



ISO9001-2015  
Certificate No:672Q22020207194

No.T52210311961TC Date;OCT 12,2022 No.T52310270397TC Date;apr 15,2023

# 承認書

## SPECIFICATION FOR APPROVAL

客户名稱  
CUSTOMER

品名規格  
DESCRIPTION HY28A2024-0A2

客户料號  
CUS. P/N

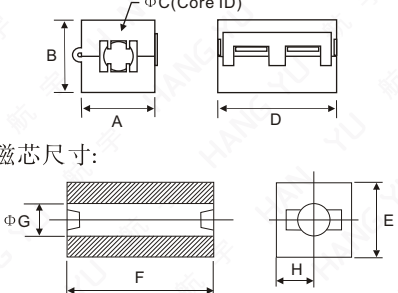
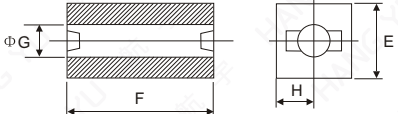
提出日期  
DATE 2025.05.12

| 出 圖<br>RDAWING |                |                 |
|----------------|----------------|-----------------|
| 發 行<br>MADE    | 復 核<br>CHECKED | 確 認<br>APPROVED |
| 武卫锋            | 陆卯生            | 林萍              |
| 销售部：张 丽        |                |                 |

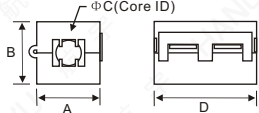
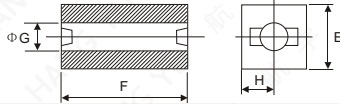
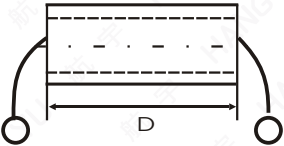
| 承 認<br>CUSTOMER APPROVE |
|-------------------------|
|                         |

