axing®

Competence in
Communication
Technologies

# Soft Ferrit Cores

## Catalogue

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# 1. Characteristics of Materials

## 1.1. High Bm & Thermal Shock Resistance

| Characteristics | | | Unit | NB40H | NH50 | NB43H | NB45H | NB48H |
|---|---|---|---|---|---|---|---|---|
| Initial permeability | μi | 23°C | | 800 | 500 | 400 | 350 | 300 |
| Saturation magnetic flux density | Bs | 23°C | mT | 400 | 400 | 430 | 450 | 480 |
| | | | KA/m | 4 | 4 | 4 | 4 | 4 |
| Relative loss factor | tanδ/μi | 23°C | $X10^{-6}$ | 22 | 18 | 22 | 25 | 25 |
| | | | MHz | 0.3 | 0.1 | 0.1 | 0.1 | 0.1 |
| Relative temperature factor | αμ γ | 20…60°C | $X10^{-6}$ | 10…20 | 10…20 | 7…15 | 13…25 | 15…25 |
| Curie temperature | Tc | | °C | 180 | 200 | 225 | 250 | 300 |
| Electrical resistivity | ρ | | Ωm | $10^6$ | $10^6$ | $10^6$ | $10^6$ | $10^6$ |

## 1.2. High Permeability

| Characteristics | | | Unit | NP23 | NP20 | NT15 |
|---|---|---|---|---|---|---|
| Initial permeability | μi | 23°C | | 3000 | 2000 | 1500 |
| Saturation magnetic flux density | Bs | 23°C | mT | 230 | 270 | 280 |
| | | | KA/m | 4 | 4 | 4 |
| Relative loss factor | tanδ/μi | 23°C | $X10^{-6}$ | 8 | 10 | 70 |
| | | | MHz | 0.1 | 0.1 | 0.1 |
| Relative temperature factor | αμ γ | 20…60°C | $X10^{-6}$ | 1…3 | 2…5 | 1…5 |
| Curie temperature | Tc | | °C | 80 | 110 | 100 |
| Electrical resistivity | ρ | | Ωm | $10^6$ | $10^6$ | $10^6$ |

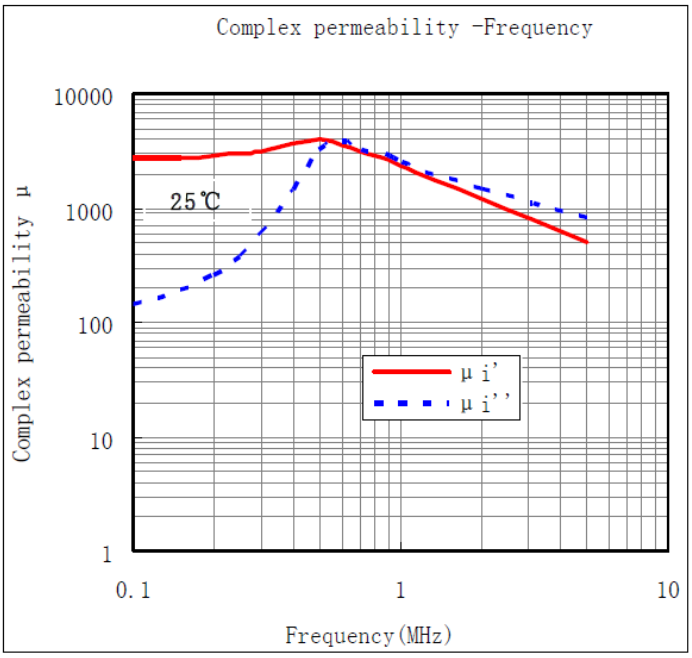
## 1.3. Standard Characteristics of Materials

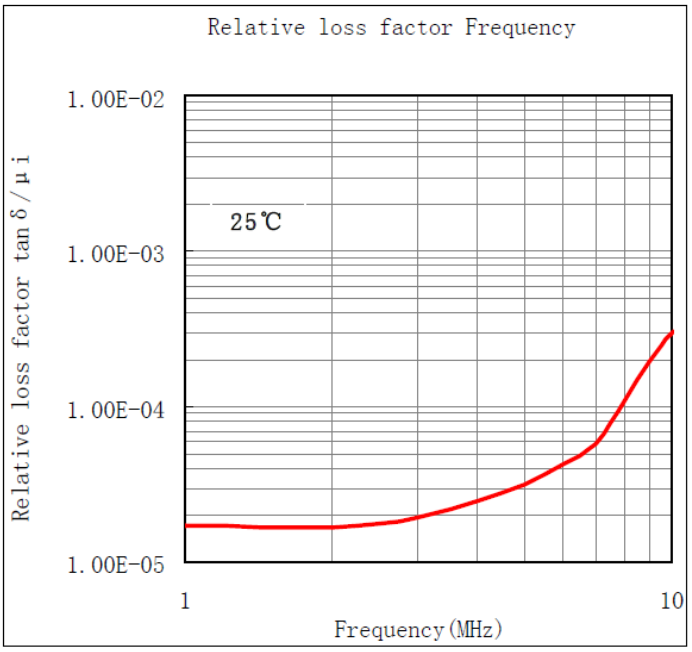
| Materials | μi | Practical frequency | tanδ/μi | | aμγ 20-60℃ | Bs | | Hc | Tc | ρ | d |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | MHz | (x $10^{-6}$) | MHz | (x$10^{-6}$) | (mT) | (Oe) | (Oe) | (℃) | (Ωm) | (g/cm$^3$) |
| **NP23** | 3000 | 0.01…0.5 | 8 | 0.1 | 1…3 | 230 | 50 | 0.15 | 80 | $10^6$ | 5.1 |
| **NP20** | 2000 | 0.01…0.5 | 10 | 0.1 | 2…5 | 270 | 50 | 0.13 | 110 | $10^6$ | 5.1 |
| **NT10** | 1000 | 0.01…1.0 | 10 | 0.1 | 7…15 | 350 | 50 | 0.15 | 140 | $10^6$ | 5.1 |
| **NT08** | 800 | 0.01…1.0 | 13 | 0.1 | 8…16 | 360 | 50 | 0.18 | 150 | $10^6$ | 5.1 |
| **NB40H** | 800 | 0.01…1.0 | 22 | 0.3 | 10…20 | 400 | 50 | 0.30 | 180 | $10^6$ | 5.1 |
| **NH50** | 500 | 0.05…2.0 | 18 | 0.1 | 10…20 | 400 | 50 | 0.45 | 200 | $10^6$ | 5.2 |
| **NB43H** | 400 | 0.05…2.0 | 22 | 0.1 | 7…15 | 430 | 50 | 0.40 | 225 | $10^6$ | 5.1 |
| **NB45H** | 350 | 0.05…3.0 | 25 | 0.1 | 13…25 | 450 | 50 | 0.56 | 250 | $10^6$ | 5.2 |
| **NB48H** | 300 | 0.05…3.0 | 25 | 0.1 | 15…25 | 480 | 50 | 0.56 | 300 | $10^6$ | 5.2 |
| **NQ20** | 30 | 0.1…10 | 150 | 0.1 | 38…40 | 200 | 50 | 2.8 | 300 | $10^6$ | 5.1 |

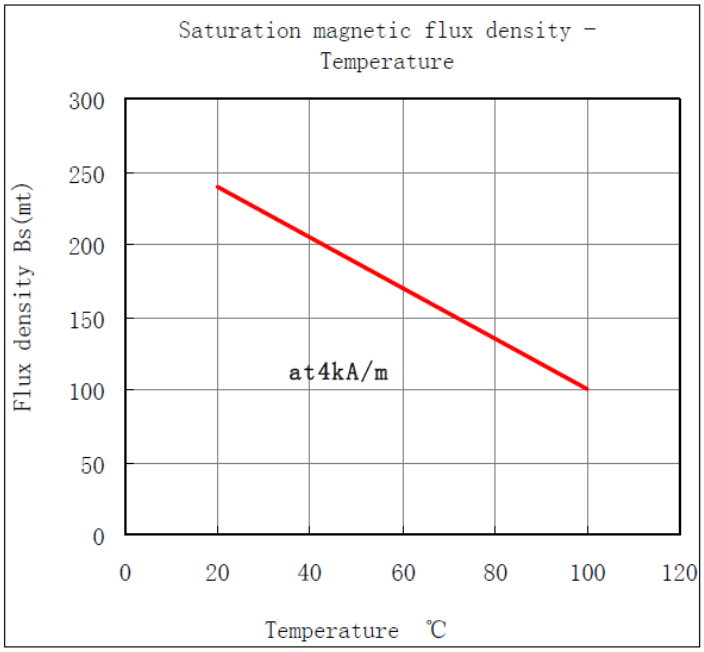
# 1.4. Specific Characteristics of Materials

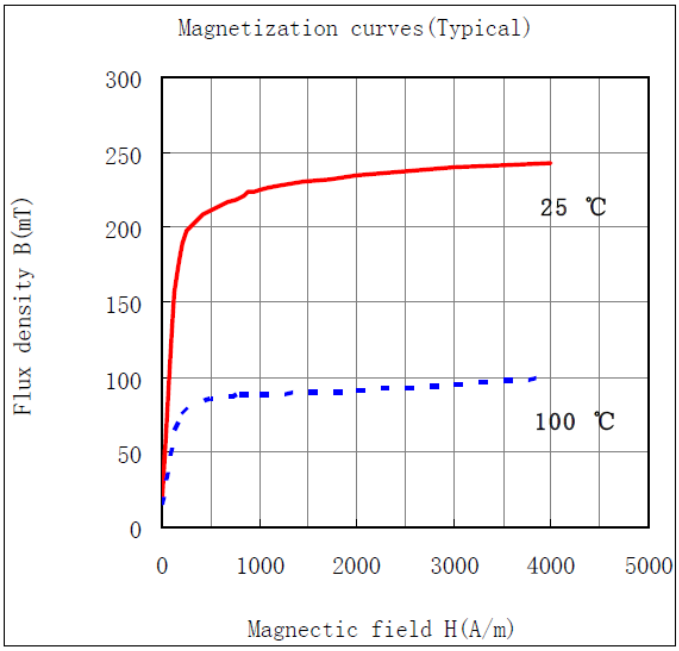
## 1.4.1. NP23

| Material | Initial permeability μi | Relative loss factor | | Relative temperature factor of μi | Flux density | Curie temperature | Electric resistivity | Density |
|---|---|---|---|---|---|---|---|---|
| | | (x10$^{-6}$) | (MHz) | 20to 60°C | (mT) | (°C) | (Ωm) | (g/cm$^3$) |
| **NP23** | **3000** | **8** | **0.1** | **1...3** | **230** | **80** | **$10^6$** | **5.1** |



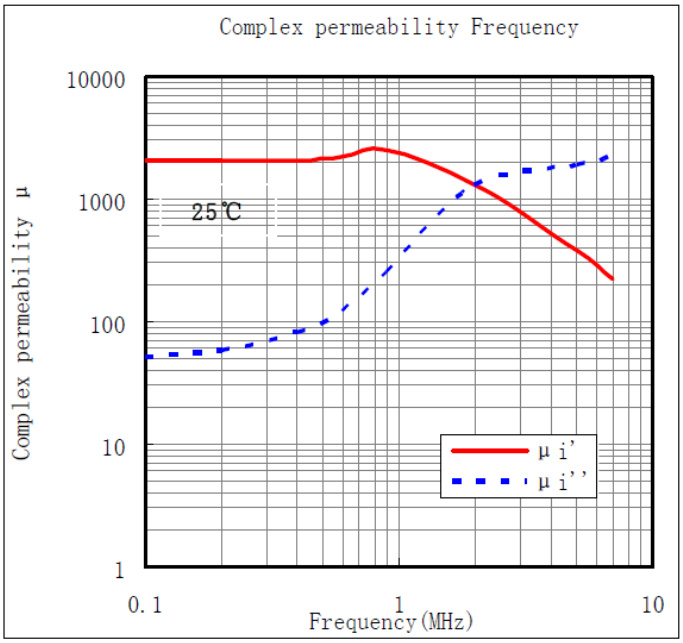



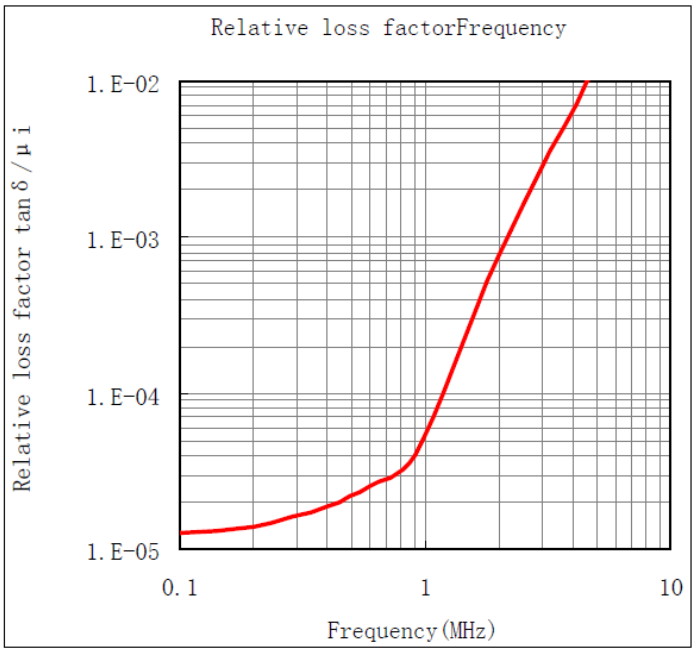



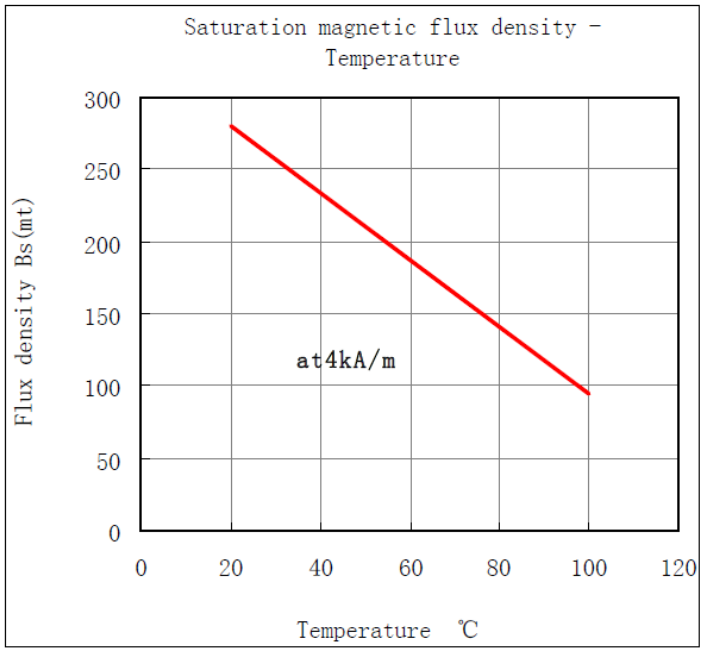



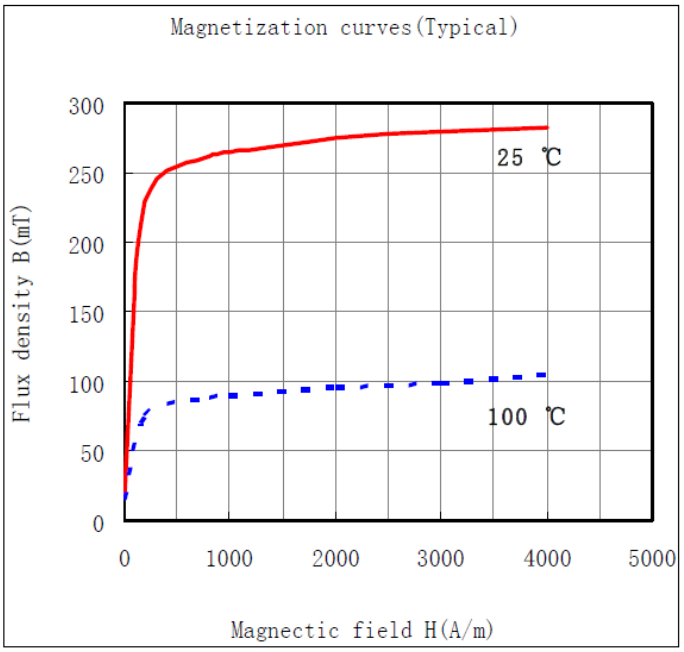
### 1.4.2. NP20

| Material | Initial permeability μi | Relative loss factor | | Relative temperature factor of μi | Flux density | Curie temperature | Electric resistivity | Density |
|---|---|---|---|---|---|---|---|---|
| | | (x10$^{-6}$) | (MHz) | 20to 60℃ | (mT) | (℃) | (Ωm) | (g/cm$^3$) |
| **NP20** | **2000** | **10** | **0.1** | **2...5** | **270** | **110** | **$10^6$** | **5.1** |



