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 +165°C**
- **Operating temperature range: -55°C to +165°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
CUSTOMER		CUSTOMER No.	
DEVICE No	ECS-MPIP0420 Series	DRAWING No.	
ISSUE DATE	12/4/2025	VERSION	A

MODIFY RECORD

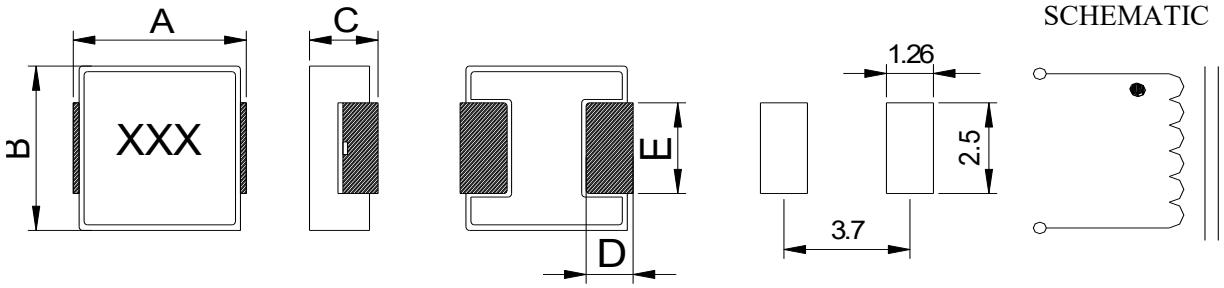
Symbol	Version	Date	Content	Prepared	Checked
	A	12/4/2025	Initial Release		

SPECIFICATION FOR APPROVAL

RoHS COMPLIANT

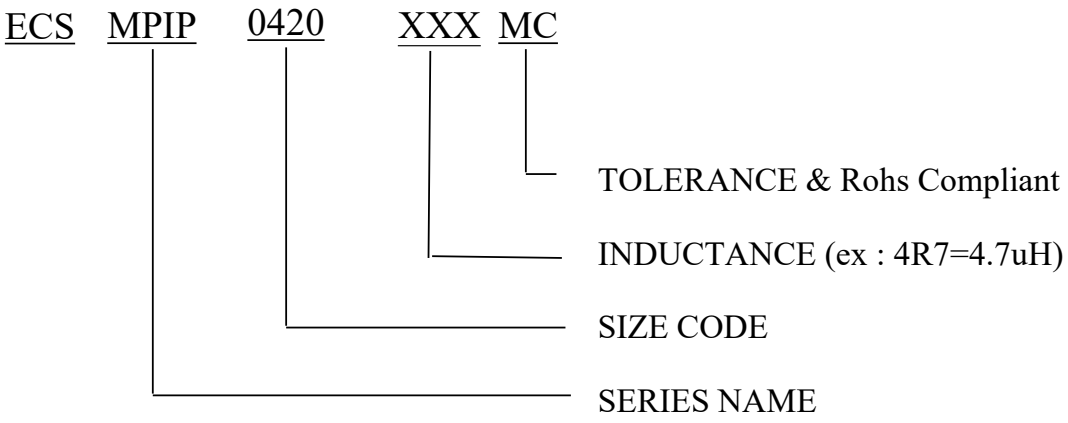
CUSTOMER		CUSTOMER No.		PAGE
DEVICE No	ECS-MPIP0420 Series	DRAWING No.		1/7
ISSUE DATE	12/4/2025	VERSION	A	

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



2、TEMPERATURE RATING:

Operating Temperature : -55 ~ +165°C(Including self - temperature rise)

Storage Temperature : -55 ~ +165°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 (△T ≦40°C) from 25°C ambient.

