

ECS-MPIP0420 Series

High Current, High Frequency, Miniature Power Inductors



Applications:

- Handheld/mobile devices
- Portable media players
- GPS/PDAs
- MP3 Players
- Battery operated devices
- Notebook/netbook
- Tablets/smartbooks
- LCD Displays
- LED Drivers
- POL Converters

Environmental data:

- Storage temperature range (component) : -55°C to +150°C
- Operating temperature range: -55°C to +150°C
- (Ambient plus self-temperature rise)
- Solder reflow temperature: J-STD-020D compliant

Product description:

- Handles high transient inrush current spikes
- Magnetically shielded
- Frequency range 20kHz to 10MHz
- Inductance range from 0.22μH to 10μH
- Current range from 2,3A to 14.0A
- Rugged construction
- Halogen free, lead free, RoHS compliant





SPECIFICATION FOR APPROVED

Customer : _____

Customer P/N : _____

Description : **SMD POWER INDUCTOR**

Device No. : **ECS-MPIP0420 Series**

Drawing No. : _____

Rev No. : **A**

DRAWING		
Prepared By	Checked By	Approved By
I.L.	A.A.	D.K.
DATE:		12/4/2025

CUSTOMER APPROVAL
DATE:

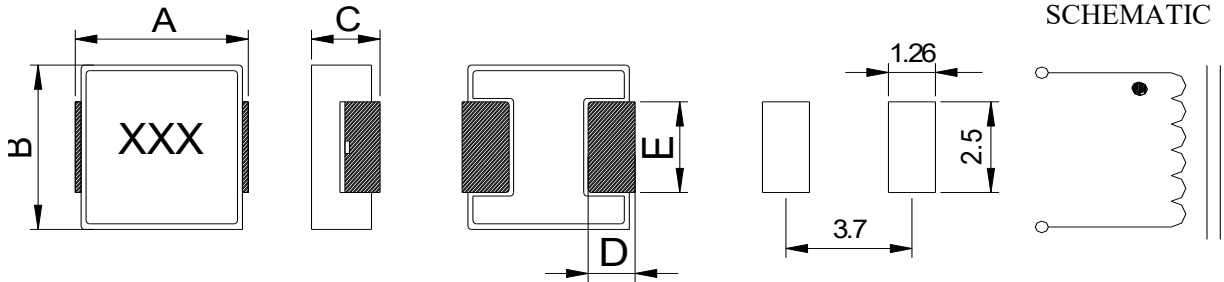


SPECIFICATION FOR APPROVAL

RoHS COMPLIANT

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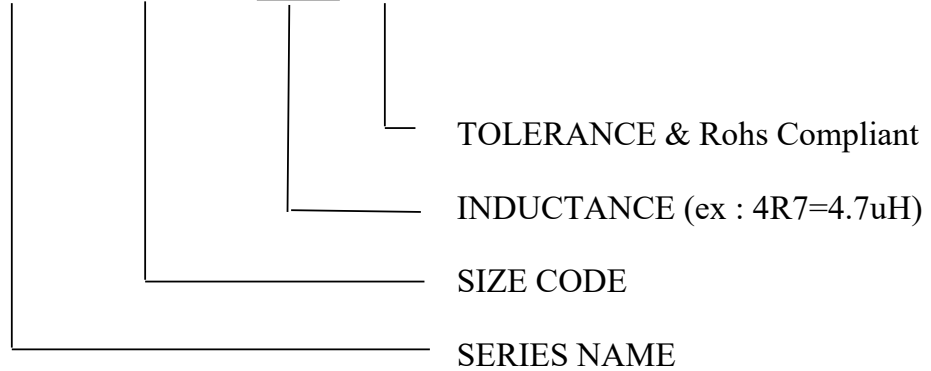
1、 DIMENSION (mm):



Recommended patterns

A	B	C	D	E
4.4±0.4	4.2±0.2	1.8±0.2	0.8±0.2	2.0±0.3

ECS MPIP 0420 XXX MC



2、 TEMPERATURE RATING:

Operating Temperature : -55 ~ +150°C(Including self - temperature rise)

Storage Temperature : -55 ~ +150°C



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3. ELECTRICAL REQUIREMENTS:

PART NUMBER	INDUCTANCE (uH)	DCR (mΩ)		Isat (A)		Irms (A)		Marker
		Typ	Max	Typ	Max	Typ	Max	
ECS-MPIP0420-R22MC	0.22 ± 20%	6.0	6.6	14.0	12.0	12.0	10.0	R22
ECS-MPIP0420-R33MC	0.33 ± 20%	8.0	11.0	12.0	10.0	10.0	9.0	R33
ECS-MPIP0420-R47MC	0.47 ± 20%	12.0	14.0	10.0	8.5	9.0	8.0	R47
ECS-MPIP0420-1R0MC	1.0 ± 20%	24.0	27.0	7.5	6.5	6.0	5.2	1R0
ECS-MPIP0420-1R5MC	1.5 ± 20%	38.0	46.0	7.0	5.7	5.2	4.5	1R5
ECS-MPIP0420-2R2MC	2.2 ± 20%	48.0	58.0	6.0	5.0	4.2	3.7	2R2
ECS-MPIP0420-3R3MC	3.3 ± 20%	70.0	87.0	4.0	3.5	3.4	3.0	3R3
ECS-MPIP0420-4R7MC	4.7 ± 20%	90.0	105.0	3.0	2.5	3.2	2.8	4R7
ECS-MPIP0420-6R8MC	6.8 ± 20%	137.0	175.0	2.5	2.0	2.4	2.0	6R8
ECS-MPIP0420-100MC	10.0 ± 20%	235.0	282.0	2.3	1.8	1.8	1.4	100

Isat: DC current at which the inductance drops approximate 30% from its value without current;

Irms: DC current that causes the temperature rise ($\Delta T \cong 40^{\circ}C$) from 25°C ambient.