# 承認書

## SPECIFICATION FOR APPROVAL

| 客戶名稱<br>CUSTOMER                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                         | 日期<br>DATE                                                                                                                  | 2025.05.12               |                            |                       |                               |                   |                                   |                   |                                   |            |                                       |                                                                         |  |                          |            |   |                |   |               |                      |  |  |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------|--------------------------|----------------------------|-----------------------|-------------------------------|-------------------|-----------------------------------|-------------------|-----------------------------------|------------|---------------------------------------|-------------------------------------------------------------------------|--|--------------------------|------------|---|----------------|---|---------------|----------------------|--|--|
| 規格<br>ITEM                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | HY28A2024-0A2                                                           | 編號<br>SERIAL NO.                                                                                                            |                          |                            |                       |                               |                   |                                   |                   |                                   |            |                                       |                                                                         |  |                          |            |   |                |   |               |                      |  |  |
| <div>1.1. 形狀尺寸(單位/毫米):<br/>SHAPE &amp; DIMENSION(unit/mm):<br/>外觀尺寸:<br/><br/>磁芯尺寸:<br/></div>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                         | <div>1.2. 實物圖:<br/>The Sample::<br/></div> |                          |                            |                       |                               |                   |                                   |                   |                                   |            |                                       |                                                                         |  |                          |            |   |                |   |               |                      |  |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                         | A                                                                                                                           | 29.0 ± 1.0 mm            |                            |                       |                               |                   |                                   |                   |                                   |            |                                       |                                                                         |  |                          |            |   |                |   |               |                      |  |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                         | B                                                                                                                           | 30.0 ± 1.0 mm            |                            |                       |                               |                   |                                   |                   |                                   |            |                                       |                                                                         |  |                          |            |   |                |   |               |                      |  |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                         | C                                                                                                                           | 13.0 ± 0.8 mm            |                            |                       |                               |                   |                                   |                   |                                   |            |                                       |                                                                         |  |                          |            |   |                |   |               |                      |  |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                         | D                                                                                                                           | 32.0 ± 1.0 mm            |                            |                       |                               |                   |                                   |                   |                                   |            |                                       |                                                                         |  |                          |            |   |                |   |               |                      |  |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                         | E                                                                                                                           | 26.0 ± 0.8 mm            |                            |                       |                               |                   |                                   |                   |                                   |            |                                       |                                                                         |  |                          |            |   |                |   |               |                      |  |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                         | F                                                                                                                           | 29.4 ± 0.8 mm            |                            |                       |                               |                   |                                   |                   |                                   |            |                                       |                                                                         |  |                          |            |   |                |   |               |                      |  |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                         | G                                                                                                                           | 13.0 ± 0.5 mm            |                            |                       |                               |                   |                                   |                   |                                   |            |                                       |                                                                         |  |                          |            |   |                |   |               |                      |  |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                         | H                                                                                                                           | 12.95 ± 0.5 mm           |                            |                       |                               |                   |                                   |                   |                                   |            |                                       |                                                                         |  |                          |            |   |                |   |               |                      |  |  |
| <div>2. 電氣性能檢測項目:<br/>ELECTRICAL REQUIREMENTS:</div> <table><tr><td><input type="checkbox"/> L</td><td></td><td>TEST FREQ</td><td>KHZ<br/>MHZ</td></tr><tr><td><input type="checkbox"/> Q</td><td></td><td>TEST FREQ</td><td>KHZ<br/>MHZ</td></tr><tr><td><input checked="" type="checkbox"/> Z</td><td>Z1= 130 Ω MIN 25 KHZ<br/>Z2= 240 Ω MIN 100 MHZ<br/>Z3= / KHZ<br/>Z4= / KHZ</td><td></td><td>KHZ<br/>MHZ<br/>KHZ<br/>MHZ</td></tr><tr><td>溫度<br/>TEMP</td><td>℃</td><td>濕度<br/>HUMIDITY</td><td>%</td></tr><tr><td>線組<br/>WINDING</td><td colspan="3">Φ0.65x0.5TSx100L(mm)</td></tr></table> <div>測試儀器<br/>TEST INSTRUMENTS</div> <div>1. Q-METER:<br/>○ HP 4342A    ○ MQ-172</div> <div>2. L.C.R. METER:<br/>○ HP 4284A</div> <div>3. IMPEDANCE ANALYZER:<br/>○ HP 4396B    ○ HP 4191A    ØE4991A<br/>ØAgilent 16194A-TESTFIXTURE</div> <div>4. L-METER:<br/>○ TH 2817A</div> <div>5. DIGITAL MINI-OHMMETER:<br/>○ VP2941A</div> |                                                                         |                                                                                                                             |                          | <input type="checkbox"/> L |                       | TEST FREQ                     | KHZ<br>MHZ        | <input type="checkbox"/> Q        |                   | TEST FREQ                         | KHZ<br>MHZ | <input checked="" type="checkbox"/> Z | Z1= 130 Ω MIN 25 KHZ<br>Z2= 240 Ω MIN 100 MHZ<br>Z3= / KHZ<br>Z4= / KHZ |  | KHZ<br>MHZ<br>KHZ<br>MHZ | 溫度<br>TEMP | ℃ | 濕度<br>HUMIDITY | % | 線組<br>WINDING | Φ0.65x0.5TSx100L(mm) |  |  |