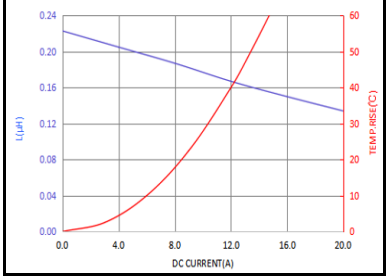
Absolute maximum voltage: DC 75V

AEC-Q200 Compliant

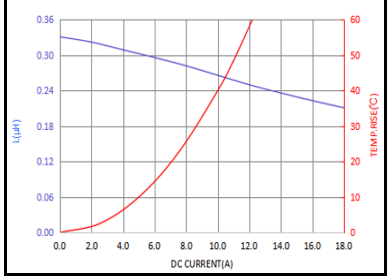
SPECIFICATION FOR APPROVAL			RoHS COMPLIANT	
CUSTOMER		CUSTOMER No.		PAGE
DEVICE No	ECS-MPIP0420 Series	DRAWING No.		3/7
ISSUE DATE	12/4/2025	VERSION	A	

4、INDUCTANCE (μH) VS DC BIAS (A) CURVE & TEMPERATURE(△℃) VS DC BIAS (A) CURVE

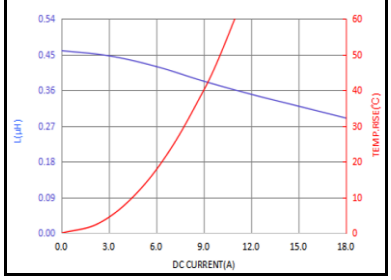
ECS-MPIP0420-R22MC



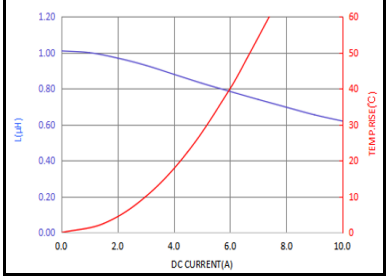
ECS-MPIP0420-R33MC



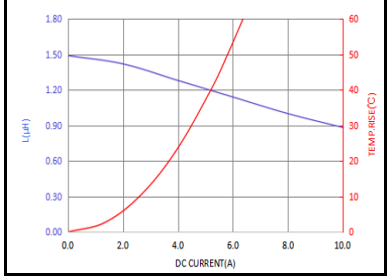
ECS-MPIP0420-R47MC



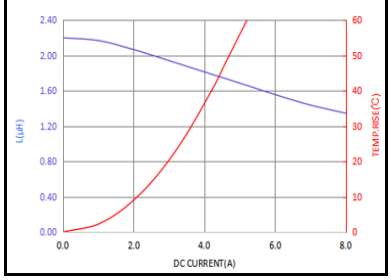
