Mini Molding Power Inductors -YSMC0415H Series

■ Features

- Molding Inductor, Closed magnetic circuit design reduces leakage flux.
- Low loss realized with low Rdc.
- Large Current and low loss.
- Customize For Different Need.
- Operating temperature:-55℃ ~ +125℃（Including self-temperature rise）.

■ Applications

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

■ Product Identification

YSMC □□□□□□ – □□□ □ □ □

(1) (2) (3) (4) (5) (6)

(1)： Type

(2)： Dimensions

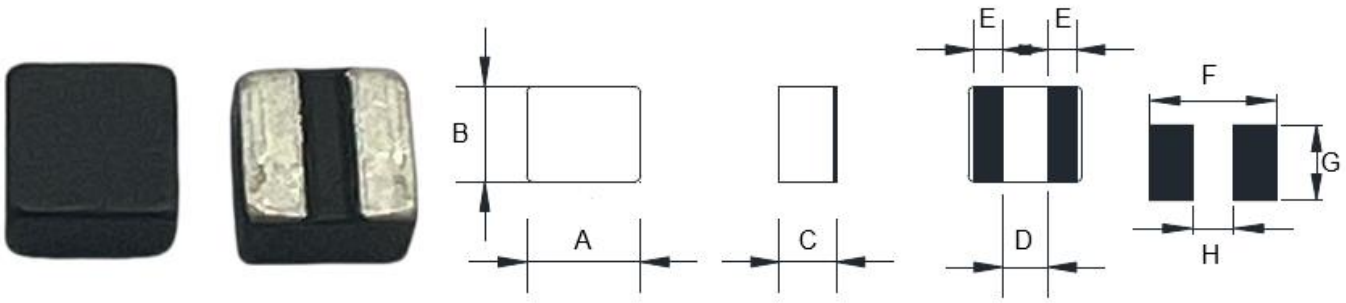
(3)： Inductance value

(4)： Inductance Tolerance： N=±30%,M=±20%， K=±10%

(5)： Coating color: B=Black,G=Gray

(6)： Identification code: If none, default.

■ Shapes and Dimensions (Unit： mm)



TYPE	A	B	C Max.	D	E	F Ref.	G Ref.	H Ref.
YSMC0415H	4.10±0.20	4.10±0.20	1.50	1.4±0.2	1.35±0.2	4.10	4.10	1.30

■ YSMC0415H Series

Part Number	Inductance (uH) @1MHz	DC Resistance (mΩ)		Heat Rating current(A)		Saturation current(A)	
		Typ.	Max.	Typ.	Max.	Typ.	Max.
YSMC0415H-4R7MB	4.7±20%	53.0	63.0	5.0	4.5	5.5	5.0
YSMC0415H-5R6MB	5.6±20%	66.0	80.0	4.5	4.0	4.8	4.3

※ All test data is referenced to 25 ℃ ambient.

※ Saturation current：indicates the current when the inductance decrease to approximately 70% of initial value.

※ The temperature rise current value is the DC current value having temperature increase up to approximately 40℃.

※ The rated current as listed is either the saturation current or the heating current depending on which value is lower.

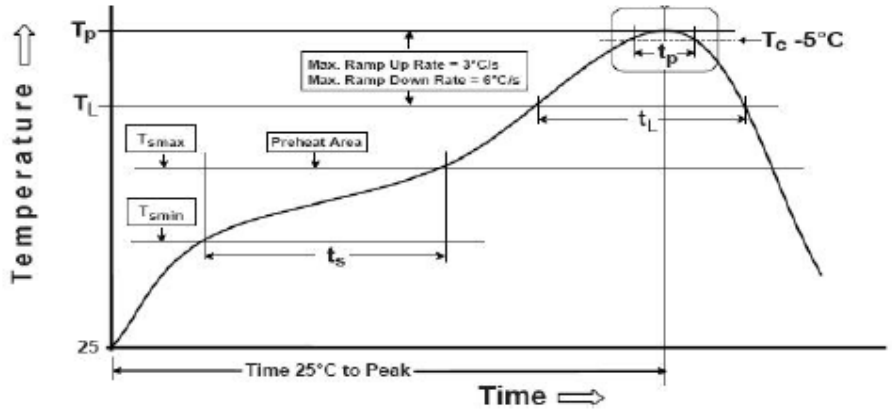
※ The part temperature (ambient + temp rise) should not exceed 125 under ℃ the worst case operating conditions. Circuit design, component placement, PCB trace size and thickness, airflow and other cooling provision all affect the part temperature. Part temperature should be verified in the end application.

