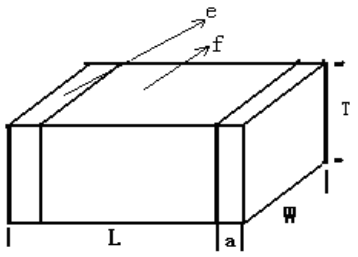
1 Scope

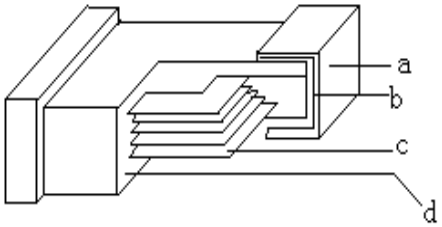
This specification applies to the HDMP series of multilayer chip large current bead.

2 Dimension & Inner-configuration:

Dimension：



Inner-configuration：



a. Ag layer
b. Ni/Sn plating
c. Inner electrode
d. Body
e. Terminal electrode
f. ferrite or ceramic

No.	Component		Material
1	Body		Ni-Cu-Zn
2	Inner electrode		Ag
3	Terminal electrode	Ag layer	Ag
		Ni/Sn plating	Ni-Sn

Unit: mm(inch)

Size	L	W	T	a
160808	1.6±0.20（0.063±0.008）	0.8±0.20（0.031±0.008）	0.8±0.20（0.031±0.008）	0.3±0.2(0.01±0.008)
201209	2.0±0.20（0.079±0.008）	1.2±0.20（0.047±0.008）	0.9±0.20（0.035±0.008）	0.5±0.3(0.020±0.012)
252009	2.5±0.20（0.098±0.008）	2.0±0.20（0.079±0.008）	0.9±0.20（0.035±0.008）	0.5±0.3(0.020±0.012)
321609	3.2±0.20（0.126±0.008）	1.6±0.20（0.063±0.008）	0.9±0.20（0.035±0.008）	0.5±0.3(0.020±0.012)

3 Product Spec. Model

HDMP 160808 UE 1R0 M T - LF

Lead free product.
Packaging：Tape & Reel:T
Tolerance： M,±20%
Inductance：1.0uH
Material code
Dimensions：(L×W×T)（1.6×0.8×0.8mm)
Product symbol：
HDMP：Ferrite Chip inductors

4 Electrical Characteristics List

Part NO.	Tolerance （%）	Inductance (μH)	RDC （Ω） max	Test frequency (MHz)	Test voltage （mV）	SRF (MHz) min	Rated current (mA)max
HDMP160808VE47NMT-LF	±20	0.047	0.12	1	50	260	150
HDMP160808VE56NMT-LF	±20	0.056	0.12	1	50	260	150
HDMP160808VE68NMT-LF	±20	0.068	0.12	1	50	250	150
HDMP160808VE82NMT-LF	±20	0.082	0.12	1	50	245	150
HDMP160808VER10MT-LF	±20	0.10	0.15	1	50	240	150
HDMP160808VER12MT-LF	±20	0.12	0.20	1	50	205	150
HDMP160808VER15MT-LF	±20	0.15	0.20	1	50	180	150
HDMP160808VER18MT-LF	±20	0.18	0.20	1	50	165	150
HDMP160808VER22MT-LF	±20	0.22	0.25	1	50	150	150
HDMP160808VER27MT-LF	±20	0.27	0.30	1	50	136	100
HDMP160808VER33MT-LF	±20	0.33	0.30	1	50	125	100
HDMP160808VER39MT-LF	±20	0.39	0.35	1	50	110	100
HDMP160808VER47MT-LF	±20	0.47	0.45	1	50	105	100
HDMP160808VER56MT-LF	±20	0.56	0.45	1	50	95	100
HDMP160808VER68MT-LF	±20	0.68	0.55	1	50	90	100
HDMP160808VER82MT-LF	±20	0.82	0.60	1	50	85	100
HDMP160808UE1R0MT-LF	±20	1.0	0.30	1	50	75	150
HDMP160808UE1R2MT-LF	±20	1.2	0.30	1	50	65	150
HDMP160808UE1R5MT-LF	±20	1.5	0.35	1	50	60	120
HDMP160808UE1R8MT-LF	±20	1.8	0.40	1	50	55	120
HDMP160808UE2R2MT-LF	±20	2.2	0.50	1	50	50	120
HDMP160808UE2R7MT-LF	±20	2.7	0.60	1	50	45	100
HDMP160808XE3R3MT-LF	±20	3.3	0.65	1	50	40	100
HDMP160808XE3R9MT-LF	±20	3.9	0.70	1	50	35	80
HDMP160808XE4R7MT-LF	±20	4.7	0.75	1	50	33	80
HDMP160808JE5R6MT-LF	±20	5.6	0.90	1	50	22	60
HDMP160808JE6R8MT-LF	±20	6.8	0.90	1	50	20	60
HDMP160808JE8R2MT-LF	±20	8.2	1.05	1	50	18	60
HDMP160808JE100MT-LF	±20	10	1.15	1	50	17	60
HDMP160808JE120MT-LF	±20	12	1.25	1	50	15	60

