



## SERIES: F1D1-0603 | DESCRIPTION: HIGH CURRENT SHIELDED POWER INDUCTOR

### FEATURES

- Shielded construction
- Lowest height and DCR for a given package footprint
- Attenuates high transient current spikes to avoid saturation
- Composite construction for audible noise reduction



### MODEL

|                   | Inductance<br>(L0) | DC Resistance<br>(DCR) |             | Saturation Current<br>(Isat) | Temperature Rise Current<br>(Irms) |
|-------------------|--------------------|------------------------|-------------|------------------------------|------------------------------------|
|                   |                    | typ<br>[mΩ]            | max<br>[mΩ] |                              |                                    |
|                   | [μH]               |                        |             | typ<br>[A]                   | typ<br>[A]                         |
| F1D1-060603-1R0M  | 1.0                | 7.0                    | 8.0         | 9.5                          | 12.5                               |
| F1D1-060603-1R5M  | 1.5                | 10.2                   | 12.0        | 8.5                          | 10.5                               |
| F1D1-060603-2R2M  | 2.2                | 14.7                   | 16.5        | 7.0                          | 9.0                                |
| F1D1-060603-3R3M  | 3.3                | 23.5                   | 26.0        | 6.5                          | 7.0                                |
| F1D1-060603-4R7M  | 4.7                | 29.5                   | 33.4        | 4.0                          | 6.0                                |
| F1D1-060603-6R8M  | 6.8                | 41.0                   | 46.8        | 4.0                          | 5.5                                |
| F1D1-060603-8R2M  | 8.2                | 52.5                   | 54.9        | 4.0                          | 5.0                                |
| F1D1-060603-100M  | 10.0               | 64.5                   | 71.2        | 3.5                          | 4.0                                |
| F1D1-060603-150M  | 15.0               | 108.0                  | 118.0       | 4.0                          | 3.0                                |
| F1D1-060603-220M  | 22.0               | 126.0                  | 135.0       | 2.5                          | 2.9                                |
| F1D1-060603W-R22M | 0.22               | 2.5                    | 3.0         | 34.0                         | 24.0                               |
| F1D1-060603W-R33M | 0.33               | 3.0                    | 3.5         | 25.0                         | 21.0                               |
| F1D1-060603W-R47M | 0.47               | 3.5                    | 4.1         | 20.0                         | 18.0                               |
| F1D1-060603W-R56M | 0.56               | 3.8                    | 4.5         | 18.0                         | 16.5                               |
| F1D1-060603W-R68M | 0.68               | 4.5                    | 5.3         | 17.0                         | 16.0                               |
| F1D1-060603W-R82M | 0.82               | 5.1                    | 6.0         | 16.0                         | 14.0                               |
| F1D1-060603W-1R0M | 1.0                | 6.4                    | 7.4         | 15.0                         | 12.0                               |
| F1D1-060603W-1R5M | 1.5                | 10.1                   | 12.1        | 12.0                         | 12.0                               |
| F1D1-060603W-2R2M | 2.2                | 13.2                   | 15.0        | 10.0                         | 9.5                                |
| F1D1-060603W-3R3M | 3.3                | 19.1                   | 22.0        | 9.5                          | 8.5                                |
| F1D1-060603W-4R7M | 4.7                | 29.4                   | 33.0        | 9.0                          | 6.0                                |
| F1D1-060603W-5R6M | 5.6                | 36.8                   | 42.0        | 6.5                          | 5.5                                |
| F1D1-060603W-6R8M | 6.8                | 44.0                   | 48.0        | 6.0                          | 5.0                                |
| F1D1-060603W-8R2M | 8.2                | 56.0                   | 60.0        | 5.5                          | 5.0                                |
| F1D1-060603W-100M | 10.0               | 60.0                   | 68.0        | 5.5                          | 4.5                                |
| F1D1-060603W-150M | 15.0               | 100                    | 113         | 4.0                          | 3.0                                |
| F1D1-060603W-220M | 22.0               | 138                    | 170         | 3.0                          | 2.5                                |
| F1D1-060603W-330M | 33.0               | 183                    | 270         | 2.5                          | 2.0                                |
| F1D1-060603W-470M | 47.0               | 354                    | 385         | 2.0                          | 1.5                                |