※ YJYCOIN recommend products store in warehouse with temperature between 15 to 35℃ under humidity between 25 to 75%RH.

■ Reliability Test

NO.	Items	Requirements	Test Methods and Remarks
1	Insulation Resistance	≥100MΩ	100 VDC between inductor coil and The middle of the top surface of the body for 60seconds.
2	Solderability	90% or more of electrode area shall be coated by new solde.	Dip pads in flux . Solder Composition: Sn/Ag3.0/Cu0.5 (Pb-Free). Solder Temperature: 245±5℃. Immersion Time: (5±1) s.
3	Resistance to Soldering Heat	No visible mechanical damage. Inductance change: Within ±10%.	Dip pads in flux. Solder Composition: Sn/Ag3.0/Cu0.5(Pb-Free). Solder Temperature: 260±5℃. Immersion Time: 10±1sec.
4	Adhesion of teral electrode	Strong bond between the pad and the core, without come off PCB.	Inductors shall be subjected to (260±5)℃ for (20±5)s Soldering in the base with 0.3mm solder. And then aplombelectrode way plus tax X N for (10±1) seconds. series / "X" N 1008 / 6 1210~1608 / 8 2012 / 12
5	High temperature	No case deformation or change in appearance. Inductance change: Within ±10%.	Temperature: 125±2℃. Time : 1000 hours. Measurement at 24±4 hours after test conclusion.
6	Low temperature	No visible mechanical damage. Inductance change: Within ±10%.	Temperature: -55±2℃. Time : 1000 hours. Measurement at 24±4 hours after test conclusion.
7	Thermal shock	No visible mechanical damage. Inductance change: Within ±10%.	The test sample shall be placed at (-55±3)℃ and (125±3)℃ for (30±3) , different temperature conversion time is 2~3 utes. The temperature cycle shall be repeated 32 cycles. Placed at room temperature for 2 hours, within 48±4 hours of testing.
8	Temperature characteristic	Inductance change Pc-b,Pc-d: Within ±10%.	a：+20 ℃ （30~45） → b: -40 ℃ （30~45） → c: +20 ℃ （30~45） → d: +125 ℃ （30~45） → $P_{c\text{-}b}=\frac{L_b-L_c}{L_c}\times 100\%$; $P_{c\text{-}d}=\frac{L_d-L_c}{L_c}\times 100\%$
9	Static Humidity	No visible mechanical damage. Inductance change: Within ±10%.	Inductors shall be subjected to (95±3)%RH . at (60±2)℃ for (1000±4) h. Placed at room temperature for 2 hours, within 48 hours of testing.
10	Life	No visible mechanical damage. Inductance change: Within ±10%.	Inductors shall be store at (85±2)℃ for (1000±4) hours with Irms applied. Placed at room temperature for 2 hours, within 48 hours of testing