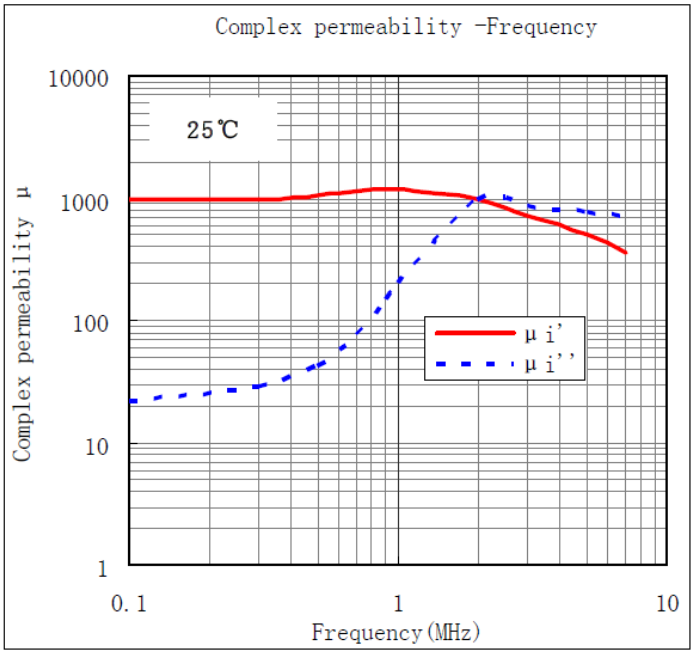



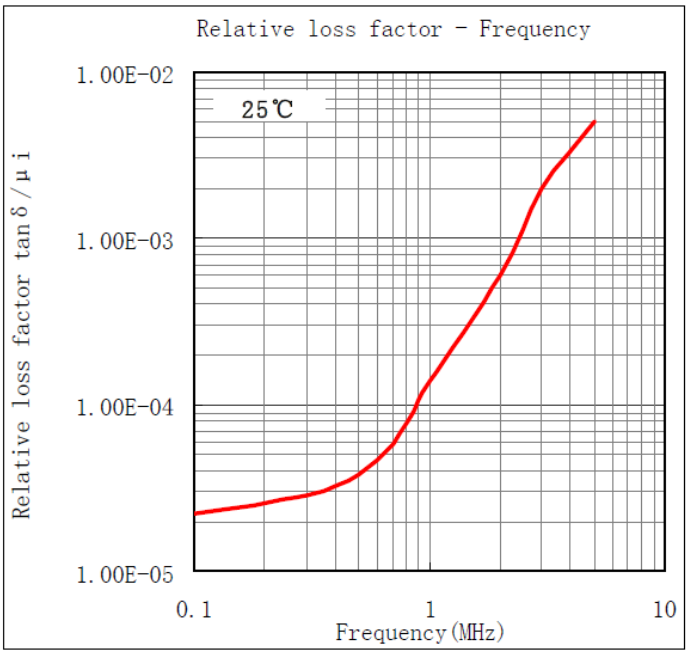



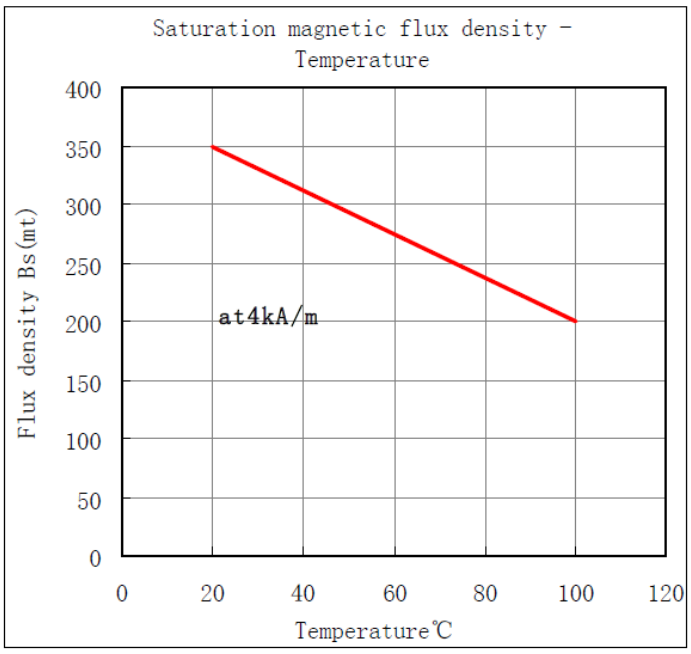



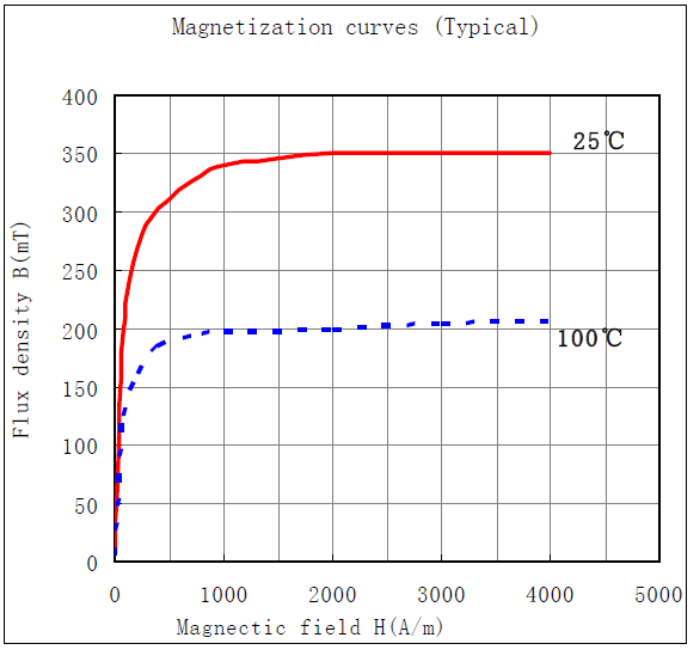
### 1.4.3. NT10

| Material | Initial permeability μi | Relative loss factor | | Relative temperature factor of μi | Flux density | Curie temperature | Electric resistivity | Density |
|---|---|---|---|---|---|---|---|---|
| | | (x10$^{-6}$) | (MHz) | 20 to 60°C | (mT) | (°C) | (Ωm) | (g/cm$^3$) |
| **NT10** | **1000** | **10** | **0.1** | **7...15** | **350** | **140** | **$10^6$** | **5.1** |



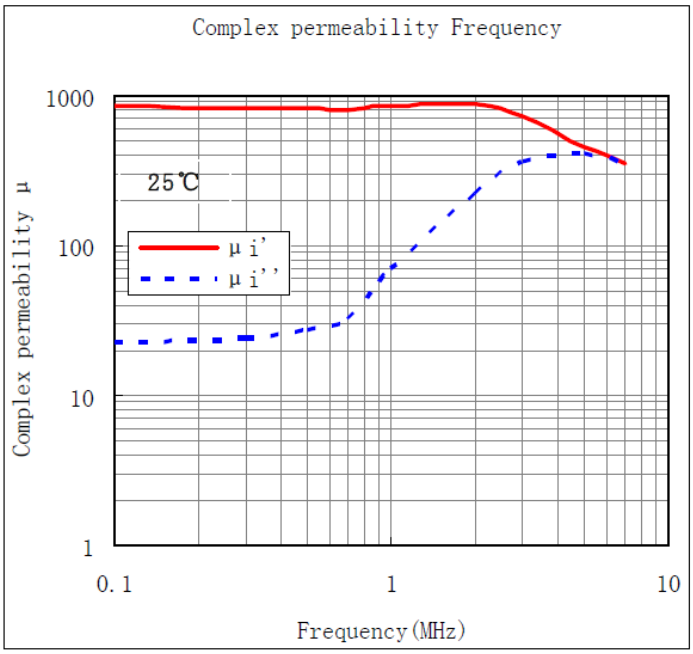



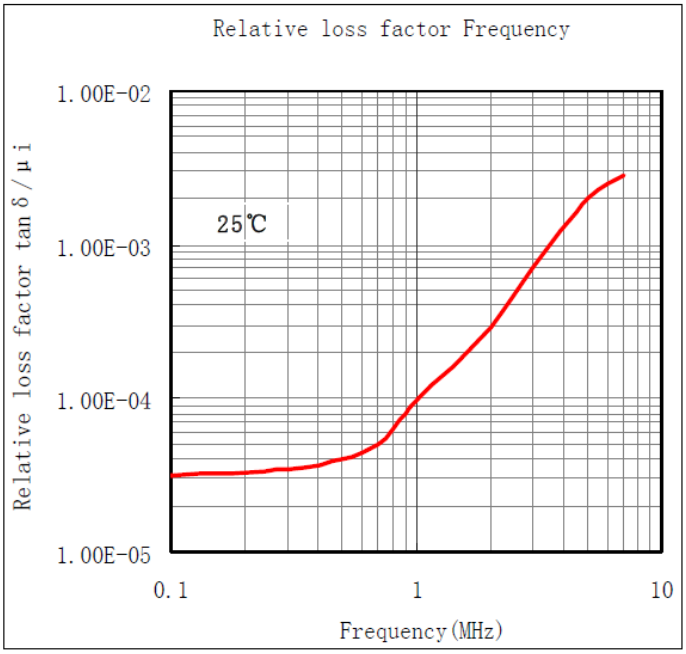



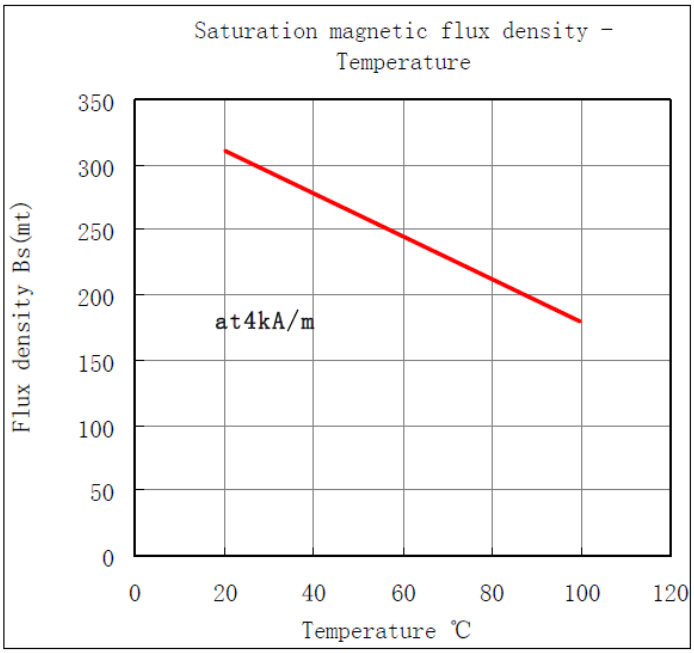



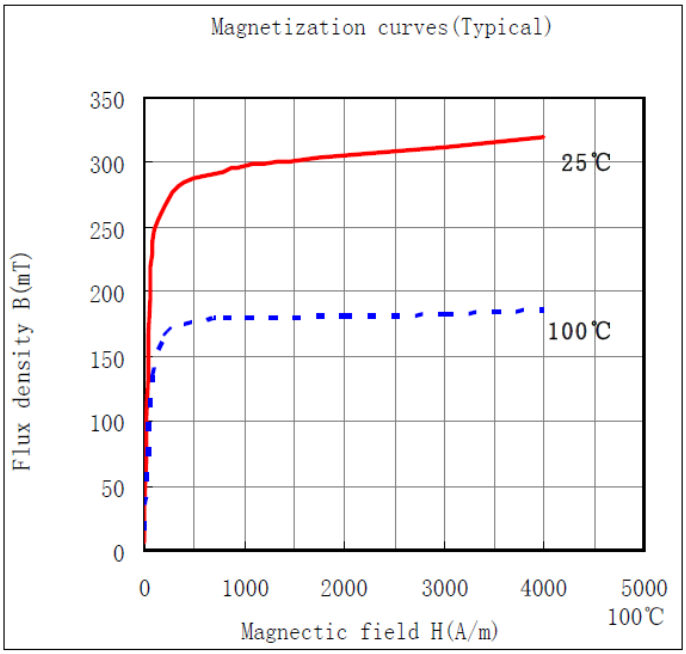
### 1.4.4. NT08

| Material | Initial permeability μ i | Relative loss factor | | Relative temperature factor of μi | Flux density | Curie temperature | Electric resistivity | Density |
|---|---|---|---|---|---|---|---|---|
| | | (x10$^{-6}$) | (MHz) | 20 to 60°C | (mT) | (°C) | (Ωm) | (g/cm$^3$) |
| **NT08** | **800** | **13** | **0.1** | **8...16** | **360** | **150** | **$10^6$** | **5.1** |



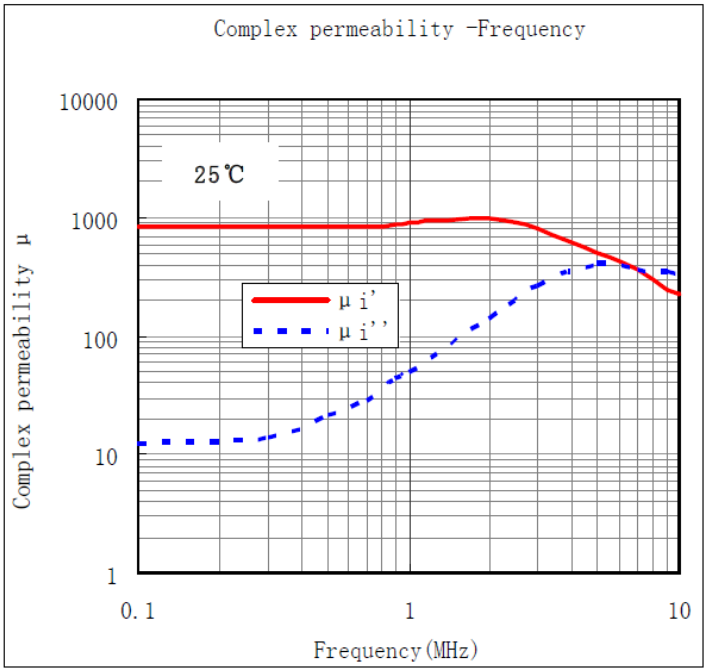



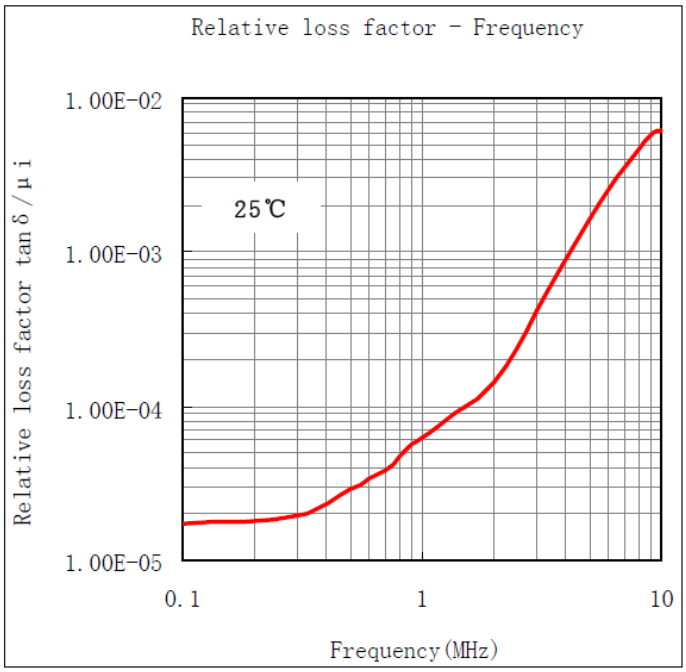



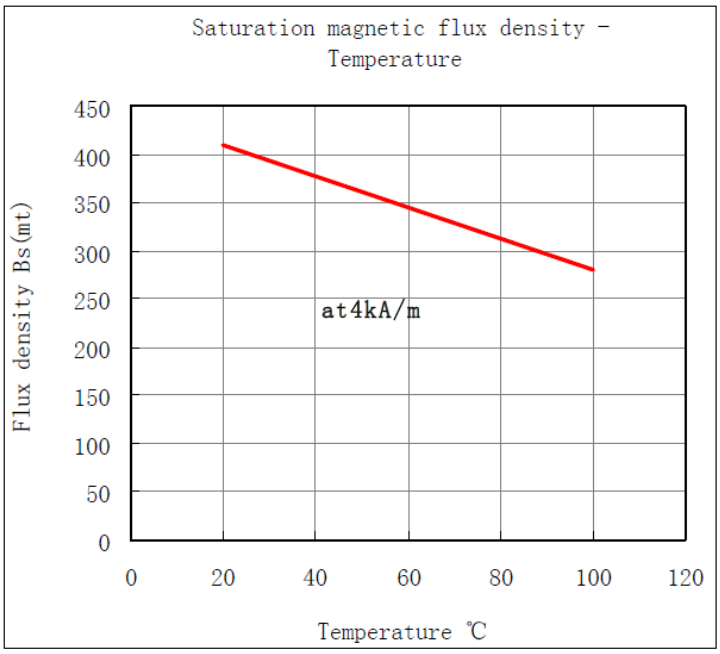



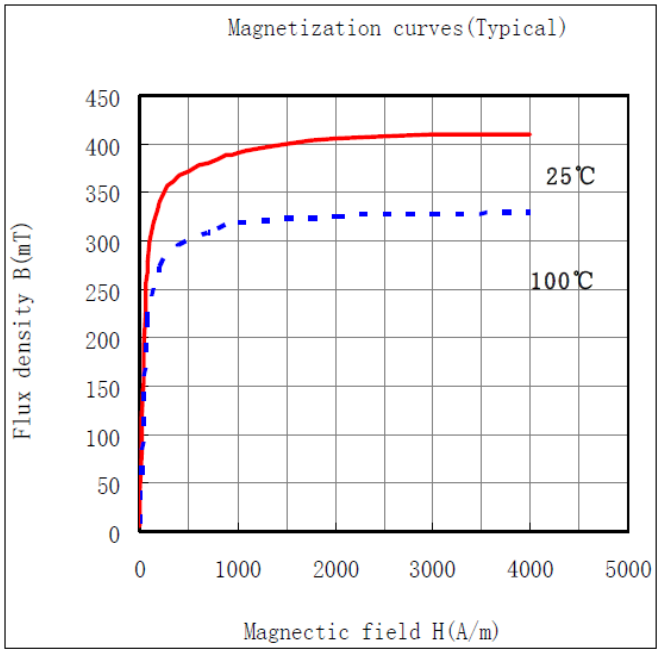
### 1.4.5. NB40H

| Material | Initial permeability μi | Relative loss factor | | Relative temperature factor of μi | Flux density | Curie Temperature | Electric resistivity | Density |
|---|---|---|---|---|---|---|---|---|
| | | (x10$^{-6}$) | (MHz) | 20 to 60°C | (mT) | (°C) | (Ωm) | (g/cm$^3$) |
| **NB40H** | **800** | **22** | **0.1** | **10...20** | **400** | **180** | **$10^6$** | **5.1** |



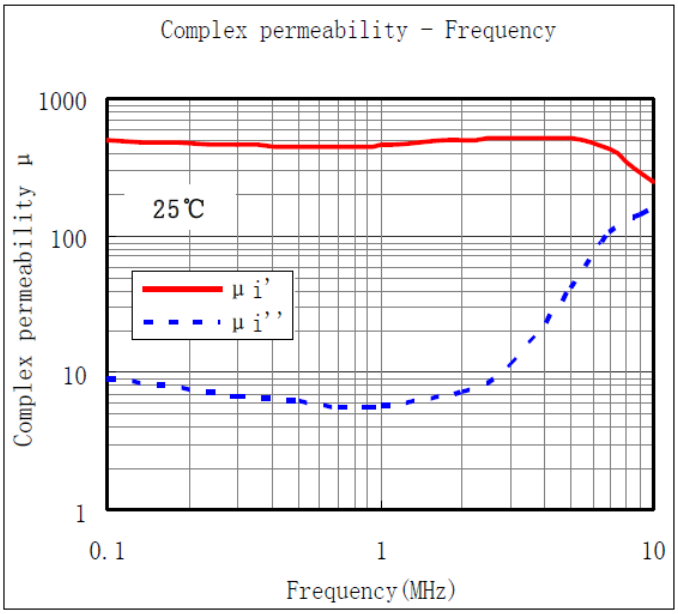



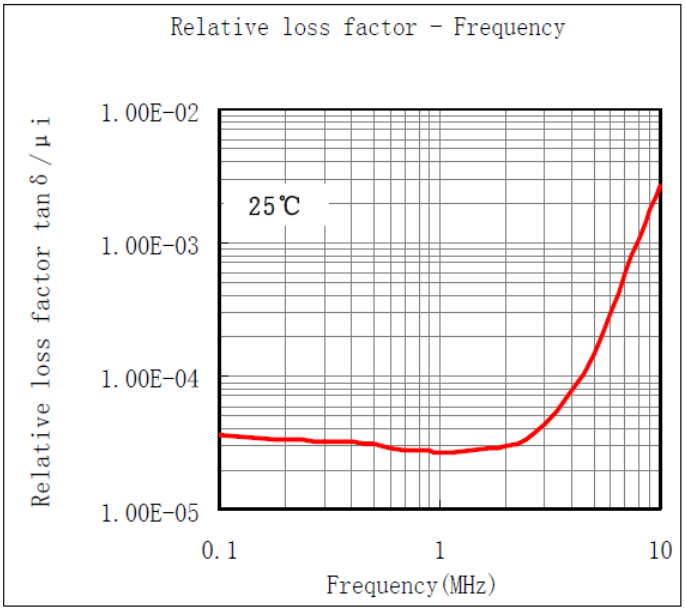



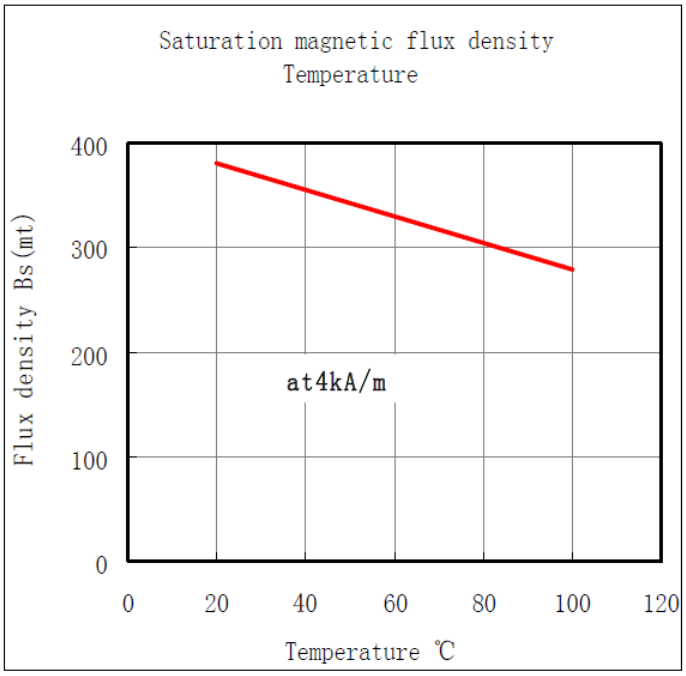



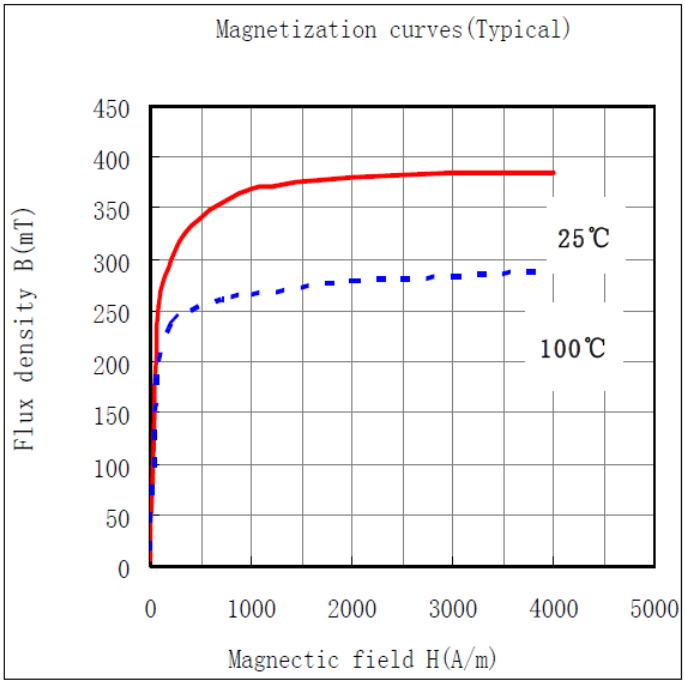
### 1.4.6. NH50

| Material | Initial permeability µi | Relative loss factor | | Relative temperature factor of µi | Flux density | Curie temperature | Electric resistivity | Density |
|---|---|---|---|---|---|---|---|---|
| | | (x10-6) | (MHz) | 20to 60℃ | (mT) | (℃) | (Ωm) | (g/cm3) |
| **NH50** | **500** | **18** | **0.1** | **10...20** | **400** | **200** | **$10^6$** | **5.2** |



