Features

- Molding Inductor.
- High reliability.
- High current，low DCR，high efficiency.
- Very low acoustic noise and very low leakage flux noise.
- Operating temperature:-40℃ ~ +125℃（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

YSPIT	□□□□□□	–	□□□	□	□□□
(1)	(2)		(3)	(4)	(5)

(1)： Type

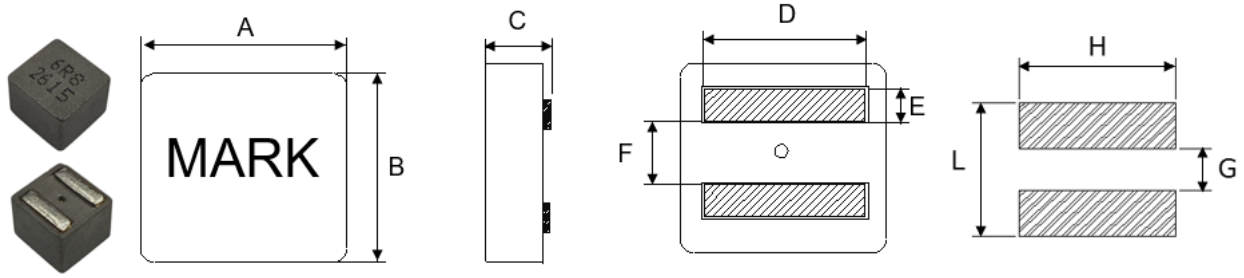
(2)： Dimensions

(3)： Inductance value

(4)： Inductance Tolerance： N=±30%,M=±20%

(5)： Internal code

Shapes and Dimensions (Unit： mm)



Example diagram

TYPE	A	B	C	D	E	F	G Ref.	H Ref.	L Ref.
YSPIT0870TL	8.4±0.3	8.0±0.3	6.7±0.3	6.7±0.3	1.75±0.2	3.15±0.25	2.8	6.7	7.8

■ Electrical Characteristics

Part Number	Inductance (μH) @100KHz/0.1V	DCR Max. (mΩ)		Heat Rating Current (A)		Saturation Current (A)	
		Typ.	Max.	Typ.	Max.	Typ.	Max.
YSPIT0870TL-6R8M	6.8±20%	10.0	11.5	10.5	9.5	12.0	11.0

※ All test data referenced to 25℃ ambient.

※ Current that causes the specified temperature rise from 25°C ambient.

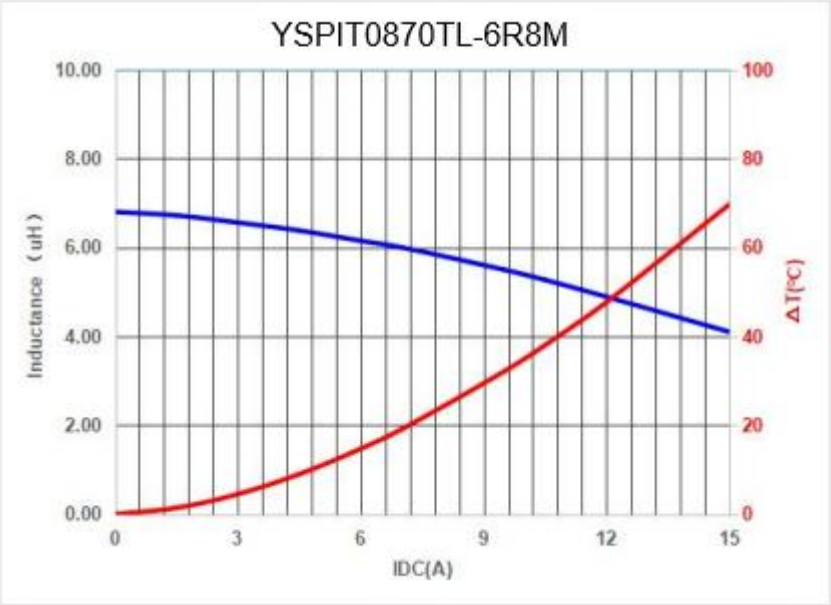
※ Saturation Current (Isat) will cause L0 to drop approximately 30%.