- Notes:
- 1. Referenced ambient temperature 25°C
  - 2. Test Condition: 100 kHz, 0.25 Vrms
  - 3. Saturation Current - Isat (Typ): DC current (A) that will cause L<sub>o</sub> to drop approximately 30%
  - Temperature Rise Current - Irms (Typ): DC current (A) that will cause the temperature increase by ΔT of 40°C
  - 4. Operating temperature range includes self-temperature rise
  - 5. Operating Temperature: -55°C to 125°C

PART NUMBER KEY

**F1D1 - 060603W - XXX X**

**Type / Product Series**  
F1D1 = High Current Shielded SMD Inductor

**Form Factor**  
060603  
060603W

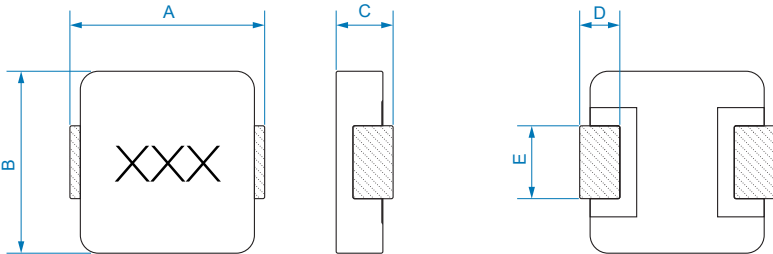
**Inductance Tolerance**  
M = ±20%

**Inductance \***  
R47 = 0.47 μH

\* Note: Inductance expressed by three figures. The unit is micro henry (μH). The first and second figures are significant digits, the third figure expresses the number of zeros which follow the two figures. If there is a decimal point, it is expressed by the capital letter "R" (3R8 = 3.8 μH). In that case, all figures are significant digits.

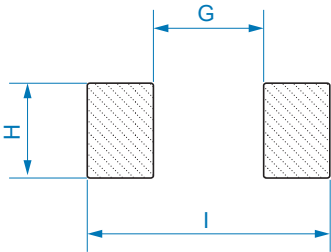
MECHANICAL DRAWING

Units: mm



PAD LAYOUT

Units: mm

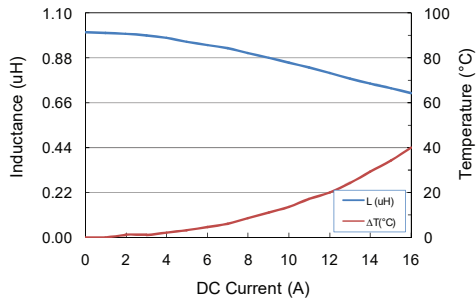


MECHANICAL DIMENSIONS (mm)

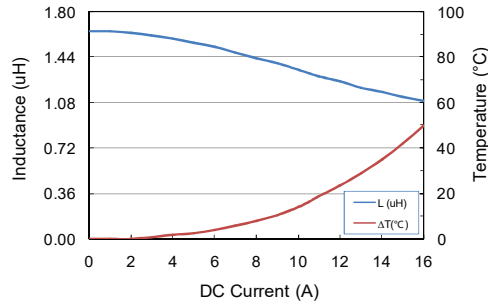
| Product Series | A<br>max  | B<br>max  | C<br>max  | D         | E         | G   | H   | I   |
|----------------|-----------|-----------|-----------|-----------|-----------|-----|-----|-----|
| F1D1-060603    | 7.1 ± 0.3 | 6.6 ± 0.2 | 2.8 ± 0.2 | 1.6 ± 0.3 | 3.0 ± 0.5 | 3.7 | 3.5 | 8.0 |
| F1D1-060603W   | 7.0 ± 0.3 | 6.6 ± 0.2 | 2.8 ± 0.2 | 1.6 ± 0.3 | 3.0 ± 0.3 | 3.7 | 3.5 | 8.4 |