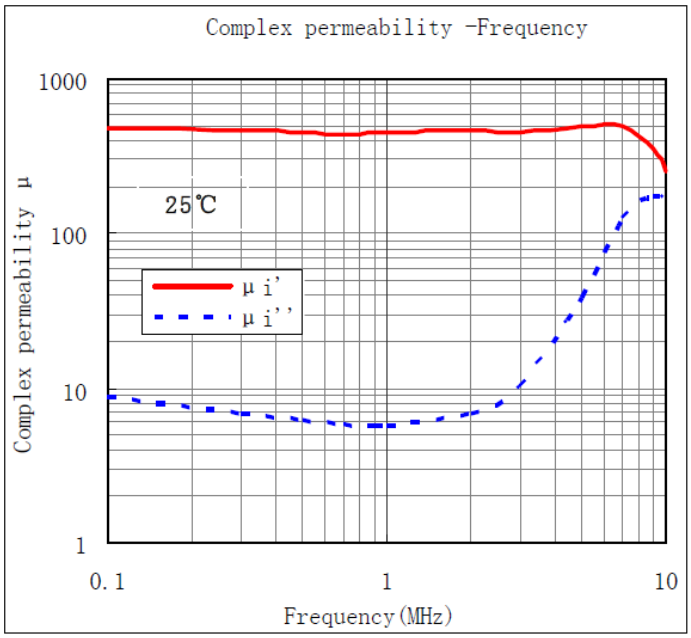



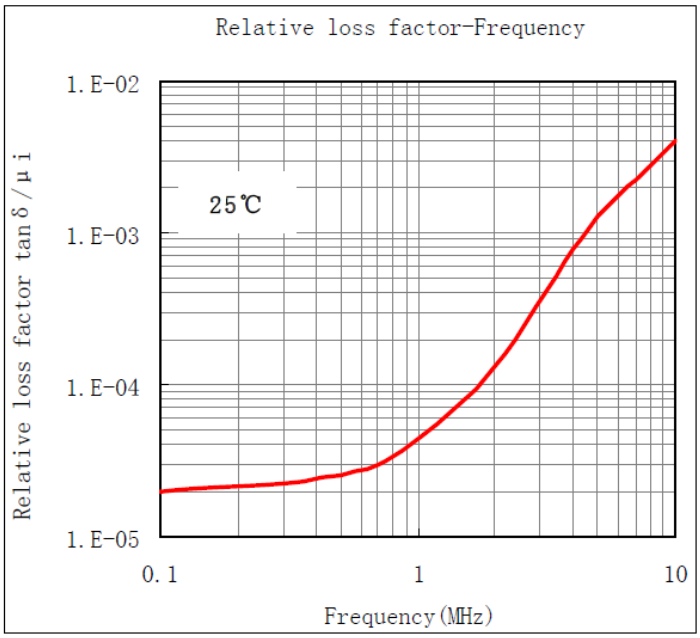



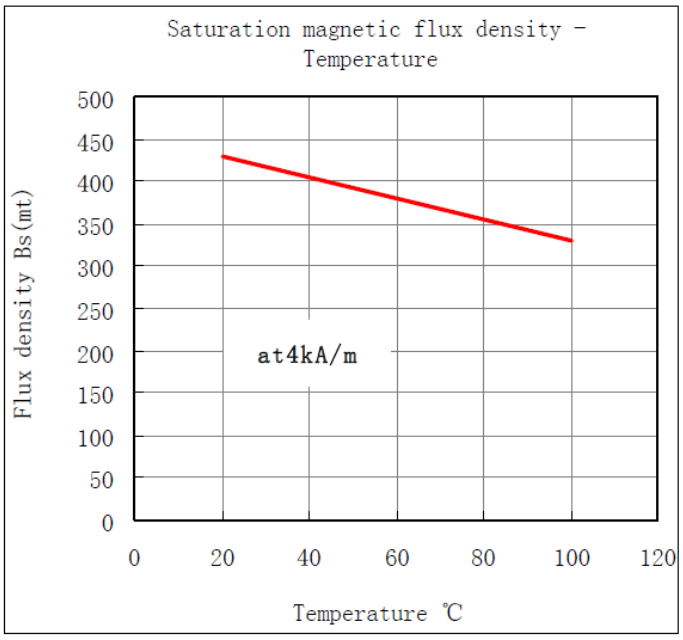



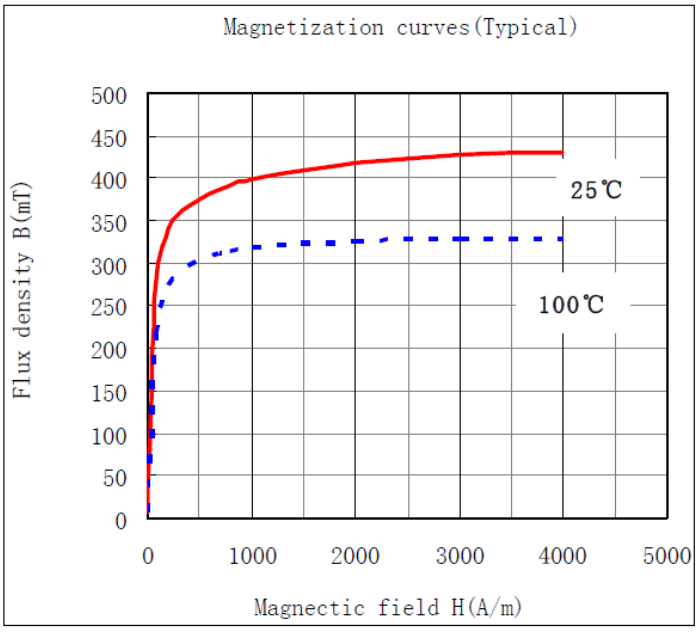
### 1.4.7. NB43H

| Material | Initial permeability μ i | Relative loss factor | | Relative temperature factor of μi | Flux density | Curie temperature | Electric resistivity | Density |
|---|---|---|---|---|---|---|---|---|
| | | (x10$^{-6}$) | (MHz) | 20to 60°C | (mT) | (℃) | (Ωm) | (g/cm$^3$) |
| **NB43H** | **400** | **22** | **0.1** | **7...15** | **430** | **225** | **$10^6$** | **5.1** |



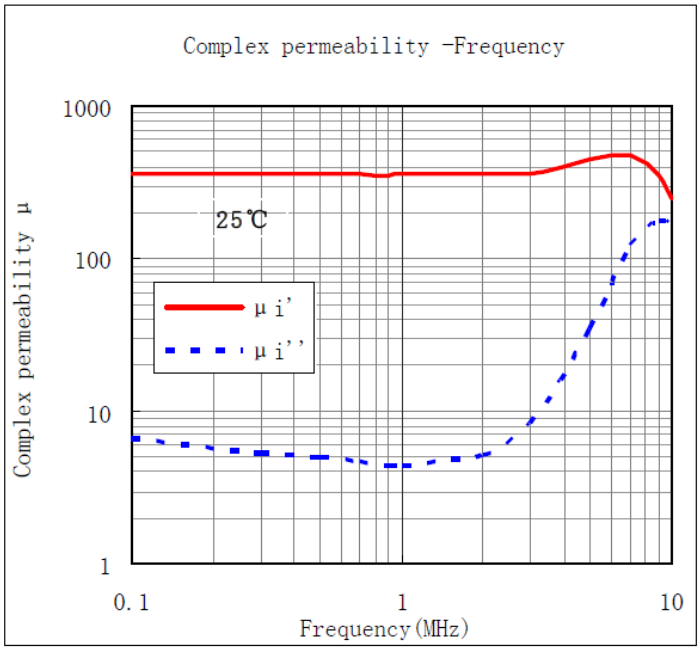



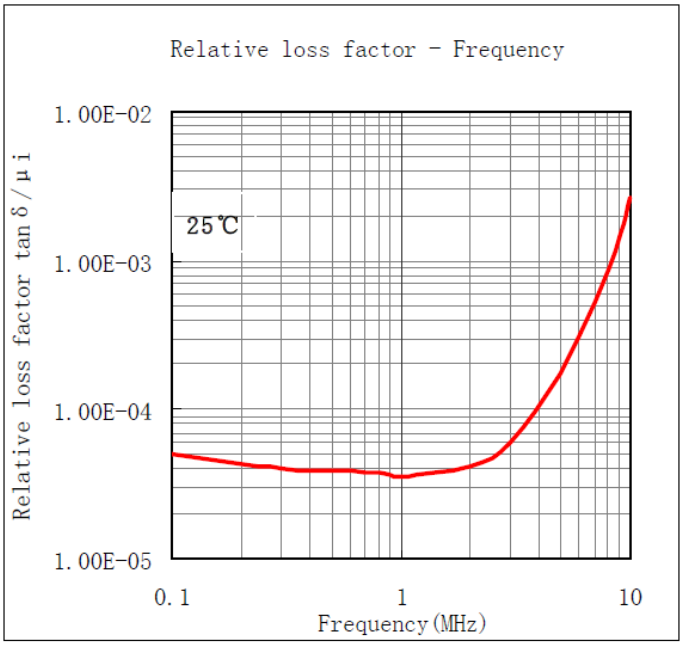



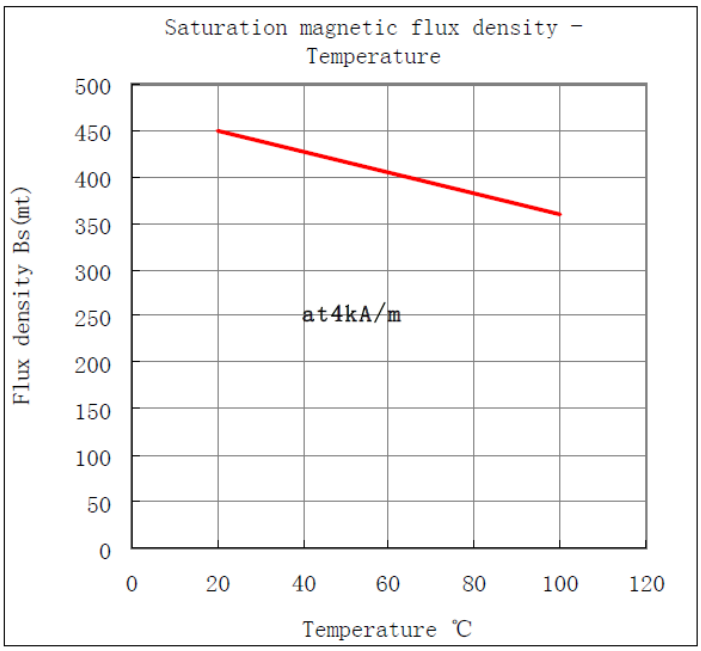



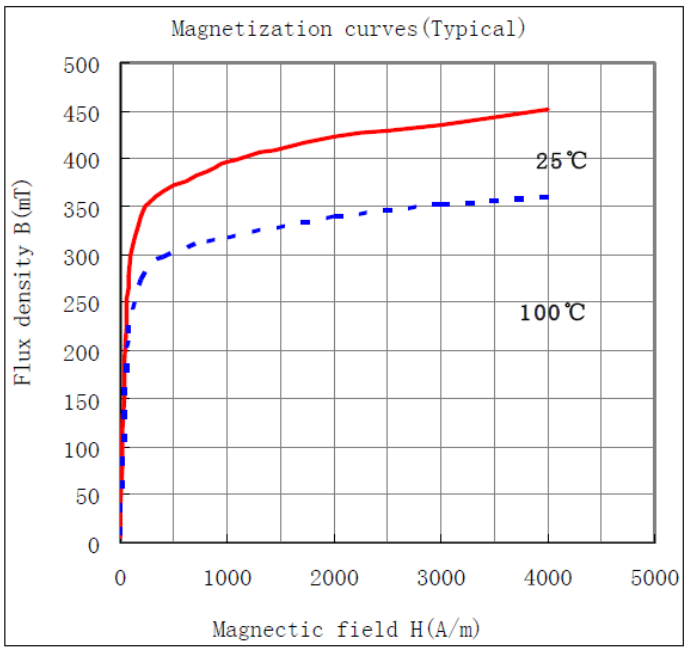
### 1.4.8. NB45H

| Material | Initial permeability μ i | Relative loss factor | | Relative temperature factor of μi | Flux density | Curie temperature | Electric resistivity | Density |
|---|---|---|---|---|---|---|---|---|
| | | ($x10^{-6}$) | (MHz) | 20to 60°C | (mT) | (℃) | (Ωm) | ($g/cm^3$) |
| **NB45H** | **350** | **25** | **0.1** | **13...25** | **450** | **250** | **$10^6$** | **5.2** |



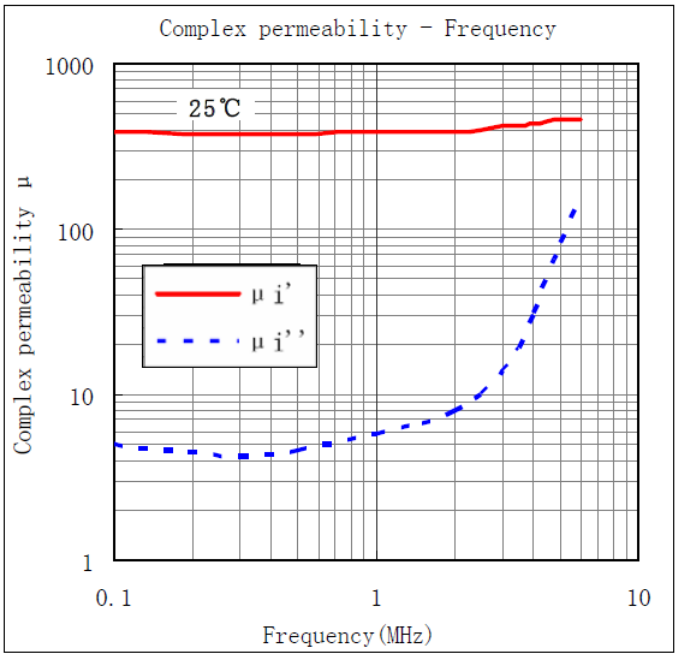



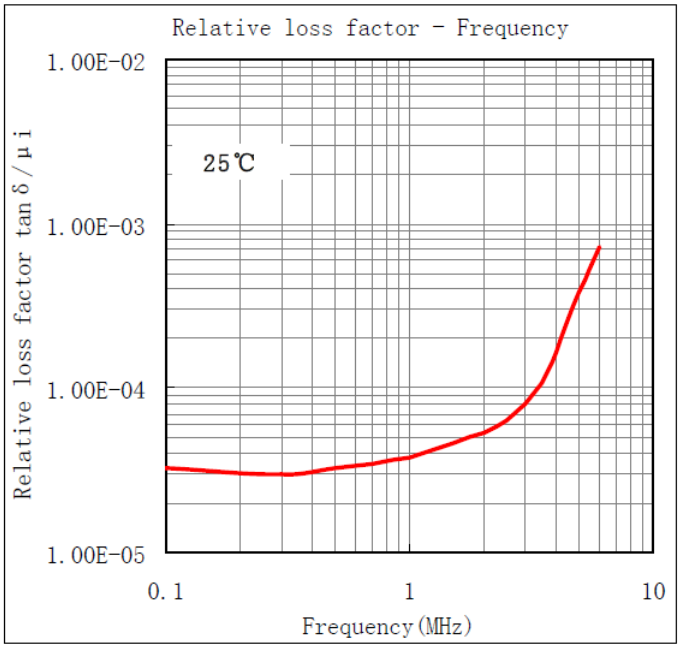



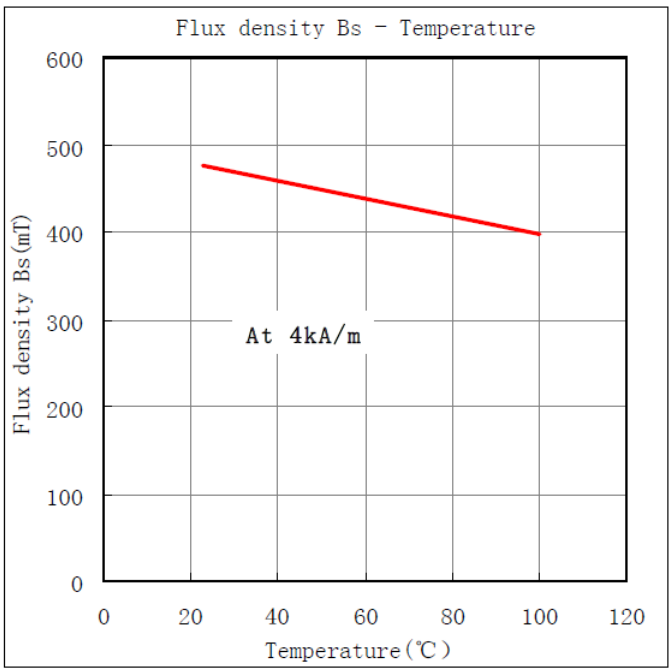



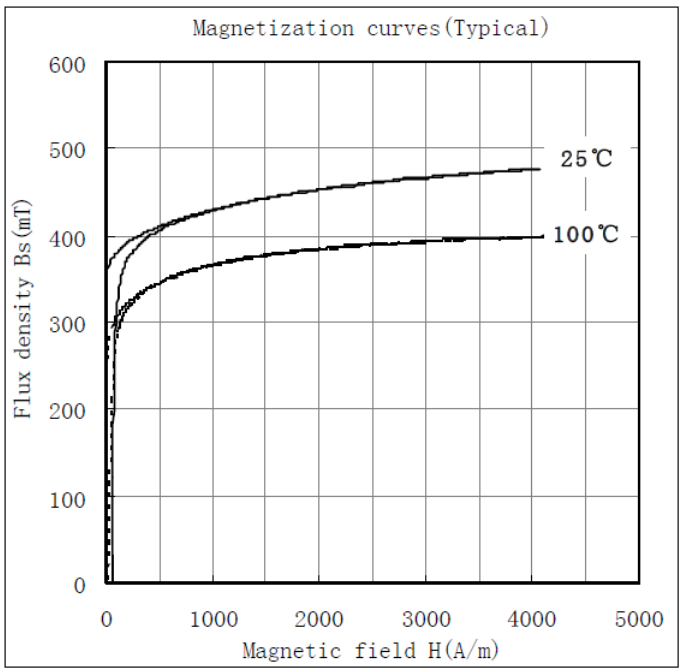
### 1.4.9. NB48H

| Material | Initial permeability μ i | Relative loss factor | | Relative temperature factor of μi | Flux density | Curie temperature | Electric resistivity | Density |
|---|---|---|---|---|---|---|---|---|
| | | ($x10^{-6}$) | (MHz) | 20to 60°C | (mT) | (℃) | (Ωm) | ($g/cm^3$) |
| **NB48H** | **300** | **25** | **0.1** | **15...25** | **480** | **300** | **$10^6$** | **5.2** |