※ The part temperature (ambient + temp rise) should not exceed 125℃under worst case operating conditions.Circuit design,component,PCB trace size and thickness,airflow and other cooling provisions all affect the part temperature. Part temperature should be verified in the end application.

※ Special inquiries besides the above common used types can be met on your requirement.

※ Rated DC current: The lower value of Irms and Isat.

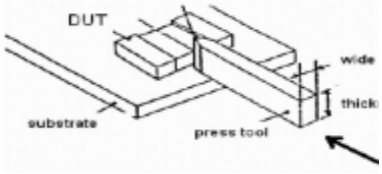
■ Typical Performance Curves



■ Reliability and Test Condition

Item	Performance	Test Condition
Operating temperature	-40~+125℃ (Including self - temperature rise)	N/A
Storage temperature	1. -10~+40℃,50~60%RH (Product with taping) 2. -40~+125℃(on board)	N/A
Electrical Performance Test		
Inductance	Refer to standard electrical characteristics list.	Agilent4284A,E4991A,KEYSIGHTE4980A/AL,chroma3302,3205
DCR		Agilent 4339B,chrom16502
Saturation Current (Isat)	Approximately △30%	Saturation DC Current (Isat) will cause L0 to drop △L(%)
Heat Rated Current (Irms)	Approximately △T40℃	Heat Rated Current (Irms) will cause the coil temperature rise △T(℃). 1.Applied the allowed DC current 2.Temperature measured by digital surface thermometer
Reliability Test		
Life Test	Appearance:No damage. Inductance:within±10% of initial value RDC:within ±15% of initial value and shall not exceed the specification value	Preconditioning: Run through IR reflow for 3 times. times.(IPC/JEDECJ-STD-020E Classification Reflow Profiles) Temperature:125±2℃(Inductor，ambient + temp rise) Applied current:rated current. Duration：1000±12hrs. Measured at room temperature after placing for 24±2 hrs.
Load Humidity		Preconditioning: Run through IR reflow for 3 times times.(IPC/JEDECJ-STD-020E Classification Reflow Profiles) Humidity：85±2％R.H, Temperature：85℃±2℃. Duration：1000hrs Min.(No load current) Measured at room temperature after placing for 24±2 hrs.
Moisture Resistance		Preconditioning: Run through IR reflow for 3 times. times.(IPC/JEDECJ-STD-020E Classification Reflow Profiles) 1. Baked at 50℃ for 25hrs, measured at room temperature after placing for 4 hrs. 2. Raise temperature to 65±2℃ 90-100%RH in 2.5hrs, and keep 3 hours, cool down to 25℃ in 2.5hrs. 3. Raise temperature to 65±2℃ 90-100%RH in 2.5hrs, and keep 3 hours, cool down to 25℃ in 2.5hrs,keep at 25℃ for 2 hrs then keep at -10℃ for 3 hrs 4. Keep at 25 ℃ 80-100%RH for 15min and vibrate at the frequency of 10 to 55 Hz to 10 Hz, measure at room temperature after placing for 1~2 hrs.
Thermal shock		Preconditioning: Run through IR reflow for 3 times. (IPC/JEDECJ-STD-020E Classification Reflow Profiles) Condition for 1 cycle Step1：-40±2℃ 30±5min Step2：125±2℃ ≦20S Step3 ：125±2℃ 30±5min Step4：-40±2℃ ≦20S Number of cycles： 500 Measured at room fempraturc after placing for 24±2 hrs.
Vibration		Preconditioning: Run through IR reflow for 3 times. times.(IPC/JEDECJ-STD-020E Classification Reflow Profiles) Oscillation Frequency: 10Hz～2KHz～10Hz for 20 minutes Equipment:Vibration checker Total Amplitude:10g. Testing Time:12 hours(20 minutes, 12 cycles each of 3 orientations).

