

## ■ Features

- Assemblage design, sturdy structure.
- High inductance, high current, low magnetic loss, low ESR, small parasitic capacitance.
- Flat wire winding, achieve a low D.C. Resistance.
- Temperature rise current and saturation current is less influenced by environment.
- Operating temperature range:  $-40^{\circ}\text{C} \sim +125^{\circ}\text{C}$ .

## ■ Applications

- Low profile, high current power supplies.
- Battery powered devices.
- DC/DC converters in distributed power systems.
- DC/DC converters for field programmable gate array.

## ■ Product Identification

$\frac{\text{YSFB}}{(1)} \quad \frac{\square\square\square\square}{(2)} - \frac{\square\square\square}{(3)} \quad \frac{\square}{(4)}$

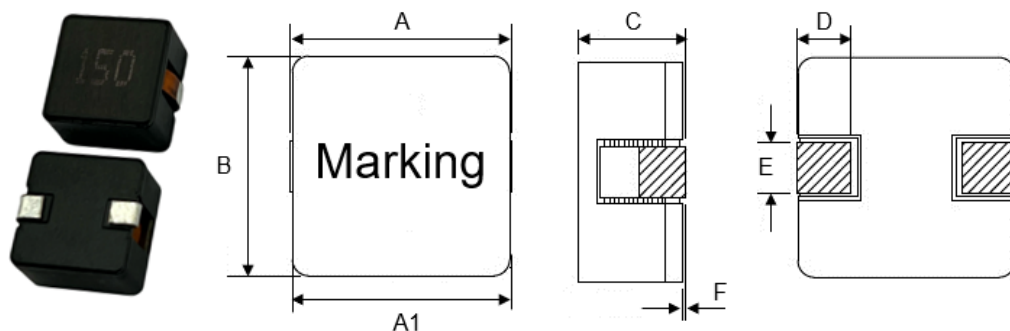
(1) : Type

(2) : Dimensions

(3) : Inductance value

(4) : Inductance Tolerance: M= $\pm 20\%$ , K= $\pm 10\%$

## ■ Shapes and Dimensions (Unit: mm)



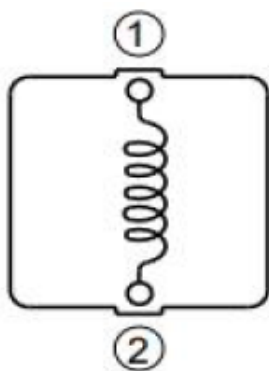
| TYPE     | A Max. | A1             | B Max. | C             | D             | E             | F     |
|----------|--------|----------------|--------|---------------|---------------|---------------|-------|
| YSFB1275 | 14.0   | 12.8 $\pm$ 0.5 | 13.3   | 7.5 $\pm$ 0.5 | 3.0 $\pm$ 0.5 | 2.4 $\pm$ 0.3 | 0~0.2 |