ECS-ECS-MPIP0420-1R0MC



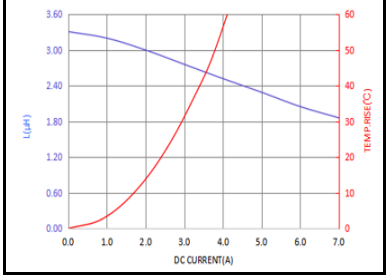
ECS-MPIP0420-1R5MC



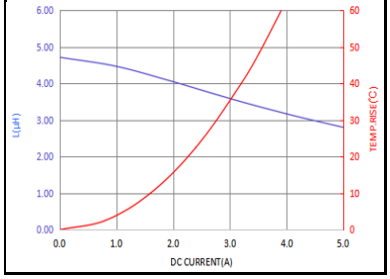
ECS-MPIP0420-2R2MC



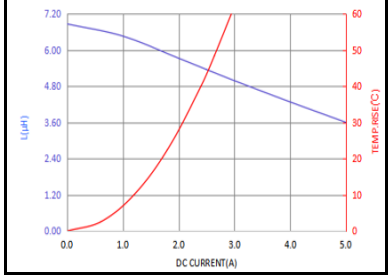
ECS-MPIP0420-3R3MC



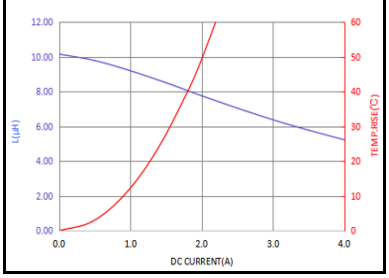
ECS-MPIP0420-4R7MC



ECS-MPIP0420-6R8MC



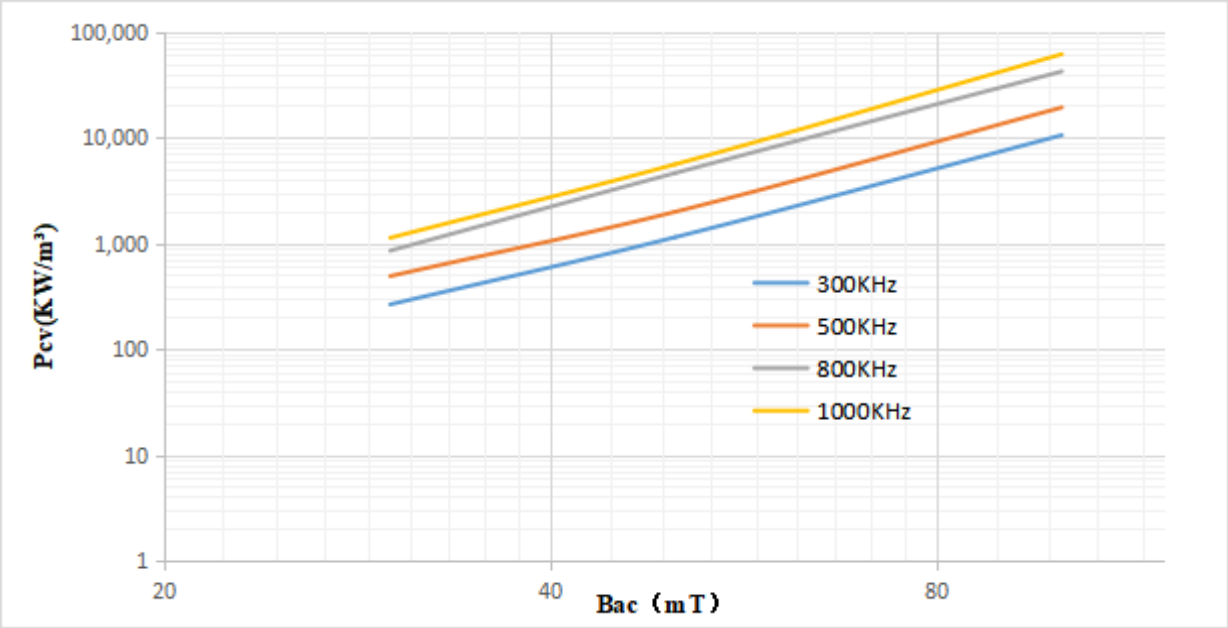
ECS-MPIP0420-100MC



TESTING CONDITION: 100kHz ,1Vrms

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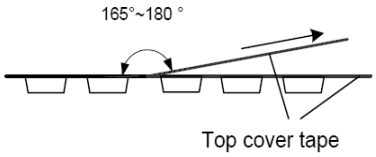
5、CORE LOSS


100,000
10,000
1,000
100
10
1
Pcv(KW/m³)
20
40
80
Bac (mT)
300KHz
500KHz
800KHz
1000KHz