■ Reliability and Test Condition

<table>
<tr><th>Item</th><th>Performance</th><th>Test Condition</th></tr>
<tr><td>Bending</td><td rowspan="2">Appearance:No damage.
Inductance:within±10% of initial value
RDC:within ±15% of Initial value and shall not exceed the specification value</td><td>Shall be mounted on a FR4 substrate of the following dimensions: >=0805 inch(2012mm):40x100x1.2mm <0805 inch(2012mm):40x100x0.8mm
Bending depth: >=0805 inch(2012mm):1.2mm <0805 inch(2012mm):0.8mm
duration of 10 sec.</td></tr>
<tr><td>Shock</td><td><table><tr><th>Type</th><th>Peak value (g's)</th><th>Normal duration (D) (ms)</th><th>Wave form</th><th>Velocity change (Vi)ft/sec</th></tr><tr><td>SMD</td><td>50</td><td>11</td><td>Half-sine</td><td>11.3</td></tr><tr><td>Lead</td><td>50</td><td>11</td><td>Half-sine</td><td>11.3</td></tr></table>3 shocks in each direction along 3 perpendicular axes(18 shocks).</td></tr>
<tr><td>Solderability</td><td>More than 95% of the terminal electrode should be covered with solder.</td><td>Solder: Sn96.5% Ag3% Cu0.5% Method B, 4 hrs @ 155°C dry heat
Temperature:245±5℃
Dip time: 5+0/-0.5s.</td></tr>
<tr><td>Resistance to Soldering Heat</td><td rowspan="2">Appearance：No damage.
Inductance：within±10% of initial value
RDC：within ±15% of initial value and shall not exceed the specification value</td><td>Depth: completely cover the termination<table><tr><th>Temperature (°C)</th><th>Time(s)</th><th>Temperature ramp/immersion and emersion rate</th><th>Number of heat cycles</th></tr><tr><td>260 ±5 (solder temp)</td><td>10 ±1</td><td>25mm/s ±6 mm/s</td><td>1</td></tr></table></td></tr>
<tr><td>Terminal Strength</td><td>Preconditioning: Run through IR reflow for 3 times.
(IPC/JEDEC J-STD-020E Classification Reflow Profiles
With the component mounted on a PCB with the device to be tested,applyaforce(>0805inch(2012mm):1kg,<=0805inch(2012mm):0.5kg)to the side of a device being tested. This force shall be applied for 60 +1 seconds. Also the force shall be applied gradually as not to apply a shock to the component being tested.
  </td></tr>
</table>

Note：When there are questions concerning measurement result：measurement shall be made after 48 ± 2 hours of recovery under the standard condition.

■ Soldering Specifications

Soldering

Mildly activated rosin fluxes are preferred. YJYCOIN terminations are suitable for re-flow soldering systems. If hand soldering cannot be avoided, the preferred technique is the utilization of hot air soldering tools.

IR Soldering Reflow

Recommended temperature profiles for lead free re-flow soldering in Figure 1. Table 1.1& 1.2 (J-STD-020E)

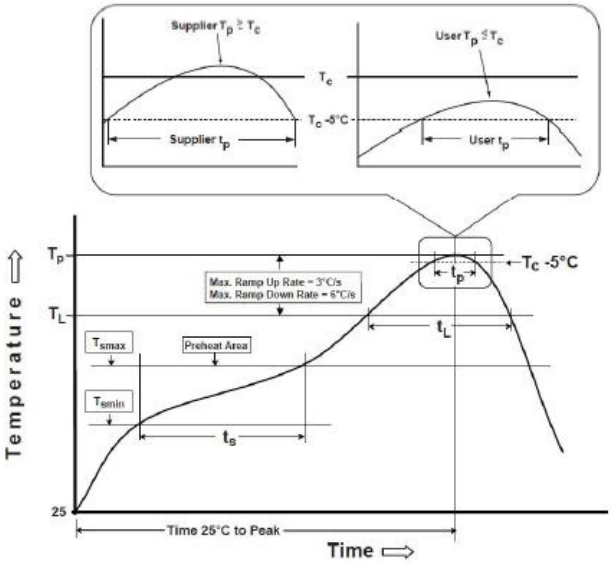
Iron Reflow

Products attachment with a soldering iron is discouraged due to the inherent process control limitations. In the event that a soldering iron must be employed the following precautions are recommended.(Fig. 2)

