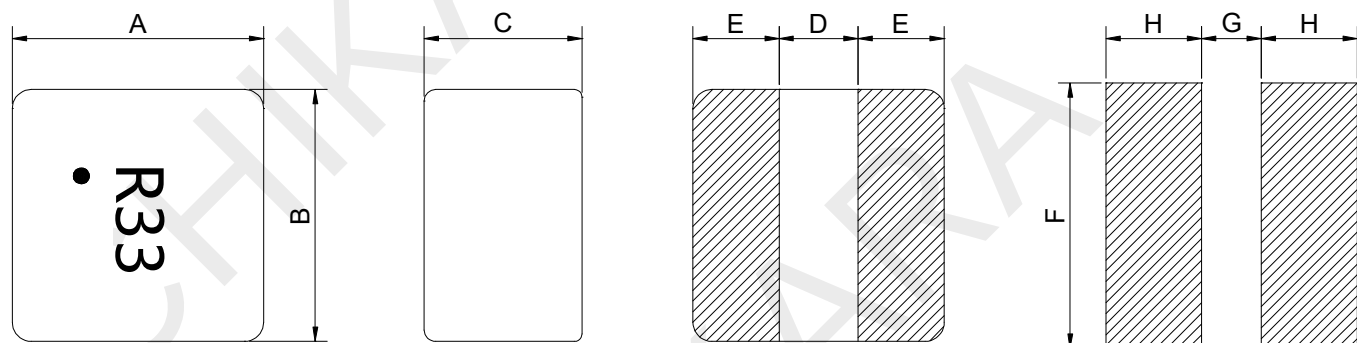


### Features

- Compact design, Flat wire
- Storage temperature range:-55°C to + 125°C
- Operating temperature range:-55°C to + 125°C  
(including coil's self-temperature rise)
- Moisture sensitivity level:1
- Packaging:3000pcs. Per 13-inch reel
- RoHs&Halogen-free compliant



### Mechanical Dimension(Unit:mm)



Recommended Layout

| A       | B       | C       | D        | E        | F   | G   | H   |
|---------|---------|---------|----------|----------|-----|-----|-----|
| 4.1±0.3 | 4.1±0.3 | 2.0Max. | 1.4±0.25 | 1.35±0.2 | 4.3 | 1.3 | 1.5 |

### Part Number Description

SP16 - 040020 R33 M  
① ② ③ ④

|   |                  |
|---|------------------|
| ① | Type             |
| ② | Dimensions       |
| ③ | Inductance value |
| ④ | Tolerance code   |

### Electrical Schematic



### Electrical Characteristic

| Part Number     | Inductance<br>L0( $\mu$ H) | DCR               |                   | Isat    |         | Irms    |         |
|-----------------|----------------------------|-------------------|-------------------|---------|---------|---------|---------|
|                 |                            | (m $\Omega$ )Max. | (m $\Omega$ )Typ. | (A)Max. | (A)Typ. | (A)Max. | (A)Typ. |
| SP16-040020R33M | 0.33 $\pm$ 20%             | 6.0               | 5.0               | 17.0    | 18.0    | 11.0    | 12.0    |
| SP16-040020R47M | 0.47 $\pm$ 20%             | 8.5               | 7.0               | 15.0    | 16.0    | 9.5     | 10.2    |
| SP16-0400201R0M | 1.0 $\pm$ 20%              | 14.5              | 12.0              | 11.5    | 12.5    | 8.0     | 8.5     |
| SP16-0400201R5M | 1.5 $\pm$ 20%              | 22.0              | 18.0              | 9.5     | 10.5    | 6.5     | 7.0     |
| SP16-0400202R2M | 2.2 $\pm$ 20%              | 36.0              | 30.0              | 8.5     | 9.5     | 6.0     | 6.5     |
| SP16-0400203R3M | 3.3 $\pm$ 20%              | 40.0              | 35.0              | 7.0     | 8.0     | 5.8     | 6.3     |
| SP16-0400204R7M | 4.7 $\pm$ 20%              | 58.0              | 47.0              | 5.5     | 6.3     | 4.0     | 5.0     |
| SP16-0400206R8M | 6.8 $\pm$ 20%              | 105               | 90.0              | 4.5     | 5.4     | 3.2     | 3.7     |
| SP16-040020100M | 10 $\pm$ 20%               | 135               | 113               | 4.0     | 4.9     | 3.0     | 3.4     |
| SP16-040020150M | 15 $\pm$ 20%               | 250               | 210               | 3.0     | 3.5     | 1.7     | 2.3     |
| SP16-040020220M | 22 $\pm$ 20%               | 330               | 275               | 2.3     | 2.9     | 1.3     | 1.8     |

- Test frequency and voltage:1MHz,1Vrms.
- All test data referenced to 25°C ambient.
- Absolute maximum voltage: 30Vdc.
- Saturation current(Isat) will cause L0 to drop approximately 30%.
- Heat rated current(Irms) will cause the coil temperature rise approximately  $\Delta t$  of 40°C.
- Heat rated current (Irms) is tested on a typical PCB and apply a constant current in still air. The temperature rise is dependent on the application system condition including PCB PAD pattern, trace width and thickness and adjacent components etc. It' s suggested to verify the temperature rise of the component under the real operation application conditions.



### Soldering Specification

- Reflow profile for SMT components



- Classification of peak package body temperature (Tp)

|                  | Package Thickness | Package Volume      |                         |                      |
|------------------|-------------------|---------------------|-------------------------|----------------------|
|                  |                   | <350mm <sup>3</sup> | 350~2000mm <sup>3</sup> | >2000mm <sup>3</sup> |
| PB-Free Assembly | <1.6mm            | 260°C               | 260°C                   | 260°C                |
|                  | 1.6~2.5mm         | 260°C               | 250°C                   | 245°C                |
|                  | ≥2.5mm            | 250°C               | 245°C                   | 245°C                |

※ Reflow is referred to standard IPC/JEDEC J-STD-020D.