## PERFORMANCE CURVES

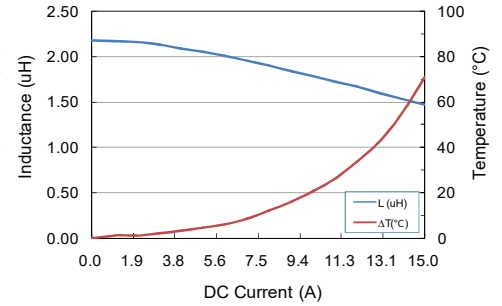
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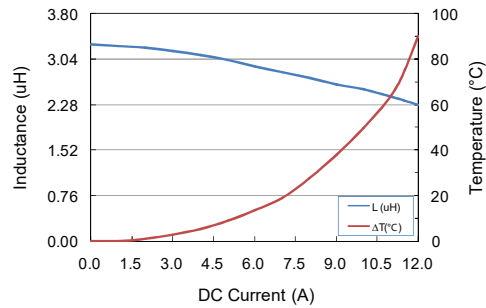
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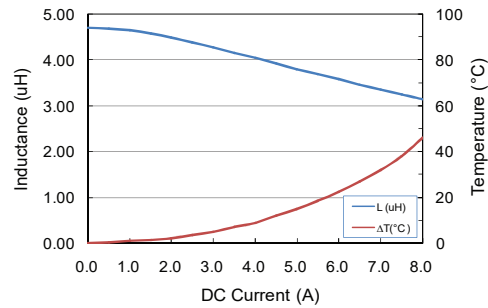
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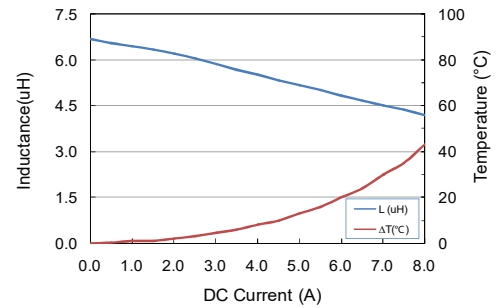
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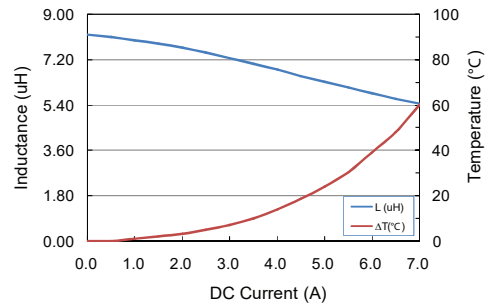
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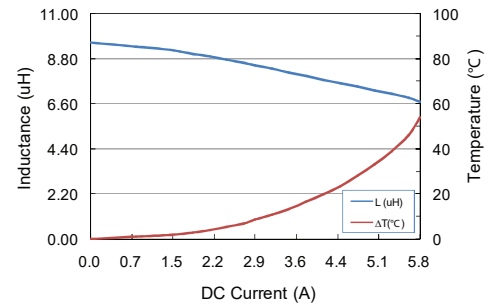
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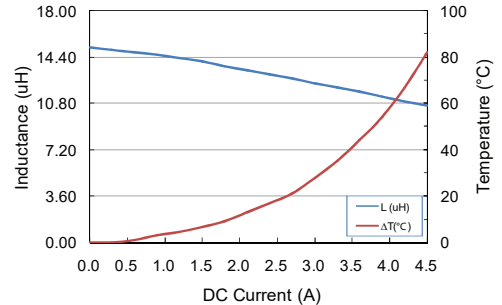
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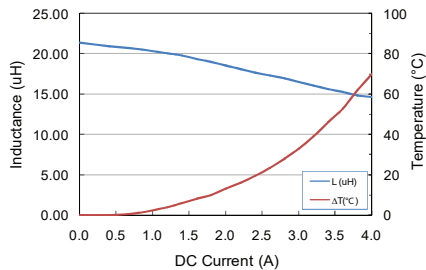
F1D1-060603-100M