Part NO.	Tolerance （%）	Inductance (μH)	RDC （Ω） max	Test frequency (MHz)	Test voltage （mV）	SRF (MHz) min	Rated current (mA)max
HDMP201209VE47NMT-LF	±20	0.047	0.15	1	50	320	350
HDMP201209VE56NMT-LF	±20	0.056	0.15	1	50	320	350
HDMP201209VE68NMT-LF	±20	0.068	0.20	1	50	280	350
HDMP201209VE82NMT-LF	±20	0.082	0.20	1	50	280	350
HDMP201209VER10MT-LF	±20	0.10	0.20	1	50	235	350
HDMP201209VER12MT-LF	±20	0.12	0.20	1	50	220	350
HDMP201209VER15MT-LF	±20	0.15	0.20	1	50	200	350
HDMP201209VER18MT-LF	±20	0.18	0.25	1	50	185	300
HDMP201209VER22MT-LF	±20	0.22	0.25	1	50	170	300
HDMP201209VER27MT-LF	±20	0.27	0.25	1	50	150	300
HDMP201209VER33MT-LF	±20	0.33	0.25	1	50	145	300
HDMP201209VER39MT-LF	±20	0.39	0.30	1	50	135	250
HDMP201209VER47MT-LF	±20	0.47	0.30	1	50	125	250
HDMP201209VER56MT-LF	±20	0.56	0.36	1	50	115	200
HDMP201209VER68MT-LF	±20	0.68	0.36	1	50	105	200
HDMP201209VER82MT-LF	±20	0.82	0.36	1	50	100	200
HDMP201209UE1R0MT-LF	±20	1.0	0.26	1	50	75	220
HDMP201209UE1R2MT-LF	±20	1.2	0.26	1	50	65	220
HDMP201209UE1R5MT-LF	±20	1.5	0.30	1	50	60	180
HDMP201209UE1R8MT-LF	±20	1.8	0.30	1	50	55	180
HDMP201209UE2R2MT-LF	±20	2.2	0.36	1	50	50	150
HDMP201209UE2R7MT-LF	±20	2.7	0.36	1	50	45	150
HDMP201209UE3R3MT-LF	±20	3.3	0.40	1	50	41	120
HDMP201209UE3R9MT-LF	±20	3.9	0.40	1	50	38	120
HDMP201209UE4R7MT-LF	±20	4.7	0.40	1	50	35	120
HDMP201209XE5R6MT-LF	±20	5.6	0.60	1	50	32	100
HDMP201209XE6R8MT-LF	±20	6.8	0.60	1	50	29	100
HDMP201209XE8R2MT-LF	±20	8.2	0.65	1	50	26	100
HDMP201209XE100MT-LF	±20	10	0.65	1	50	24	100
HDMP201209XE120MT-LF	±20	12	0.65	1	50	22	100
HDMP201209JE150MT-LF	±20	15	0.75	1	50	19	50
HDMP201209JE180MT-LF	±20	18	0.75	1	50	18	50
HDMP201209JE220MT-LF	±20	22	0.75	1	50	16	50