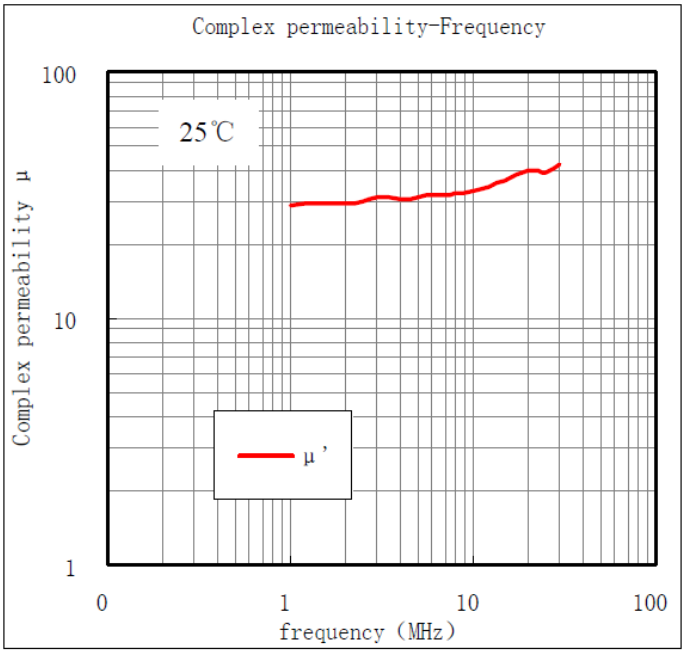



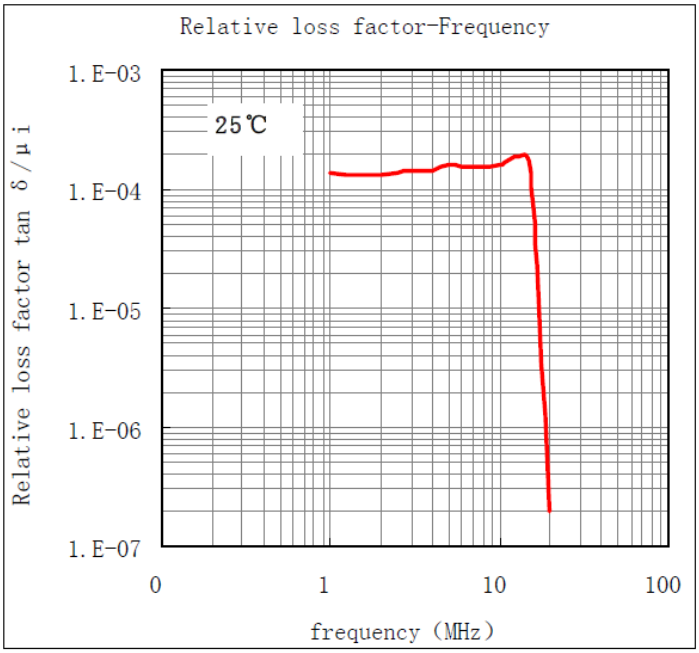



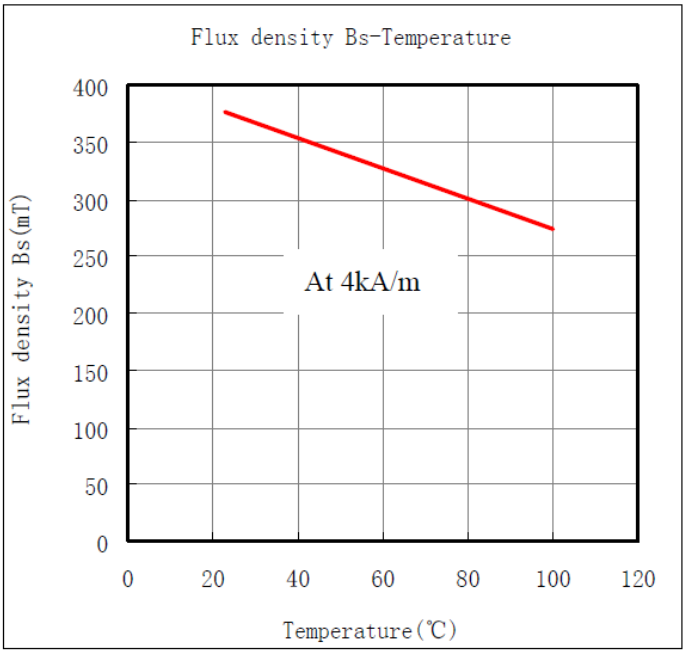



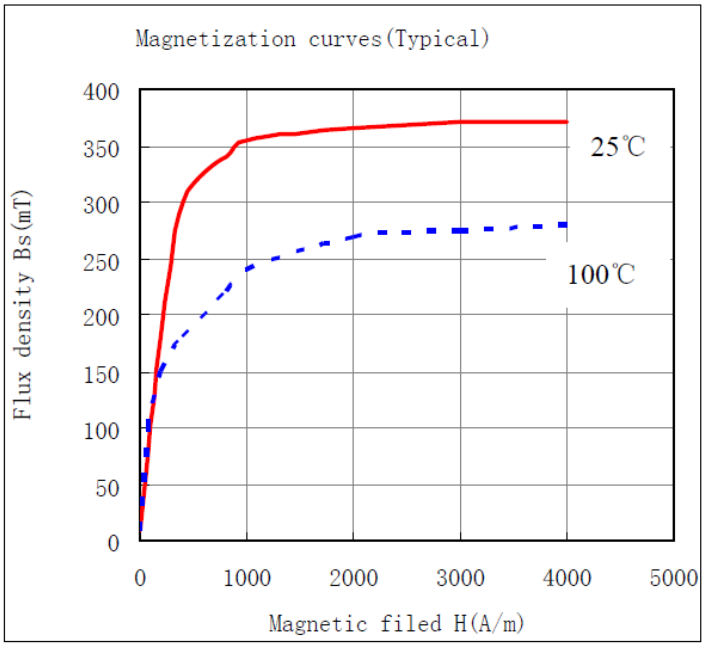
## 1.4.10. NQ20

| Material | Initial permeability μ i | Relative loss factor | | Relative temperature factor of μi | Flux density | Curie temperature | Electric resistivity | Density |
|---|---|---|---|---|---|---|---|---|
| | | (x10$^{-6}$) | (MHz) | 20to 60°C | (mT) | (℃) | (Ωm) | (g/cm$^3$) |
| **NQ20** | **30** | **150** | **0.1** | **38...40** | **200** | **300** | **$10^6$** | **5.1** |



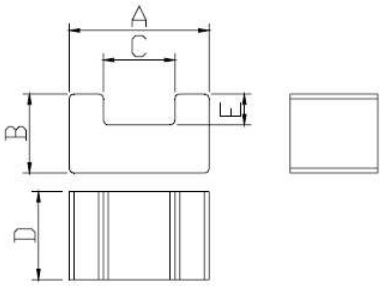



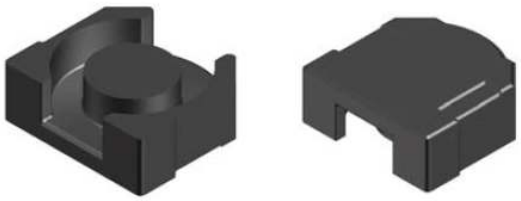
# 2. Available Types

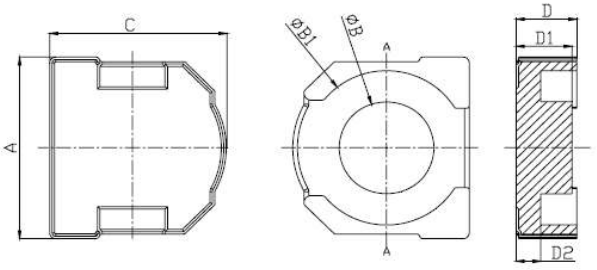
## 2.1. U CORE




| | A | B | C | D | E |
|---|---|---|---|---|---|
| AX-U2.03×1.14×1.27 | 2.03 ±0.10 | 1.14 ±0.10 | 1.04 ±0.10 | 1.27 ±0.10 | 0.44 ±0.10 |

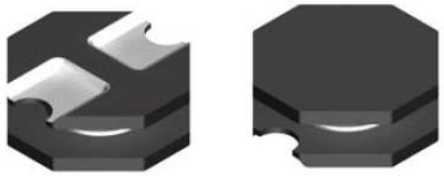
## 2.2. P Core

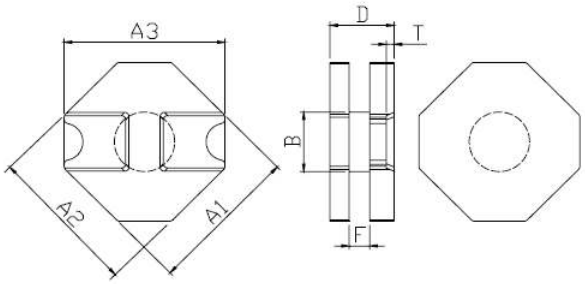





| | A | ΦB | ΦB1 | C | D | D1 | D2 |
|---|---|---|---|---|---|---|---|
| AX-P8.00×2.85 | 8.00 ±0.10 | 4.05 ±0.10 | 6.80 ±0.10 | 7.50 ±0.10 | 2.85 ±0.10 | 2.60 ±0.10 | 0.95 ±0.10 |

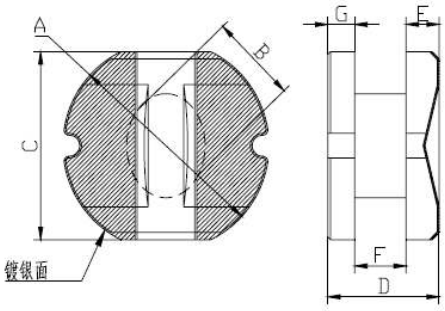
## 2.3. SMT CORE





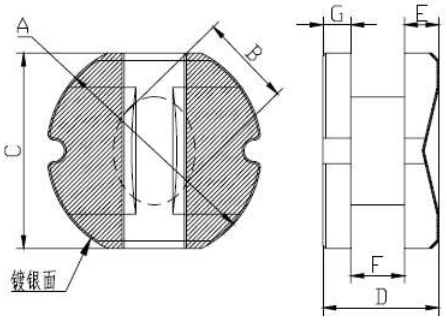

| | A1 | A2 | A3 | B | D | F | T |
|---|---|---|---|---|---|---|---|
| AX-SMT2.0×0.85 | 2.80 ±0.10 | 2.80 ±0.10 | 2.15 ±0.10 | 0.80 ±0.10 | 0.85 ±0.10 | 0.27 ±0.10 | 0.10 ±0.10 |
| AX-SMT3.0×0.85 | 3.00 ±0.10 | 3.00 ±0.10 | 3.25 ±0.10 | 0.80 ±0.10 | 0.85 ±0.10 | 0.28 ±0.10 | 0.15 ±0.10 |

## 2.4. SMD CORE 28



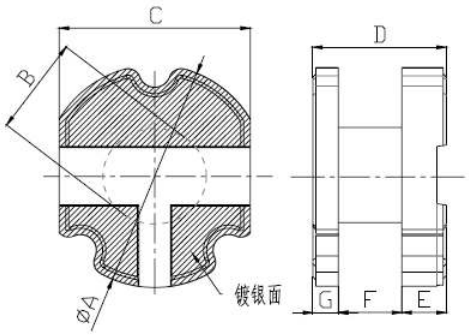

| | A | B | C | D | E | F | G |
|---|---|---|---|---|---|---|---|
| AX-SMD2820 | 2.80 ±0.10 | 0.90 ±0.12 | 2.50 ±0.10 | 2.30 ±0.12 | 0.50 ±0.10 | 1.00 ±0.12 | 0.50 ±0.10 |

## 2.5. SMD CORE 32



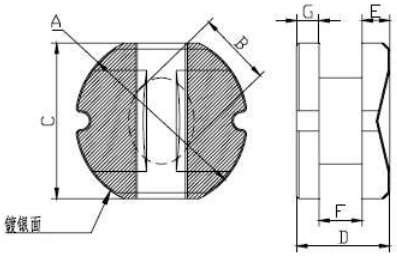

| | A | B | C | D | E | F | G |
|---|---|---|---|---|---|---|---|
| AX-SMD3223 | 3.20 ±0.12 | 1.70 ±0.12 | 2.85 ±0.12 | 2.30 ±0.12 | 0.75 ±0.10 | 1.00 ±0.12 | 0.55 ±0.10 |
| AX-SMD3225 | 3.20 ±0.12 | 1.50 ±0.12 | 2.85 ±0.12 | 2.50 ±0.12 | 0.85 ±0.10 | 1.00 ±0.12 | 0.65 ±0.10 |

## 2.6. SMD CORE 35




| | A | B | C | D | E | F | G |
|---|---|---|---|---|---|---|---|
| AX-SMD3521C | 3.50 ±0.10 | 1.50 ±0.10 | 3.00 ±0.10 | 2.10 ±0.10 | 0.55 ±0.10 | 1.10 ±0.10 | 0.45 ±0.10 |

## 2.7. SMD CORE 35

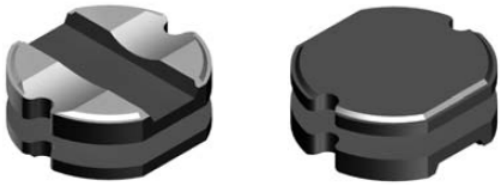


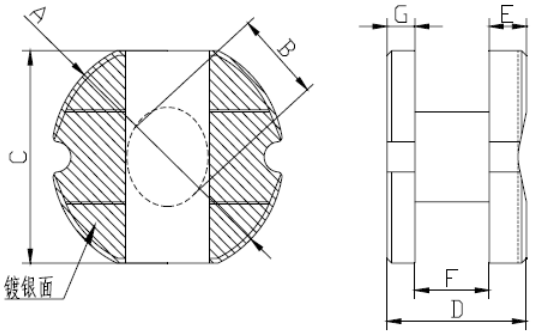

| | A | B | C | D | E | F | G |
|---|---|---|---|---|---|---|---|
| AX-SMD3511 | 3.50 ±0.12 | 1.50 ±0.15 | 3.00 ±0.12 | 1.10 ±0.12 | 0.40 ±0.10 | 0.40 ±0.10 | 0.30 ±0.10 |
| AX-SMD3516 | 3.50 ±0.12 | 1.30 ±0.15 | 3.00 ±0.12 | 1.60 ±0.15 | 0.55 ±0.10 | 0.60 ±0.12 | 0.45 ±0.10 |
| AX-SMD3521 | 3.50 ±0.15 | 1.30 ±0.15 | 3.00 ±0.15 | 2.10 ±0.15 | 0.60 ±0.12 | 1.00 ±0.12 | 0.50 ±0.12 |
| AX-SMD35215 | 3.50 ±0.15 | 1.50 ±0.15 | 3.00 ±0.15 | 2.15 ±0.15 | 0.60 ±0.12 | 1.10 ±0.12 | 0.45 ±0.10 |

## 2.8. SMD CORE 45

| | A | B | C | D | E | F | G |
|---|---|---|---|---|---|---|---|
| AX-SMD4518 | 4.50 ±0.15 | 2.00 ±0.15 | 4.00 ±0.15 | 1.80 ±0.15 | 0.75 ±0.12 | 0.55 ±0.12 | 0.50 ±0.12 |
| AX-SMD4521 | 4.50 ±0.15 | 2.00 ±0.15 | 4.00 ±0.15 | 2.10 ±0.15 | 0.60 ±0.12 | 1.00 ±0.12 | 0.50 ±0.12 |
| AX-SMD4525 | 4.50 ±0.15 | 1.40 ±0.15 | 4.00 ±0.15 | 2.50 ±0.15 | 0.80 ±0.12 | 1.10 ±0.12 | 0.60 ±0.12 |
| AX-SMD4532 | 4.50 ±0.15 | 1.60 ±0.15 | 4.00 ±0.15 | 3.20 ±0.15 | 1.00 ±0.15 | 1.50 ±0.15 | 0.70 ±0.15 |
| AX-SMD4540 | 4.50 ±0.15 | 1.60 ±0.15 | 4.00 ±0.15 | 4.00 ±0.15 | 1.00 ±0.15 | 2.40 ±0.15 | 0.60 ±0.15 |

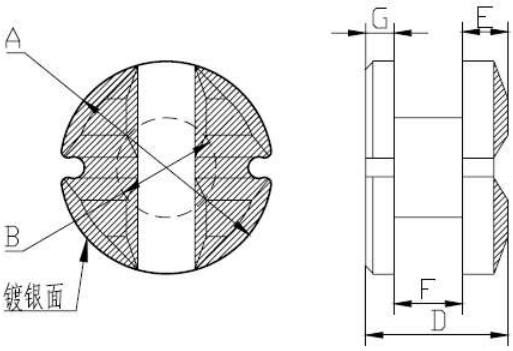
## 2.9. SMD CORE 50





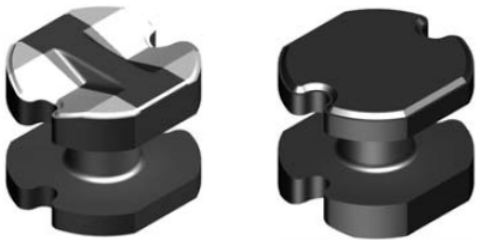

| | A | B | C | D | E | F | G |
|---|---|---|---|---|---|---|---|
| AX-SMD5010 | 5.00 ±0.15 | 2.10 ±0.15 | 4.50 ±0.15 | 1.00 ±0.15 | 0.45 ±0.15 | 0.20 ±0.15 | 0.35 ±0.15 |
| AX-SMD5019 | 5.00 ±0.15 | 2.10 ±0.15 | 4.50 ±0.15 | 1.90 ±0.15 | 0.75 ±0.15 | 0.70 ±0.15 | 0.45 ±0.15 |
| AX-SMD5029 | 5.00 ±0.15 | 3.00 ±0.15 | 4.50 ±0.15 | 2.90 ±0.15 | 0.80 ±0.15 | 1.50 ±0.15 | 0.60 ±0.15 |

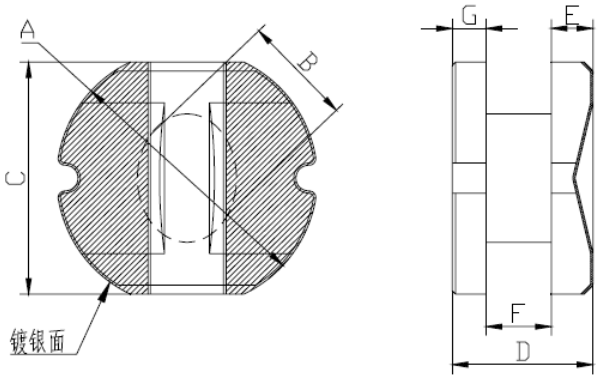
## 2.10. SMD CORE 56




| | A | B | C | D | E | F | G |
|---|---|---|---|---|---|---|---|
| AX-SMD5636 | 5.60 ±0.15 | 2.00 ±0.15 | | 3.60 ±0.15 | 1.30 ±0.15 | 1.80 ±0.15 | 0.50 ±0.15 |
| AX-SMD5645 | 5.60 ±0.15 | 2.40 ±0.15 | | 4.50 ±0.15 | 1.55 ±0.15 | 2.20 ±0.15 | 0.75 ±0.15 |

