Rev. : B

DATE : DEC. 15. 2017

ECS-MPI2520

SMD Power Inductor

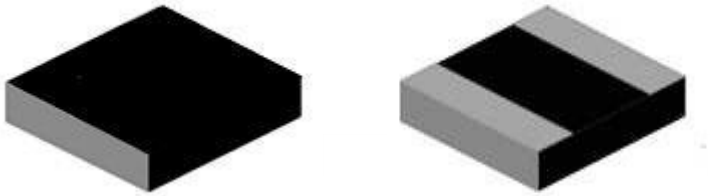
ECS INC

INTERNATIONAL

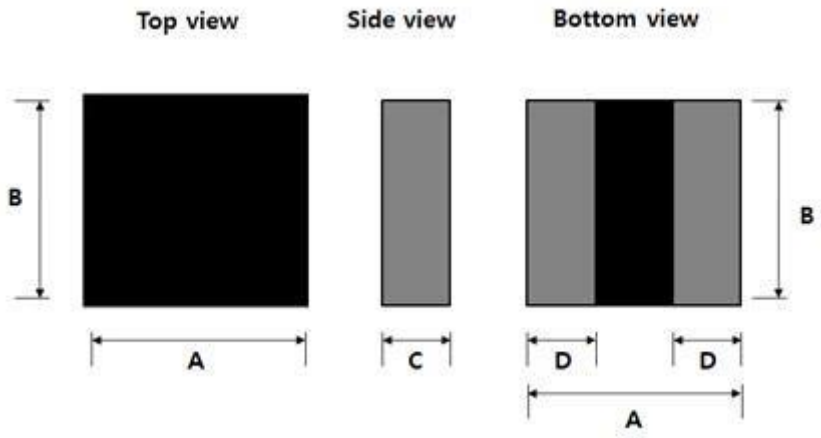
DATA SHEET		PAGE	1 / 10
Part No	ECS-MPI2520R0/R1	Rev.	B

1. Shape and Dimension(mm)

1) Shape



2) Dimensions(mm)

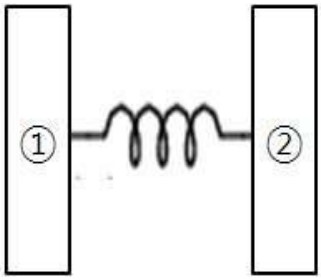


Item	A(mm)	B(mm)	C(mm)	D(mm)
ECS-MPI2520R0	2.5 ±	2.0 ± 0.2	1.0 max	0.6 ± 0.25
ECS-MPI2520R1	2.5 ±	2.0 ± 0.2	1.2 max	0.6 ± 0.25

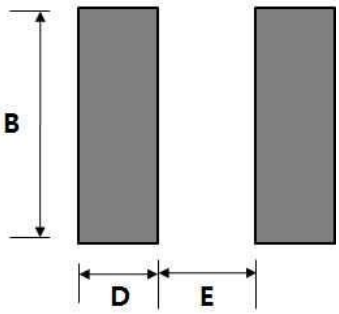
Revision History			Write	Review	Approval
NO	Note	Date			
1	Initial Release	2017. 6. 01			
2	Revised height indicator in PN	2017. 12. 15			

2. Schematic & Land Pattern

1) Schematics



2) Land Pattern(mm)



