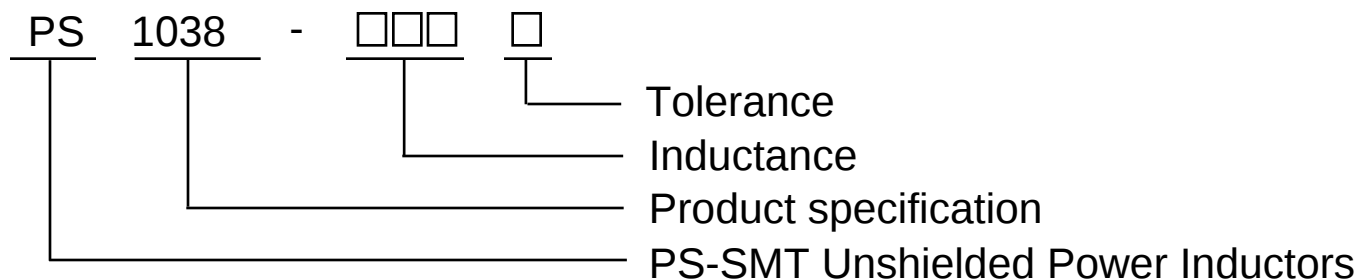


# Shielded Power Inductors -PS1038(104R)

## 產品型號

## PRODUCT IDENTIFICATION



### Tolerance:

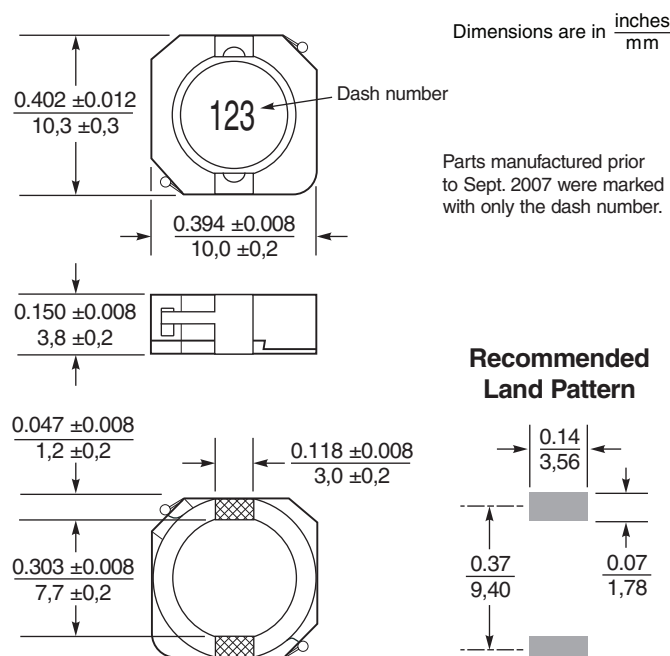
| Code | Tolerance |
|------|-----------|
| 102  | 1.0uH     |
| 103  | 10.0uH    |
| 104  | 100.0uH   |
| 105  | 1000.0uH  |
| 106  | 10000.0uH |

### Inductance:

| Code | Tolerance |
|------|-----------|
| J    | ± 5%      |
| K    | ± 10%     |
| L    | ± 15%     |
| M    | ± 20%     |
| N    | ± 30%     |

## 外觀尺寸

## SHAPE AND DIMENSIONS





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## Shielded Power Inductors -PS1038(104R)