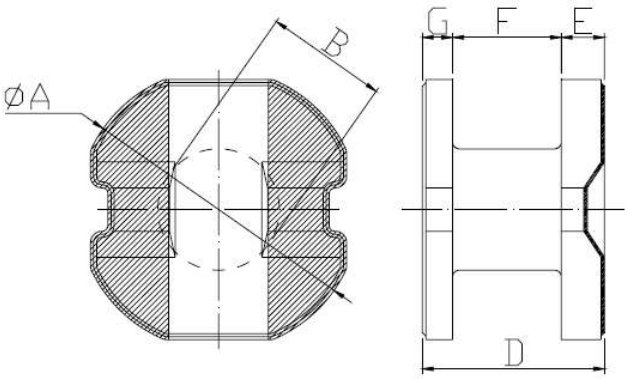
## 2.11. SMD CORE 58





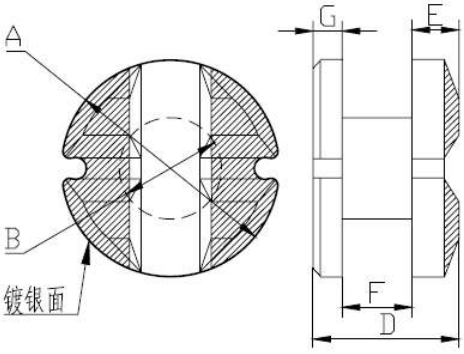

| | A | B | C | D | E | F | G |
|---|---|---|---|---|---|---|---|
| AX-SMD5820 | 5.80 ±0.15 | 2.30 ±0.15 | 5.20 ±0.15 | 2.00 ±0.15 | 0.85 ±0.15 | 0.55 ±0.15 | 0.60 ±0.15 |
| AX-SMD5821 | 5.80 ±0.15 | 2.30 ±0.15 | 5.20 ±0.15 | 2.10 ±0.15 | 0.70 ±0.15 | 0.90 ±0.15 | 0.50 ±0.15 |
| AX-SMD5825 | 5.80 ±0.15 | 2.00 ±0.15 | 5.20 ±0.15 | 2.50 ±0.15 | 0.90 ±0.15 | 1.00 ±0.15 | 0.60 ±0.15 |
| AX-SMD5830 | 5.80 ±0.15 | 2.50 ±0.15 | 5.20 ±0.15 | 3.00 ±0.15 | 0.90 ±0.15 | 1.50 ±0.15 | 0.60 ±0.15 |
| AX-SMD5832 | 5.80 ±0.15 | 2.20 ±0.15 | 5.20 ±0.15 | 3.20 ±0.15 | 0.90 ±0.15 | 1.60 ±0.15 | 0.70 ±0.15 |
| AX-SMD5835 | 5.80 ±0.15 | 2.50 ±0.15 | 5.20 ±0.15 | 3.50 ±0.15 | 1.20 ±0.15 | 1.50 ±0.15 | 0.80 ±0.15 |
| AX-SMD5845 | 5.80 ±0.15 | 2.40 ±0.15 | 5.20 ±0.15 | 4.50 ±0.15 | 1.30 ±0.15 | 2.30 ±0.15 | 0.90 ±0.15 |
| AX-SMD5852 | 5.80 ±0.15 | 3.00 ±0.15 | 5.20 ±0.15 | 5.20 ±0.15 | 1.40 ±0.15 | 2.60 ±0.15 | 1.20 ±0.15 |
| AX-SMD5870 | 5.80 ±0.15 | 3.00 ±0.15 | 5.20 ±0.15 | 7.00 ±0.15 | 1.80 ±0.15 | 4.00 ±0.15 | 1.20 ±0.15 |

## 2.12. SMD CORE 65



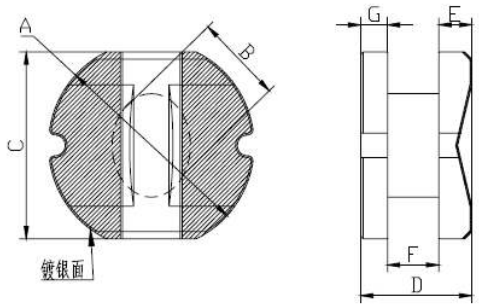

| | ΦA | B | D | E | F | G |
|---|---|---|---|---|---|---|
| AX-SMD6542 | 6.50 ±0.15 | 2.80 ±0.15 | 4.20 ±0.15 | 1.00 ±0.15 | 2.50 ±0.15 | 0.70 ±0.15 |

## 2.13. SMD CORE 75




| | A | B | D | E | F | G |
|---|---|---|---|---|---|---|
| AX-SMD7550 | 7.50 ±0.15 | 3.00 ±0.15 | 5.00 ±0.15 | 1.60 ±0.15 | 2.50 ±0.15 | 0.90 ±0.15 |

## 2.14. SMD CORE 78

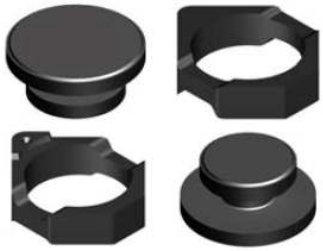


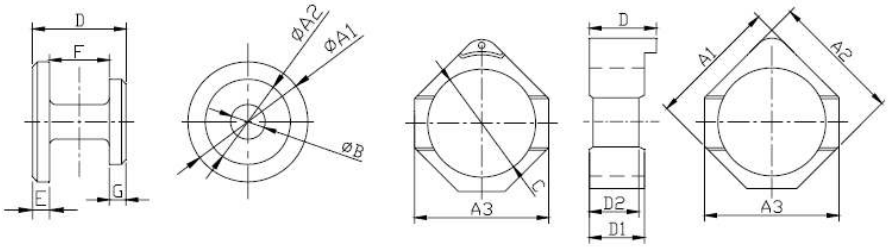

| | A | B | C | D | E | F | G |
|---|---|---|---|---|---|---|---|
| AX-SMD7835 | 7.80 ±0.15 | 4.30 ±0.15 | 7.00 ±0.15 | 3.50 ±0.15 | 1.20 ±0.15 | 1.50 ±0.15 | 0.80 ±0.15 |
| AX-SMD7845 | 7.80 ±0.15 | 3.50 ±0.15 | 7.00 ±0.15 | 4.50 ±0.15 | 1.30 ±0.15 | 2.20 ±0.15 | 1.00 ±0.15 |
| AX-SMD7850 | 7.80 ±0.15 | 3.50 ±0.15 | 7.00 ±0.15 | 5.00 ±0.15 | 1.40 ±0.15 | 2.60 ±0.15 | 1.00 ±0.15 |

## 2.15. SMD CORE 10

| | A | B | C | D | E | F | G |
|---|---|---|---|---|---|---|---|
| AX-SMD1040 | 10.0 ±0.15 | 4.00 ±0.15 | 9.00 ±0.15 | 4.00 ±0.15 | 1.30 ±0.15 | 1.70 ±0.15 | 1.00 ±0.15 |
| AX-SMD1040 | 10.0 ±0.15 | 3.60 ±0.15 | 9.00 ±0.15 | 4.00 ±0.15 | 1.20 ±0.15 | 2.00 ±0.15 | 0.80 ±0.15 |
| AX-SMD1054 | 10.0 ±0.15 | 4.00 ±0.15 | 9.00 ±0.15 | 5.40 ±0.15 | 1.60 ±0.15 | 2.50 ±0.15 | 1.30 ±0.15 |
| AX-SMD1065 | 10.0 ±0.15 | 4.60 ±0.15 | 9.00 ±0.15 | 6.50 ±0.15 | 1.40 ±0.15 | 4.00 ±0.15 | 1.10 ±0.15 |
| AX-SMD1072 | 10.0 ±0.15 | 5.10 ±0.15 | 9.00 ±0.15 | 7.20 ±0.15 | 1.55 ±0.15 | 4.50 ±0.15 | 1.15 ±0.15 |
| AX-SMD1082 | 10.0 ±0.15 | 4.50 ±0.15 | 9.00 ±0.15 | 8.20 ±0.15 | 2.10 ±0.15 | 4.50 ±0.15 | 1.60 ±0.15 |

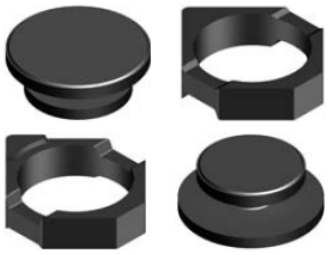
## 2.16. CDRH CORE 2D

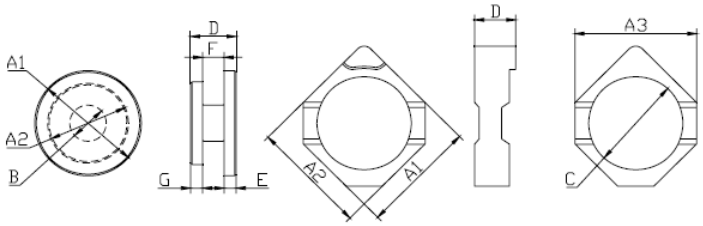





| | | A1 | A2 | A3 | B | C | D | F |
|---|---|---|---|---|---|---|---|---|
| AX-2D11 | DR2.8×1.05$^{D-3}$ | 2.80 ±0.10 | 2.00 ±0.10 | | 0.85 ±0.10 | | 1.05 ±0.10 | 0.49 ±0.10 |
| | RI3.0×0.92×2.4 | 3.00 ±0.12 | 3.00 ±0.12 | 3.04 ±0.12 | | 2.40 ±0.15 | 0.92 ±0.10 | |
| AX-2D14 | DR2.8×1.35$^{D-3}$ | 2.80 ±0.10 | 2.00 ±0.10 | | 1.20 ±0.10 | | 1.35 ±0.10 | 0.60 ±0.10 |
| | RI3.0×1.05×2.4 | 3.00 ±0.12 | 3.00 ±0.12 | 3.04 ±0.12 | | 2.40 ±0.15 | 1.05 ±0.10 | |
| AX-2D18 | DR2.8×1.8$^{D-3}$ | 2.80 ±0.10 | 2.00 ±0.10 | | 1.20 ±0.10 | | 1.80 ±0.10 | 1.10 ±0.10 |
| | RI3.0×1.55×2.4 | 3.00 ±0.12 | 3.00 ±0.12 | 3.04 ±0.12 | | 2.40 ±0.10 | 1.55 ±0.10 | |

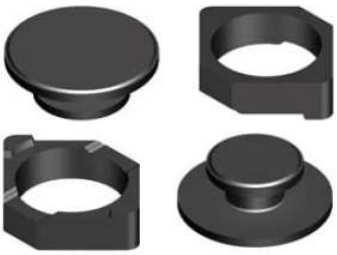
## 2.17. CDRH CORE 3D

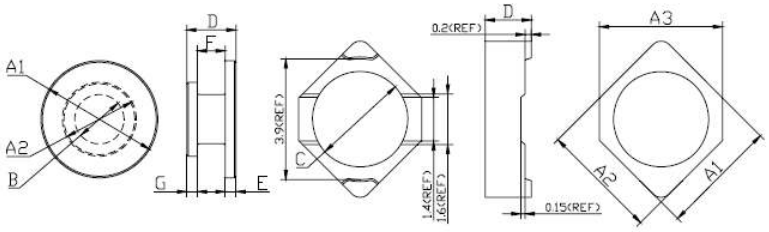





| | | A1 | A2 | A3 | B | C | D | F |
|---|---|---|---|---|---|---|---|---|
| AX-3D11 | DR3.5×1.05$^{D-3}$ | 3.50 ±0.10 | 2.65 ±0.10 | | 1.20 ±0.10 | | 1.05 ±0.10 | 0.50 ±0.10 |
| | RI3.8×0.925×3.1 | 3.80 ±0.10 | 3.80 ±0.10 | 4.00 ±0.10 | | 3.10 ±0.10 | 0.925 ±0.10 | |
| AX-3D16 | DR3.5×1.5$^{D-3}$ | 3.50 ±0.10 | 2.65 ±0.10 | | 1.20 ±0.10 | | 1.50 ±0.10 | 0.70 ±0.10 |
| | RI3.8×1.35×3.1 | 3.80 ±0.10 | 3.80 ±0.10 | 4.00 ±0.10 | | 3.10 ±0.10 | 1.35 ±0.10 | |
| AX-3D28 | DR3.5×2.7$^{D-3}$ | 3.50 ±0.10 | 2.65 ±0.10 | | 1.50 ±0.10 | | 2.70 ±0.10 | 1.80 ±0.10 |
| | RI3.8×2.35×3.1 | 3.80 ±0.10 | 3.80 ±0.10 | 4.00 ±0.10 | | 3.10 ±0.10 | 2.35 ±0.10 | |

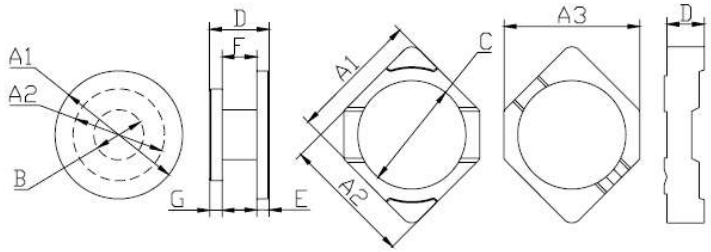
## 2.18. CDRH CORE 3D





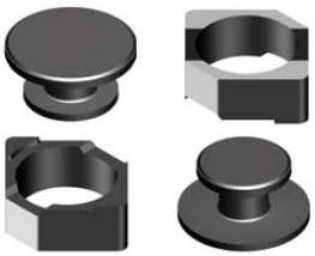

| | | A1 | A2 | A3 | B | C | D | F |
|---|---|---|---|---|---|---|---|---|
| AX-3D18 | DR 3.8×1.6$^{D-3}$ | 3.80 ±0.10 | 2.40 ±0.10 | | 1.60 ±0.10 | | 1.60 ±0.10 | 0.90 ±0.10 |
| | RI 3.8×1.5×3.1 | 3.80 ±0.10 | 3.80 ±0.10 | 4.00 ±0.10 | | 3.10 ±0.10 | 1.50 ±0.10 | |

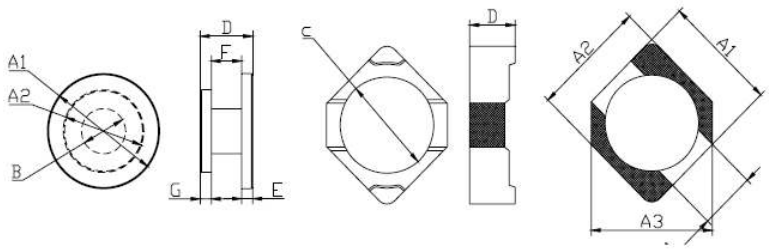
## 2.19. CDRH CORE 4D




| | | A1 | A2 | A3 | B | C | D | F |
|---|---|---|---|---|---|---|---|---|
| AX-4D18 | DR4.6×1.7$^{D-3}$ | 4.60 ±0.15 | 3.30 ±0.15 | | 1.60 ±0.15 | | 1.70 ±0.12 | 0.80 ±0.15 |
| | RI4.7×1.45×3.9 | 4.70 ±0.15 | 4.70 ±0.15 | 4.90 ±0.15 | | 3.90 ±0.15 | 1.45 ±0.15 | |
| AX-4D22 | DR4.6×2.1$^{D-3}$ | 4.60 ±0.15 | 3.30 ±0.15 | | 1.50 ±0.15 | | 2.10 ±0.15 | 1.20 ±0.15 |
| | RI4.7×1.95×3.9 | 4.70 ±0.15 | 4.70 ±0.15 | 4.90 ±0.15 | | 3.90 ±0.15 | 1.95 ±0.15 | |
| AX-4D28 | DR4.6×2.7$^{D-3}$ | 4.60 ±0.15 | 3.30 ±0.15 | | 1.80 ±0.15 | | 2.70 ±0.15 | 1.80 ±0.15 |
| | RI4.7×2.45×3.9 | 4.70 ±0.15 | 4.70 ±0.15 | 4.90 ±0.15 | | 3.90 ±0.15 | 2.45 ±0.15 | |

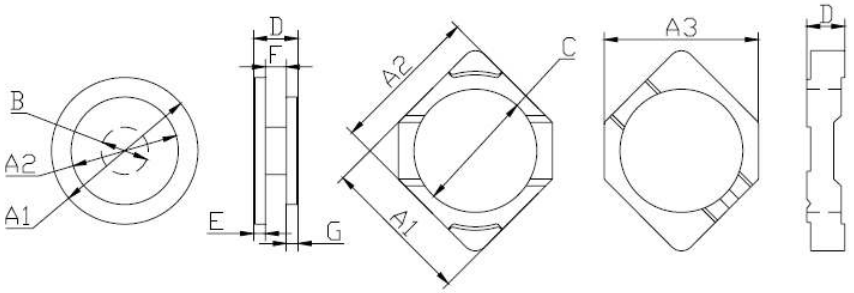
## 2.20. CDRH CORE 4D





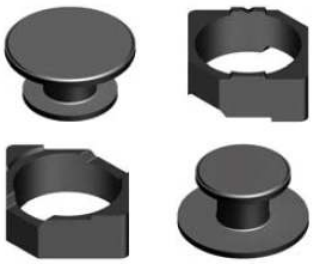

| | | A1 | A2 | A3 | B | C | D | F |
|---|---|---|---|---|---|---|---|---|
| AX-4D28 | DR4.6×2.7$^{D-3}$ | 4.60 ±0.15 | 3.30 ±0.15 | | 1.80 ±0.15 | | 2.70 ±0.15 | 1.80 ±0.15 |
| | RI4.7×2.45×3.9 | 4.70 ±0.15 | 4.70 ±0.15 | 4.90 ±0.15 | | 3.90 ±0.15 | 2.45 ±0.15 | |

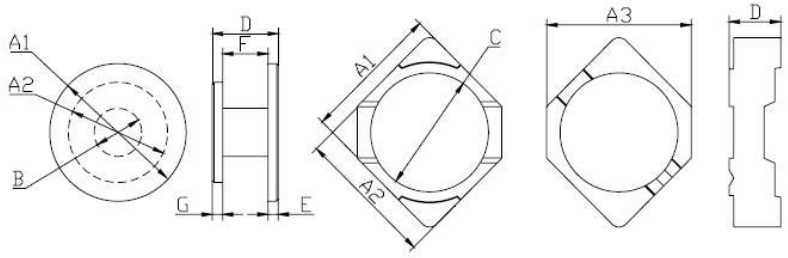
## 2.21. CDRH CORE 5D




| | | A1 | A2 | A3 | B | C | D | F |
|---|---|---|---|---|---|---|---|---|
| AX-5D18 | DR5.6×1.7D3 | 5.60 ±0.16 | 4.10 ±0.16 | | 1.80 ±0.15 | | 1.70 ±0.15 | 0.80 ±0.15 |
| | RI5.7×1.45×4.7 | 5.70 ±0.16 | 5.70 ±0.16 | 5.90 ±0.16 | | 4.70 ±0.16 | 1.45 ±0.15 | |
| AX-5D26 | DR5.6×2.5D3 | 5.60 ±0.16 | 4.10 ±0.16 | | 2.00 ±0.15 | | 2.50 ±0.15 | 1.50 ±0.15 |
| | RI5.7×2.25×4.7 | 5.70 ±0.16 | 5.70 ±0.16 | 5.90 ±0.16 | | 4.70 ±0.16 | 2.25 ±0.15 | |
| AX-5D28 | DR5.6×2.7D3 | 5.60 ±0.16 | 4.10 ±0.16 | | 2.20 ±0.15 | | 2.70 ±0.15 | 1.70 ±0.15 |
| | RI5.7×2.45×4.7 | 5.70 ±0.16 | 5.70 ±0.16 | 5.90 ±0.16 | | 4.70 ±0.17 | 2.45 ±0.15 | |