※ Preheat circuit and products to 150℃ ※ Never contact the ceramic with the iron tip ※ Use a 20 watt soldering iron with tip diameter of 1.0mm

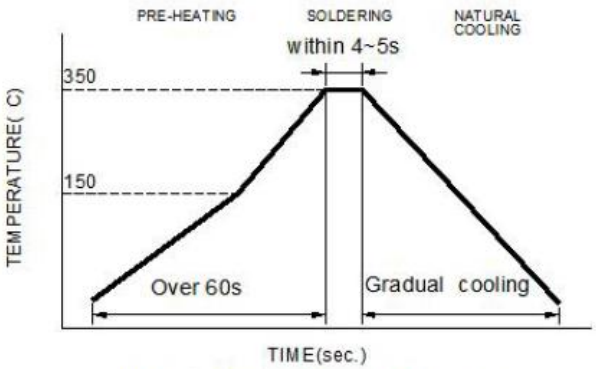
※355℃ tip temperature(max) ※ 1.0mm tip diameter(max) ※ Limit soldering time to 4~5sec.

Fig.1 IR Soldering Reflow



Reflow times: 3 times max

Fig.2 Iron soldering temperature profiles



Iron Soldering times: 1 times max.

Soldering iron Method : 350± 5℃ max

Table (1.1): Reflow Profiles

Profile Type:	Pb-Free Assembly
Preheat -Temperature Min(T smin) -Temperature Max(T smax) -Time(ts) from (T smin to T smax)	150℃ 200℃ 60-120seconds
Ramp-up rate(TL to Tp)	3℃/second max.
Liquidus temperature(TL) Time(tL)maintained above TL	217℃ 60-150 seconds
Classification temperature(Tc)	See Table (1.2)
Time(tp) at Tc- 5℃ (Tp should be equal to or less than Tc.)	*< 30 seconds
Ramp-down rate(Tp to TL)	6℃ /second max.
Time 25℃ to peak temperature	8 minutes max.

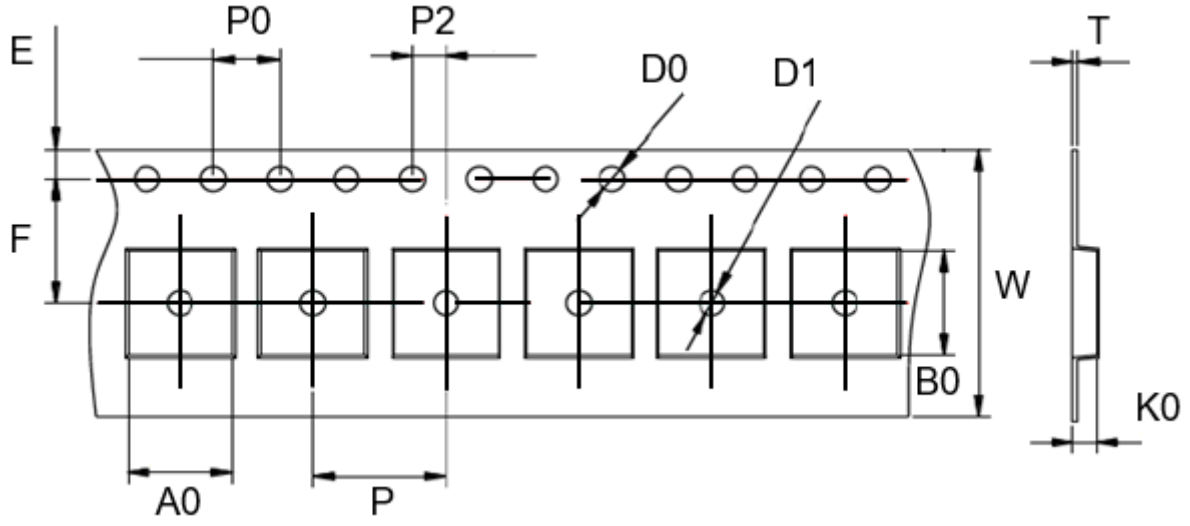
Tp: maximum peak package body temperature, **Tc**: the classification temperature.
For user (customer) **Tp** should be equal to or less than **Tc.**
* Tolerance for peak profile temperature (Tp) is defined as a supplier minimum and a user maximum.