Part NO.	Tolerance （%）	Inductance (μH)	RDC （Ω） max	Test frequency (MHz)	Test voltage （mV）	SRF (MHz) min	Rated current (mA)max
HDMP321609VE47NMT-LF	±20	0.047	0.15	1	50	320	450
HDMP321609VE56NMT-LF	±20	0.056	0.15	1	50	320	450
HDMP321609VE68NMT-LF	±20	0.068	0.20	1	50	280	450
HDMP321609VE82NMT-LF	±20	0.082	0.20	1	50	280	450
HDMP321609VER10MT-LF	±20	0.10	0.20	1	50	235	350
HDMP321609VER12MT-LF	±20	0.12	0.20	1	50	220	350
HDMP321609VER15MT-LF	±20	0.15	0.20	1	50	200	350
HDMP321609VER18MT-LF	±20	0.18	0.20	1	50	185	350
HDMP321609VER22MT-LF	±20	0.22	0.20	1	50	170	350
HDMP321609VER27MT-LF	±20	0.27	0.20	1	50	150	350
HDMP321609VER33MT-LF	±20	0.33	0.20	1	50	145	350
HDMP321609VER39MT-LF	±20	0.39	0.30	1	50	135	220
HDMP321609VER47MT-LF	±20	0.47	0.30	1	50	125	220
HDMP321609VER56MT-LF	±20	0.56	0.30	1	50	115	220
HDMP321609VER68MT-LF	±20	0.68	0.30	1	50	105	220
HDMP321609VER82MT-LF	±20	0.82	0.30	1	50	100	220
HDMP321609UE1R0MT-LF	±20	1.0	0.20	1	50	75	250
HDMP321609UE1R2MT-LF	±20	1.2	0.20	1	50	65	250
HDMP321609UE1R5MT-LF	±20	1.5	0.25	1	50	60	250
HDMP321609UE1R8MT-LF	±20	1.8	0.25	1	50	55	250
HDMP321609UE2R2MT-LF	±20	2.2	0.30	1	50	50	200
HDMP321609UE2R7MT-LF	±20	2.7	0.30	1	50	45	200
HDMP321609UE3R3MT-LF	±20	3.3	0.30	1	50	41	200
HDMP321609UE3R9MT-LF	±20	3.9	0.35	1	50	38	150
HDMP321609UE4R7MT-LF	±20	4.7	0.35	1	50	35	150
HDMP321609UE5R6MT-LF	±20	5.6	0.50	1	50	32	100
HDMP321609XE6R8MT-LF	±20	6.8	0.50	1	50	29	100
HDMP321609XE8R2MT-LF	±20	8.2	0.50	1	50	26	100
HDMP321609XE100MT-LF	±20	10	0.50	1	50	24	100
HDMP321609XE120MT-LF	±20	12	0.60	1	50	22	100
HDMP321609JE150MT-LF	±20	15	0.80	1	50	19	50
HDMP321609JE180MT-LF	±20	18	0.80	1	50	18	50
HDMP321609JE220MT-LF	±20	22	1.00	1	50	16	50
HDMP321609JE270MT-LF	±20	27	1.00	1	50	14	50