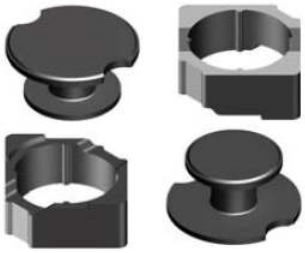
## 2.22. CDRH CORE 6D

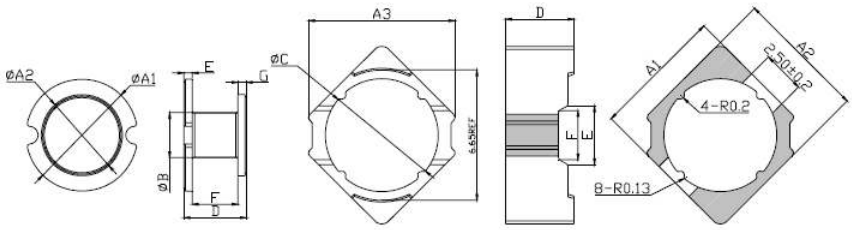





| | | A1 | A2 | A3 | B | C | D | F |
|---|---|---|---|---|---|---|---|---|
| AX-6D28 | DR6.6×2.7D3 | 6.60 ±0.15 | 4.80 ±0.15 | | 2.90 ±0.15 | | 2.70 ±0.15 | 1.70 ±0.15 |
| | RI6.7×2.5×5.7 | 6.70 ±0.15 | 6.70 ±0.15 | 7.00 ±0.15 | | 5.70 ±0.15 | 2.50 ±0.15 | |
| AX-6D38 | 6.6×3.7D3 | 6.60 ±0.15 | 4.80 ±0.15 | | 2.75 ±0.15 | | 3.70 ±0.15 | 2.70 ±0.15 |
| | RI6.7×3.5×5.7 | 6.70 ±0.15 | 6.70 ±0.15 | 7.00 ±0.15 | | 5.70 ±0.15 | 3.50 ±0.15 | |
| AX-6D48 | DR6.6×4.7 | 6.60 ±0.15 | | | 2.80 ±0.15 | | 4.70 ±0.15 | 3.50 ±0.15 |
| | RI6.7×4.5×5.7 | 6.70 ±0.15 | 6.70 ±0.15 | 7.00 ±0.15 | | 5.70 ±0.15 | 4.50 ±0.15 | |

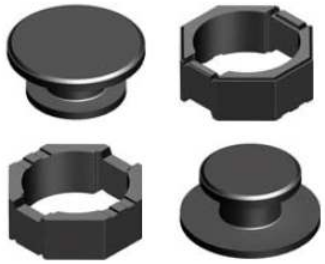
## 2.23. CDRH CORE 6D

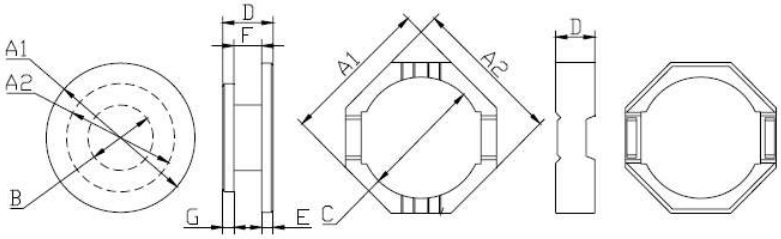





| | | A1 | A2 | A3 | B | C | D | F |
|---|---|---|---|---|---|---|---|---|
| AX-6D38A | DR 6.6×3.7D3 | 6.60 ±0.15 | 4.80 ±0.15 | | 2.60 ±0.15 | | 3.70 ±0.15 | 2.70 ±0.15 |
| | RI 6.7×3.5×5.7 | 6.70 ±0.15 | 6.70 ±0.15 | 7.48 ±0.15 | | 5.70 ±0.15 | 3.50 ±0.15 | |

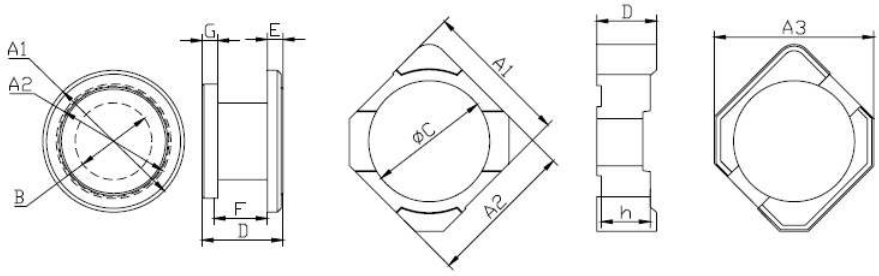
## 2.24. CDRH CORE 8D





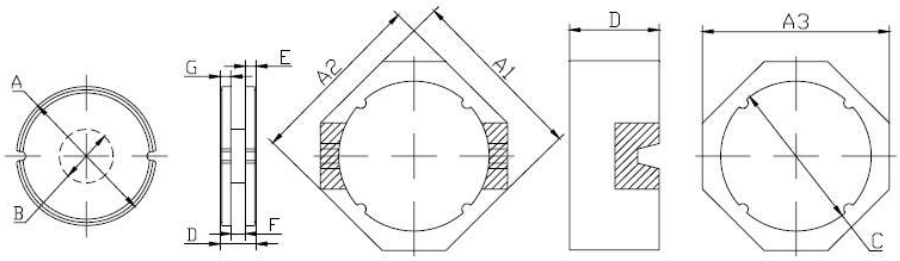

| | | A1 | A2 | B | C | D | F |
|---|---|---|---|---|---|---|---|
| AX-8D28 | DR8×2.7$^{D-3}$ | 8.00 ±0.20 | 5.80 ±0.20 | 3.50 ±0.15 | | 2.70 ±0.15 | 1.50 ±0.15 |
| | RI8×2.1×6.5 | 8.00 ±0.20 | 8.00 ±0.20 | | 6.50 ±0.15 | 2.10 ±0.15 | |
| AX-8D38 | DR8×3.7$^{D-3}$ | 8.00 ±0.20 | 5.80 ±0.20 | 3.60 ±0.15 | | 3.70 ±0.15 | 2.10 ±0.15 |
| | RI8×2.9×6.5 | 8.00 ±0.20 | 8.00 ±0.20 | | 6.50 ±0.15 | 2.90 ±0.15 | |
| AX-8D43 | DR8×4.2$^{D-3}$ | 8.00 ±0.20 | 5.80 ±0.20 | 4.00 ±0.15 | | 4.20 ±0.15 | 2.60 ±0.15 |
| | RI8×3.4×6.5 | 8.00 ±0.20 | 8.00 ±0.20 | | 6.50 ±0.15 | 3.40 ±0.15 | |
| AX-8D58 | DR8×5.7$^{D-3}$ | 8.00 ±0.20 | 5.80 ±0.20 | 3.90 ±0.15 | | 5.70 ±0.15 | 3.70 ±0.15 |
| | RI8×4.7×6.5 | 8.00 ±0.20 | 8.00 ±0.20 | | 6.50 ±0.15 | 4.70 ±0.15 | |

## 2.25. CDRH CORE 10R



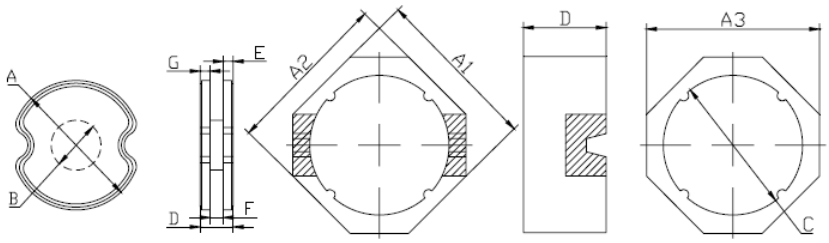

| | | A1 | A2 | A3 | B | C | D | F |
|---|---|---|---|---|---|---|---|---|
| AX-103R | DR9.6×2.65$^{D-3}$ | 9.60 ±0.15 | 7.50 ±0.15 | | 5.20 ±0.15 | | 2.65 ±0.15 | 1.05 ±0.15 |
| | RI10×2.25×8.2 | 10.0 ±0.20 | 10.0 ±0.20 | 10.8 ±0.20 | | 8.20 ±0.20 | 2.25 ±0.15 | |
| AX-104R | DR9.6×3.65$^{D-3}$ | 9.60 ±0.15 | 7.50 ±0.15 | | 4.80 ±0.15 | | 3.65 ±0.15 | 1.95 ±0.15 |
| | RI10×3.15×8.2 | 10.0 ±0.20 | 10.0 ±0.20 | 10.8 ±0.20 | | 8.20 ±0.20 | 3.15 ±0.15 | |
| AX-105R | DR9.6×4.65$^{D-3}$ | 9.60 ±0.15 | 7.50 ±0.15 | | 4.80 ±0.15 | | 4.65 ±0.15 | 3.00 ±0.15 |
| | RI10×4.25×8.2 | 10.0 ±0.20 | 10.0 ±0.20 | 10.8 ±0.20 | | 8.20 ±0.20 | 4.25 ±0.15 | |

## 2.26. CDRH CORE 0302



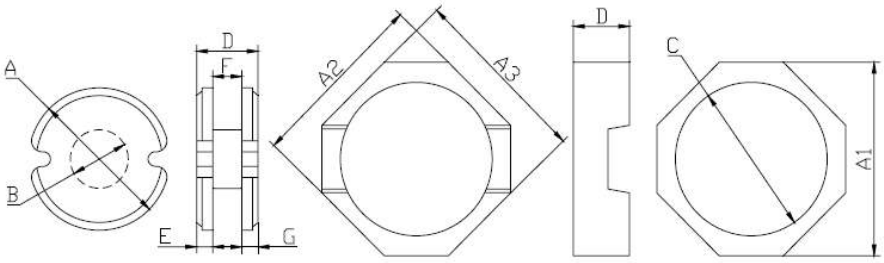

| | | A | A2 | A3 | B | C | D | F |
|---|---|---|---|---|---|---|---|---|
| AX-0302 | DR 2.8×1.6 | 2.80 ±0.10 | | | 1.40 ±0.10 | | 1.60 ±0.10 | 0.90 ±0.10 |
| | RI 3.8×1.68×3.1 | 3.80 ±0.10 | 3.80 ±0.10 | 3.95 ±0.10 | | 3.10 ±0.10 | 1.68 ±0.10 | |

## 2.27. CDRH CORE 50



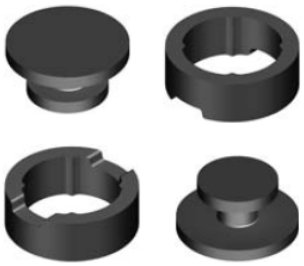

| | | A | A2 | A3 | B | C | D | F |
|---|---|---|---|---|---|---|---|---|
| AX-5017 | DR 3.9×1.7 | 3.90 ±0.10 | | | 1.80 ±0.10 | | 1.70 ±0.10 | 0.80 ±0.10 |
| | RI 5.05×1.7×4.2 | 5.05 ±0.10 | 5.05 ±0.10 | 5.42 ±0.10 | | 4.20 ±0.10 | 1.70 ±0.10 | |
| AX-5026 | DR 3.9×2.6 | 3.90 ±0.10 | | | 2.10 ±0.10 | | 2.60 ±0.10 | 1.60 ±0.10 |
| | RI 5.05×2.6×4.2 | 5.05 ±0.10 | 5.05 ±0.10 | 5.42 ±0.10 | | 4.20 ±0.10 | 2.60 ±0.10 | |

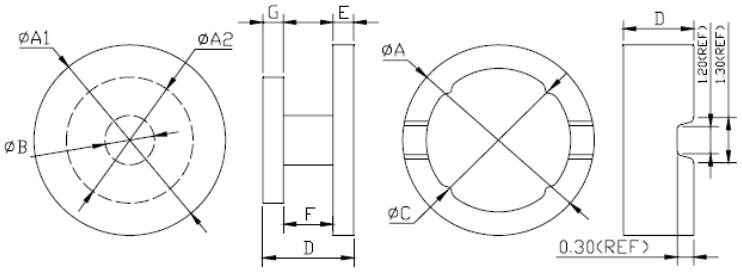
## 2.28. CDRH CORE 5D T




| | | A1 | A2 | A3 | B | C | D | F |
|---|---|---|---|---|---|---|---|---|
| AX-5D18T | DR3.9×1.7 | 3.90 ±0.12 | | | 1.60 ±0.15 | | 1.70 ±0.15 | 0.80 ±0.15 |
| | RI5.3×1.55×4.2 | 5.30 ±0.15 | 5.00 ±0.15 | 5.00 ±0.15 | | 4.20 ±0.15 | 1.55 ±0.12 | |
| AX-5D28T | DR3.9×2.7 | 3.90 ±0.12 | | | 2.00 ±0.15 | | 2.70 ±0.12 | 1.70 ±0.15 |
| | RI5.3×2.5×4.2 | 5.30 ±0.15 | 5.00 ±0.15 | 5.00 ±0.15 | | 4.20 ±0.15 | 2.50 ±0.12 | |

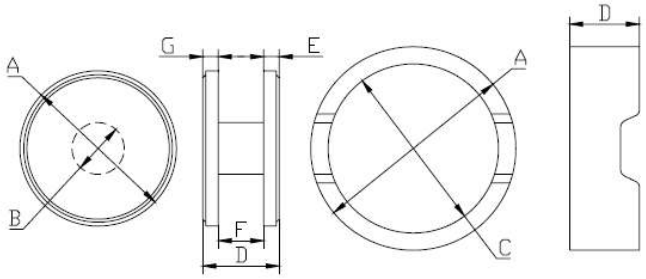
## 2.29. CDRH CORE 0422





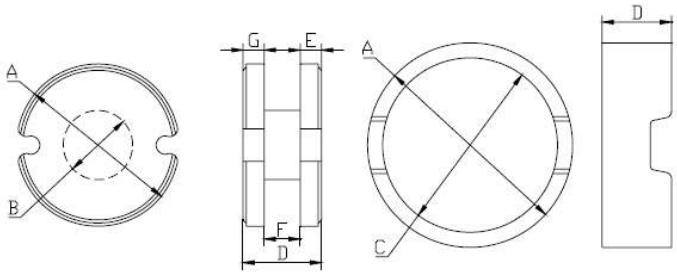

| | | A1 | A2 | B | C | D | F |
|---|---|---|---|---|---|---|---|
| AX-0422 | DR4.0×2.2 | 4.00 ±0.10 | 2.65 ±0.10 | 1.20 ±0.10 | | 2.20 ±0.10 | 1.20 ±0.10 |
| | RI4.0×1.7×3.0 | 4.00 ±0.10 | | | 3.00 ±0.10 | 1.70 ±0.10 | |

## 2.30. CDRH 60



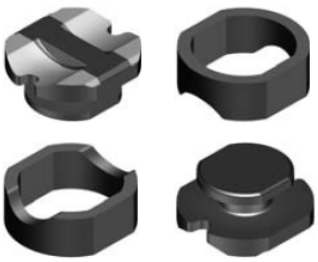

| | | A | B | C | D | F |
|---|---|---|---|---|---|---|
| AX-6025 | DR4.5×2.2 | 4.50 ±0.15 | 1.90 ±0.15 | | 2.20 ±0.12 | 1.30 ±0.15 |
| | RI5.9×2×4.9 | 5.90 ±0.15 | | 4.90 ±0.15 | 2.00 ±0.12 | |
| AX-6028 | DR4.5×2.5 | 4.50 ±0.15 | 2.00 ±0.15 | | 2.50 ±0.12 | 1.60 ±0.15 |
| | RI5.9×2.3×4.9 | 5.90 ±0.15 | | 4.90 ±0.15 | 2.30 ±0.12 | |

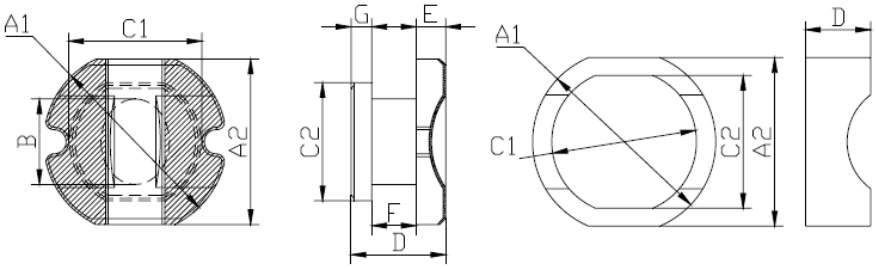
## 2.31. CDRH CORE 70




| | | A | B | C | D | F |
|---|---|---|---|---|---|---|
| AX-7030 | DR5.4×2.6 | 5.40 ±0.15 | 2.30 ±0.15 | | 2.60 ±0.15 | 1.20 ±0.15 |
| | RI6.8×2.3×5.8 | 6.80 ±0.15 | | 5.80 ±0.15 | 2.30 ±0.15 | |
| AX-7032 | DR5.4×2.8 | 5.40 ±0.15 | 2.60 ±0.15 | | 2.80 ±0.15 | 1.80 ±0.15 |
| | RI6.8×2.8×5.8 | 6.80 ±0.15 | | 5.80 ±0.15 | 2.80 ±0.15 | |
| AX-7045 | DR5.4×4 | 5.40 ±0.15 | 2.50 ±0.15 | | 4.00 ±0.15 | 2.60 ±0.15 |
| | RI6.8×3.7×5.8 | 6.80 ±0.15 | | 5.80 ±0.15 | 3.70 ±0.15 | |
| AX-7645 | DR5.4×3.5 | 5.40 ±0.15 | 2.80 ±0.15 | | 3.50 ±0.15 | 2.00 ±0.15 |
| | RI6.8×3.2×5.8 | 6.80 ±0.15 | | 5.80 ±0.15 | 3.20 ±0.15 | |

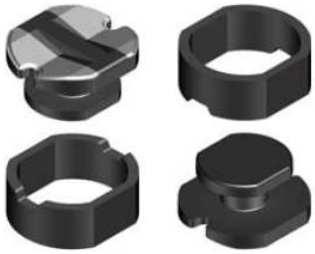
## 2.32. CDRH CORE 63B

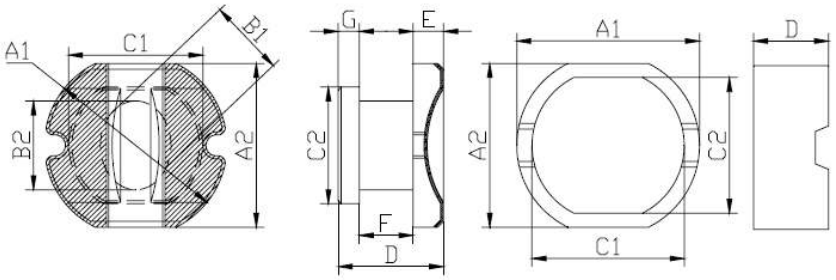





| | | A1 | A2 | B | C1 | C2 | D | F |
|---|---|---|---|---|---|---|---|---|
| AX-63B | DR6.2×3.2$^{D-3}$ | 6.20 ±0.15 | 5.60 ±0.15 | 2.70 ±0.15 | 4.45 ±0.15 | 4.00 ±0.15 | 3.20 ±0.15 | 1.50 ±0.15 |
| | RI6.2×2.2×4.9 | 6.20 ±0.20 | 5.70 ±0.15 | | 4.90 ±0.20 | 4.50 ±0.15 | 2.20 ±0.15 | |