| <input type="checkbox"/> L                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                         | TEST FREQ                                                                                                                   | KHZ<br>MHZ               |                            |                       |                               |                   |                                   |                   |                                   |            |                                       |                                                                         |  |                          |            |   |                |   |               |                      |  |  |
| <input type="checkbox"/> Q                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                         | TEST FREQ                                                                                                                   | KHZ<br>MHZ               |                            |                       |                               |                   |                                   |                   |                                   |            |                                       |                                                                         |  |                          |            |   |                |   |               |                      |  |  |
| <input checked="" type="checkbox"/> Z                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Z1= 130 Ω MIN 25 KHZ<br>Z2= 240 Ω MIN 100 MHZ<br>Z3= / KHZ<br>Z4= / KHZ |                                                                                                                             | KHZ<br>MHZ<br>KHZ<br>MHZ |                            |                       |                               |                   |                                   |                   |                                   |            |                                       |                                                                         |  |                          |            |   |                |   |               |                      |  |  |
| 溫度<br>TEMP                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | ℃                                                                       | 濕度<br>HUMIDITY                                                                                                              | %                        |                            |                       |                               |                   |                                   |                   |                                   |            |                                       |                                                                         |  |                          |            |   |                |   |               |                      |  |  |
| 線組<br>WINDING                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Φ0.65x0.5TSx100L(mm)                                                    |                                                                                                                             |                          |                            |                       |                               |                   |                                   |                   |                                   |            |                                       |                                                                         |  |                          |            |   |                |   |               |                      |  |  |
| <div>3. 外觀:<br/>THE LIMIT OF BREAKAGE:</div> <table><tr><th>項目<br/>Item</th><th>標準值<br/>Standard Value</th></tr><tr><td>一處缺陷的面積<br/>Area of a breakage</td><td>≤1mm<sup>2</sup></td></tr><tr><td>總缺陷面積<br/>All area of the breakage</td><td>≤2mm<sup>2</sup></td></tr><tr><td>缺陷深度<br/>The depth of the breakage</td><td>≤0.4mm</td></tr><tr><td>毛刺長度<br/>The length of burr</td><td>≤0.2mm</td></tr></table>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                         |                                                                                                                             |                          | 項目<br>Item                 | 標準值<br>Standard Value | 一處缺陷的面積<br>Area of a breakage | ≤1mm <sup>2</sup> | 總缺陷面積<br>All area of the breakage | ≤2mm <sup>2</sup> | 缺陷深度<br>The depth of the breakage | ≤0.4mm     | 毛刺長度<br>The length of burr            | ≤0.2mm                                                                  |  |                          |            |   |                |   |               |                      |  |  |
| 項目<br>Item                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 標準值<br>Standard Value                                                   |                                                                                                                             |                          |                            |                       |                               |                   |                                   |                   |                                   |            |                                       |                                                                         |  |                          |            |   |                |   |               |                      |  |  |
| 一處缺陷的面積<br>Area of a breakage                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | ≤1mm <sup>2</sup>                                                       |                                                                                                                             |                          |                            |                       |                               |                   |                                   |                   |                                   |            |                                       |                                                                         |  |                          |            |   |                |   |               |                      |  |  |
| 總缺陷面積<br>All area of the breakage                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | ≤2mm <sup>2</sup>                                                       |                                                                                                                             |                          |                            |                       |                               |                   |                                   |                   |                                   |            |                                       |                                                                         |  |                          |            |   |                |   |               |                      |  |  |
| 缺陷深度<br>The depth of the breakage                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | ≤0.4mm                                                                  |                                                                                                                             |                          |                            |                       |                               |                   |                                   |                   |                                   |            |                                       |                                                                         |  |                          |            |   |                |   |               |                      |  |  |
| 毛刺長度<br>The length of burr                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | ≤0.2mm                                                                  |                                                                                                                             |                          |                            |                       |                               |                   |                                   |                   |                                   |            |                                       |                                                                         |  |                          |            |   |                |   |               |                      |  |  |
| <div>4. 包裝:<br/>PACKAGING:</div> <div>內包裝採用泡塑盒, 外包裝採用紙箱, 每箱產品外面都蓋上合格章(包括品名、數量、批號、檢驗員)。<br/>Inner packing adopts foam plastics box, outer packing adopts carton and each carton should have a qualified chapter label outside(include the variety, quantity, batch number and inspector).</div>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                         |                                                                                                                             |                          |                            |                       |                               |                   |                                   |                   |                                   |            |                                       |                                                                         |  |                          |            |   |                |   |               |                      |  |  |

