

**■ Features**

- Molding Inductor.
- High reliability.
- High current, low DCR, high efficiency.
- Very low acoustic noise and very low leakage flux noise.
- Operating temperature:  $-55^{\circ}\text{C} \sim +125^{\circ}\text{C}$  (Including self-temperature rise) .

**■ Applications**

- General Electronic.
- Video Device, TV, TFT.
- Power Module for PC.
- NB/Lap Top Computer.
- Server, VGA Card/Module.
- DC/DC converter.

**■ Product Identification**



(1) : Type

(2) : Dimensions

(3) : Inductance value

(4) : Inductance Tolerance : N= $\pm 30\%$ , M= $\pm 20\%$

**■ Shapes and Dimensions (Unit: mm)**



| TYPE       | A             | B             | C             | D             | E             | F             | G Ref. | H Ref. | L Ref. |
|------------|---------------|---------------|---------------|---------------|---------------|---------------|--------|--------|--------|
| YSPIT0630A | 6.6 $\pm$ 0.2 | 6.4 $\pm$ 0.2 | 2.8 $\pm$ 0.3 | 5.5 $\pm$ 0.8 | 1.4 $\pm$ 0.3 | 2.6 $\pm$ 0.3 | 2.5    | 5.6    | 5.6    |

## ■ YSPIT0630A Series

| Part Number     | Inductance<br>(uH)<br>@100KHz/0.1V | DCR Max.<br>(mΩ) | Saturation Current (A) |      | Heat Rating Current<br>Typ.(A) |           |
|-----------------|------------------------------------|------------------|------------------------|------|--------------------------------|-----------|
|                 |                                    |                  | Max.                   | Typ. | 20°C rise                      | 40°C rise |
| YSPIT0630A-R18M | 0.18±20%                           | 1.8              | 36.0                   | 40.0 | 24.0                           | 32.0      |
| YSPIT0630A-R33M | 0.33±20%                           | 2.5              | 28.0                   | 32.0 | 20.0                           | 25.0      |
| YSPIT0630A-R56M | 0.56±20%                           | 3.4              | 25.0                   | 29.0 | 17.0                           | 22.0      |
| YSPIT0630A-R68M | 0.68±20%                           | 5.2              | 21.0                   | 25.0 | 15.0                           | 20.0      |
| YSPIT0630A-1R0M | 1.0±20%                            | 6.1              | 18.0                   | 23.0 | 13.0                           | 18.0      |
| YSPIT0630A-1R2M | 1.2±20%                            | 7.4              | 16.0                   | 22.0 | 12.0                           | 16.0      |
| YSPIT0630A-1R5M | 1.5±20%                            | 9.2              | 15.5                   | 20.0 | 11.0                           | 15.0      |
| YSPIT0630A-1R8M | 1.8±20%                            | 10.2             | 13.0                   | 18.2 | 10.0                           | 14.0      |
| YSPIT0630A-2R2M | 2.2±20%                            | 12.2             | 11.0                   | 15.9 | 7.0                            | 10.0      |
| YSPIT0630A-3R3M | 3.3±20%                            | 20.8             | 9.0                    | 12.2 | 6.0                            | 8.0       |
| YSPIT0630A-4R5M | 4.5±20%                            | 25.3             | 8.0                    | 10.0 | 5.0                            | 7.0       |

- ※ The saturation current value is the DC current value having inductance decrease down to 30%.(at 25°C)
- ※ The temperature rise current value is the DC current value having temperature increase up to 40°C. (at 25°C)
- ※ The rated current is the DC current value that satisfies both of current value saturation current value and temperature rise current value.