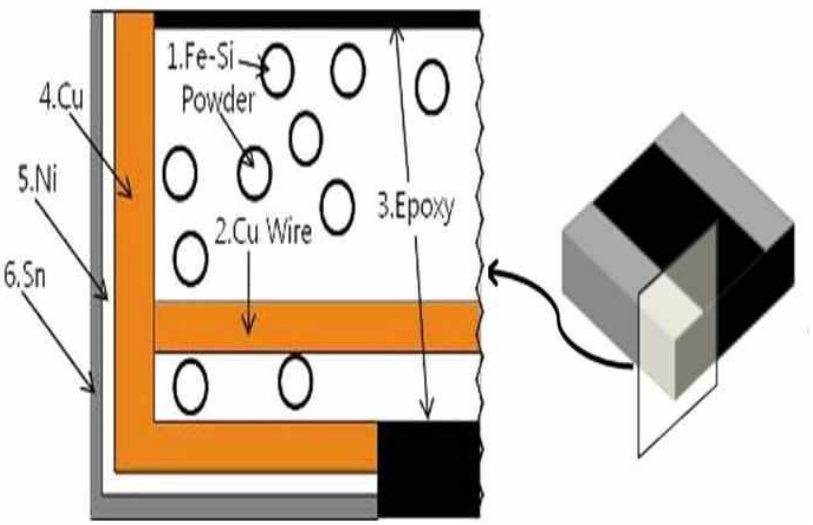
B	2.2mm
D	0.8mm
E	1.2mm

3. Material List & Terminal Construction

1) Material List

No	Materials
1	Fe-Si Powder
2	Cu wire
3	Epoxy(Black)
4	Cu
5	Ni
6	Sn

2) Terminal Construction



4. Electrical Performance

1) Test condition : 1MHz, 0.10V

2) DCR @ 25℃

Part Number	Code Note a	OCL (uH) ± 20% Note b	Isat (A) Note d	Irms (A) Note f	DCR (mΩ) (Typ)	DCR (mΩ) (max) Note g	K-factor
ECS-MPI2520R0-R47-R	B	0.47	4.4	4.1	28	33.6	2887
ECS-MPI2520R0-1R0-R	C	0.9	3.2	3.2	50	60	1925
ECS-MPI2520R0-1R5-R	D	1.5	2.6	2.4	80	96	1444
ECS-MPI2520R0-2R2-R	E	2.2	2.4	2.2	103	123.6	1283
ECS-MPI2520R0-3R3-3	F	3.3	1.6	1.6	190	228	1050
ECS-MPI2520R0-4R7-R	G	4.7	1.4	1.4	240	288	825
ECS-MPI2520R1-R47-R	A	0.47	4.8	4.5	20	24	2310
ECS-MPI2520R1-1R0-R	B	1	4	3.7	35	42	1925
ECS-MPI2520R1-1R5-R	C	1.5	3.4	2.9	55	66	1444
ECS-MPI2520R1-2R2-R	D	2.2	2.7	2.3	75	90	1255
ECS-MPI2520R1-3R3-R	E	3.3	2.4	1.8	105	126	962
ECS-MPI2520R1-4R7-R	F	4.7	1.9	1.6	150	180	825
ECS-MPI2520R1-5R6-R	G	5.6	1.5	1.5	200	240	679
ECS-MPI2520R1-6R8-R	H	6.8	1.3	1.3	300	360	679
ECS-MPI2520R1-100-R	I	10	1.2	1.1	390	468	525

Measuring Instruments:

OCL: HP4284A (Agilent Technologies, or equivalent)

DC Bias: HP4284A & HP42841B (Agilent Technologies, or equivalent)

DC Resistance: 4100ATC (or equivalent)

Note a: Print Marking Code on each reel of product to define different part number.