Absolute maximum voltage: DC 75V

AEC-Q200 Compliant



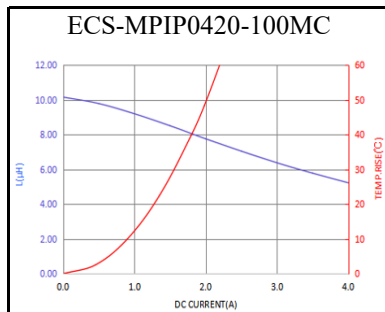
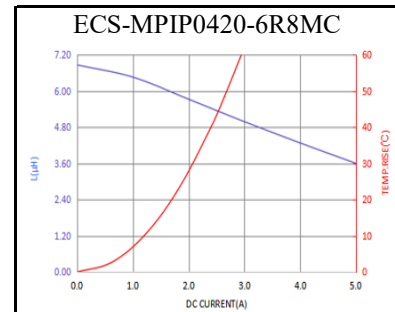
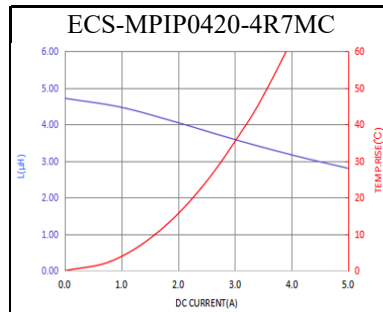
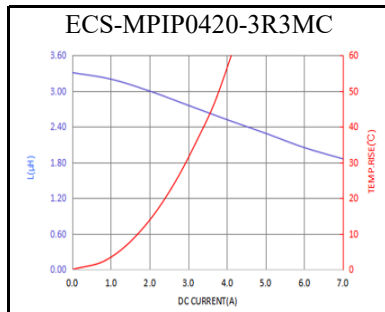
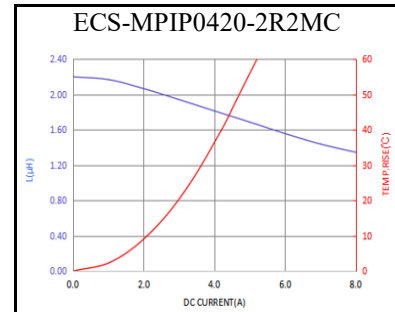
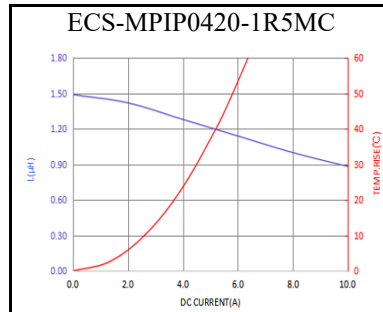
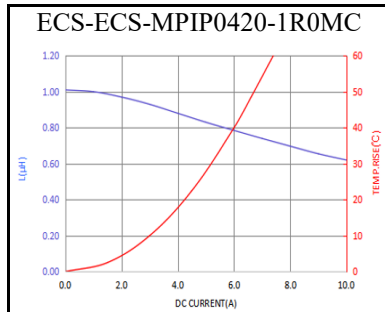
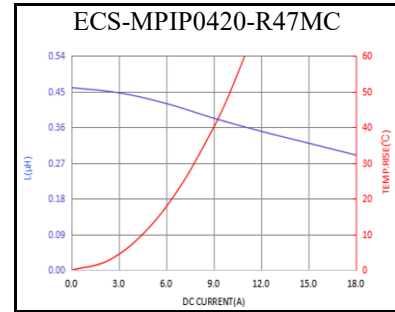
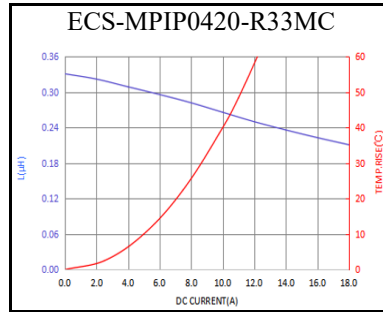
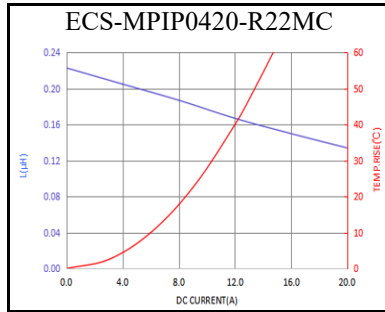
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RoHS COMPLIANT

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4 · INDUCTANCE (μH) VS DC BIAS (A) CURVE & TEMPERATURE($\Delta^\circ\text{C}$) VS DC BIAS (A) CURVE



