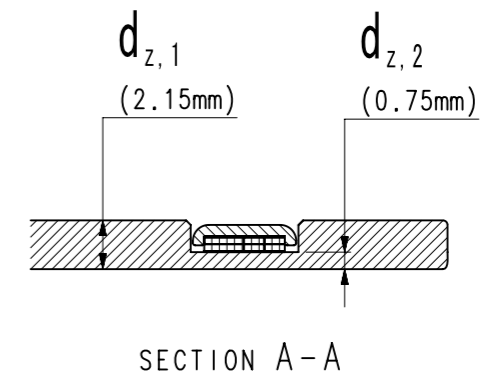
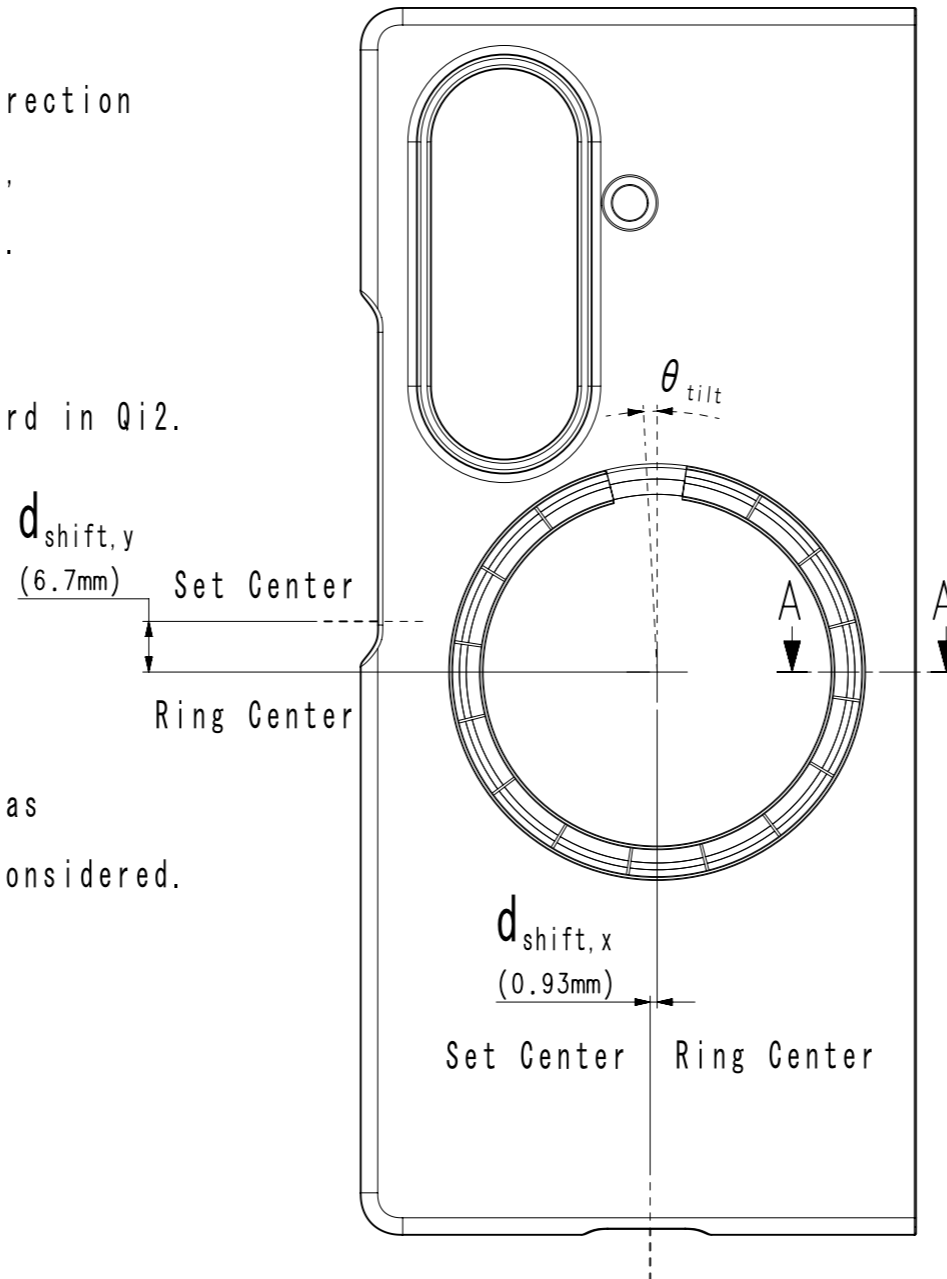