## Electrical requirements

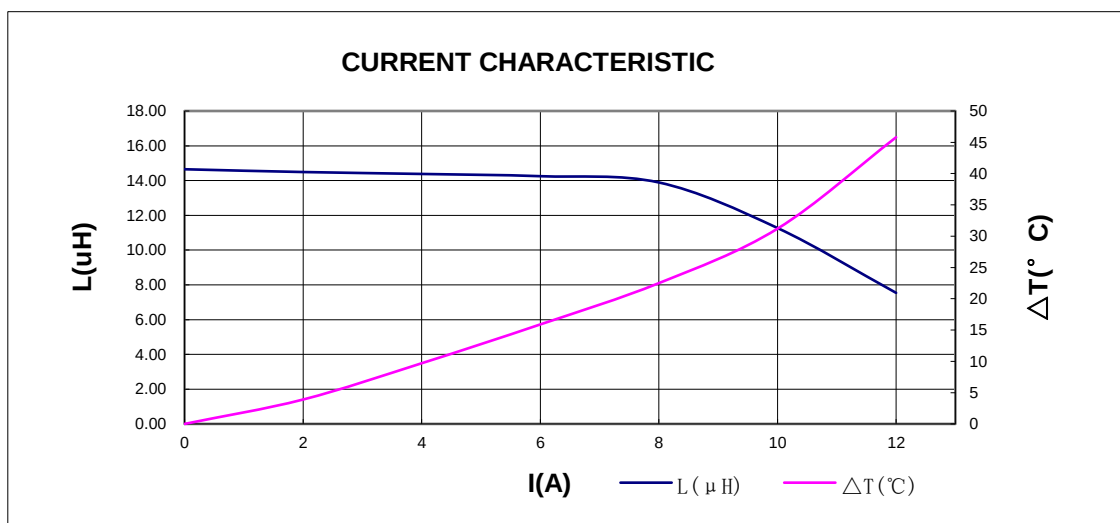
| Part Number   | Inductance (uH) | DCR Max. (mΩ) | Saturation current (A) | Temperature rise current(A) |
|---------------|-----------------|---------------|------------------------|-----------------------------|
| YSFB1275-150M | 15±20%          | 10.0          | 10.0                   | 10.0                        |

- ※ All test data is based on 25 °C ambient.
- ※ DC current(A) that will cause an approximate  $\Delta T 40^{\circ}\text{C}$ .
- ※ DC current(A) that will cause L0 to drop approximately 30% Typ.
- ※ The part temperature (ambient + temp rise) should not exceed  $125^{\circ}\text{C}$  under worst case operating conditions. Circuit design, component. PWB trace size and thickness, airflow and other cooling provision all affect the part temperature. Part temperature should be verified in the den application.