Table (1.2) Package Thickness/Volume and Classification Temperature (Tc)

	Package Thickness	Volume mm^3 <350	Volume mm^3 350-2000	Volume mm^3 >2000
PB-Free Assembly	<1.6mm	260℃	260℃	260℃
	1.6-2.5mm	260℃	250℃	245℃
	≥2.5mm	250℃	245℃	245℃

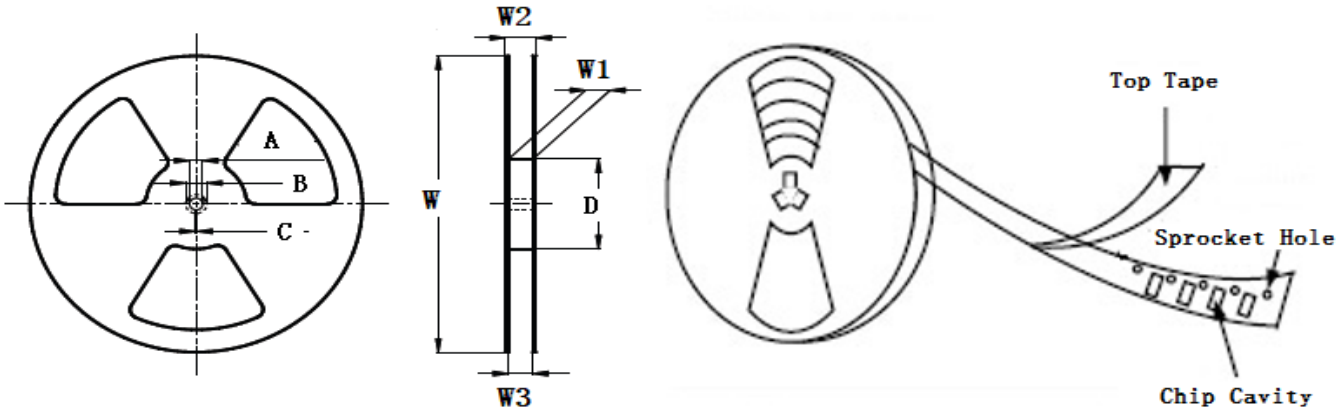
Reflow is referred to standard IPC/JEDEC J-STD-020E

■ Taping Dimensions(Unit:mm)



