1.27)                  |

( ) 内的数值作为参考。 Figures in parenthesis are referential values.

## 负荷特性曲线 Derating Curve



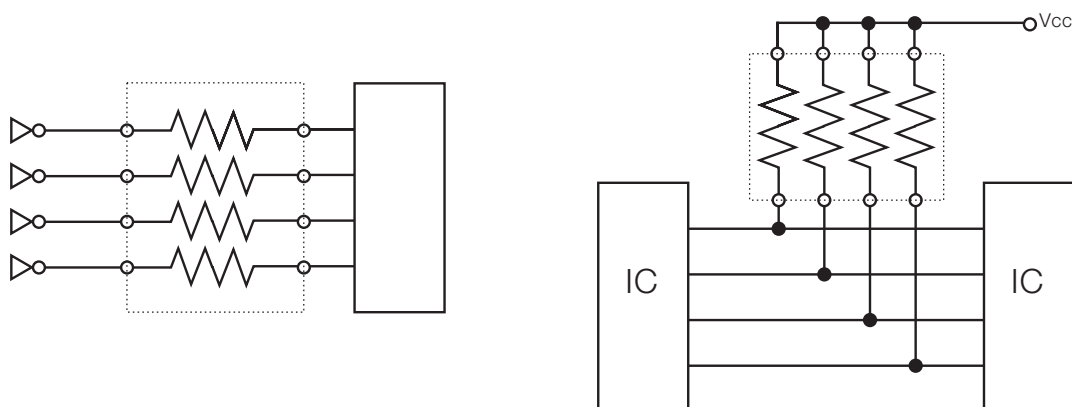
在环境温度70℃以上使用时，应按照上图负荷特性曲线，减小额定功率。

For resistors operated at an ambient temperature of 70°C or above, a power rating shall be derated in accordance with the above derating curve.

## 性能 Performance

| 试验项目<br>Test Items                   | 标准值 Performance Requirements<br>$\Delta R \pm \%$ |             | 试验方法<br>Test Methods                                                     |
|--------------------------------------|---------------------------------------------------|-------------|--------------------------------------------------------------------------|
|                                      | 保证值 Limit                                         | 代表值 Typical |                                                                          |
| 电阻值<br>Resistance                    | 在规定的允许偏差内<br>Within specified tolerance           | —           | 25°C                                                                     |
| 电阻温度系数<br>T.C.R.                     | 在规定的值以内<br>Within specified T.C.R.                | —           | +25°C/-55°C and +25°C/+125°C                                             |
| 过载 (短时间)<br>Overload (Short time)    | 2                                                 | 0.5         | 额定电压×2.5倍施加5秒钟<br>Rated voltage ×2.5 for 5s                              |
| 耐焊接热<br>Resistance to soldering heat | 1                                                 | 0.25        | 260°C±5°C, 10s±1s                                                        |
| 温度突变<br>Rapid change of temperature  | 1                                                 | 0.5         | -55°C (30min.) / +125°C (30min.) 5 cycles                                |
| 耐湿负荷<br>Moisture resistance          | 5                                                 | 1           | 40°C±2°C, 90%~95%RH, 1000h<br>1.5小时ON、0.5小时OFF的周期 1.5h ON/0.5h OFF cycle |
| 在70℃时的耐久性<br>Endurance at 70°C       | 5                                                 | 0.5         | 70°C±2°C, 1000h<br>1.5小时ON、0.5小时OFF的周期 1.5h ON/0.5h OFF cycle            |
| 高温放置<br>High temperature exposure    | 1                                                 | 0.2         | +125°C, 1000h                                                            |

## 应用范例 Examples For Circuit Board Application



## 使用注意事项 Precautions for Use

- 网络电阻器偶尔会发生Cross Talk的情况，当把它们用于高频电路时，在电路设计时请考虑Cross Talk的影响。
- A few cross talks will occur in network resistors. In case of using them for a high frequency circuit, please design circuits taking the effect by the cross talks into consideration.