### 規格特性

### SPECIFICATIONS

| Part number | Inductance <sup>1</sup><br>( $\mu$ H) | DCR<br>max<br>(m $\Omega$ ) | SRF<br>typ <sup>2</sup><br>(MHz) | Isat (A) <sup>3</sup> |             |             | Irms (A) <sup>4</sup> |              |
|-------------|---------------------------------------|-----------------------------|----------------------------------|-----------------------|-------------|-------------|-----------------------|--------------|
|             |                                       |                             |                                  | 10%<br>drop           | 20%<br>drop | 30%<br>drop | 20°C<br>rise          | 40°C<br>rise |
| PS1038-102N | 1.0 $\pm$ 30%                         | 6.0                         | 138                              | 9.00                  | 11.16       | 12.10       | 7.30                  | 10.00        |
| PS1038-152N | 1.5 $\pm$ 30%                         | 8.1                         | 81                               | 7.40                  | 9.48        | 11.06       | 5.60                  | 7.85         |
| PS1038-252N | 2.5 $\pm$ 30%                         | 10                          | 61                               | 5.70                  | 7.62        | 9.26        | 4.65                  | 6.65         |
| PS1038-382N | 3.8 $\pm$ 30%                         | 13                          | 45                               | 4.94                  | 6.50        | 7.64        | 4.25                  | 6.05         |
| PS1038-522N | 5.2 $\pm$ 30%                         | 22                          | 37                               | 3.96                  | 5.28        | 6.14        | 3.60                  | 5.10         |
| PS1038-702N | 7.0 $\pm$ 30%                         | 27                          | 33                               | 3.62                  | 4.74        | 5.60        | 3.10                  | 4.35         |
| PS1038-103N | 10 $\pm$ 30%                          | 35                          | 29                               | 3.04                  | 3.90        | 4.52        | 2.90                  | 4.05         |
| PS1038-123M | 12 $\pm$ 20%                          | 41                          | 25                               | 2.72                  | 3.48        | 4.04        | 2.85                  | 4.00         |
| PS1038-153M | 15 $\pm$ 20%                          | 50                          | 21                               | 2.84                  | 3.44        | 3.86        | 2.70                  | 3.80         |
| PS1038-183M | 18 $\pm$ 20%                          | 65                          | 18                               | 2.44                  | 3.10        | 3.52        | 2.25                  | 3.35         |
| PS1038-223M | 22 $\pm$ 20%                          | 73                          | 15                               | 2.34                  | 2.94        | 3.30        | 1.90                  | 2.85         |
| PS1038-273M | 27 $\pm$ 20%                          | 89                          | 15                               | 1.98                  | 2.48        | 2.84        | 1.65                  | 2.35         |
| PS1038-333M | 33 $\pm$ 20%                          | 93                          | 13                               | 1.84                  | 2.34        | 2.62        | 1.60                  | 2.30         |
| PS1038-393M | 39 $\pm$ 20%                          | 112                         | 12                               | 1.60                  | 2.04        | 2.34        | 1.55                  | 2.25         |
| PS1038-473M | 47 $\pm$ 20%                          | 128                         | 11                               | 1.60                  | 1.98        | 2.22        | 1.45                  | 2.20         |
| PS1038-563M | 56 $\pm$ 20%                          | 180                         | 11                               | 1.48                  | 1.84        | 2.04        | 1.40                  | 1.85         |
| PS1038-683M | 68 $\pm$ 20%                          | 213                         | 10                               | 1.32                  | 1.62        | 1.82        | 1.15                  | 1.75         |
| PS1038-823M | 82 $\pm$ 20%                          | 261                         | 8                                | 1.12                  | 1.42        | 1.60        | 1.09                  | 1.50         |
| PS1038-104M | 100 $\pm$ 20%                         | 304                         | 6                                | 1.02                  | 1.30        | 1.46        | 1.05                  | 1.45         |
| PS1038-124K | 120 $\pm$ 10%                         | 380                         | 6                                | 0.95                  | 1.18        | 1.34        | 0.85                  | 1.25         |
| PS1038-154K | 150 $\pm$ 10%                         | 506                         | 6                                | 0.89                  | 1.10        | 1.22        | 0.80                  | 1.20         |
| PS1038-184K | 180 $\pm$ 10%                         | 582                         | 5                                | 0.89                  | 1.02        | 1.16        | 0.71                  | 0.98         |
| PS1038-224K | 220 $\pm$ 10%                         | 756                         | 5                                | 0.72                  | 0.88        | 0.99        | 0.70                  | 0.97         |
| PS1038-274K | 270 $\pm$ 10%                         | 926                         | 4                                | 0.66                  | 0.81        | 0.91        | 0.65                  | 0.86         |
| PS1038-334K | 330 $\pm$ 10%                         | 1090                        | 4                                | 0.59                  | 0.73        | 0.82        | 0.50                  | 0.69         |
| PS1038-394K | 390 $\pm$ 10%                         | 1141                        | 4                                | 0.51                  | 0.65        | 0.74        | 0.49                  | 0.65         |
| PS1038-474K | 470 $\pm$ 10%                         | 1243                        | 3                                | 0.50                  | 0.62        | 0.70        | 0.45                  | 0.63         |
| PS1038-564K | 560 $\pm$ 10%                         | 1696                        | 3                                | 0.43                  | 0.53        | 0.56        | 0.43                  | 0.59         |
| PS1038-684K | 680 $\pm$ 10%                         | 1926                        | 3                                | 0.38                  | 0.48        | 0.52        | 0.36                  | 0.50         |
| PS1038-824K | 820 $\pm$ 10%                         | 2596                        | 3                                | 0.37                  | 0.46        | 0.49        | 0.34                  | 0.47         |
| PS1038-105K | 1000 $\pm$ 10%                        | 2853                        | 3                                | 0.35                  | 0.43        | 0.46        | 0.33                  | 0.45         |