TESTING CONDITION: 100kHz , 1Vrms



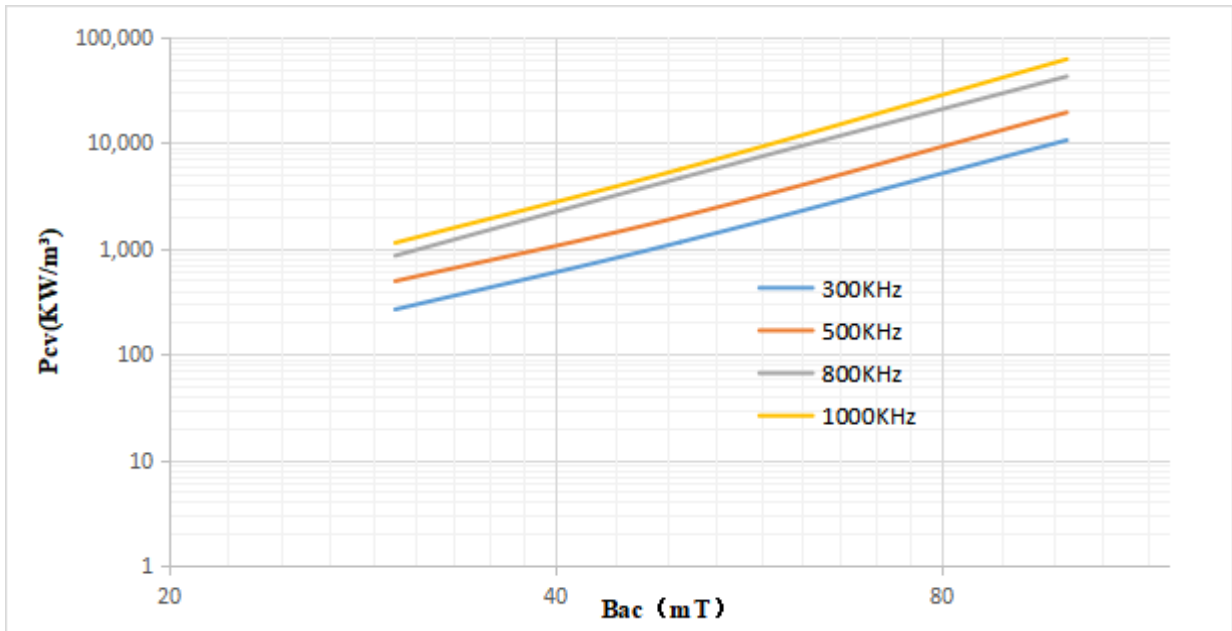
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5 · CORE LOSS



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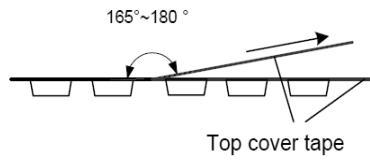
RoHS COMPLIANT

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6、PACKAGE :

(1) Packaging -Cover Tape

The force for tearing off cover tape is 10 to 130 grams in the arrow direction.



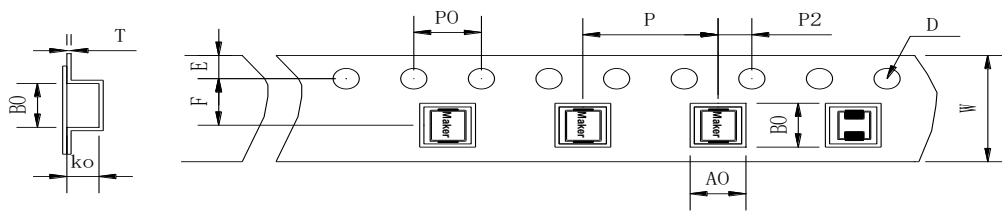
Peel-off speed: 300mm/min.

(2) Reel Dimensions (Unit:mm)

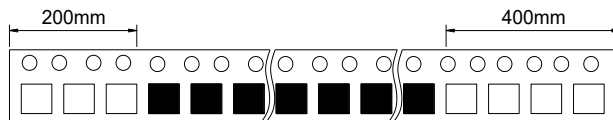


Item	Dimension
A	330±1
B	100±1
C	13±0.5

(3) Tape Dimensions(Unit:mm)



W	A0	B0	K0	D	F	E	P	P0	P2	T
12.0	4.3	5.4	2.2	1.5	5.5	1.75	8.0	4.0	2.0	0.3
±0.3	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1	±0.05