# Galaxy Z Fold7 Series reference design guide : Magnet Position & Cover Thickness

## □ MPP Cover Guide #1

- ① Magnet Position ( $d_{\text{shift } y} : 6.7\text{mm}$ ,  $d_{\text{shift } x} : 0.93\text{mm}$ )
  - Magnet center has been moved 0.93mm in the X-direction and 6.7mm downward from the mobile phone center, considering interference with the camera module.
- ② Cover Thickness ( $d_{z,1} : 2.15\text{T}$ )
  - Set to 2.2T to comply with coil coupling standard in Qi2.
  - An air gap ( $d_{\text{air}}$ ) exists between the mobile phone and the cover.
  - Total thickness =  $d_{z,1} + d_{\text{air}} (=0.05\text{T}) = 2.2 \text{ T}$
- ③ Thickness of Magnet + Cover Surface ( $d_{z,2} : 0.75\text{T}$ )
  - Shear force (with magnet accessories), as well as the manufacturability of the cover, have been considered.
- ④ Tilt Angle of Magnet Shield Slit ( $\theta_{\text{tilt}}$ )
  - The slit of magnet shield is utilized to detect the cover on the mobile device.
  - The tilt angle of slit area varies according to the hall IC position for each model.



## □ Key Dimension

|  | Z Fold7    |
|--|------------|
| $\theta_{\text{tilt}}$<br>(Tol $\pm 0.1$ ) | $-3^\circ$ |
| $d_{\text{shift } y}$                      | 6.7mm      |
| $d_{\text{shift } x}$                      | 0.93mm     |
| $d_{z,1}$                                  | 2.15mm     |
| $d_{z,2}$                                  | 0.75mm     |
| $d_{\text{air}}$                           | 0.05mm     |

※ SET + Cover Air gap ( $d_{\text{air}}$ ) : 0.05 mm

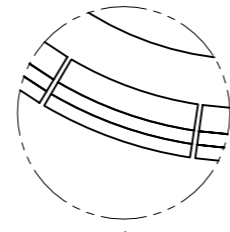
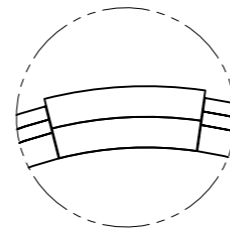
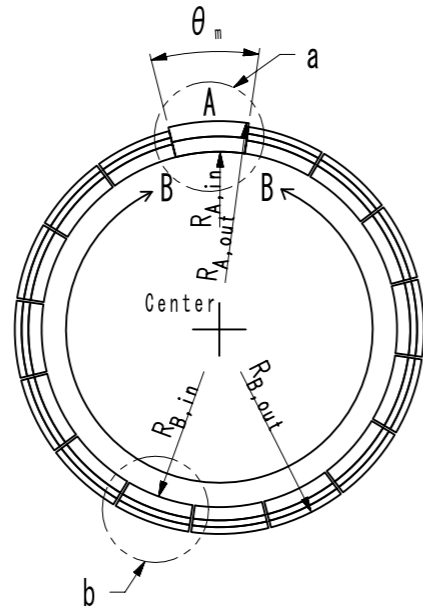
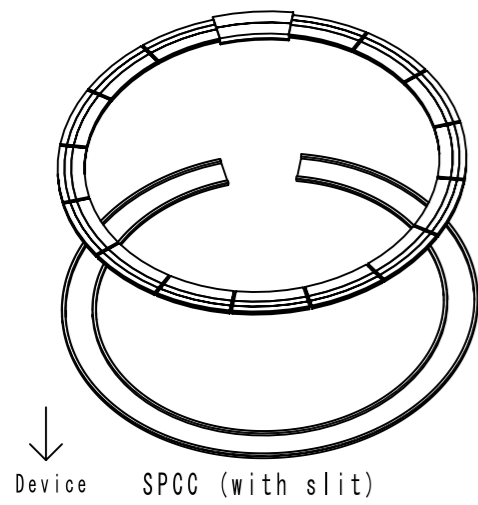
※ Total thickness =  $d_{z,1} + d_{\text{air}}$  : 2.2 mm

※ Tolerance :  $\pm 0.05\text{mm}$ , unless otherwise specified

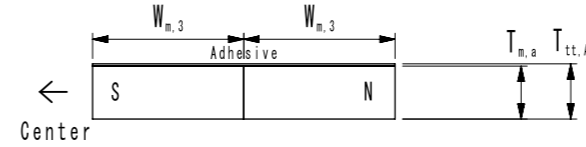
|                |           |      |       |                |
|----------------|-----------|------|-------|----------------|
| Projection<br> | Scale     | None | Model | Galaxy Z Fold7 |
|                | Size      | S    |       |                |
|                | Unit      | mm   |       |                |
|                | Sheet No. | 1/1  |       |                |

# Galaxy Z Fold7 Series reference design guide : Magnet & Shield

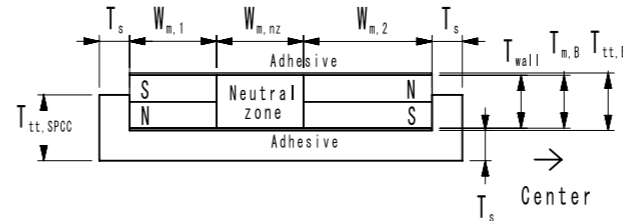
Magnet Array (16 pieces)