檢驗數據  
INSPECTION DATA

|                                                 |                                  |                |       |                |                                                                                                                                                                                                                                                                                                                                                                                                             |               |       |                |       |       |       |       |  |
|-------------------------------------------------|----------------------------------|----------------|-------|----------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|-------|----------------|-------|-------|-------|-------|--|
| 客戶名稱<br>CUSTOMER                                |                                  |                |       |                | 日期<br>DATE                                                                                                                                                                                                                                                                                                                                                                                                  | 2025.05.12    |       | 數量<br>QUANTITY | 5PCS  |       |       |       |  |
| 編號<br>SERIAL NO.                                |                                  |                |       |                | <div>形狀尺寸(單位/毫米):<br/>SHAPE &amp; DIMENSION(unit/mm):</div> <div>實物圖:<br/>The Sample::</div> <div>外觀尺寸:<br/></div> <div>磁芯尺寸:<br/></div> <div></div> |               |       |                |       |       |       |       |  |
| 規格<br>ITEM                                      | HY28A2024-0A2                    |                |       |                |                                                                                                                                                                                                                                                                                                                                                                                                             |               |       |                |       |       |       |       |  |
| 線組<br>WINDING                                   | Φ0.65x0.5TSx100L(mm)             |                |       |                |                                                                                                                                                                                                                                                                                                                                                                                                             |               |       |                |       |       |       |       |  |
| 測試頻率<br>TEST FREQ                               | Z1=                              | KHZ<br>25 MHZ  | Z2=   | KHZ<br>100 MHZ |                                                                                                                                                                                                                                                                                                                                                                                                             |               |       |                |       |       |       |       |  |
|                                                 | Z3=                              | KHZ<br>MHZ     | Z4=   | KHZ<br>MHZ     |                                                                                                                                                                                                                                                                                                                                                                                                             |               |       |                |       |       |       |       |  |
| 溫度<br>TEMP                                      | ℃                                | 濕度<br>HUMIDITY |       | %              |                                                                                                                                                                                                                                                                                                                                                                                                             |               |       |                |       |       |       |       |  |
| 項目<br>TEST ITEM                                 | 電氣性能<br>ELECTRIC CHARACTERISTICS |                |       |                | 尺寸(單位:毫米)<br>DIMENSION(unit:mm)                                                                                                                                                                                                                                                                                                                                                                             |               |       |                |       |       |       |       |  |
|                                                 | Z1(Ω)                            | Z2(Ω)          | Z3(Ω) | Z4(Ω)          | A                                                                                                                                                                                                                                                                                                                                                                                                           | B             | C     | D              | E     | F     | G     | H     |  |
|                                                 | 130                              | 240            |       |                | 29                                                                                                                                                                                                                                                                                                                                                                                                          | 30            | 13    | 32             | 26.0  | 29.4  | 13.0  | 12.95 |  |
| +                                               | /                                | /              |       |                | 1.0                                                                                                                                                                                                                                                                                                                                                                                                         | 1.0           | 0.8   | 1.0            | 0.8   | 0.8   | 0.5   | 0.5   |  |
| -                                               | 0                                | 0              |       |                | 1.0                                                                                                                                                                                                                                                                                                                                                                                                         | 1.0           | 0.8   | 1.0            | 0.8   | 0.8   | 0.5   | 0.5   |  |
| 1                                               | 157.1                            | 279.5          |       |                | 29.33                                                                                                                                                                                                                                                                                                                                                                                                       | 30.10         | 13.79 | 32.28          | 26.05 | 29.35 | 13.11 | 12.89 |  |