6、PACKAGE：

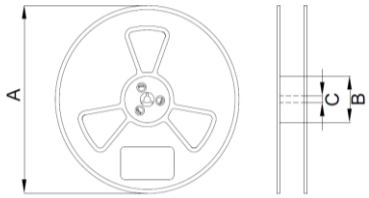
(1) Packaging -Cover Tape

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



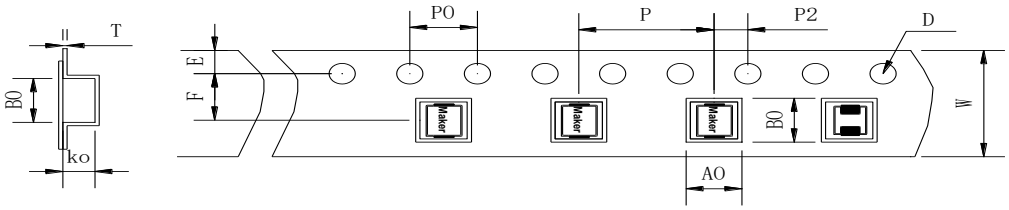
Peel-off speed: 300mm/min.

(2) Reel Dimensions (Unit:mm)

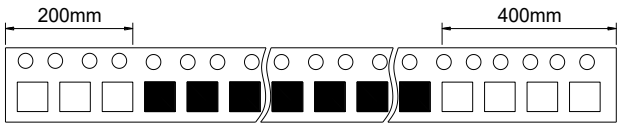


Item	Dimension
A	330±1
B	100±1
C	13±0.5

(3) Tape Dimensions(Unit:mm)



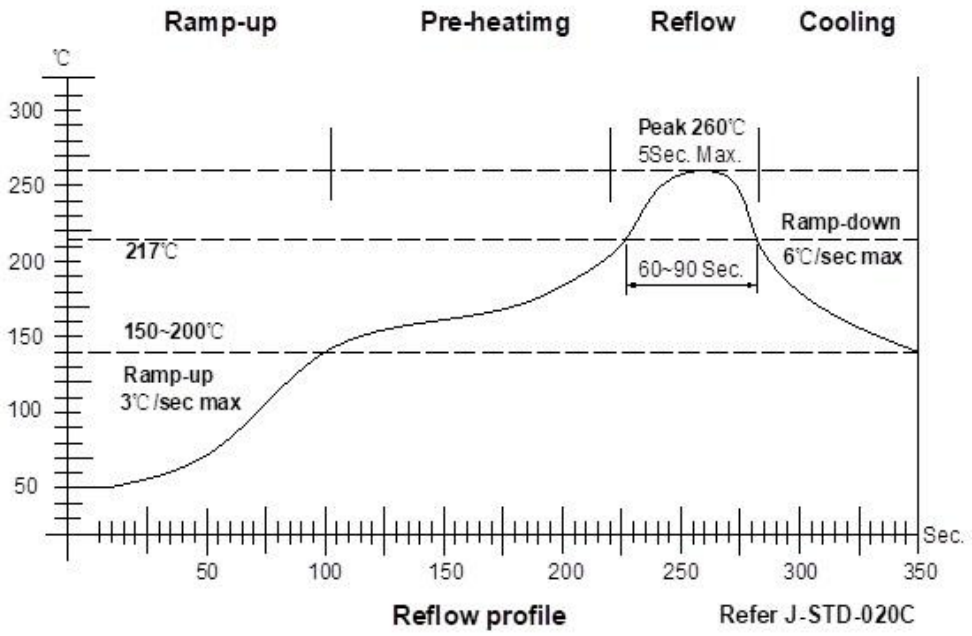
W	A0	B0	K0	D	F	E	P	P0	P2	T
12.0 ±0.3	4.3 ±0.1	5.4 ±0.1	2.2 ±0.1	1.5 ±0.1	5.5 ±0.1	1.75 ±0.1	8.0 ±0.1	4.0 ±0.1	2.0 ±0.1	0.3 ±0.05



(4) Packaging Quantity

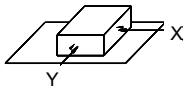
Quantity (Pcs)
Reel
3,000
1Reel

7、Reflow Soldering



SPECIFICATION FOR APPROVAL			RoHS COMPLIANT	
CUSTOMER		CUSTOMER No.		PAGE
DEVICE No	ECS-MPIP0420 Series	DRAWING No.		7/7
ISSUE DATE	12/4/2025	VERSION	A	

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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