- 10.0  $\times$  10.2 mm footprint; 3.8 mm high shielded inductors
- Very low DCR and excellent current handling

1. Inductance measured at 100 kHz, 0.1 Vrms, 0 Adc using an Agilent/HP 4263B LCR meter or equivalent.
2. SRF measured using an Agilent/HP 8753D or equivalent.
3. DC current at which the inductance drops the specified amount from its value without current.
4. Current that causes the specified temperature rise from 25°C ambient.
5. Electrical specifications at 25°C.

**Designer's Kit C391** contains 3 each of all values.

**Core material** Ferrite

**Terminations** RoHS compliant matte tin over nickel over copper. Other terminations available at additional cost.

**Weight:** 1.5 g

**Ambient temperature** -40°C to +85°C with Irms current, +85°C to +125°C with derated current

**Storage temperature** Component: -40°C to +125°C.

Packaging: -40°C to +80°C

**Resistance to soldering heat** Max three 40 second reflows at +260°C, parts cooled to room temperature between cycles

**Moisture Sensitivity Level (MSL)** 1 (unlimited floor life at <30°C / 85% relative humidity)

**Failures in Time (FIT) / Mean Time Between Failures (MTBF)**

38 per billion hours / 26,315,789 hours, calculated per Telcordia SR-332



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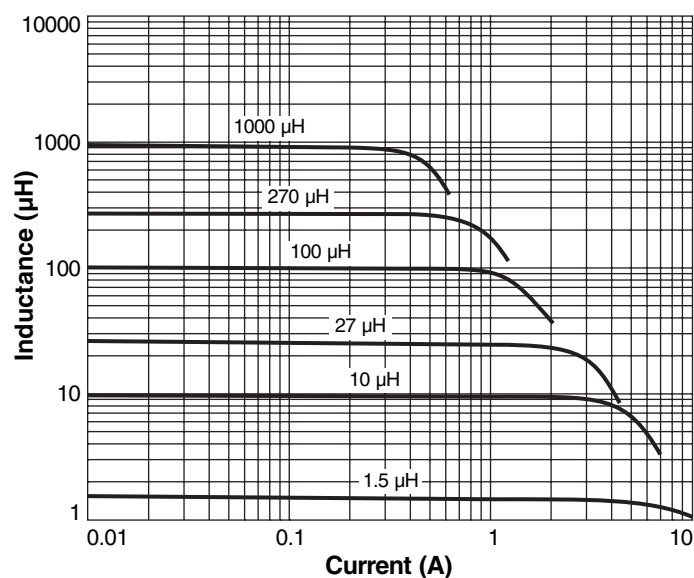
Email:xy@frcoil.com