F1D1-060603-150M

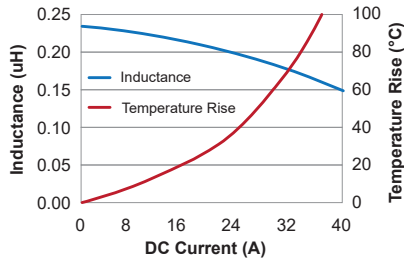


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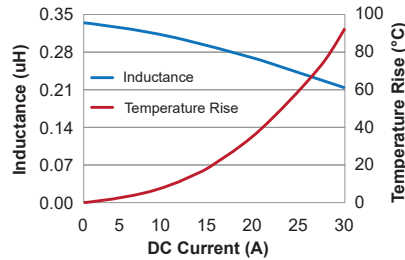


## PERFORMANCE CURVES

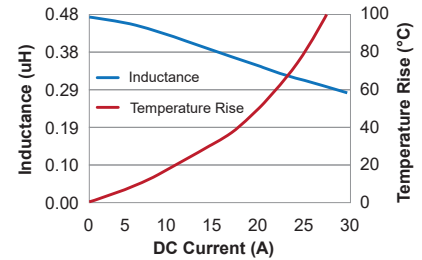
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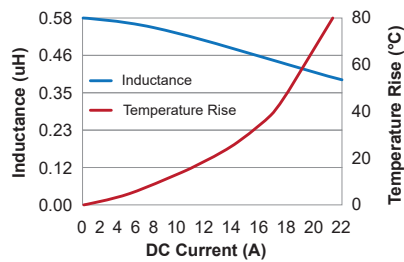
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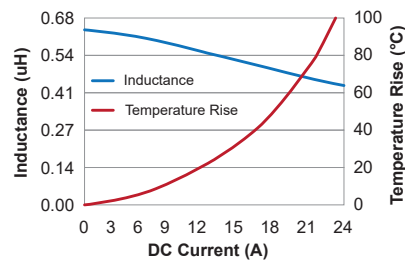
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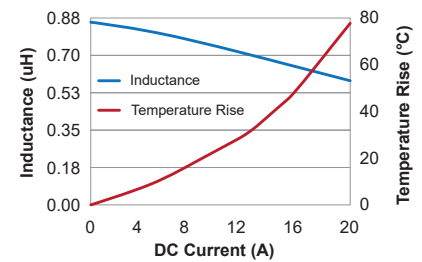
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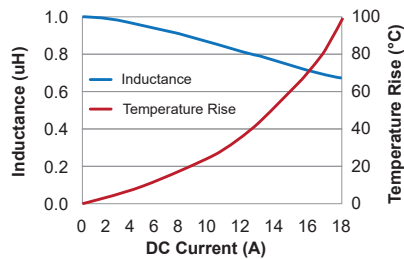
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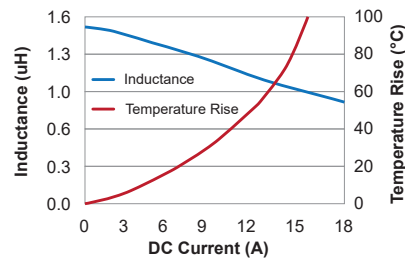
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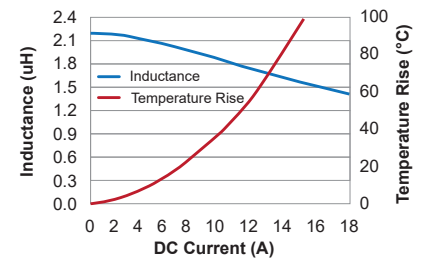
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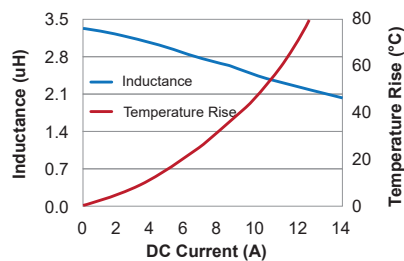
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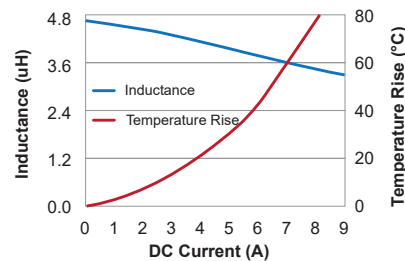
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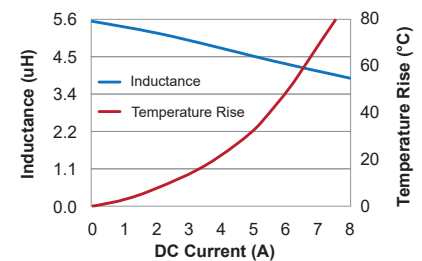
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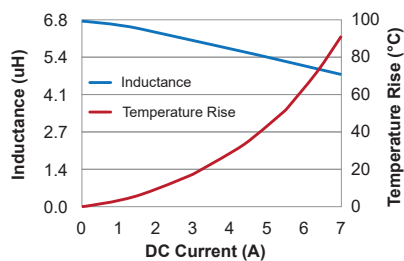
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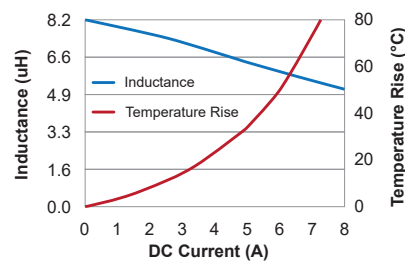
F1D1-060603W-5R6M