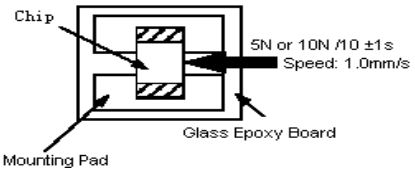
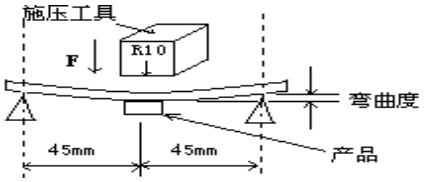
Part NO.	Tolerance （%）	Inductance (μH)	RDC （Ω） max	Test frequency (MHz)	Test voltage （mV）	SRF (MHz) min	Rated current (mA)max
HDMP201209VD47NMT-LF	±20	0.047	0.10	1	50	280	1100
HDMP201209VD56NMT-LF	±20	0.056	0.10	1	50	280	1100
HDMP201209VD68NMT-LF	±20	0.068	0.15	1	50	250	1100
HDMP201209VD82NMT-LF	±20	0.082	0.15	1	50	250	1100
HDMP201209VDR10MT-LF	±20	0.10	0.15	1	50	210	1100
HDMP201209VDR12MT-LF	±20	0.12	0.15	1	50	200	1100
HDMP201209VDR15MT-LF	±20	0.15	0.15	1	50	175	1100
HDMP201209VDR18MT-LF	±20	0.18	0.15	1	50	160	1100
HDMP201209VDR22MT-LF	±20	0.22	0.15	1	50	150	1100
HDMP201209VDR27MT-LF	±20	0.27	0.15	1	50	130	1100
HDMP201209VDR33MT-LF	±20	0.33	0.15	1	50	120	1100
HDMP201209VDR39MT-LF	±20	0.39	0.15	1	50	110	1100
HDMP201209VDR47MT-LF	±20	0.47	0.15	1	50	100	1100
HDMP201209VDR56MT-LF	±20	0.56	0.36	1	50	100	800
HDMP201209VDR68MT-LF	±20	0.68	0.36	1	50	95	800
HDMP201209VDR82MT-LF	±20	0.82	0.36	1	50	90	800
HDMP201209UD1R0MT-LF	±20	1.0	0.24	1	50	75	800
HDMP201209UD1R2MT-LF	±20	1.2	0.24	1	50	65	800
HDMP201209UD1R5MT-LF	±20	1.5	0.30	1	50	60	700
HDMP201209UD1R8MT-LF	±20	1.8	0.36	1	50	55	600
HDMP201209UD2R2MT-LF	±20	2.2	0.36	1	50	50	600
HDMP201209UD2R7MT-LF	±20	2.7	0.36	1	50	45	600
HDMP201209UD3R3MT-LF	±20	3.3	0.40	1	50	41	350
HDMP201209UD3R9MT-LF	±20	3.9	0.40	1	50	38	350
HDMP201209UD4R7MT-LF	±20	4.7	0.40	1	50	35	350
HDMP201209XD5R6MT-LF	±20	5.6	0.50	1	50	32	250
HDMP201209XD6R8MT-LF	±20	6.8	0.50	1	50	29	250
HDMP201209XD8R2MT-LF	±20	8.2	0.56	1	50	26	250
HDMP201209XD100MT-LF	±20	10	0.56	1	50	24	250
HDMP201209XD120MT-LF	±20	12	0.56	1	50	22	250
HDMP201209JD150MT-LF	±20	15	0.65	1	50	19	100