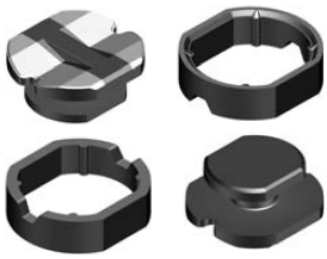
## 2.33. CDRH CORE 74

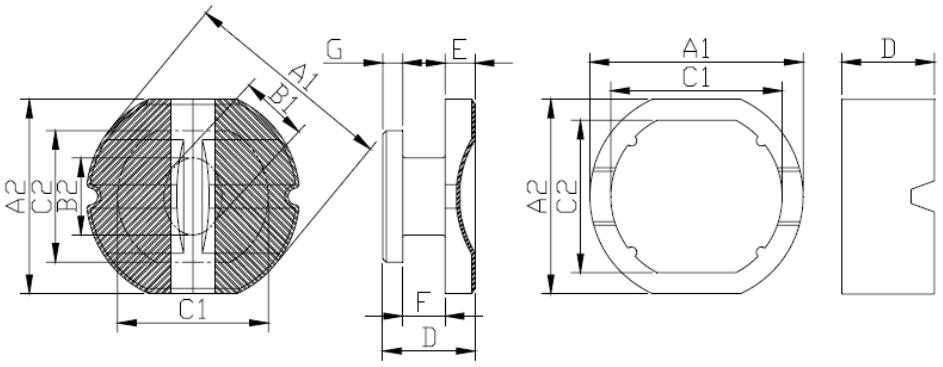





| | | A1 | A2 | B1 | C1 | C2 | D | F |
|---|---|---|---|---|---|---|---|---|
| AX-74B | DR7.8×4.5 | 7.80 ±0.15 | 7.00 ±0.15 | 3.20 ±0.15 | 5.80 ±0.15 | 5.00 ±0.15 | 4.50 ±0.15 | 2.30 ±0.15 |
| | RI7.8×3.1×6.2 | 7.80 ±0.15 | 7.00 ±0.15 | | 6.20 ±0.15 | 5.50 ±0.15 | 3.10 ±0.15 | |
| AX-74C | DR7.8×4.5 | 7.80 ±0.15 | 7.00 ±0.15 | 3.50 ±0.15 | 5.70 ±0.15 | 5.00 ±0.15 | 4.50 ±0.15 | 2.30 ±0.15 |
| | RI7.8×3.2×6.5 | 7.80 ±0.15 | 7.00 ±0.15 | | 6.50 ±0.15 | 5.80 ±0.15 | 3.20 ±0.15 | |

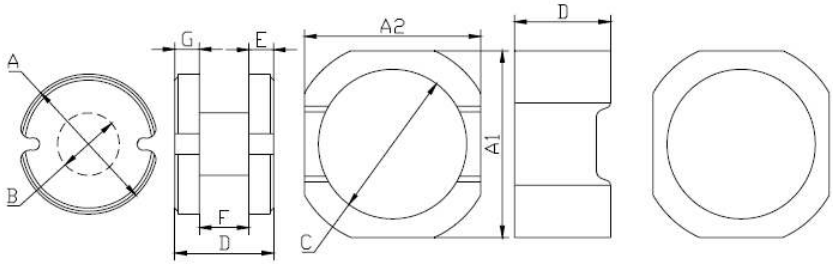
## 2.34. CDRH CORE 10B





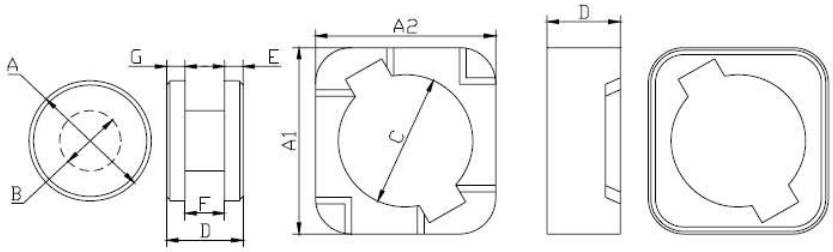

| | | A1 | A2 | B1 | C1 | C2 | D | F |
|---|---|---|---|---|---|---|---|---|
| AX-105B | DR10×5.0$^{D-3}$ | 10.0 ±0.15 | 9.00 ±0.15 | 3.50 ±0.15 | 7.50 ±0.15 | 6.40 ±0.15 | 5.00 ±0.15 | 2.50 ±0.15 |
| | RI10×3.15×8.4 | 10.0 ±0.20 | 9.20 ±0.15 | | 8.40 ±0.20 | 7.50 ±0.15 | 3.15 ±0.15 | |
| AX-1052B | DR10×5.2$^{D-3}$ | 10.0 ±0.15 | 9.00 ±0.15 | 3.80 ±0.15 | 7.50 ±0.15 | 6.40 ±0.15 | 5.20 ±0.15 | 2.50 ±0.15 |
| | RI10×3.45×8.4 | 10.0 ±0.20 | 9.20 ±0.15 | | 8.40 ±0.20 | 7.50 ±0.15 | 3.45 ±0.15 | |

## 2.35. CDRH CORE 06



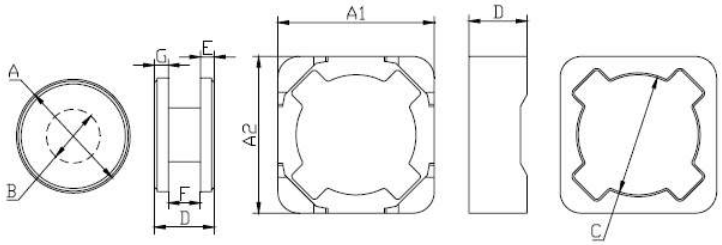

| | | A | B | C | D | F |
|---|---|---|---|---|---|---|
| AX-0603 | DR4.5×2.7 | 4.50 ±0.15 | 2.00 ±0.15 | | 2.70 ±0.12 | 1.20 ±0.15 |
| | RI6.0×2.55×4.8 | 6.00 ±0.15 | | 4.80 ±0.15 | 2.55 ±0.12 | |
| AX-0604 | DR4.5×3.2 | 4.50 ±0.15 | 2.00 ±0.15 | | 3.20 ±0.12 | 1.60 ±0.15 |
| | RI6.0×3.1×4.8 | 6.00 ±0.15 | | 4.80 ±0.15 | 3.10 ±0.12 | |

## 2.36. CDRH CORE 62



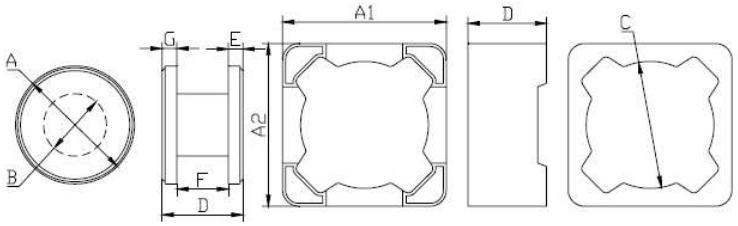

| | | A1 | A2 | B | C | D | F |
|---|---|---|---|---|---|---|---|
| AX-62 | DR4×2.4 | 4.00 ±0.15 | | 2.00 ±0.15 | | 2.40 ±0.12 | 1.30 ±0.15 |
| | RI6.2×2.3×4.4 | 6.20 ±0.15 | 5.90 ±0.15 | | 4.40 ±0.15 | 2.30 ±0.12 | |
| AX-64 | DR4×4 | 4.00 ±0.15 | | 2.00 ±0.15 | | 4.00 ±0.15 | 2.00 ±0.15 |
| | RI6.2×3.9×4.4 | 6.20 ±0.15 | 6.20 ±0.15 | | 4.40 ±0.15 | 3.90 ±0.12 | |

## 2.37. CDRH CORE 7D



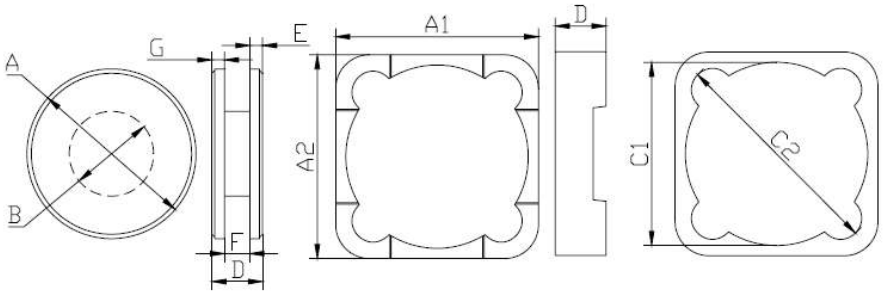

| | | A1 | A2 | B | C | D | F |
|---|---|---|---|---|---|---|---|
| AX-72 | DR5.3×1.8 | 5.30 ±0.15 | | 2.40 ±0.10 | | 1.80 ±0.15 | 1.00 ±0.12 |
| | RI7.3×1.7×5.6 | 7.30 ±0.15 | 7.30 ±0.15 | | 5.60 ±0.15 | 1.70 ±0.15 | |
| AX-73 | DR5.3×2.8 | 5.30 ±0.15 | | 2.50 ±0.15 | | 2.80 ±0.15 | 1.50 ±0.15 |
| | RI7.3×2.7×5.6 | 7.30 ±0.15 | 7.30 ±0.15 | | 5.60 ±0.15 | 2.70 ±0.15 | |
| AX-74 | DR5.3×3.7 | 5.30 ±0.15 | | 2.85 ±0.15 | | 3.70 ±0.15 | 2.40 ±0.15 |
| | RI7.3×3.5×5.6 | 7.30 ±0.15 | 7.30 ±0.15 | | 5.60 ±0.15 | 3.50 ±0.15 | |

## 2.38. CDRH CORE 7D



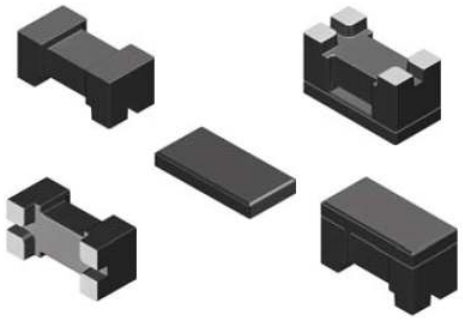

| | | A1 | A2 | B | C | D | F |
|---|---|---|---|---|---|---|---|
| AX-73A | DR5.3×2.8 | 5.30 ±0.15 | | 2.50 ±0.15 | | 2.80 ±0.15 | 1.50 ±0.15 |
| | RI7.3×2.7×5.7 | 7.30 ±0.15 | 7.30 ±0.15 | | 5.70 ±0.15 | 2.70 ±0.15 | |
| AX-74A | DR5.3×3.6 | 5.30 ±0.15 | | 2.80 ±0.15 | | 3.60 ±0.15 | 2.30 ±0.15 |
| | RI7.3×3.5×5.7 | 7.30 ±0.15 | 7.30 ±0.15 | | 5.70 ±0.15 | 3.50 ±0.15 | |

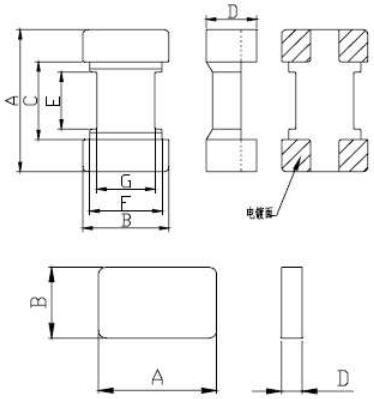
## 2.39. CDRH CORE 12




| | | A1 | A2 | B | C1 | C2 | D | F |
|---|---|---|---|---|---|---|---|---|
| AX-123 | DR10×3 | 10.0 ±0.15 | | 5.00 ±0.15 | | | 3.00 ±0.15 | 1.50 ±0.15 |
| | RI12×3×10.65 | 12.0 ±0.20 | 12.0 ±0.20 | | 10.65 ±0.20 | 13.10 ±0.20 | 3.00 ±0.15 | |
| AX-124 | DR10×3.9 | 10.0 ±0.15 | | 5.00 ±0.15 | | | 3.90 ±0.15 | 2.10 ±0.15 |
| | RI12×3.65×10.65 | 12.0 ±0.20 | 12.0 ±0.20 | | 10.65 ±0.20 | 13.10 ±0.20 | 3.65 ±0.15 | |
| AX-125 | DR10×5.2 | 10.0 ±0.15 | | 5.20 ±0.15 | | | 5.20 ±0.15 | 3.10 ±0.15 |
| | RI12×5.1×10.65 | 12.0 ±0.20 | 12.0 ±0.20 | | 10.65 ±0.20 | 13.10 ±0.20 | 5.10 ±0.15 | |
| AX-126 | DR10×6 | 10.0 ±0.15 | | 5.20 ±0.15 | | | 6.00 ±0.15 | 4.00 ±0.15 |
| | RI12×5.9×10.65 | 12.0 ±0.20 | 12.0 ±0.20 | | 10.65 ±0.20 | 13.10 ±0.20 | 5.90 ±0.15 | |
| AX-127 | DR10×7 | 10.0 ±0.15 | | 6.20 ±0.15 | | | 7.00 ±0.15 | 4.90 ±0.15 |
| | RI12×6.6×10.65 | 12.0 ±0.20 | 12.0 ±0.20 | | 10.65 ±0.20 | 13.10 ±0.20 | 6.60 ±0.15 | |

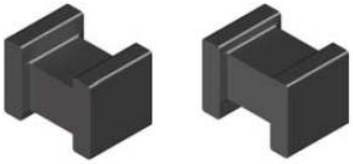
## 2.40. SDR CORE 2012

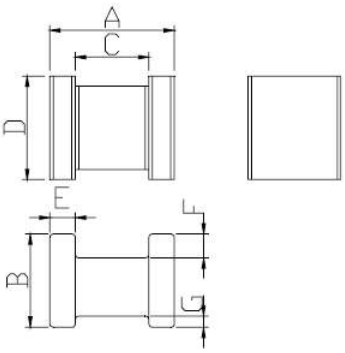





| | A | B | C | D | E | F | G |
|---|---|---|---|---|---|---|---|
| AX-SDR 2.0×0.85×1.2 | 2.00 ±0.10 | 1.20 ±0.10 | 1.10 ±0.10 | 0.80 ±0.10 | 0.80 ±0.10 | 1.00 ±0.10 | 0.80 ±0.10 |
| AX-I 2.0×0.35×1.2 | 2.00 ±0.10 | 1.20 ±0.10 | | 0.35 ±0.10 | | | |

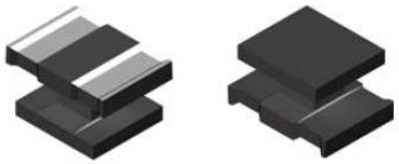
## 2.41. SDR CORE 2418&3019

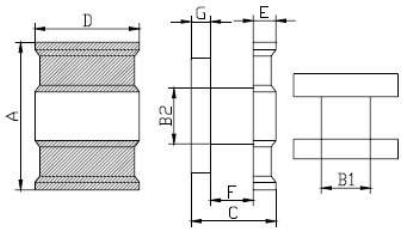





| | A | B | C | D | E | F | G |
|---|---|---|---|---|---|---|---|
| AX-SDR 2.40×2.0×1.8 | 2.40 ±0.10 | 1.80 ±0.10 | 1.40 ±0.10 | 2.00 ±0.10 | 0.50 ±0.10 | 0.46 ±0.10 | 0.22 ±0.10 |
| AX-SDR 3.05×2.1×1.9 | 3.05 ±0.10 | 1.90 ±0.10 | 2.05 ±0.10 | 2.10 ±0.10 | 0.50 ±0.10 | 0.52 ±0.10 | 0.28 ±0.10 |

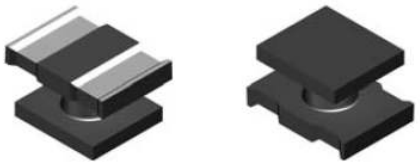
## 2.42. SDR CORE

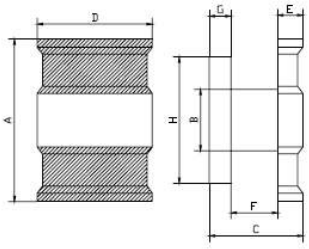





| | A | B1 | B2 | C | D | E | F |
|---|---|---|---|---|---|---|---|
| AX-3.2×1.6×1.8 | 3.20 ±0.15 | 0.95 ±0.15 | 0.95 ±0.15 | 1.80 ±0.15 | 1.60 ±0.15 | 0.60 ±0.15 | 0.80 ±0.15 |
| AX-3.2×2.5×1.5 | 3.20 ±0.15 | 1.15 ±0.15 | 1.20 ±0.15 | 1.50 ±0.15 | 2.50 ±0.15 | 0.50 ±0.15 | 0.60 ±0.15 |
| AX-3.2×2.5×2.0 | 3.20 ±0.15 | 1.30 ±0.15 | 1.20 ±0.15 | 2.00 ±0.15 | 2.50 ±0.15 | 0.50 ±0.15 | 1.00 ±0.15 |
| AX-4.5×3.2×2.5 | 4.50 ±0.15 | 1.50 ±0.15 | 1.40 ±0.15 | 2.50 ±0.15 | 3.20 ±0.15 | 0.70 ±0.15 | 1.15 ±0.15 |
| AX-4.5×3.2×2.6 | 4.50 ±0.15 | 1.50 ±0.15 | 1.70 ±0.15 | 2.60 ±0.15 | 3.20 ±0.15 | 0.65 ±0.15 | 1.40 ±0.15 |
| AX-5.7×5.0×4.5 | 5.70 ±0.15 | 2.60 ±0.15 | 2.60 ±0.15 | 4.50 ±0.15 | 5.0 ±0.15 | 1.40 ±0.15 | 2.10 ±0.15 |

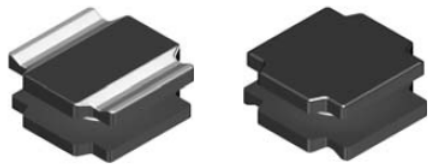
## 2.43. SDR CORE

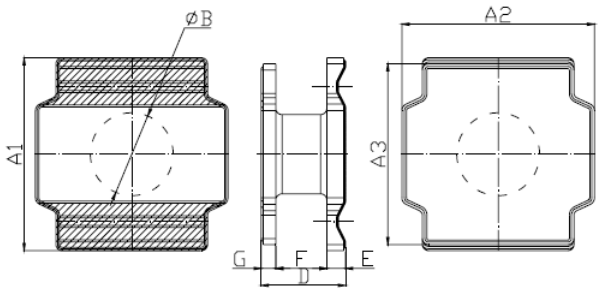





| | A | B | C | D | E | F |
|---|---|---|---|---|---|---|
| AX-4.5×3.2×2.6 | 4.50 ±0.15 | 1.80 ±0.15 | 2.60 ±0.15 | 3.20 ±0.15 | 0.65 ±0.15 | 1.40 ±0.15 |
| AX-5.7×5.0×4.7 | 5.70 ±0.15 | 2.95 ±0.15 | 4.70 ±0.15 | 5.00 ±0.15 | 1.30 ±0.15 | 2.50 ±0.15 |