## Electrical schematics



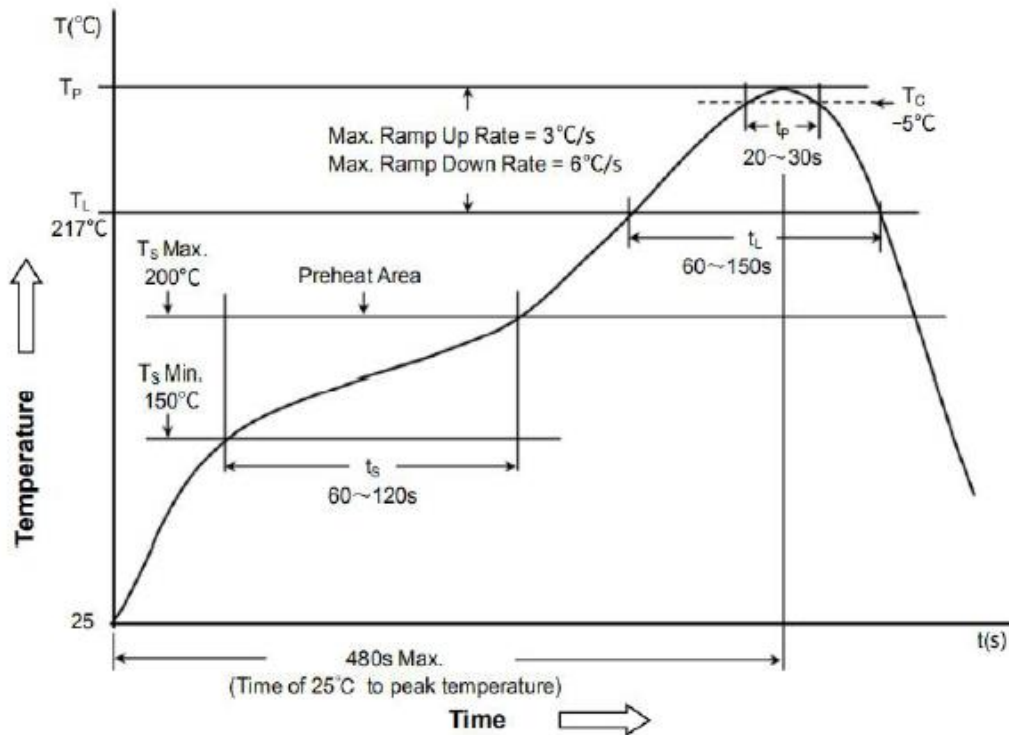
## Current characteristic



## ■ Reliability

| Item                       | Specification and Requirement                                               | Test Method                                                                                                                                                                                                                                                         |
|----------------------------|-----------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Solder ability test        | Terminals area must have 95% min solder coverage                            | Solder heat proof:<br>① Preheating: $160 \pm 10^{\circ}\text{C}$ for 90 seconds<br>② Retention time: $245 \pm 5^{\circ}\text{C}$ for $2 \pm 0.5$ seconds                                                                                                            |
| Vibration test             | Inductance change: Within $\pm 5\%$ Without Mechanical damage such as break | ① Vibration frequency: (10Hz to 55Hz to 10Hz) in 60 seconds as a period<br>② Vibration time: Period cycled for 2 hours in each of 3 mutual perpendicular directions.<br>③ Amplitude: 1.5mm Max.                                                                     |
| Shock test                 | Inductance change: Within $\pm 5\%$ Without Mechanical damage such as break | ① Peak value: 100G.<br>② Duration of pulse: 11ms.<br>③ Times in each positive and negative direction of 3 mutual perpendicular directions                                                                                                                           |
| Thermal shock              | Inductance change: Within $\pm 5\%$ Without Mechanical damage such as break | ① Repeat 100 cycle as follow ( $-55 \pm 2^{\circ}\text{C}$ 30 $\pm$ 3 minutes), Room temperature, 5 minutes ( $+125 \pm 2^{\circ}\text{C}$ , 30 $\pm$ 3 minutes)<br>② Recovery: 48+4/-0 hours of recovery Under the standard condition after the test. (see Note 1) |
| High temperature life test | Inductance change: Within $\pm 5\%$ Without Mechanical damage such as break | ① Environment condition: $85 \pm 2^{\circ}\text{C}$<br>Applied current: Rated current<br>② Duration: 1000+4/-0 hours (see Note 1)                                                                                                                                   |
| Humidity Resistance        | Inductance change: Within $\pm 5\%$ Without Mechanical damage such as break | ① Environment condition: $60 \pm 2^{\circ}\text{C}$<br>Humidity: 90-95%<br>Applied current: Rated current<br>② Duration: 1000+4/-0 hours (see Note 1)                                                                                                               |
| Low temperature life test  | Inductance change: Within $\pm 5\%$ Without Mechanical damage such as break | Store temperature $-55 \pm 2^{\circ}\text{C}$ for total 1000+4/-0 hours                                                                                                                                                                                             |
| High temperature life test | Inductance change: Within $\pm 5\%$ Without Mechanical damage such as break | Store temperature $+125 \pm 2^{\circ}\text{C}$ for total 1000+4/-0 hours                                                                                                                                                                                            |