## ■ Mechanical Reliability

| Item                 | Specification and Requirement  | Test Method   |
|----------------------|--|---|
| Solderability        | 1. No case deformation or change in visual<br>2. New solder coverage More than 95% | 1. Preheat : $155^{\circ}\text{C} \pm 5^{\circ}\text{C}$ , $60\text{S} \pm 2\text{S}$<br>2. Tin: lead-free.<br>3. Temperature: $240^{\circ}\text{C} \pm 5^{\circ}\text{C}$ , flux $3.0\text{S} \pm 0.5\text{S}$ . |
| Mechanical shock     | 1. No case deformation or change in visual<br>2. $\Delta L/L_0 \leq \pm 10\%$      | 1. Acceleration : 100G<br>2. Pulse time: : 6ms<br>3. 3 times in each positive and negative direction of 3 mutual perpendicular directions   |
| Mechanical vibration | 1. No case deformation or change in visual<br>2. $\Delta L/L_0 \leq \pm 10\%$      | 1. Reflow: 2times<br>2. Frequency: 10HZ ~ 50HZ ~ 10HZ, 20 Min/Cycles<br>3. Amplitude: $1.52 \text{ mm} \pm 10\%$<br>4. Directions: X,Y,Z<br>5. Time: 12 cycle / direction   |

## ■ Endurance Reliability

| Item                     | Specification and Requirement   | Test Method  |
|--------------------------|---|--|
| Thermal Shock            | Inductance change:<br>Within $\pm 10\%$ Without distinct damage in visual | 1. First $-55^{\circ}\text{C}$ for 30 minutes, last $125^{\circ}\text{C}$ for 30 minutes as 1 cycle. Go through 1000 cycles.<br>2. Max transfer time is 3 minutes.<br>3. Measured at room temperature after placing for $24 \pm 2$ hours |
| Biased Humidity          | Inductance change:<br>Within $\pm 10\%$ Without distinct damage in visual | 1. Reflow 2 times,<br>$2.85^{\circ}\text{C} \pm 3^{\circ}\text{C}$ , $85\% \pm 3\% \text{RH}$ , 1000 hours<br>3. Measured at room temperature after placing for $24 \pm 2$ hours   |
| Low temperature storage  | Inductance change:<br>Within $\pm 10\%$ Without distinct damage in visual | 1. Temperature : $-55 \pm 2^{\circ}\text{C}$<br>2. Time : 1000 hours<br>3. Measured at room temperature after placing for $24 \pm 2$ hours   |
| High temperature storage | Inductance change:<br>Within $\pm 10\%$ Without distinct damage in visual | 1. Temperature : $+125 \pm 2^{\circ}\text{C}$<br>2. Time : 1000 hours<br>3. Measured at room temperature after placing for $24 \pm 2$ hours  |

**Recommended Soldering Technologies**

**Re-flowing Profile**



Preheat condition: 150 ~200°C/60~120sec.  
 Allowed time above 217°C: 60~90sec.  
 Peak temp: 260°C  
 Max time at Peak temp: 10 sec.  
 Solder paste: Sn/3.0Ag/0.5Cu  
 Allowed Reflow time: 2x max

**Iron Soldering Profile**



Iron soldering power: Max. 30W  
 Pre-heating: 150°C/60sec.  
 Soldering Tip temperature: 350°C Max.  
 Soldering time: 3sec. Max.  
 Solder paste: Sn/3.0Ag/0.5Cu  
 Max.1 times for iron soldering

**■ Taping Dimensions(Unit:mm)**



| TYPE       | W          | P          | P0        | P2        | D0          | D1          | T             | A0          | B0          | K0          | E            | F           | MPQ  |
|------------|------------|------------|-----------|-----------|-------------|-------------|---------------|-------------|-------------|-------------|--------------|-------------|------|
| YSPIT0630A | 16<br>±0.3 | 12<br>±0.1 | 4<br>±0.1 | 2<br>±0.1 | 1.5<br>±0.1 | 1.5<br>±0.1 | 0.35<br>±0.05 | 7.0<br>±0.1 | 6.8<br>±0.1 | 3.3<br>±0.1 | 1.75<br>±0.1 | 7.5<br>±0.1 | 1000 |

**■ Reel Dimensions(Unit:mm)**



| TYPE       | W       | W1       | W2      | W3       | A        | B        | C       | D      |
|------------|---------|----------|---------|----------|----------|----------|---------|--------|
| YSPIT0630A | 330±2.0 | 16.4±2.0 | 22.4MAX | 15.9 Min | 13.0±0.5 | 21.0±0.8 | 2.0±0.5 | 97±0.5 |

**Direction of rolling**



**Cover tape peel off condition**



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

Reference peel speed  $300 \pm 10$  mm/min.

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