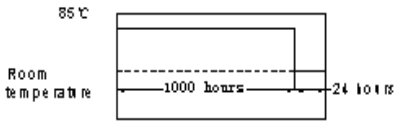
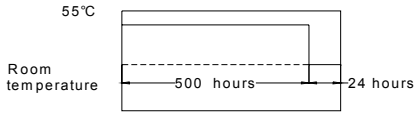
Part NO.	Tolerance （%）	Inductance (μH)	RDC （Ω） max	Test frequency (MHz)	Test voltage （mV）	SRF (MHz) min	Rated current (mA)max
HDMP252009UD1R0MT-LF	±20	1.0	0.12	1	50	70	1500
HDMP252009UD1R2MT-LF	±20	1.2	0.15	1	50	50	1500
HDMP252009UD1R5MT-LF	±20	1.5	0.15	1	50	50	1500
HDMP252009UD1R8MT-LF	±20	1.8	0.18	1	50	40	1000
HDMP252009UD2R2MT-LF	±20	2.2	0.18	1	50	40	1000
HDMP252009UD2R7MT-LF	±20	2.7	0.22	1	50	30	1000
HDMP252009UD3R3MT-LF	±20	3.3	0.22	1	50	30	1000
HDMP252009UD3R9MT-LF	±20	3.9	0.26	1	50	25	1000
HDMP252009UD4R7MT-LF	±20	4.7	0.26	1	50	25	1000

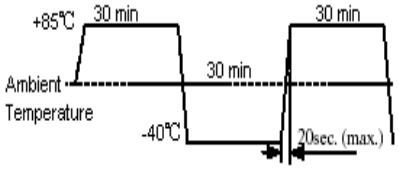
Part NO.	Tolerance （%）	Inductance (μH)	RDC （Ω） max	Test frequency (MHz)	Test voltage （mV）	SRF (MHz) min	Rated current (mA)max
HDMP321609UD1R0MT-LF	±20	1.0	0.15	1	50	60	1200
HDMP321609UD1R2MT-LF	±20	1.2	0.15	1	50	65	1200
HDMP321609UD1R5MT-LF	±20	1.5	0.17	1	50	60	1000
HDMP321609UD1R8MT-LF	±20	1.8	0.24	1	50	55	900
HDMP321609UD2R2MT-LF	±20	2.2	0.24	1	50	50	900
HDMP321609UD2R7MT-LF	±20	2.7	0.30	1	50	45	800
HDMP321609UD3R3MT-LF	±20	3.3	0.30	1	50	41	800
HDMP321609UD3R9MT-LF	±20	3.9	0.38	1	50	38	700
HDMP321609UD4R7MT-LF	±20	4.7	0.38	1	50	35	700
HDMP321609UD5R6MT-LF	±20	5.6	0.45	1	50	32	500
HDMP321609XD6R8MT-LF	±20	6.8	0.45	1	50	29	500
HDMP321609XD8R2MT-LF	±20	8.2	0.55	1	50	26	300
HDMP321609XD100MT-LF	±20	10	0.55	1	50	24	300
HDMP321609XD120MT-LF	±20	12	0.55	1	50	22	300
HDMP321609JD150MT-LF	±20	15	0.65	1	50	19	100
HDMP321609JD180MT-LF	±20	18	0.65	1	50	18	100

5 Reliability Testing Items

No.	Items	Requirements	Test Methods and Remarks
1	Operating Temperature Range	-40℃～+85℃	
2	Solder ability	At least 90% of terminal electrode should be covered with solder	Preheating temperature:120 to 150℃ Preheating time: 60s Solder 96.5Sn/3.0Ag/0.5Cu of the Sn solder. Solder temperature: 245±5℃ Duration : 5±1s Immersion into the colophony flux for 3 to 5 sec. Immersion speed: 25mm/sec
3	Resistance to Soldering	At least 75% of terminal electrode should be covered with solder. No mechanical damage. Inductance ： V、U ： change within ±20% X ： change within ±25% J ： change within ±30%	Preheating temperature: 120 to 150℃ Preheating time: 60s Solder 96.5Sn/3.0Ag/0.5Cu of the Sn solder. Solder temperature: 260±5℃ Duration : 10±1s Immersion into the colophony flux for 3 to 5 sec. Immersion speed: 25mm/sec