| 2                                               | 156.8                            | 279.4          |       |                | 29.31                                                                                                                                                                                                                                                                                                                                                                                                       | 30.09         | 13.61 | 32.32          | 26.12 | 29.42 | 12.85 | 12.95 |  |
| 3                                               | 156.6                            | 279.3          |       |                | 28.85                                                                                                                                                                                                                                                                                                                                                                                                       | 30.12         | 13.57 | 32.32          | 25.94 | 29.44 | 13.01 | 13.02 |  |
| 4                                               | 157.3                            | 280.1          |       |                | 28.89                                                                                                                                                                                                                                                                                                                                                                                                       | 30.00         | 13.72 | 32.45          | 25.97 | 29.38 | 13.03 | 13.10 |  |
| 5                                               | 157.5                            | 279.3          |       |                | 28.86                                                                                                                                                                                                                                                                                                                                                                                                       | 29.95         | 13.66 | 32.45          | 25.85 | 29.36 | 12.94 | 12.91 |  |
| 6                                               | 156.8                            | 279.7          |       |                | 29.33                                                                                                                                                                                                                                                                                                                                                                                                       | 29.97         | 13.69 | 32.40          | 26.01 | 29.30 | 12.97 | 12.88 |  |
| 7                                               | 157.9                            | 279.5          |       |                | 29.30                                                                                                                                                                                                                                                                                                                                                                                                       | 29.99         | 13.67 | 32.42          | 26.13 | 29.45 | 13.04 | 13.07 |  |
| 8                                               | 157.7                            | 279.9          |       |                | 29.38                                                                                                                                                                                                                                                                                                                                                                                                       | 29.94         | 13.68 | 32.30          | 26.08 | 29.40 | 13.10 | 12.90 |  |
| 9                                               | 157.3                            | 279.3          |       |                | 28.90                                                                                                                                                                                                                                                                                                                                                                                                       | 30.12         | 13.59 | 32.29          | 25.99 | 29.49 | 12.88 | 13.09 |  |
| 10                                              | 156.9                            | 280.2          |       |                | 28.86                                                                                                                                                                                                                                                                                                                                                                                                       | 30.15         | 13.74 | 32.43          | 25.93 | 29.53 | 12.85 | 12.95 |  |
| X̄                                              | 157.28                           | 279.56         |       |                | 29.10                                                                                                                                                                                                                                                                                                                                                                                                       | 30.04         | 13.67 | 32.36          | 26.00 | 29.41 | 12.97 | 12.97 |  |
| Y/N                                             | Y                                | Y              |       |                | Y                                                                                                                                                                                                                                                                                                                                                                                                           | Y             | Y     | Y              | Y     | Y     | Y     | Y     |  |
| 測試儀器:<br>TEST INSTRUMENTS:<br><br>E4991A+16194A |                                  |                |       |                |                                                                                                                                                                                                                                                                                                                          |               |       |                |       |       |       |       |  |
|                                                 |                                  |                |       |                |                                                                                                                                                                                                                                                                                                                                                                                                             |               |       |                |       |       |       |       |  |
|                                                 |                                  |                |       |                | 檢驗<br>INSPECTED                                                                                                                                                                                                                                                                                                                                                                                             | 復核<br>CHECKED |       | 確認<br>APPROVED |       |       |       |       |  |
|                                                 |                                  |                |       |                | 武卫锋                                                                                                                                                                                                                                                                                                                                                                                                         |               | 陆卯生   |                | 林萍    |       |       |       |  |