Note b: Test condition: 1MHz, 0.1V

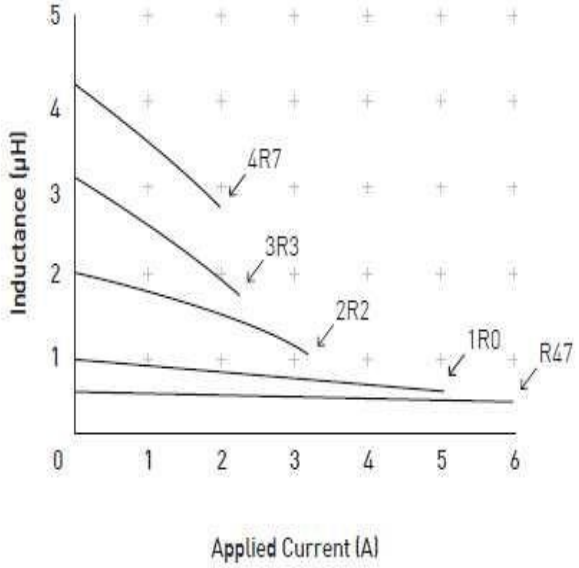
Note c: Test condition: 1 MHz, 0.1V

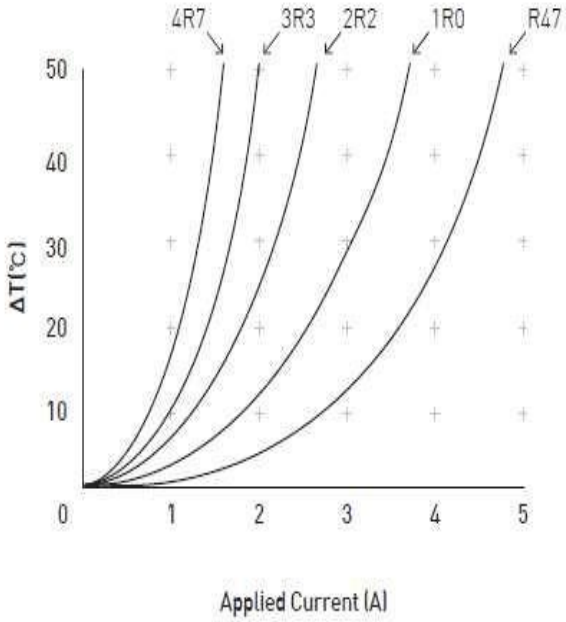
Noted: Isat Amperes Peak for approximately 30% Roll-off (@25℃)

Note f: RMS current for an approximate ΔT of 40°C without core loss. It is recommended that the temperature of the part not exceed 125°C.

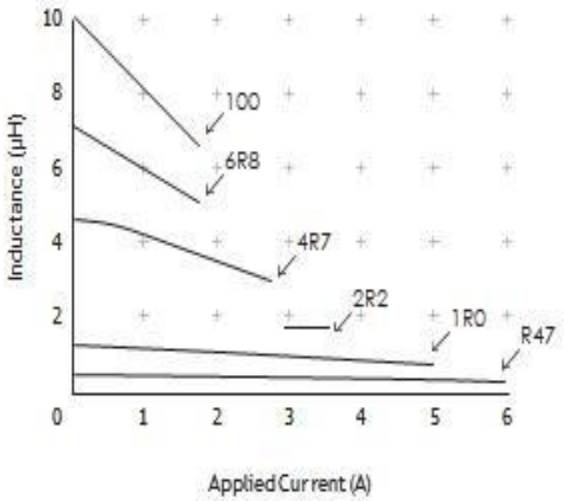
Note g: DCR @ 25℃.

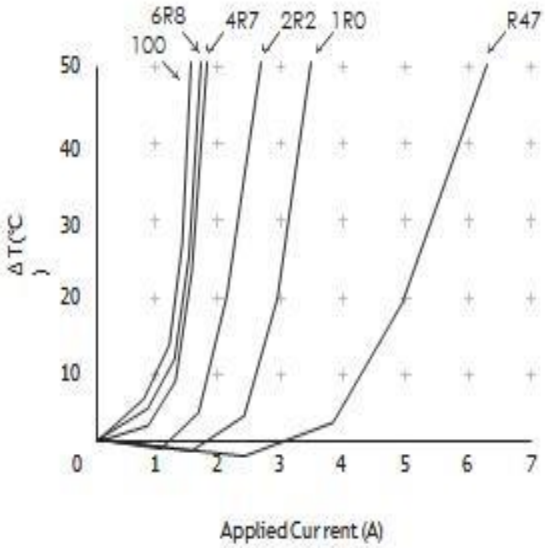
5. Electrical characteristics(Graph)