## ■ Reflow Profile



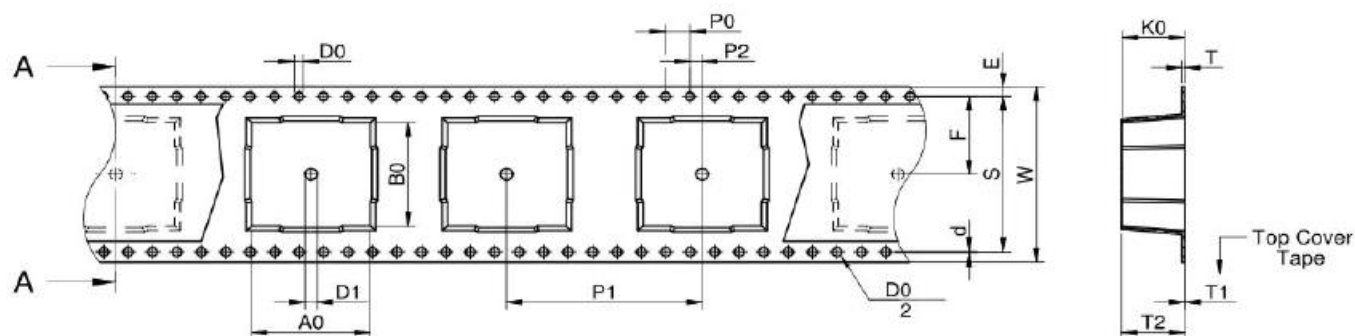
## ■ Reflow Soldering Method

|                                               |                                                              |                  |
|-----------------------------------------------|--------------------------------------------------------------|------------------|
| Reflow Soldering                              | $T_p: 255 \sim 260^{\circ}\text{C}$ Max. 30 seconds( $t_p$ ) |                  |
|                                               | $217^{\circ}\text{C}$                                        | 60 ~ 150 seconds |
| Pre-Heat                                      | $150 \sim 200^{\circ}\text{C}$                               | 60 ~ 150 seconds |
| Time $25^{\circ}\text{C}$ to peak temperature | 8 minutes Max.                                               |                  |

## ■ Soldering iron method

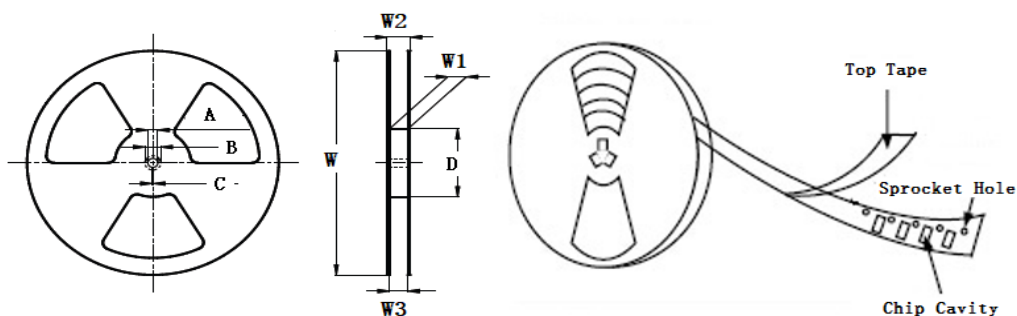
$350 \pm 5^{\circ}\text{C}$  Max.3 seconds.