## Shielded Power Inductors -PS1038(104R)

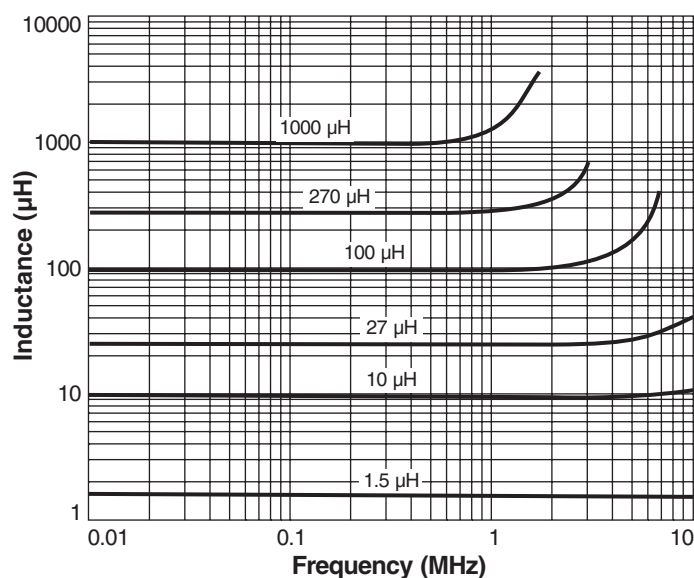
### 電氣特性

### TYPICAL ELECTRICAL CHARACTERISTICS

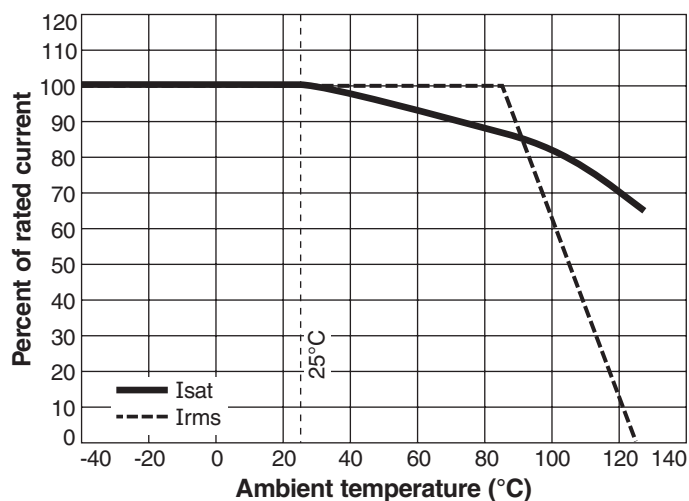
Typical L vs Current



Typical L vs Frequency



Typical Current Derating



## Shielded Power Inductors -PS1038(104R)

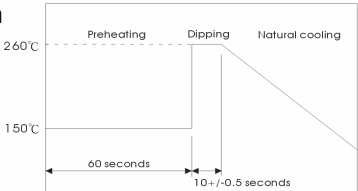
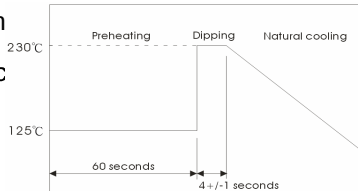
## 電氣特性

## TYPICAL ELECTRICAL CHARACTERISTICS

Reliability and Test Conditions (可靠性測試條件)

| ITEM                          | Performance                                                     | Test Condition |
|-------------------------------|-----------------------------------------------------------------|----------------|
| Operating Temperature<br>操作溫度 | -55℃~125℃                                                       | 10Pcs Passed   |
| Storage temperature<br>儲存溫度   | -40℃~+85℃                                                       | 10Pcs Passed   |
| Rated Current<br>額定電流         | Refer to standard electrical characteristics list.<br>參考標準特性規格表 | 10Pcs Passed   |
| Temperature Rise Test<br>溫升測試 | 40℃ max.( $\Delta t$ )<br>40度最大                                 | 10Pcs Passed   |

## Electrical Performance Test

|                                            |                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|--------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Solder Heat Resistance<br>耐焊錫熱             | Appearance:No significant abnormality.<br>Inductance change:Within $\pm 20\%$ .<br>外觀：無顯著異常<br>電感值：變異值在初始值20%之內.                                         | Preheat:150℃,60sec.<br>Solder:H63A<br>solder temperature:260 $\pm 5$ ℃<br>Flux for lead free:rosin<br>Dip time:10 $\pm 0.5$ sec.<br>預熱:150℃,60sec.<br>錫爐溫度:260 $\pm 5$ ℃<br>時間:10 $\pm 0.5$ sec.<br>助焊劑:rosin<br> <p>The graph shows a temperature profile for solder heat resistance testing. It starts with a preheating phase at 150°C for 60 seconds. This is followed by a dipping phase into a solder bath at 260°C for 10 ± 0.5 seconds. The final phase is natural cooling.</p>  |
| Solderability Test<br>端面焊錫性                | More than 90% of the terminal electrode should be covered with solder.<br>端電極之錫覆蓋面達90%以上.                                                                | Preheat:125 $\pm 25$ ℃,60sec.<br>Solder:H63A<br>solder temperature:230 $\pm 5$ ℃<br>Flux for lead free:rosin<br>Dip time:4 $\pm 1$ sec.<br>預熱:125 $\pm 25$ ℃,60sec<br>錫爐溫度:230 $\pm 5$ ℃<br>時間:4 $\pm 1$ sec.<br>助焊劑:rosin<br> <p>The graph shows a temperature profile for solderability testing. It starts with a preheating phase at 125°C for 60 seconds. This is followed by a dipping phase into a solder bath at 230°C for 4 ± 1 seconds. The final phase is natural cooling.</p> |
| High Temperature Resistance Test<br>高溫放置測試 | Appearance:no damage.<br>Inductance:within $\pm 20\%$ of initial value.<br>No disconnection or short circuit.<br>外觀不能破損<br>電感值:變異值在初始值20%之內.<br>電性無短路或斷線 | Temperature:85 $\pm 2$ ℃.<br>Applied current: rated current.<br>Duration: 500 hrs.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| Humidity Resistance Test<br>高濕放置測試         | Appearance:no damage.<br>Inductance:within $\pm 20\%$ of initial value.<br>No disconnection or short circuit.<br>外觀不能破損<br>電感值:變異值在初始值20%之內.<br>電性無短路或斷線 | Temperature:40 $\pm 2$ ℃.<br>Applied current: rated current.<br>Duration: 500 hrs.<br>Humidity: 90~95%                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |