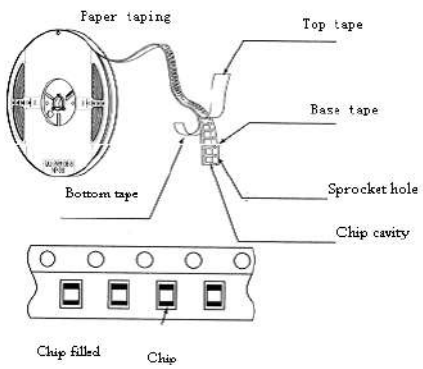
No.	Items	Requirements	Test Methods and Remarks
4	Adhesion of electrode	The termination and body should be no damage.	Applied force: 5N force for 1608 series. 10N force for 2012、2520、3216 series. Keep time ： 10±1S 
5	Low temperature resistance	No mechanical damage. Inductance change: within ±10%	Temperature: -55±2℃ Testing time: 500^{+24}_{-0} h
6	Bending strength	No mechanical damage. Inductance change: within ±10%	Warp: 2mm Testing board: glass epoxy-resin substrate Thickness: 0.8mm 
7	Drop	No mechanical damage. Inductance change: within ±10%	Drop 10 times on a concrete floor from a high of 1m.

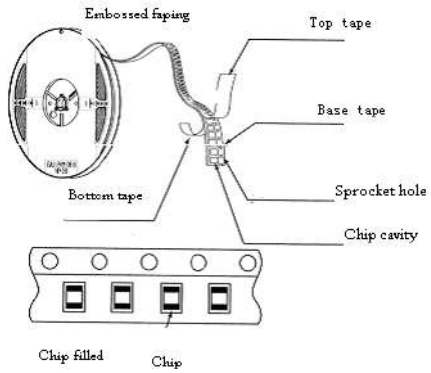
No.	Items	Requirements	Test Methods and Remarks
8	Vibration	No mechanical damage. Inductance change: within ±10%	Amplitude modulation: 1.5mm Test time: A period of 2h in each of 3 mutually perpendicular directions. Frequency range: 10Hz to 55Hz to 10Hz for 1min.
9	High temperature resistance	No mechanical damage. Inductance change: within ±10%	 Applied current: rated current(CBW Series) Testing time: 1000^{+24}_{-0} h Temperature: 85±2℃
10	Static Humidity	No mechanical damage. Inductance change: within ±10%	Humidity: 90 to 95% RH Temperature: 55±2℃ Testing time: 500^{+24}_{-0} h 

No.	Items	Requirements	Test Methods and Remarks
11	Thermal Shock	No mechanical damage. Inductance change: within ±10%	Temperature: -40℃ for 30±3min +85℃ for 30±3min Transforming interval :max 20 sec Number of cycles: 32 
Note:When there are questions concerning, measurement shall be made after 24±2hrs of recovery under the standard condition.			

6 Packaging

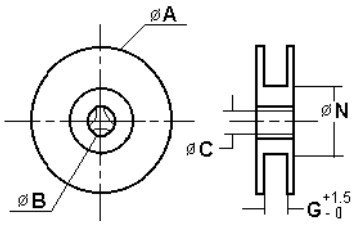
1）Taping drawings



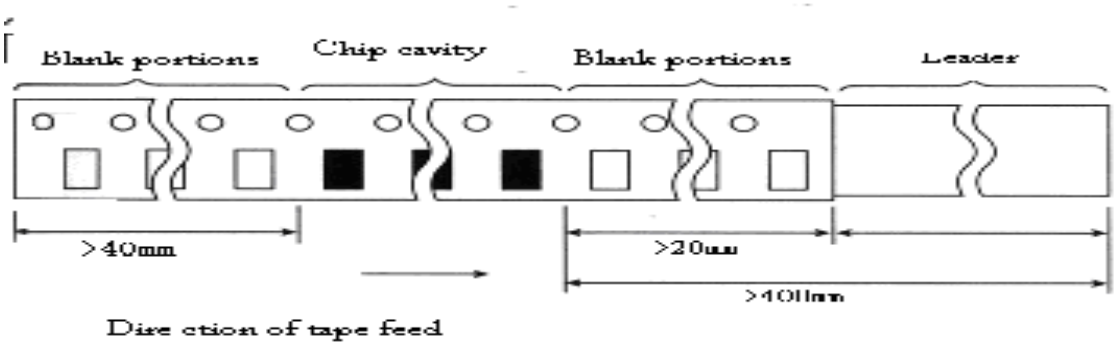


2）Reel dimensions (Unit:mm)