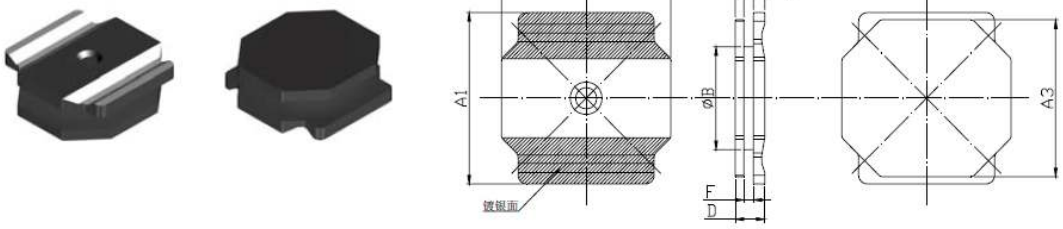
## 2.44. SDR CORE





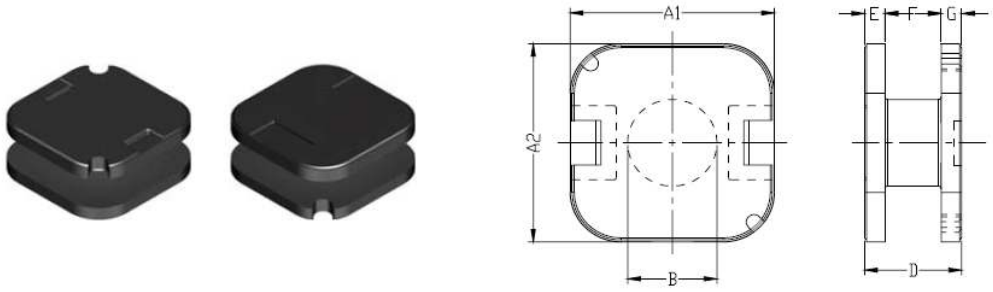

| | A1 | A2 | A3 | B | D | E | F | G |
|---|---|---|---|---|---|---|---|---|
| AX-3×3×1.05 | 3.00 ±0.10 | 3.00 ±0.10 | 2.60 ±0.10 | 1.30 ±0.10 | 1.05 ±0.10 | 0.375 ±0.10 | 0.30 ±0.10 | 0.375 ±0.10 |
| AX-3×3×1.45 | 3.00 ±0.10 | 3.00 ±0.10 | 2.60 ±0.10 | 1.25 ±0.10 | 1.45 ±0.10 | 0.40 ±0.10 | 0.70 ±0.10 | 0.35 ±0.10 |
| AX-4×4×1.65 | 4.00 ±0.10 | 4.00 ±0.10 | 3.70 ±0.10 | 1.90 ±0.10 | 1.65 ±0.10 | 0.45 ±0.10 | 0.80 ±0.10 | 0.40 ±0.10 |
| AX-4×4×1.80 | 4.00 ±0.10 | 4.00 ±0.10 | 3.70 ±0.10 | 1.75 ±0.10 | 1.80 ±0.10 | 0.60 ±0.10 | 0.80 ±0.10 | 0.40 ±0.10 |
| AX-4×4×2.60 | 4.00 ±0.10 | 4.00 ±0.10 | 3.70 ±0.10 | 2.00 ±0.10 | 2.60 ±0.10 | 0.60 ±0.10 | 1.40 ±0.10 | 0.60 ±0.10 |
| AX-6×6×1.25 | 6.00 ±0.10 | 6.00 ±0.10 | 5.50 ±0.10 | 4.00 ±0.10 | 1.25 ±0.10 | 0.48 ±0.10 | 0.30 ±0.10 | 0.47 ±0.10 |
| AX-6×6×1.80 | 6.00 ±0.10 | 6.00 ±0.10 | 5.50 ±0.10 | 3.00 ±0.10 | 1.80 ±0.10 | 0.55 ±0.10 | 0.80 ±0.10 | 0.45 ±0.10 |
| AX-6×6×2.50 | 6.00 ±0.10 | 6.00 ±0.10 | 5.50 ±0.10 | 2.70 ±0.10 | 2.50 ±0.10 | 0.80 ±0.10 | 1.00 ±0.10 | 0.70 ±0.10 |
| AX-6×6×4.10 | 6.00 ±0.10 | 6.00 ±0.10 | 5.50 ±0.10 | 2.82 ±0.10 | 4.10 ±0.10 | 0.90 ±0.10 | 2.40 ±0.10 | 0.80 ±0.10 |
| AX-8×8×3.85 | 8.00 ±0.10 | 8.00 ±0.10 | 7.50 ±0.10 | 3.75 ±0.10 | 3.85 ±0.10 | 1.00 ±0.10 | 2.00 ±0.10 | 0.85 ±0.10 |

## 2.45. SDR CORE



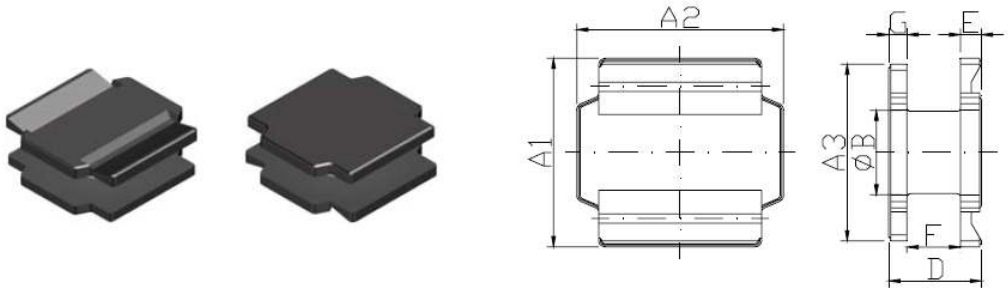

| | A1 | A2 | A3 | B | D | E | F | G |
|---|---|---|---|---|---|---|---|---|
| AX-6×6×2.60 | 6.00 ±0.10 | 6.00 ±0.10 | 5.50 ±0.10 | 2.40 ±0.10 | 2.60 ±0.10 | 0.75 ±0.10 | 1.20 ±0.10 | 0.65 ±0.10 |
| AX-6×6×3.80 | 6.00 ±0.10 | 6.00 ±0.10 | 5.50 ±0.10 | 2.80 ±0.10 | 3.80 ±0.10 | 0.75 ±0.10 | 2.30 ±0.10 | 0.75 ±0.10 |

## 2.46. SDR CORE



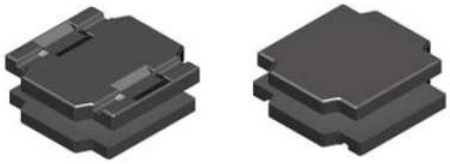

| | A1 | A2 | B | D | E | F | G |
|---|---|---|---|---|---|---|---|
| AX-8.0×8.0×3.8 | 8.00 ±0.12 | 8.00 ±0.12 | 3.50 ±0.12 | 3.80 ±0.10 | 0.80 ±0.10 | 2.20 ±0.12 | 0.80 ±0.10 |

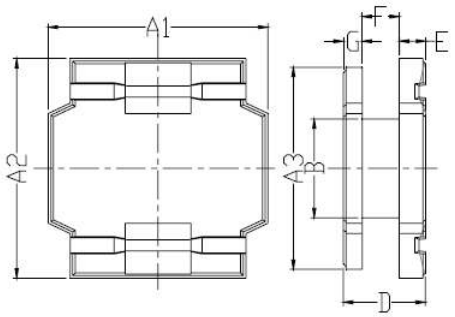
## 2.47. SDR CORE




| | A1 | A2 | A3 | B | D | E | F | G |
|---|---|---|---|---|---|---|---|---|
| AX-8.0×8.0×3.5 | 8.00 ±0.15 | 8.00 ±0.15 | 7.50 ±0.15 | 3.50 ±0.15 | 3.50 ±0.15 | 0.80 ±0.15 | 2.00 ±0.15 | 0.70 ±0.15 |

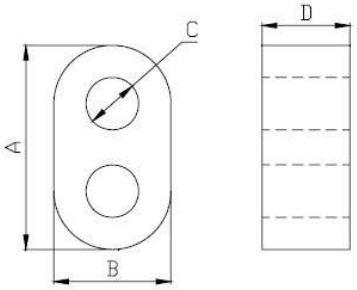
## 2.48. SDR CORE





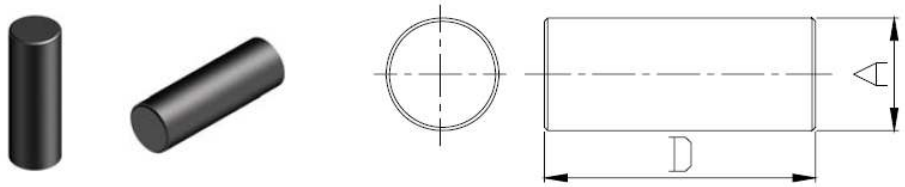

| | A1 | A2 | A3 | B | D | E | F | G |
|---|---|---|---|---|---|---|---|---|
| AX-10×10×3.75 | 10.00 ±0.15 | 10.00 ±0.15 | 9.20 ±0.15 | 4.50 ±0.10 | 3.75 ±0.15 | 1.20 ±0.10 | 1.70 ±0.10 | 0.85 ±0.10 |

## 2.49. CATV CORE RID



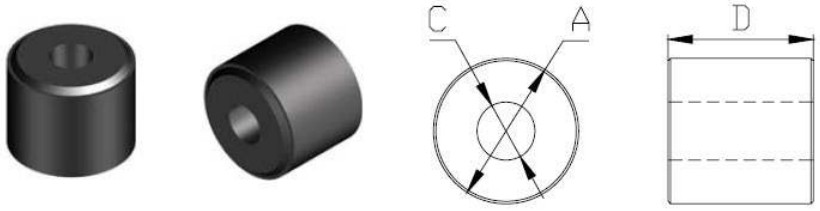

| | A | B | C | D |
|---|---|---|---|---|
| AX-RID 3.5×2×1.6×1.0 | 3.50 ±0.15 | 2.00 ±0.20 | 1.00 ±0.15 | 1.60 ±0.15 |
| AX-RID 3.5×2×2×1.0 | 3.50 ±0.20 | 2.00 ±0.15 | 1.00 ±0.15 | 2.00 ±0.15 |
| AX-RID 5×3×1.55×1.2 | 5.00 ±0.20 | 3.00 ±0.15 | 1.20 ±0.15 | 1.55 ±0.15 |
| AX-RID 5×3×3×1.2 | 5.00 ±0.20 | 3.00 ±0.15 | 1.20 ±0.15 | 3.00 ±0.20 |
| AX-RID 5.1×2.6×2.08×1.4 | 5.10 ±0.15 | 2.60 ±0.20 | 1.40 ±0.15 | 2.08 ±0.15 |
| AX-RID 5.5×3×3×1.2 | 5.50 ±0.15 | 3.00 ±0.25 | 1.20 ±0.15 | 3.00 ±0.20 |
| AX-RID 6×3×3.5×1.5 | 6.00 ±0.15 | 3.00 ±0.25 | 1.50 ±0.15 | 3.50 ±0.20 |
| AX-RID 6.5×3×2×1.2 | 6.50 ±0.25 | 3.00 ±0.15 | 1.20 ±0.15 | 2.00 ±0.20 |
| AX-RID 6.5×3×3×1.2 | 6.50 ±0.25 | 3.00 ±0.15 | 1.20 ±0.15 | 3.00 ±0.20 |
| AX-RID 7×4×3×1.8 | 7.00 ±0.30 | 4.00 ±0.25 | 1.80 ±0.15 | 3.00 ±0.20 |
| AX-RID 7×4×6×1.8 | 7.00 ±0.30 | 4.00 ±0.25 | 1.80 ±0.15 | 6.00 ±0.20 |
| AX-RID 13.5×7.8×10×4.3 | 13.5 ±0.35 | 7.80 ±0.30 | 4.30 ±0.25 | 10.0 ±0.30 |

## 2.50. CATV CORE R




| | A | D |
|---|---|---|
| AX-R 2×6 | 2.00 ±0.15 | 6.00 ±0.20 |
| AX-R 2×10 | 2.00 ±0.15 | 10.0 ±0.30 |
| AX-R 2×10W | 2.00 ±0.15 | 10.0 ±0.30 |
| AX-R 2×14 | 2.00 ±0.15 | 14.0 ±0.35 |
| AX-R 2×14W | 2.00 ±0.15 | 14.0 ±0.35 |
| AX-R 3×12 | 3.00 ±0.15 | 12.0 ±0.30 |
| AX-R 3×20 | 3.00 ±0.15 | 20.0 ±0.35 |
| AX-R 4×10 | 4.00 ±0.15 | 10.0 ±0.30 |
| AX-R 4×20 | 4.00 ±0.15 | 20.0 ±0.35 |
| AX-R 5×12 | 5.00 ±0.20 | 12.0 ±0.30 |
| AX-R 5×25 | 5.00 ±0.20 | 25.0 ±0.50 |
| AX-R 6×12 | 6.00 ±0.20 | 12.0 ±0.30 |
| AX-R 6×20 | 6.00 ±0.20 | 20.0 ±0.35 |
| AX-R 6×30 | 6.00 ±0.25 | 30.0 ±0.50 |

# 2.51. CATV CORE RH



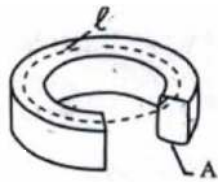

| | A | C | D |
|---|---|---|---|
| AX-RH 3.0×1.5×1.2 | 3.00 ±0.20 | 1.20 ±0.15 | 1.50 ±0.15 |
| AX-RH 3.0×3.0×1.2 | 3.00 ±0.20 | 1.20 ±0.15 | 3.00 ±0.15 |
| AX-RH 3.5×2.0×0.85 | 3.50 ±0.20 | 0.85 ±0.15 | 2.00 ±0.15 |
| AX-RH 3.5×3.0×0.85 | 3.50 ±0.20 | 0.85 ±0.15 | 3.00 ±0.15 |
| AX-RH 3.5×1.5×1.2 | 3.50 ±0.20 | 1.20 ±0.15 | 1.50 ±0.15 |
| AX-RH 3.5×3.0×1.2 | 3.50 ±0.20 | 1.20 ±0.15 | 3.00 ±0.15 |
| AX-RH 3.5×5.0×1.2 | 3.50 ±0.20 | 1.20 ±0.15 | 5.00 ±0.20 |
| AX-RH 3.5×3.0×1.5 | 3.50 ±0.20 | 1.50 ±0.15 | 3.00 ±0.15 |
| AX-RH 3.5×6.0×1.5 | 3.50 ±0.20 | 1.50 ±0.15 | 6.00 ±0.20 |
| AX-RH 4.0×5.0×2.0 | 4.00 ±0.20 | 2.00 ±0.15 | 5.00 ±0.20 |
| AX-RH 6.0×10.0×3.3 | 6.00 ±0.20 | 3.30 ±0.15 | 10.0 ±0.30 |
| AX-RH 7.0×9.5×5.3 | 7.00 ±0.20 | 5.30 ±0.20 | 9.50 ±0.30 |
| AX-RH 8.5×10.0×6.5 | 8.50 ±0.25 | 6.50 ±0.20 | 10.0 ±0.30 |

# 3. Definitions

## 3.1. Initial permeability, μi

The initial permeability μi is the limit value at the initial magnetization curve,s origin point and is given by the following formula:

$$\mu_i = \frac{1}{\mu_0} \lim_{H \to 0} \frac{B}{H}$$




$$\mu_i = \frac{L}{4\pi N^2} \cdot \frac{l}{A} \cdot 10^9$$

where $L$ = effective self inductance(H)
$N$ = number of coil turns
$l$ = average length of magetic path in thecore (cm)
$A$ = cross-section area of toroidal core($cm^2$)

## 3.2. Effective permeability, μe

This is usually defined as the permeability of a core forming a closed circuit where Leakage flux is negligibly small.

$$\mu_e = \frac{L}{\mu_0 N^2} \cdot \frac{l_e}{A_e}$$

Where $L$ = self-inductance of core with coil(H)
$N$ = number of turns
$l$ = effective magnetic path length(m)
$A$ = effective cross-sectional area(m2)

## 3.3. Saturation magnetic flux density, $B_s$ (T)

The magnetic flux density at a magnetic field where H is up to an approximate saturation magnetic field value.(fig.1)

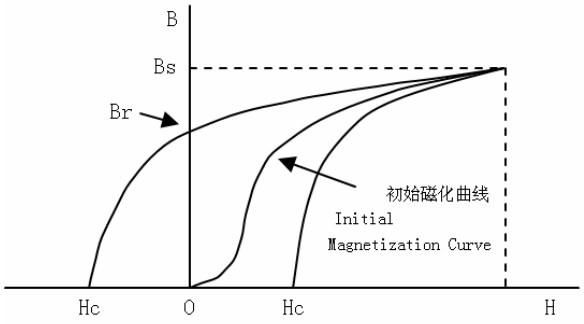



图1 Fig. 1

## 3.4. Residual magnetic flux density,Br(T)

The value of flux density retained by the core when the magnetic field is reduced from the stare of the effective staturation magnetic flux density to zero.(Fig.1)

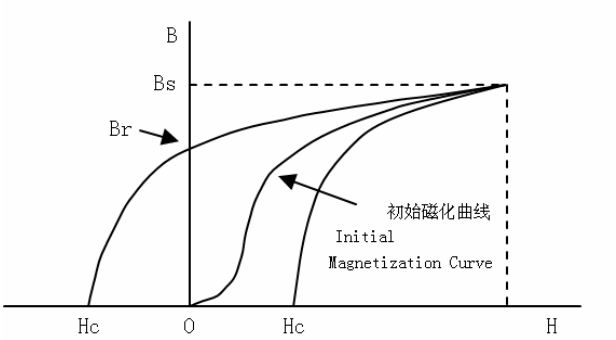



图1 Fig. 1

## 3.5. oercivity, Hc (A/m)

The value of magnetic field strength whereby the flux density becomes zero Under the intensification, in the opposite direction, of the magnetic field. (Fig.1)

## 3.6. Loss factor,tan δ

This is the sum of the hysteresis loss factor,eddy current loss factor and residual loss factor.

$\tan\delta = \tan\delta_h + \tan\delta_e + \tan\delta_r$

Where $\tan\delta_h$ is the hysteresis loss factor
$\tan\delta_e$ is the eddy current ioss factor
$\tan\delta_r$ is the residual loss factor

## 3.7. Relative loss factor, tan δ /μ

This is the ratio of loss factor to permeability. $\tan\delta/\mu_i$ (for materials)
$\tan\delta/\mu_0$ (for cores with gaps in the magnetic circuit)

## 3.8. Quality factor,Q

This is the reciprocal of the loss factor and is given by

$Q=1/\tan\delta$

## 3.9. Temperature coefficient, $\alpha_\mu$(1/K)

This is the fractional Difference of permeability per 1k in a temperature range of from $T_1$ to $T_2$.

$$\alpha_\mu = \frac{\mu_2 - \mu_1}{\mu_1} \cdot \frac{1}{T_2 - T_1} \quad (T_2 > T_1)$$

Where $\mu_1$ = permeability at temperature $T_1$
$\mu_2$ = permeability at temperature $T_2$

## 3.10. Relative temperature coefficient, $\alpha_{\mu r}$(1/K)

This is the temperature coefficient per unit permeability and is given by the follwing equation:

$$\alpha_{\mu r} = \frac{\mu_2 - \mu_1}{\mu_1^2} \cdot \frac{1}{T_2 - T_1} \quad (T_2 > T_1)$$

## 3.11. Curie temperature, (Tc)

It is the critical temperature level at which the ferromagnetic state of material Changes to paramagnetic state.(Fig.2)

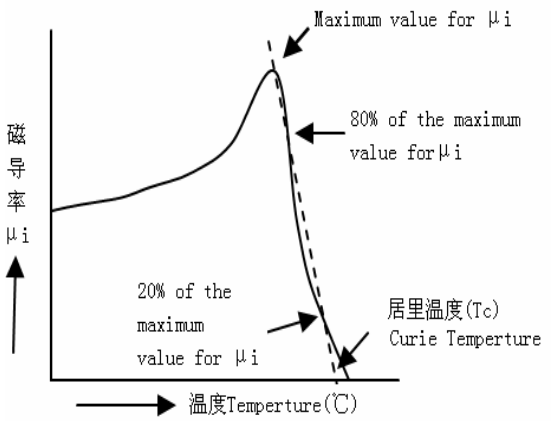



图2 Fig.2

## 3.12. Disaccommodation factor,$D_F$

This is the factor representing the variation of Permeability through time after a complete demagnetization of the core at a constant Temperature.

$$D_F = \frac{\mu_1 - \mu_2}{\log \frac{T_2}{T_1}} \cdot \frac{1}{\mu_1^2} \quad (T_2 > T_1)$$

Where $\mu_1$ = permeability $T_1$ minutes after complete demagnetization .
$\mu_2$ = Permeability $T_2$ minutes affter complete demagnetization .

## 3.13. Electrical resistivity, ρ Ωm）

This is the electrical resistance per unit length and cross-sectional area of a magnetic core.

## 3.14. Density d (kg/m³)

This is the weight per unit volume of a magnetic core as expressed below:

$$D=W/V$$

where W = weight of magnetic body (kg)
V = volume magnetic body ($m^3$)

## 3.15. Power loss Pc (kw/m$^3$, W/Kg )

Power loss denotes the loss by an electrical transformer such as a swithching power supply, under a magnetization condition featuring a high frequency and large amplitude.Operating magnetic flux density is given by the following equation.

$$B_m = \frac{E}{4.44 f N A_e}$$

Where E = voltage effective value applied to coil(V)
$B_m$ = peak value of magnetic flux density(T)
f = frequency (Hz)
N = number of coil turns
$A_e$ = effective cross-sectional area(㎡)

At present,the usual ways to measure the power loss are Mulit-voltmeter Method and Waveform Memory Method.

## 3.16. Inductance factor $A_L$ (nH/N$^2$)

This is the inductance per turn of the coil wound around the ferrite cores with definite shape and dimension.

$$A = L/N^2$$

Where L = inductance of the coil with ferrite core(H)
N = turns of the coil

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