■ Reflow profile for SMT components



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

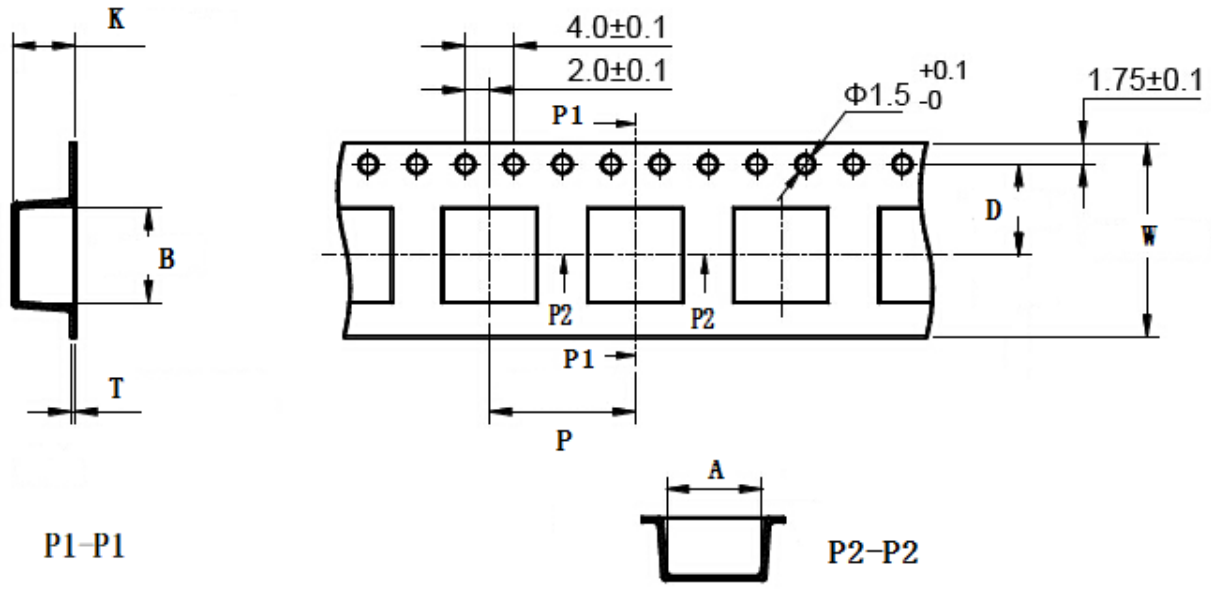
Profile Feature		Lead(Pb) Free solder
Preheat and Soak	Temperature Min.(Tsmin)	150℃
	Temperature Max.(Tsmax)	200℃
	time(Tsmin to Tsmax)(ts)	60-120 Seconds
Average ramp up rate Tsmax to Tp		3℃/Second Max.
Liquidous temperature(TL)		217℃
Time(TL)maintained above TL		60-150 Seconds
Peak package body temperature(Tp)		Table2
Time(tp)*within 5℃ of the specified classification Temperature(Tc)		30*seconds
Average Ramp-down rate(Tp to TL)		6℃/second max
Time 25℃ to peak temperature		8 minutes max.

Table2.Pb-Free Process-Classification Temperatures(Tc)			
Package Thickness	Volume mm³ ＜350	Volume mm³ 350~2000	Volume mm³ ＞2000
＜1.6mm	260℃	260℃	260℃
1.6mm – 2.5mm	260℃	250℃	245℃
＞2.5mm	250℃	245℃	245℃

※ Allowed Re-flow times : 2 times

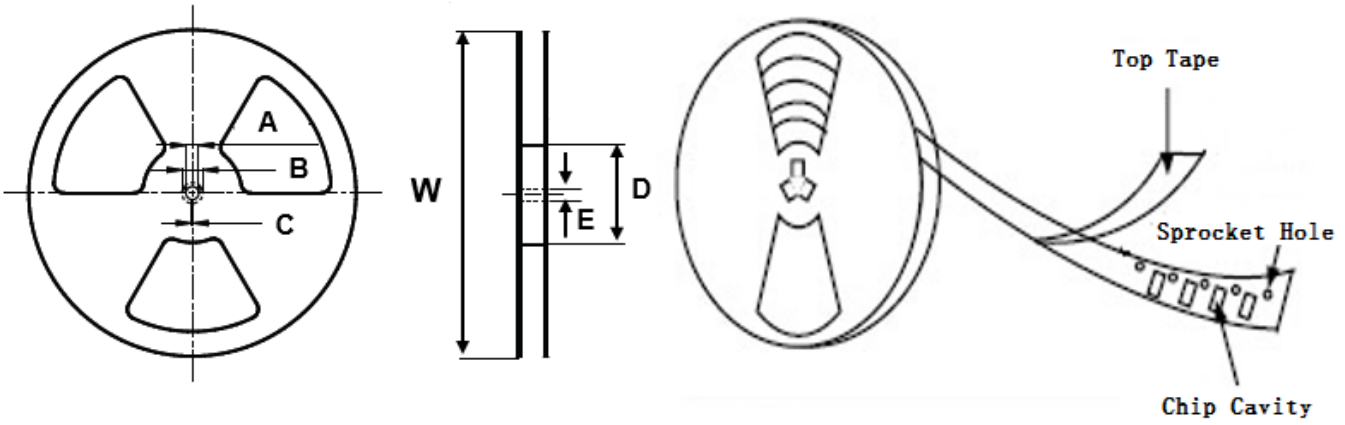
※ To avoid discoloration phenomena of chip on terminal electrodes, please use N2 Re-flow furnace .