ECS-MPI2520R0

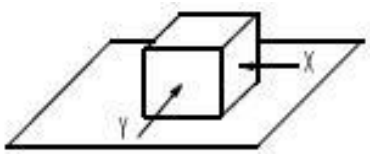




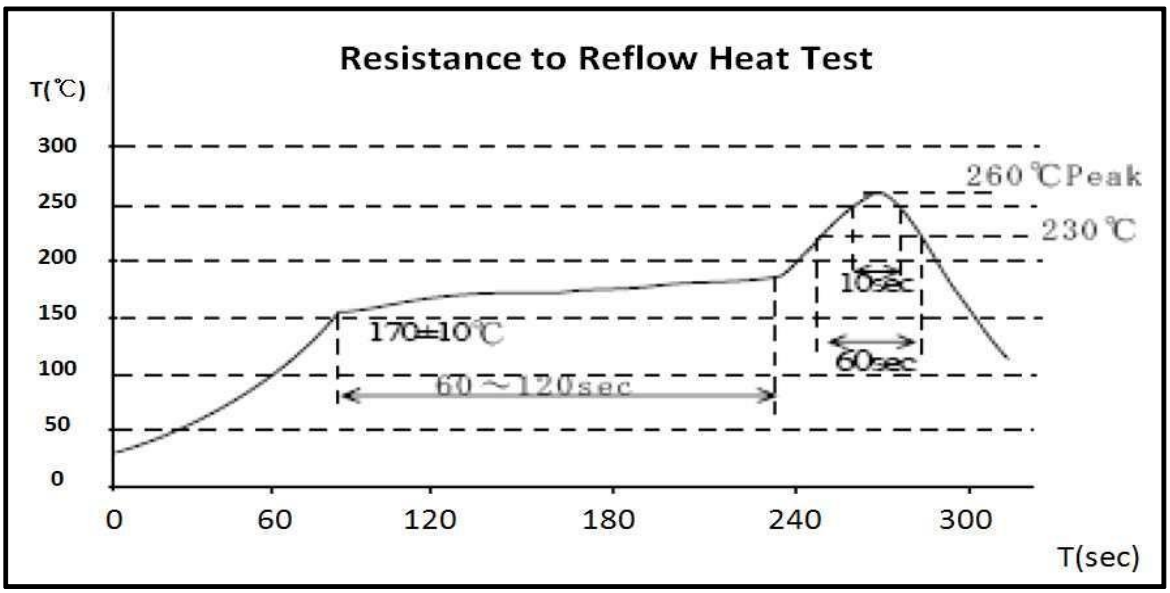
ECS-MPI2520R1

6. Mechanical characteristics testing items

1) Storage temperature -40 ~ +105℃
2) Operation Temperature -40 ~ +105℃ (Including coil's self-temperature rise)
3) External appearance: No external defects can be found in the visual inspection.
4) Electrode strength
No electrode detachment should be found when the device is pushed in two directions of X and Y with the force of 5.0N for 60±1 seconds after soldering between copper plate and the electrodes. (Refer to figure)



5) Heat endurance test
Inductance deviation is within ±5.0% after reflow test be done for 3 times. according to the below chart, then the measurement shall be made in 2 hours after 1 hour storage under room ambient conditions



6) Vibration test
Inductance deviation is within ±5.0% after 2 hour sweeping vibration in each three directions, namely, forward and backward, up and down, right and left. The frequency is 10~55~10Hz and amplitude of 1 minute cycles is 1.5mm PP.

7) Shock test
Inductance deviation is within ±5.0% after the test with gum-block shock testing machine, once in each of the three perpendicular axis directions. The shock acceleration is 981m/s^2

8) Humidity test

Inductance deviation is within ±5.0% after 500±12hours test under the condition of relative humidity of 90~95% and temperature of 60±2℃. and 1 hours storage under room ambient conditions after the device is wiped with dry cloth.

9) High temperature Storage test

Inductance deviation is within ±5.0% after 500±12hours test under the condition of temperature of 105±2℃ and 1 hours storage under room ambient conditions after which device is tested within the next 1 hour.

10) Low temperature Storage test

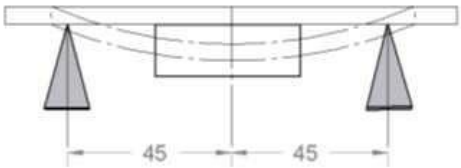
Inductance deviation is within ±5.0% after 500±12hours test under the condition of temperature of -40±2℃ and 1 hours storage under room ambient conditions after which device is tested within the next 1 hour.