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## Shielded Power Inductors -PS1038(104R)

### 電氣特性

### TYPICAL ELECTRICAL CHARACTERISTICS

Reliability and Test Conditions ( 可靠性測試條件 )

| ITEM                        | Performance                                                                                                                                                | Test Condition                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |       |                                   |           |   |                             |            |   |            |    |   |                             |            |   |            |    |
|-----------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|-----------------------------------|-----------|---|-----------------------------|------------|---|------------|----|---|-----------------------------|------------|---|------------|----|
| Thermal shock<br>熱衝擊試驗      | Appearance: no damage.<br>Inductance: within $\pm 20\%$ of initial value.<br>No disconnection or short circuit.<br>外觀不能破損<br>電感值：變異值在初始值20%之內。<br>電性無短路或斷線 | Condition for 1 cycle<br>Step1:-25 $\pm 2^{\circ}\text{C}$ , 30 $\pm 3$ min.<br>Step2:Room temperature within 15 min.<br>Step3:+85 $\pm 5^{\circ}\text{C}$ , 30 $\pm 3$ min.<br>Step4: Room temperature within 15 min.<br>Number of cycles: 50 <table border="1"> <thead> <tr> <th>Phase</th><th>Temperature(<math>^{\circ}\text{C}</math>)</th><th>Time(min)</th></tr> </thead> <tbody> <tr> <td>1</td><td>-25<math>\pm 2^{\circ}\text{C}</math></td><td>30<math>\pm 3</math></td></tr> <tr> <td>2</td><td>Room Temp.</td><td>15</td></tr> <tr> <td>3</td><td>+85<math>\pm 2^{\circ}\text{C}</math></td><td>30<math>\pm 3</math></td></tr> <tr> <td>4</td><td>Room Temp.</td><td>15</td></tr> </tbody> </table> | Phase | Temperature( $^{\circ}\text{C}$ ) | Time(min) | 1 | -25 $\pm 2^{\circ}\text{C}$ | 30 $\pm 3$ | 2 | Room Temp. | 15 | 3 | +85 $\pm 2^{\circ}\text{C}$ | 30 $\pm 3$ | 4 | Room Temp. | 15 |
| Phase                       | Temperature( $^{\circ}\text{C}$ )                                                                                                                          | Time(min)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |       |                                   |           |   |                             |            |   |            |    |   |                             |            |   |            |    |
| 1                           | -25 $\pm 2^{\circ}\text{C}$                                                                                                                                | 30 $\pm 3$                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |       |                                   |           |   |                             |            |   |            |    |   |                             |            |   |            |    |
| 2                           | Room Temp.                                                                                                                                                 | 15                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |       |                                   |           |   |                             |            |   |            |    |   |                             |            |   |            |    |
| 3                           | +85 $\pm 2^{\circ}\text{C}$                                                                                                                                | 30 $\pm 3$                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |       |                                   |           |   |                             |            |   |            |    |   |                             |            |   |            |    |
| 4                           | Room Temp.                                                                                                                                                 | 15                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |       |                                   |           |   |                             |            |   |            |    |   |                             |            |   |            |    |
| Humidity Resistance<br>高濕測試 | Appearance: no damage.<br>Inductance: within $\pm 20\%$ of initial value.<br>No disconnection or short circuit.<br>外觀不能破損<br>電感值：變異值在初始值20%之內。<br>電性無短路或斷線 | Humidity:90~95%RH.<br>Temperature:40 $\pm 5^{\circ}\text{C}$ .<br>Applied current:rated current.<br>Duration:500 $\pm 12$ hrs.<br>Measured at room temperature after placing for 2 to 3hrs.<br>濕度:90~95%RH.<br>溫度:40 $\pm 5^{\circ}\text{C}$ .<br>須加電流:額定電流.<br>放置時間:500 $\pm 12$ hrs.                                                                                                                                                                                                                                                                                                                                                                                                                           |       |                                   |           |   |                             |            |   |            |    |   |                             |            |   |            |    |

### 卷盤包裝

### REEL PACKAGING

#### Taping for automatic insertion of SMT coils.

#### Surface mount devices/adjustable & fixed

This ever expanding assortment of product and unsurpassed quality control, not only give you a component that functionally performs, but just as importantly, allows the use of a variety of placement and soldering equipment necessary for the FLEXIBLE MANUFACTURING PLANT required in today's competitive world.