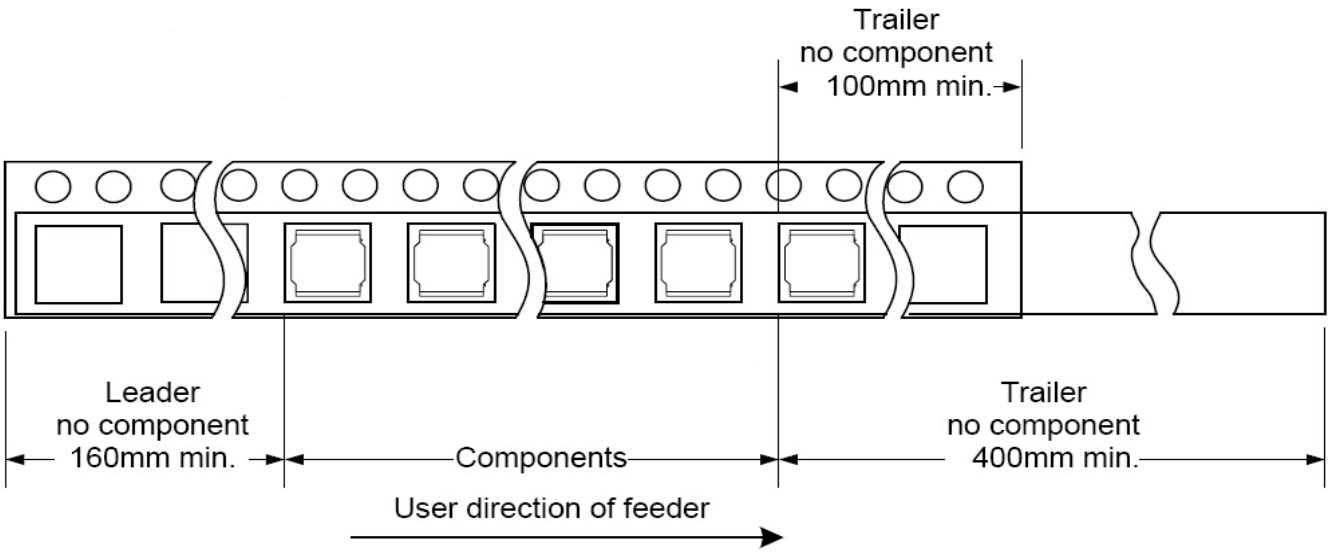
TYPE	W	P	P0	P2	D0	D1	T	A0	B0	K0	E	F	MPQ
YSPIT0870TL	16 ±0.3	12 ±0.1	4 ±0.1	2 ±0.1	1.5 ±0.1	1.5 ±0.1	0.35 ±0.1	8.8 ±0.1	8.4 ±0.1	7.3 ±0.1	1.75 ±0.1	7.5 ±0.1	700

■ Reel Dimensions(Unit:mm)

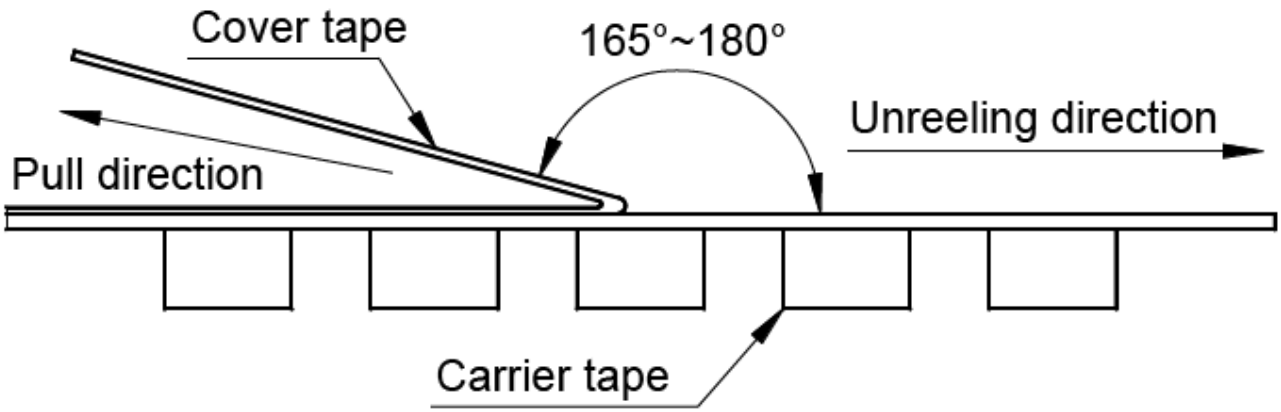


TYPE	W	W1	W2	W3	A	B	C	D
YSPIT0870TL	330±2.0	24.4±2.0	30.4MAX	23.9 Min	13.0±0.5	21.0±0.8	2.0±0.5	97±0.5

■ Direction of rolling



■ Cover tape peel off condition



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

Reference peel speed 300±10mm/min.