11) Thermal shock test

Specimen is subject to -40℃ for 30 minutes hereafter it is subject to 105℃ for 30 minutes(Transition time is 1 minute maximum.) This constitutes one cycle. After 1000 cycles, it is then left in room temperature for I hour. After which specimen is tested within the next 1 hour and the inductance deviation is within ±5.0%

12) Board bent characteristic

Inductance deviation is within ±5.0%, after apply pressure in the direction of the arrow at a rate of about 0.5mm/s until bent with reaches 2mm and hold for 30 seconds



13) Solubility resistance test

Inductance deviation is within ±5.0% after immersing for 1 min in isopropyl alcohol at 25℃±5℃. Then it shall be stabilized under standard atmospheric condition for 1H before measurement. Measurement shall be made within 1 hour

14) Solderability

Electrodes are immersed in flux for 5 seconds. Then dipped in melting solder at 245±5℃, for 3±0.5 seconds, 95% min. of the immersed areas should be covered by new solder.

※ Solder item : LCD-D9800C(Sn98%/Cu2% : Flux item : 2HF-7600)

15) Humidity load life test

Inductance deviation is within ±5.0% and no structure and electric defects can be found after 1000±12 hours test under the condition of relative humidity of 80~85% and temperature of 85±2℃ and allowable current loaded and 1 hour storage under room ambient conditions after which device is tested within the next 2 hours

16) High-temperature electrification test

The component is left in a constant temperature chamber of temperature 105±2℃ applying the rated current for 1000±12 hours after the soldering heat resistance test, and then the component is left at room temperature and normal humidity for 2±1 hours. After that, any surface defects shouldn't be found and the rate of inductance against its initial value should be within ±5%

17) Low-temperature electrification test

The component is left in a constant temperature chamber of temperature -40±3℃ applying the rated current for 1000±12 hours after the soldering heat resistance test, and then the component is left at room temperature and normal humidity for 2±1 hours. After that, any surface defects shouldn't be found and the rate of inductance against its initial value should be within ±5%

Application Notice / Handling

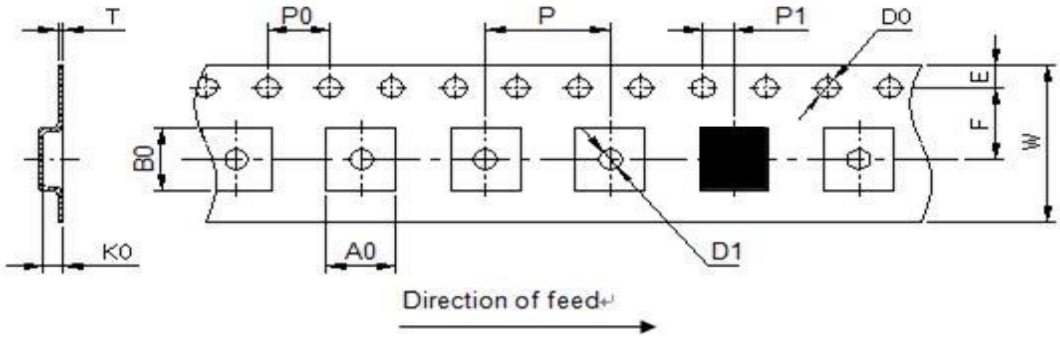
1) Temperature and humidity conditions: less than 40℃ and 70% RH.
2) Products should be used within 6 months.
3) The packaging material should be kept where no chlorine or sulfur exists in the air.
4) Do not touch the electrodes (soldering terminals) with fingers as this may lead to deterioration of solderability.
5) The use of tweezers or vacuum pick-ups is strongly recommended for individual components.
6) Bulk handling should ensure that abrasion and mechanical shock are minimized