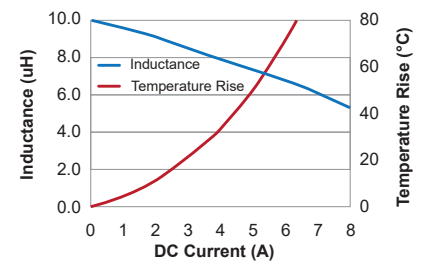
F1D1-060603W-6R8M



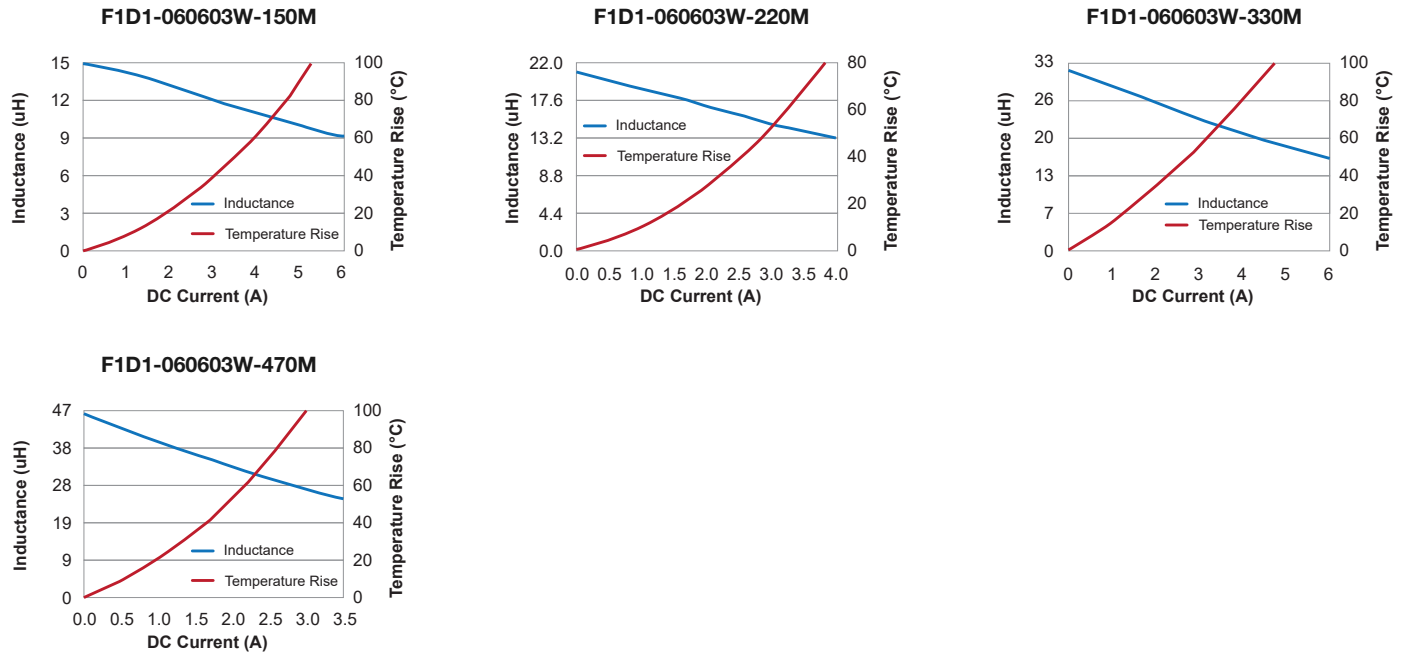
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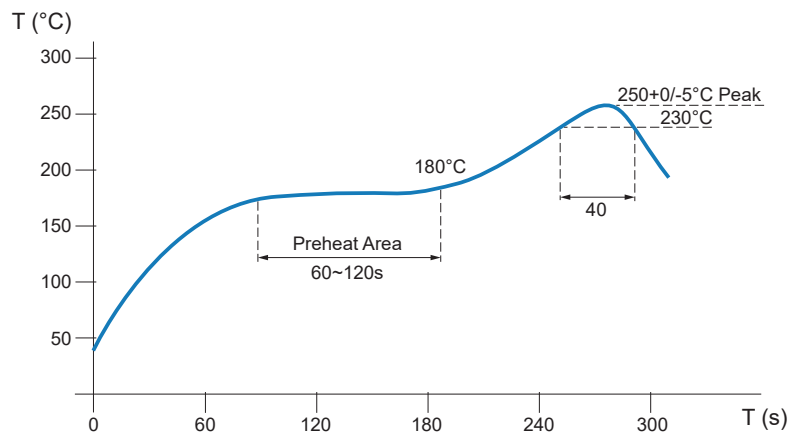
F1D1-060603W-100M



## PERFORMANCE CURVES



## REFLOW SOLDERING TEMPERATURE CURVE

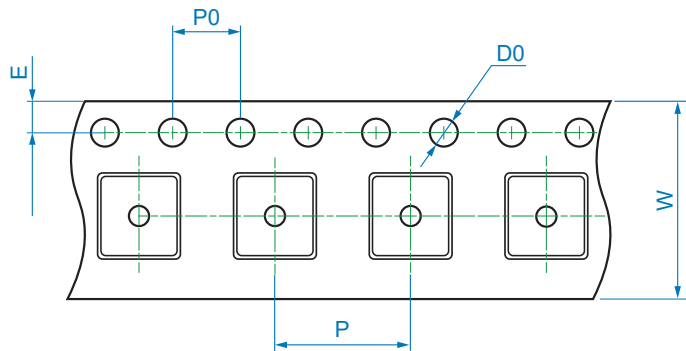


The recommended reflow conditions are set according to the soldering equipment used.

Since various manufactures may have different reflow soldering equipment, products, process conditions, set methods, etc., when setting the reflow conditions, please adjust and confirm according to users' environment/equipment.