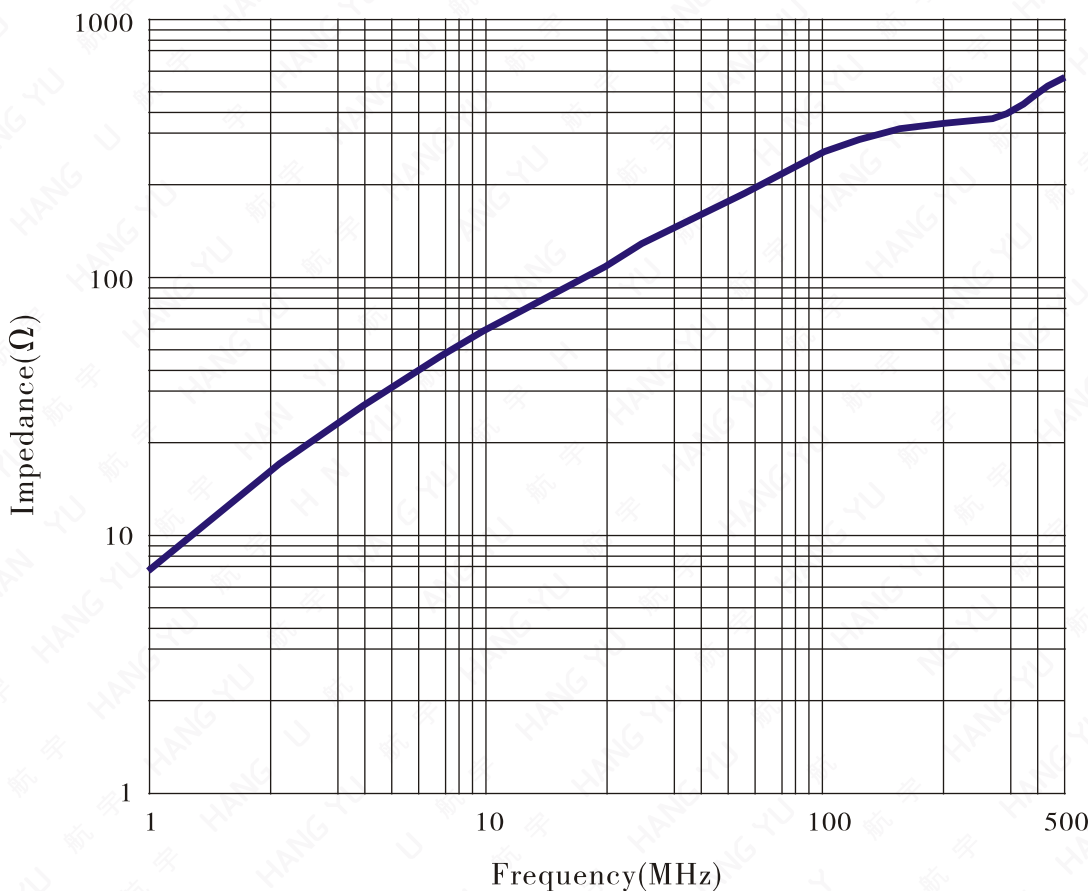
## 阻抗 - 頻率曲綫

### IMPEDANCE V.S FREQUENCY (Z-Y)

|                  |               |                  |            |
|------------------|---------------|------------------|------------|
| 客戶名稱<br>CUSTOMER |               | 日期<br>DATE       | 2025.05.12 |
| 規格<br>ITEM       | HY28A2024-0A2 | 編號<br>SERIAL NO. |            |

## 材質特性 MATERIAL CHARACTERISTICS

| 材料牌號<br>Material | 初始磁導率<br>Initial Permeability | 比損耗因子<br>Relative Loss Factor                     | 比溫度系數<br>Relative Temperature Coefficient         | 飽和磁通密度<br>Saturation Magnetic Flux Density | 剩磁<br>Remanence          | 矯頑力<br>Coercivity         | 居里溫度<br>Curie Temperature | 電阻率<br>Electrical Resistivity | 密度<br>Density                       |
|------------------|-------------------------------|---------------------------------------------------|---------------------------------------------------|--------------------------------------------|--------------------------|---------------------------|---------------------------|-------------------------------|-------------------------------------|
| Unit symbol      | $\mu_i$<br><b>±20%</b>        | $\tan \delta / \mu_i$<br><b>× 10<sup>-6</sup></b> | $\alpha \mu_i \gamma$<br><b>× 10<sup>-6</sup></b> | <b>Bs</b><br><b>(MT)</b>                   | <b>Br</b><br><b>(MT)</b> | <b>HC</b><br><b>(A/m)</b> | <b>Tc</b><br><b>(°C)</b>  | $\rho$<br><b>(Ω · m)</b>      | <b>d</b><br><b>g/cm<sup>3</sup></b> |
|                  |                               | 16 (0.1MHz)                                       | 5 - 10                                            | 280(1600A/m)                               | 200                      | 20                        | >130                      | >10 <sup>5</sup>              | 4.6                                 |



測試條件：  
TESTING CONDITION:

- |                             |                      |
|-----------------------------|----------------------|
| 1. 測試儀器:                    | E4991A+16194A        |
| Testing Equipment:          |                      |
| 2. 測試頻率區間:                  | 1-500MHz             |
| Testing Frequency Range:    |                      |
| 3. 測試綫組:                    | Φ0.65x0.5TSx100L(mm) |
| Testing Coil Specification: |                      |

| 測 試<br>TESTED | 復 核<br>CHECKED | 確 認<br>APPROVED |
|---------------|----------------|-----------------|
| 武卫锋           | 陆卯生            | 林萍              |