※ 'A' Magnet Magnetization Pattern



※ 'B' Magnet Magnetization Pattern



□ Key Dimension (Magnet)

|  |   |
|--|---|
| Magnet Grade                                     | A : N45SH<br>B : N45SH  |
| $\theta_m$ (Tol. $\pm 1^\circ$ )                 | 22.5°   |
| $R_{A,in} / R_{A,out}$                           | 23.5 / 27.55 mm   |
| $R_{B,in} / R_{B,out}$                           | 23.5 / 27.05 mm   |
| $W_{m,1}, W_{m,nz}$                              | 0.9 mm  |
| $W_{m,2}$  | 1.75 mm   |
| $W_{m,3}$  | 2.025 mm  |
| Magnet Width                                     | A : $W_{m,3} + W_{m,3}$<br>B : $W_{m,1} + W_{m,nz} + W_{m,2}$ |
| $T_{adh}$ (Magnet + Cover) (Tol : $\pm 0.01mm$ ) | 0.05 mm   |
| $T_{m,A}$  | 0.9 mm  |
| $T_{m,B}$  | 0.6 mm  |
| $T_{adh}$ (Magnet + SPCC) (Tol : $\pm 0.01mm$ )  | 0.05 mm   |
| $T_s$  | 0.5 mm  |
| $T_{wall}$                                       | 0.35 mm   |
| $T_{tt,A}$                                       | 0.95 mm   |
| $T_{tt,B}$                                       | 1.2 mm  |
| $T_{tt,SPCC}$                                    | 0.9 mm  |

## □ MPP Cover Guide #2

- Inner / Outer Radius of Magnet ( $R_{A,in}$ ,  $R_{A,out}$ ,  $R_{B,in}$ ,  $R_{B,out}$ )
  - Compatibility with Qi2 magnetic accessories in the market has been considered.
  - Sensing magnet (A) is designed in consideration of the position of the cover sensing IC for Q7.
- Magnetization and Neutral zone Area ( $W_{m,1}$ ,  $W_{m,2}$ ,  $W_{m,3}$ ,  $W_{m,nz}$ )
  - Magnetic field impact on the mobile device has been considered.
- Magnet Thickness ( $T_{m,A}$  : 0.9T /  $T_{m,B}$  : 0.6)
  - Shear force (with magnet accessories), as well as magnetic field impact on the mobile device, has been considered.
- Magnet Shield Thickness and Material ( $T_s$  : 0.5T / SPCC)
  - Magnetic field impact on the mobile device has been considered.
- Slit Width of Magnet Shield ( $\theta_s$ : 22.5°)
  - Magnet cover sensing sensitivity has been considered for mobile device.
- Total Thickness ( $T_{tt}$  : 0.95T)
  - Magnet (A)

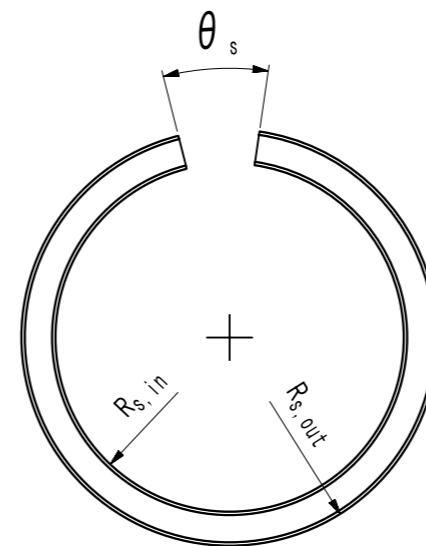
$$T_{tt,A} = T_{adh} + T_{m,A} = 0.05T + 0.9T = 0.95T$$

- Magnet (B)

$$T_{tt,B} = T_{adh} + T_{m,B} + T_{adh} + T_s = 0.05T + 0.6T + 0.05T + 0.5T = 1.2T$$

- SPCC

$$T_{tt,SPCC} = T_{wall} + T_{adh} + T_s = 0.35T + 0.05T + 0.5T = 0.9T$$

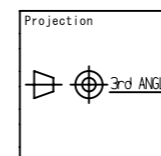


※ Magnet shield

□ Key Dimension (Magnet Shield)

|   |          |
|---|----------|
| Material  | SPCC     |
| $\theta_s$ (Tol : $\pm 1^\circ$ )                 | 22.5°    |
| $R_{s,in}$  | 23.0 mm  |
| $R_{s,out}$                                       | 27.55 mm |
| Magnet Shield Width<br>( $R_{s,out} - R_{s,in}$ ) | 4.55 mm  |
| $T_s$   | 0.5 mm   |

※ Tolerance :  $\pm 0.05mm$ , unless otherwise specified



**SAMSUNG**

Scale None  
Size S  
Unit mm  
Sheet No. 1/1

Model

Galaxy Z Fold7