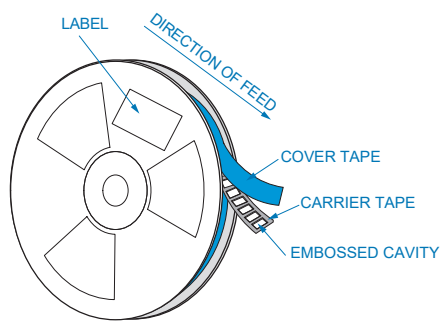
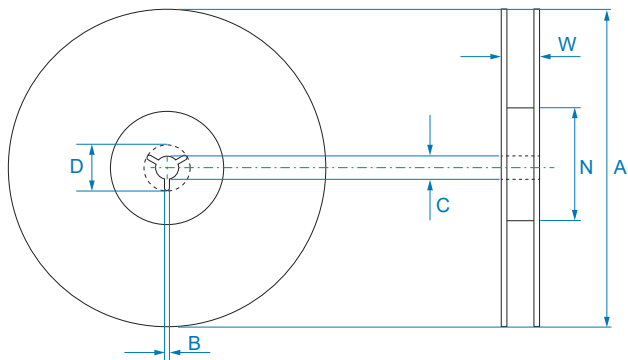
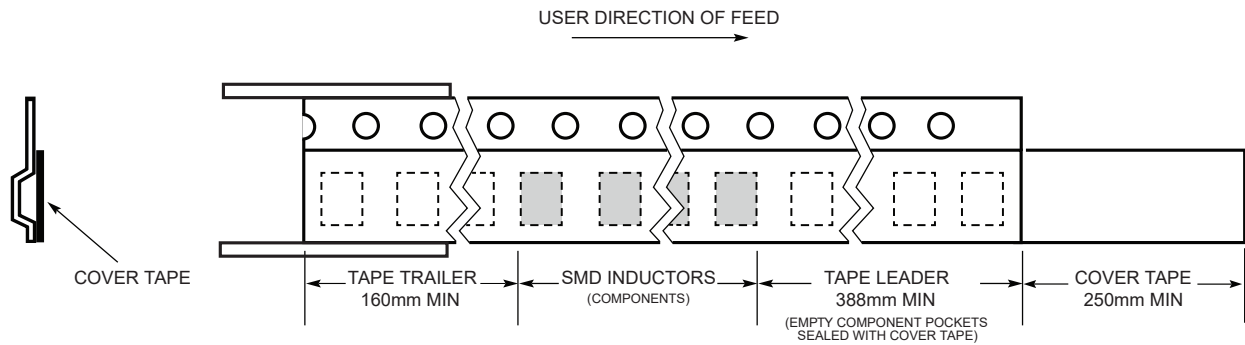
QUANTITY PER REEL & PACKING INFORMATION

Units: mm



TAPE DIMENSIONS (mm)

| Product Series             | W    | P    | P0        | D0             | E          |
|----------------------------|------|------|-----------|----------------|------------|
| F1D1-060603 / F1D1-060603W | 16.0 | 12.0 | 4.0 ± 0.1 | 1.5 + 0.1/-0.0 | 1.75 ± 0.1 |