	A	B	C	N	G
CF-8	178 ±2.0	22.0 ±2.0	12.5 ±1.5	57 ±2.0	8
CF-12	330±2 .0	22.0± 2.0	12.5± 1.5	98 ±2.0	1 2

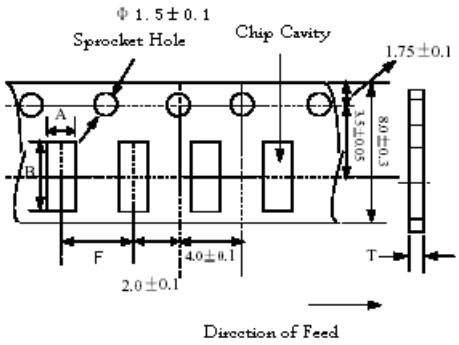


3）Leader and blank portion



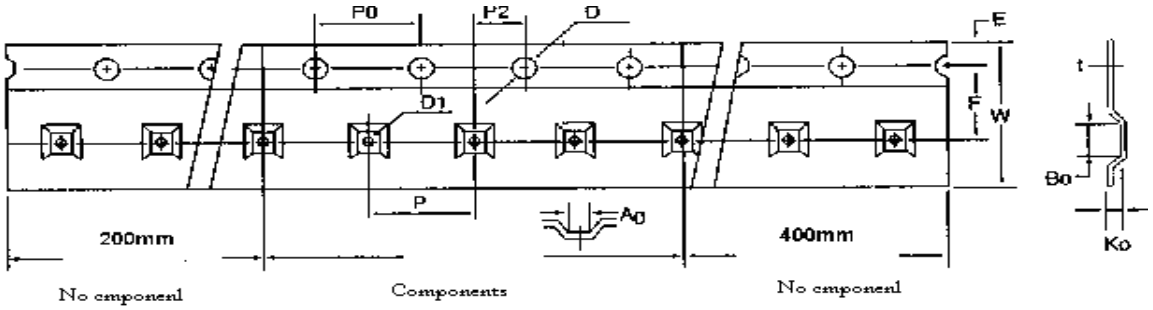
4）Taping dimensions (Unit: mm)

Paper tape



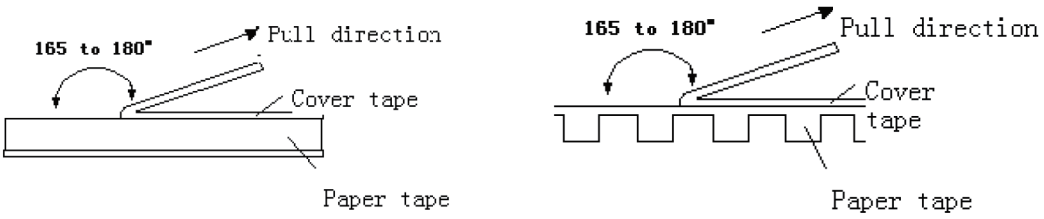
Part NO.	A	B	F	T
160808	1.1±0.2	1.9±0.2	4.0±0.2	1.1max
201209	1.5±0.2	2.3±0.2	4.0±0.2	1.1max
321609	1.9±0.2	3.5±0.2	4.0±0.2	1.1max

5）Embossed tape



	2520
W	8.00+/-0.2
P	4.00+/-0.10
E	1.75+/-0.10
F	3.50+/-0.05
D	1.50+/-0.10
D1	1.00+/-0.10
P_0	4.00+/-0.10
$P_0$10	40.0+/-0.20
P2	2.0+/-0.10
A_0	2.20+/-0.10
B_0	2.75+/-0.10
T	0.23+/-0.05
K_0	1.05+/-0.01

6） **Peeling off force**



① Peeling force should be 0.1~0.7N pulling in the direction of arrow.