## ■ Taping Dimensions(Unit:mm)



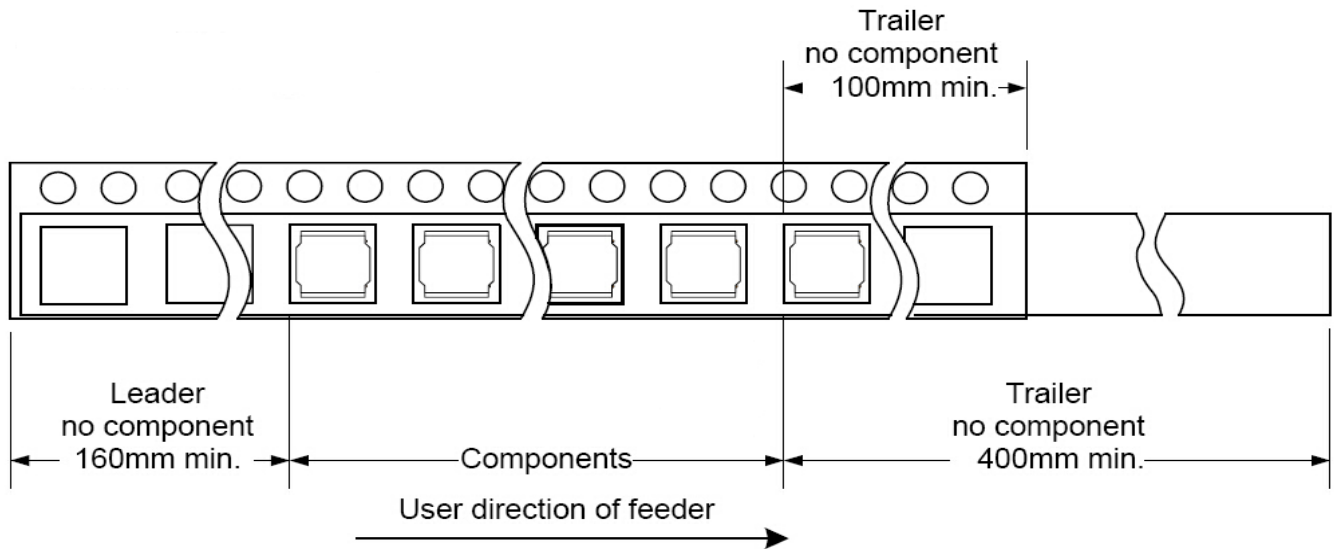
| W        | A0       | B0       | K0       | P1       | E        | F        | D0      | P0      | T        | MPQ |
|----------|----------|----------|----------|----------|----------|----------|---------|---------|----------|-----|
| 44.0±0.3 | 23.5±0.1 | 23.5±0.1 | 13.1±0.1 | 32.0±0.2 | 1.75±0.1 | 20.2±0.1 | 1.5±0.1 | 4.0±0.1 | 0.5±0.05 | 500 |

## ■ Reel Dimensions(Unit:mm)

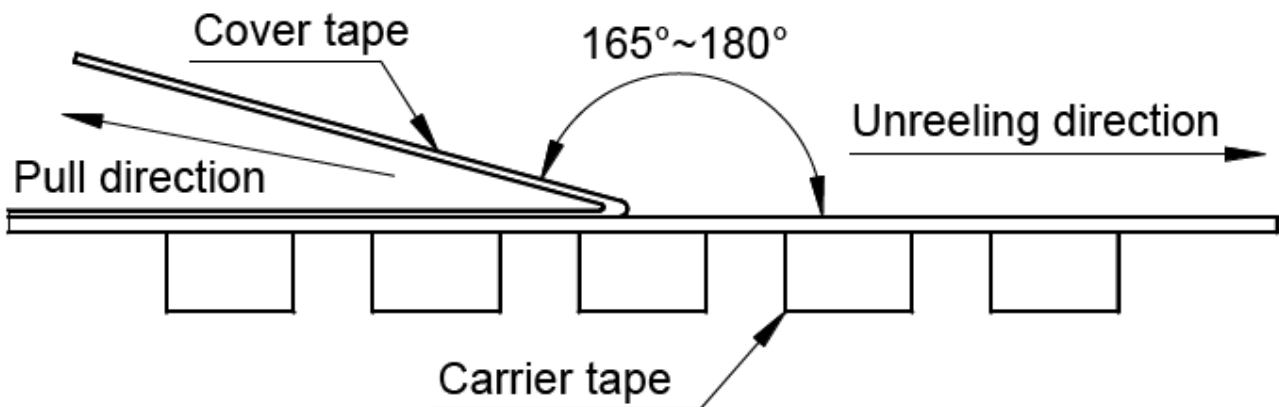


| TYPE     | W       | W1         | W2      | W3       | A         | B         | C        | D       |
|----------|---------|------------|---------|----------|-----------|-----------|----------|---------|
| YSFB1275 | 330±0.5 | 44.4+1.5-0 | 50.4Max | 43.9 Min | 13.0±0.50 | 21.0±0.80 | 2.0±0.50 | 100 Min |

## ■ Direction of rolling



## ■ Cover tape peel off condition



Cover tape peel force shall be 0.1N to 1.3N.

Reference peel speed 300±10mm/min.