7. Packaging Standard

1) Packaging data

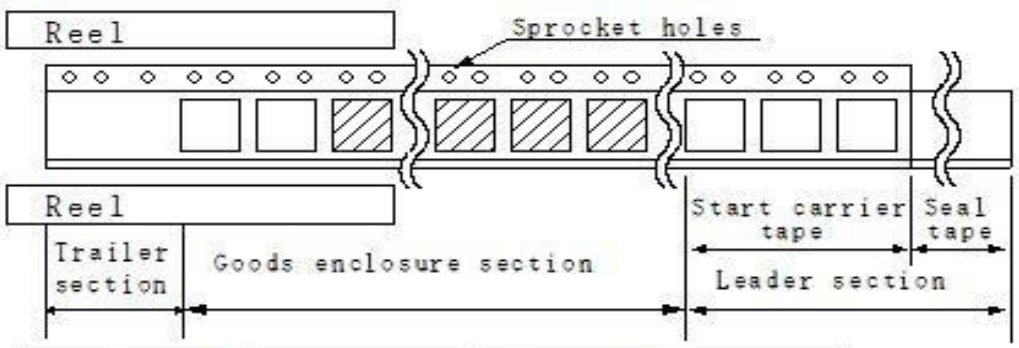
Component	L(mm)	W(mm)	H(mm)	Wt(g)	Quantity
Part size	2.70	2.20	1.20	0.03	3,000

2) Reel Tape Specification: Units supplied in tape and reel packaging. Meets EIA-481



P/N	W	A0	B0	K0	T	P	F	E	D0	D1	P0	P1
ECS-MPI2520	8.0± 0.3	2.3± 0.1	2.8± 0.1	1.3± 0.1	0.3± 0.1	4.0± 0.1	3.9± 0.1	1.75 ±0.1	1.5+ 0.1	1.5± 0.1	4.0± 0.1	2.0± 0.05

3) Taping dimension and tape direction, Leader, Trailer section dimension



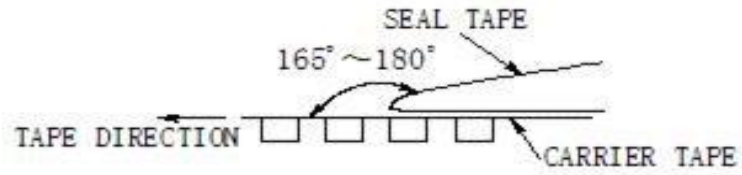
Leader section	Min.400 mm
Carrier tape start size	Min.100 mm
Trailer section size	Min.160 mm

4) Taping

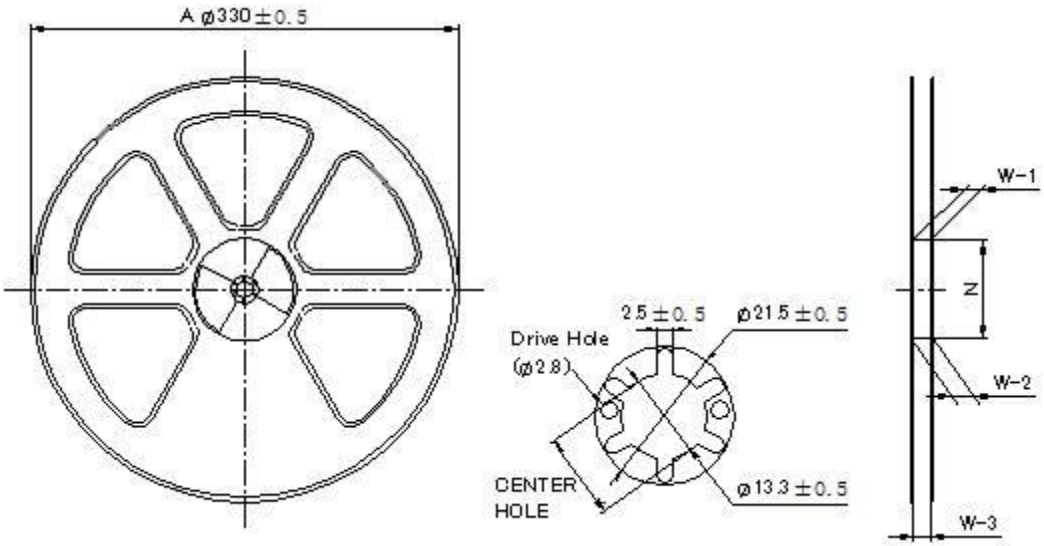
The angle between the seal tape during peel off and the direction of unreeling shall be 165℃ to 180℃.