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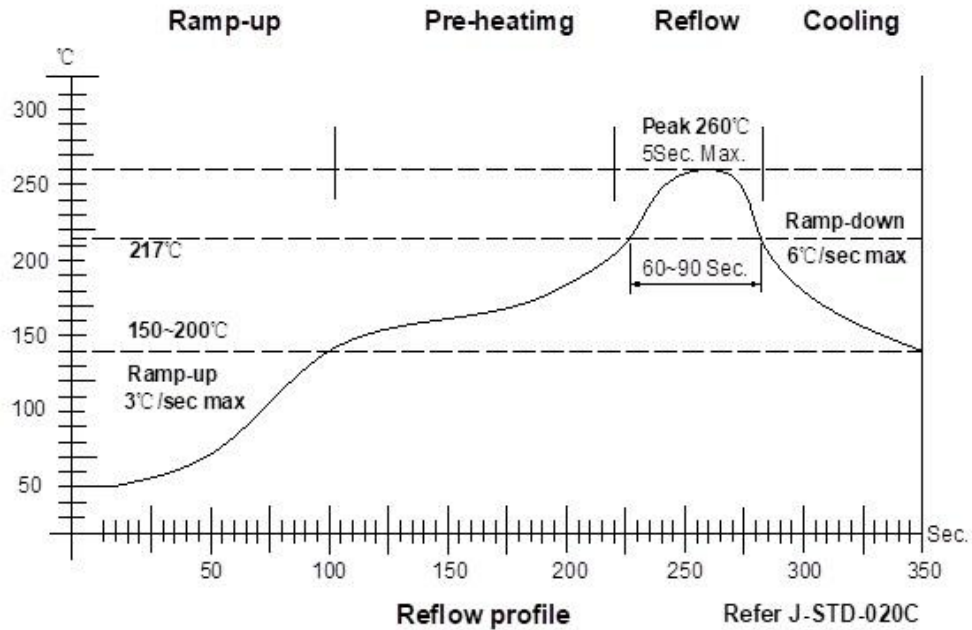
RoHS COMPLIANT

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(4) Packaging Quantity

Quantity (Pcs)
Reel
3,000
1Reel

7、 Reflow Soldering



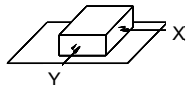
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8、Reliability Test

No.	ITEM	REQUEST	CONDITIONS
1	TERMINAL STRENGTH	A STATIC PULLING FORCE OF 10N IN A DIRECTION PARALLEL TO THE TERMINALS FOR 5 SECONDS	NO TERMINAL BREAKAGE OR LOOSENING 
2	RESISTANCE TO SOLDERING HEAT TEST	FIX THE SAMPLES ON A 1.6mm THICKNESS PCB, THEN DIP THE SAMPLE LEADS INTO A SOLDERING BATH OF 260±5°C UP TO THE PCB FOR 5±1 SECONDS.	NO MECHANICAL BREAKAGE. DEVIATION RELATIVE TO INITIAL VALUE: L: WITHIN ±10.0%
3	SOLDER ABILITY TEST	IMMERSE THE TERMINAL IN FLUX FOR 5 SECONDS. THEN DIP THE TERMINAL INTO A SOLDERING BATH OF 245±5°C FOR 2±0.5 SECONDS.	OVER 90% OF THE SURFACE BEING IMMERSED SHALL BE COVERED WITH NEW SOLDER UNIFORMITY.
4	HUMIDITY TEST	TEMPERATURE :40±2°C HUMIDITY :90%~95%RH DURATION:96±4 Hours	DEVIATION RELATIVE TO INITIAL VALUE: L: WITHIN ±10.0%
5	HIGH TEMPERATURE TEST	TEMPERATURE : 125±2°C TIME : 96±4 Hours ROOM CONDITION : 1~2 hours	DEVIATION RELATIVE TO INITIAL VALUE: L : WITHIN ±10.0%
6	LOW TEMPERATURE TEST	TEMPERATURE : -25±2°C TIME : 96±4 Hours ROOM CONDITION : 1~2 hours	DEVIATION RELATIVE TO INITIAL VALUE: L : WITHIN ±10.0%
7	THERMAL SHOCK TEST	FIRST -25±5°C FOR 30±2 MINUTES, LAST 125°C 30±2 MINUTES AS 1 CYCLE. TOTAL 10 CYCLES.	DEVIATION RELATIVE TO INITIAL VALUE: L : WITHIN ±10.0%
8	VIBRATION TEST	APPLY FREQUENCY 10~55Hz 1.55mm AMPLITUDE IN EACH OF PERPENDICULAR DIRECTION FOR 2 HOURS.(TOTAL6H)	DEVIATION RELATIVE TO INITIAL VALUE: L: WITHIN ±10.0%



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