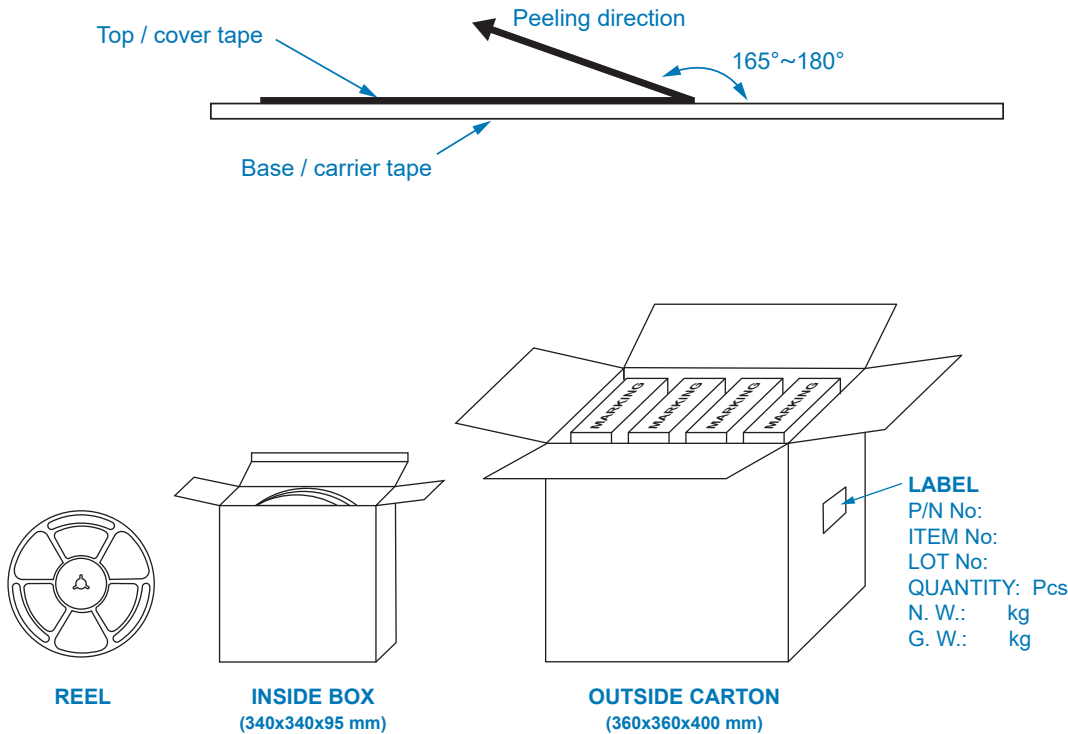


REEL DIMENSIONS (mm)

| Product Series             | A   | W    | B         | C          | D          |
|----------------------------|-----|------|-----------|------------|------------|
| F1D1-060603 / F1D1-060603W | 330 | 16.0 | 2.5 ± 0.5 | 13.0 ± 1.0 | 23.0 ± 1.0 |

Peel-off Force

The peel-off force of top cover tape shall be between 10 to 60 grams in the arrow direction.



QUANTITY PER PACKAGE

| Product Series             | Pcs per Reel | Pcs per Inside Box | Pcs per Outside Carton |
|----------------------------|--------------|--------------------|------------------------|
| F1D1-060603 / F1D1-060603W | 1500         | 3000               | 12000                  |

Storage Conditions

- a) Temperature conditions:  $<35^{\circ}\text{C}$ .
- b) Humidity conditions between 35% - 65%.
- c) Moisture Sensitivity Level (MSL): Level 1.
- d) Storage of material to be in a sulfur and chlorine free environment.

REVISION HISTORY

| Rev. | Description     | Date        |
|------|-----------------|-------------|
| 1    | initial release | Jun/20/2024 |
| A    |                 |             |

**NUCLEAR AND MEDICAL APPLICATIONS** - Products are not designed or intended for use as critical components in life support systems, equipment used in hazardous environments, or nuclear control systems.

**TECHNICAL REVISIONS** - The appearance of products, including safety agency certifications pictured on labels, may change depending on the date manufactured. Specifications are subject to change without notice.



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[F1D1-060603-4R7M](#) [F1D1-060603-8R2M](#) [F1D1-060603W-220M](#) [F1D1-060603-1R0M](#) [F1D1-060603-220M](#) [F1D1-](#)  
[060603W-4R7M](#) [F1D1-060603W-6R8M](#) [F1D1-060603W-470M](#) [F1D1-060603-2R2M](#) [F1D1-060603W-R68M](#) [F1D1-](#)  
[060603-3R3M](#) [F1D1-060603W-R56M](#) [F1D1-060603W-100M](#) [F1D1-060603-150M](#) [F1D1-060603-1R5M](#) [F1D1-](#)  
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[060603W-1R5M](#) [F1D1-060603W-R82M](#) [F1D1-060603W-150M](#) [F1D1-060603W-1R0M](#)