The seal tape shall adhere uniformly to the carrier tape along both sides in the direction of unreeling.

The peel force with a peel speed of 300mm/MIN±10mm/MIN shall be 0.1N TO 1.3N.

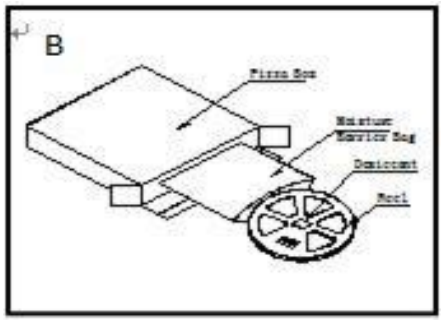


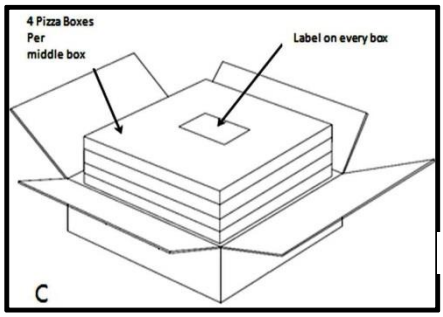
5) Reel Specification

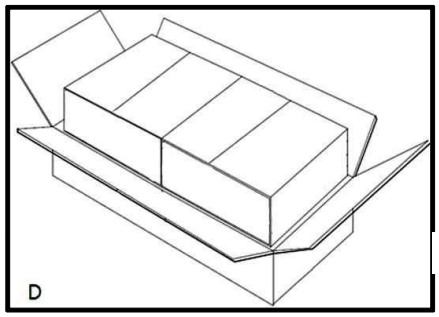


Dimension	A	W-1	W-2	W-3	Center Hole	N
Spec	ϕ330±0.5	12.4+2/0	16.0±0.5	13.0±0.5	13.3±0.5	ϕ76±0.5

6) Packing Materials







Packing Materials	B. Pizza Box			C. Middle Box			D. Large Box		
Dimension(mm)	L	W	H	L	W	H	L	W	H
	335	335	50	355	355	230	720	370	255

7) Packing Specification

2middle box/Large box, 4Reel/Middle box, 1Reel/Pizza box, 7500pcs/Reel, Total 60000pcs(Large Box)

Reel Dimensions : Ø 330 × 12(mm)

8. Environmental substances requirement

1) RoHs Compliance & Halogen Compliance

Test Items	Unit	Test Method	MDL	Results
Cd	mg/kg	With reference to IEC62321:2008, ICP	0.5	N.D.
Pb	mg/kg	With reference to IEC62321:2008, ICP	5	N.D.
Hg	mg/kg	With reference to IEC62321:2008, ICP	2	N.D.
Cr VI	mg/kg	With reference to IEC62321:2008, UV-VIS	1	N.D.
PBBs	mg/kg	With reference to IEC62321:2008, GC-MS	5	N.D.
PBDEs	mg/kg	With reference to IEC62321:2008, GC-MS	5	N.D.
Br	mg/kg	BS EN 14582:2007, IC	30	N.D.
Cl	mg/kg	BS EN 14582:2007, IC	30	N.D.
F	mg/kg	BS EN 14582:2007, IC	30	N.D.
I	mg/kg	BS EN 14582:2007, IC	50	N.D.

Note

1) N.D. = Not detected(< MDL)
2) mg/kg = ppm
3) MDL = Method Detection Limit
4) Test instrument : SGS TEST KOREA

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ECS-MPI2520R1-100-R ECS-MPI2520R1-1R5-R ECS-MPI2520R1-6R8-R ECS-MPI2520R0-R47-R ECS-MPI2520R0-1R0-R ECS-MPI2520R0-2R2-R ECS-MPI2520R0-3R3-R ECS-MPI2520R1-2R2-R ECS-MPI2520R0-4R7-R ECS-MPI2520R0-1R5-R ECS-MPI2520R1-4R7-R ECS-MPI2520R1-5R6-R ECS-MPI2520R1-3R3-R ECS-MPI2520R1-1R0-R