Various packaging schemes are available. In addition to bulk, tape and reel and magazine, methods are offered for high volume insertion equipment. The following chart lists the packaging details for FRE's SMD coils

#### 自動插入編帶的表面貼裝線圈

#### 表面貼裝設備/可調整型和固定型

它可以擴展到產品分類和非常突出的質量控制。不只是給你一各構成方面的優良的性能表現，而且最重要的，允許在當今這個競爭世界中要求的靈活製造廠使用多樣化的放置和焊接設備。

可以使用多樣的包裝方案。提供批量散裝和卷盤包裝共大量入設備使用。以下圖表為富爾的SMD線圈羅列包裝 細節：

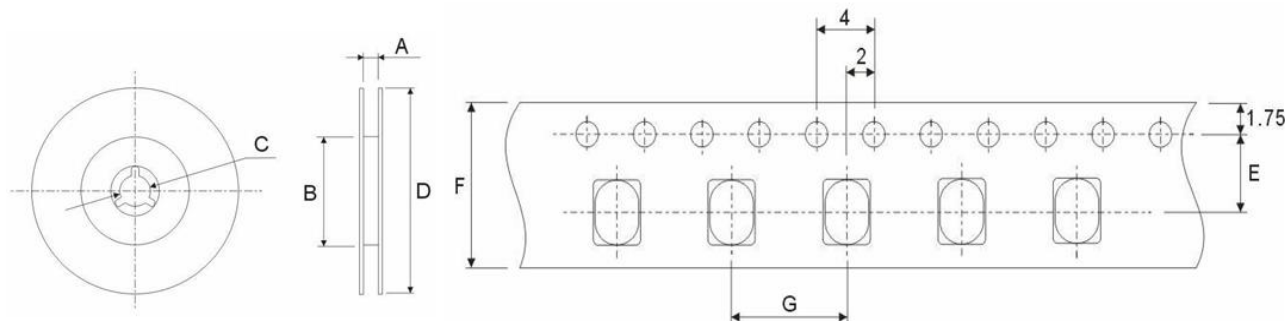
# Shielded Power Inductors -PS1038(104R)

## 卷盤包裝

## REEL PACKAGING

### Tape and reel dimensions

### 編帶和卷盤尺寸



(1)There are at least 10 blank spaces(80mm each)at both ends of the tape which do not include the coils

(2)The protective tape should not cover the holes nor be shifted to the sides.Further the tape should not be removed during transportation.

(3)The coils are positioned with the bonding surface facing bottom of the pocket.

### 注意

(1) 在沒有包括線圈的編帶的每個末端至少有10個空間(每個80毫米)。

(2)保護袋不能覆蓋洞口或者移動到側面。而且，運輸過程中,帶子不能移動

(3)線圈設置在焊接表面對著袋子底部

## 表面貼裝型,卷盤/編帶列表 SURFACE MOUNTING TYPE,REEL/TAPE LIST

| TYPE   | Pcs/Reel | Tape and Reel Dimension |     |         |     |      |    |    |
|--------|----------|-------------------------|-----|---------|-----|------|----|----|
|        |          | A                       | B   | C       | D   | E    | F  | G  |
| PS1038 | 1000     | 24.5                    | 100 | 13± 0.2 | 330 | 11.5 | 24 | 12 |

## 注意事項

## PRECAUTIONS

1.During storage,the products must be kept in an environment away from excessive high temperatures,high humidity,dust and noxious gases which may affect solderability.

2.Terminals should not be handled with fingers.This is to prevent deterioration in solderability.

3.Products should not be dropped on the floor. This is to prevent damage to the products.

1.在儲存階段,產品必須保持遠離過熱的溫度,過高的濕度灰塵和有害氣體等可能影響可焊性效果的环境。

2.接線端不能用手指直接處理。這是為了防止降低可焊性

3.產品不能掉在地板上。這是為了防止損壞鐵氧體芯