■ Taping Dimensions(Unit:mm)



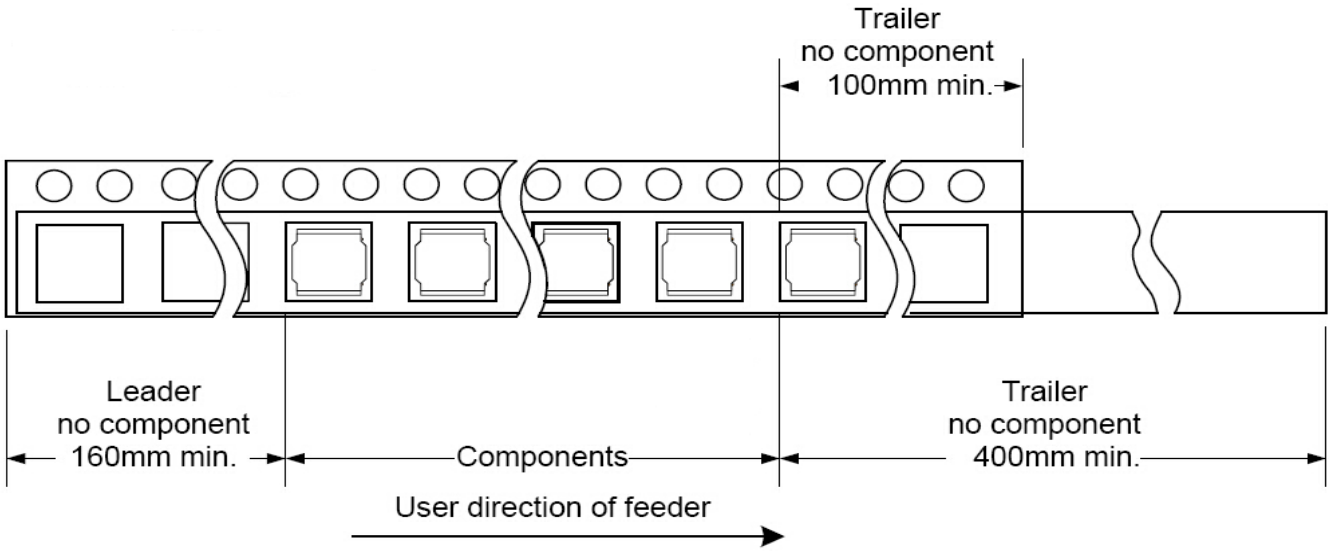
TYPE	W	A	B	D	P	K	T	MPQ
YSMC0415H	12.0±0.30	4.40±0.10	4.40±0.10	5.5±0.10	8.0±0.10	1.30+0.10	0.30±0.05	3000

■ Reel Dimensions(Unit:mm)

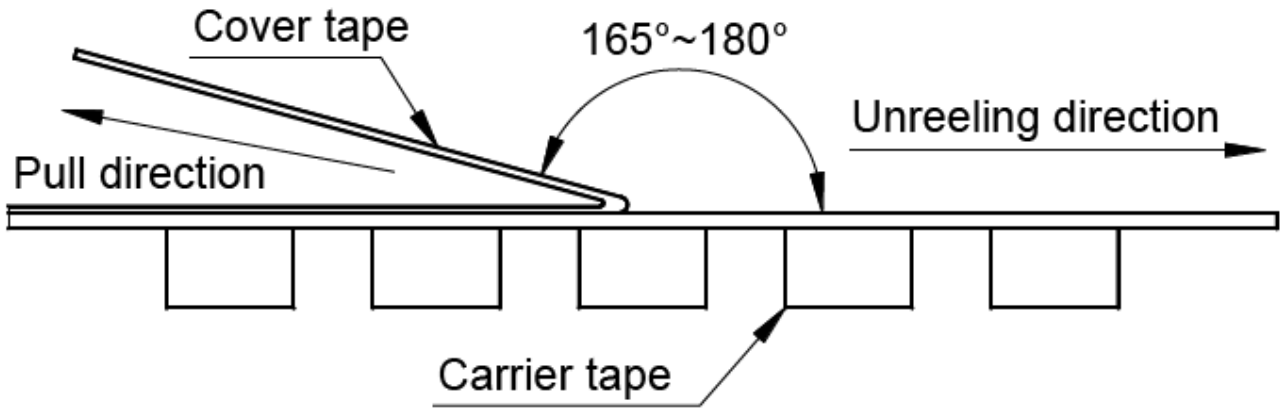


TYPE	W	A	B	C	D	E
YSMC0415H	330±2.0	13.0±0.5	21.0±0.8	2.0±0.5	100±2.0	13.0±2.0

■ 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.