② Speed of peeling off: 300mm/min.

③ The cover bond should not be damaged and bond the tape when it peeled off.

7 Recommend Soldering Conditions

1） Soldering Conditions

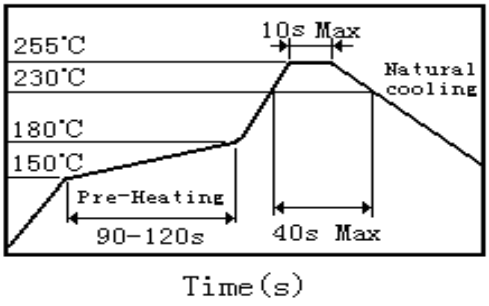
Products can be applied to reflow and flow soldering.

① Soldering conditions

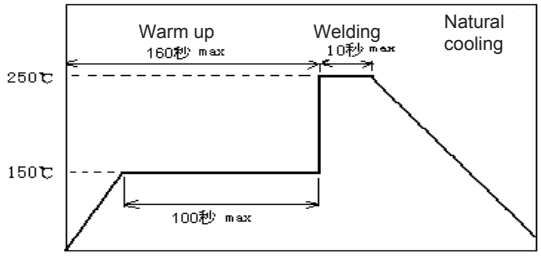
- Pre-heating should be in such a way that the temperature difference between solder and ferrite surface is limited to 150℃ max. Also cooling into solvent after soldering should be in such way that the temperature difference is limited to 100℃ max. Un-enough pre-heating may cause cracks on the ferrite, resulting in the deterioration of product quality.

- Products should be soldered within the following allowable range indicated by the slanted line. The excessive soldering conditions may cause the corrosion of the electrode. When soldering is repeated, allowable time is the accumulated time.

2） **Reflow soldering profile**



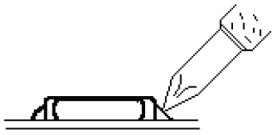
3） **Flow soldering profile**



4） **Iron soldering**

Perform soldering at 350℃ on 30W max.

Soldering Time: < 5S（Take care not to apply the tip of the soldering iron to the terminal electrodes）.



8 Cleaning

1） **Cleaning Conditions**

Cleaning temperature : 60℃ max

Cleaning time: 1 minute min.

Ultrasonic output power: 200W max

9 Storage Requirements

1） **Storage period**

Products which inspected in HONGDA over 6 months ago should be examined and used, which can be Confirmed with inspection No. marked on the container. Solder ability should be checked if this period is exceeded.

2） **Storage conditions**

(1) Products should be storage in the warehouse on the following conditions:

Temperature : -10~+40℃ Humidity: 30~70% relative humidity

(2) Don't keep products in corrosive gases such as sulfur, chlorine gas or acid , or it may case oxidization of Electrodes resulting in poor solder ability.

(3) Products should be storaged on the palette for the prevention of the influence from humidity, dust and so on.

(4) Products should be storaged in the warehouse without heat shock, vibration, direct sunlight and so on.

(5) Products should be storaged under the airtight packaged condition.

10 Usage Of ODS

1）For ODS listed below , we don't use in process。

ODS: CCl_4, HCFC, etc.

11 Notes

（1）If the parcel label on product is "Unitary lead free" that indicate the products in accord with ROHS appointed requests.

（2）This product specification guarantees the quality of our product as a single unit, Please make sure that your product has been evaluated and confirmed against your specifications when our product is mounted to your product.

（3）We can't warrant against failure caused by any use of our product that deviates from the intended use as described in this product specification.