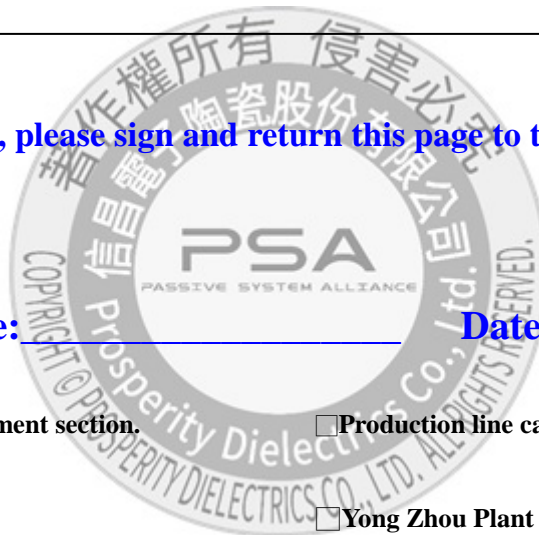


# SPECIFICATION FOR APPROVAL

CUSTOMER	_____
CUST. PART NO.	_____
CUST. DOC. REV.	_____
DESCRIPTION	MOLDED POWER CHOKE (RoHS+H.F.)
SAMPLE LOT NO.	_____
PART NO.	MCS0312-XXXMT1
DOC. REV.	ORIG
DATE	_____

Once you approve this part, please sign and return this page to the following marked location.



Customer Signature: \_\_\_\_\_ Date: \_\_\_\_\_

- This part currently development section.  Production line can produce this series of products.

■ Sales Office-Headquarter

No. 566-1, Kao-Shi Rd., Yangmei, Taoyuan 32668,  
Taiwan  
TEL: +886-3-475-3355  
FAX: +886-3-485-4959

■ Yong Zhou Plant

Tao-Yuan Rd., Fenghuang Park, Lengshuitan  
District, Yongzhou, Hunan 425000, P.R.C.  
TEL: +86-746-8610-180  
FAX: +86-746-8610-181

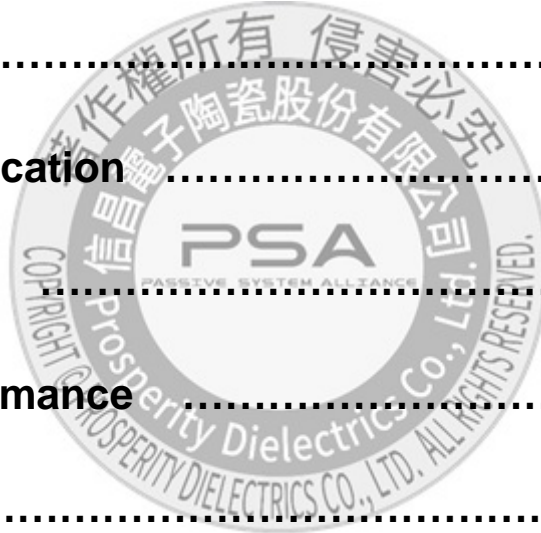
Sales Office-Dong Guan,China

No.638,Mei Jing West Road Xiniupo Administrative  
Zone Dalang Town,Dong Guan City,GuangDong  
Province,China.  
TEL: +86-769-8555-0979  
FAX: +86-769-8555-0972

TESTED BY	CHECKED BY	APPROVED BY

# TABLE OF CONTENTS

INDEX	Page
■ Engineering Change Notice - Record .....	2
■ Part Number Identification .....	3
■ Mechanical Dimension .....	3
■ Marking .....	3
■ Electrical Specification .....	4
■ Electrical Curve .....	5
■ Reliability Performance .....	6 ~ 7
■ Reflow Chart .....	8
■ Packing .....	9
■ Test Report .....	



# SPECIFICATION FOR APPROVAL

<b>CUSTOMER</b>	<b>CUSTOMER P/N</b>	<b>REV.</b> —	<b>SPL. LOT NO.</b>	
<b>PART NAME</b> MOLDED POWER CHOKE(RoHS+H.F.)	<b>PART NO.</b> MCS0312-XXXMT1	<b>REV.</b> ORIG	<b>DATE OF ISSUE</b>	<b>Q'TY</b> 0 PCS

## ENGINEERING CHANGE NOTICE - RECORD

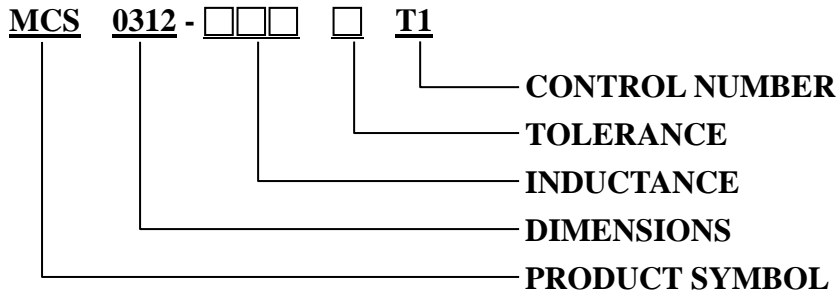
REVISION NO.	REVISION DESCRIPTION	AUTHOR	DATE	REMARK
ORIG		Gary Chang		



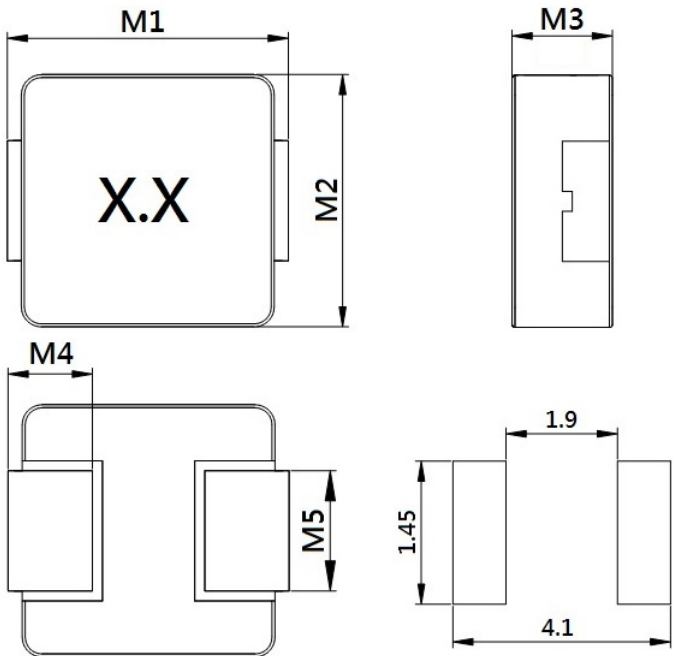
# SPECIFICATION FOR APPROVAL

※This is a RoHS and REACH compliant product whose related documents are available on request.  
 ※Graphic is only for dimensionally application.

## 1. PART NUMBERING IDENTIFICATION



## 2. MECHANICAL DIMENSION



UNIT: mm

	DIM.	TOL.
M1	3.5	±0.2
M2	3.2	±0.2
M3	1.0	±0.2
M4	0.7	±0.2
M5	1.2	±0.2

Recommended Patterns

## 3. MARKING

Marking ex: 1.0uH → 1.0



# SPECIFICATION FOR APPROVAL

## 4. ELECTRICAL SPECIFICATION

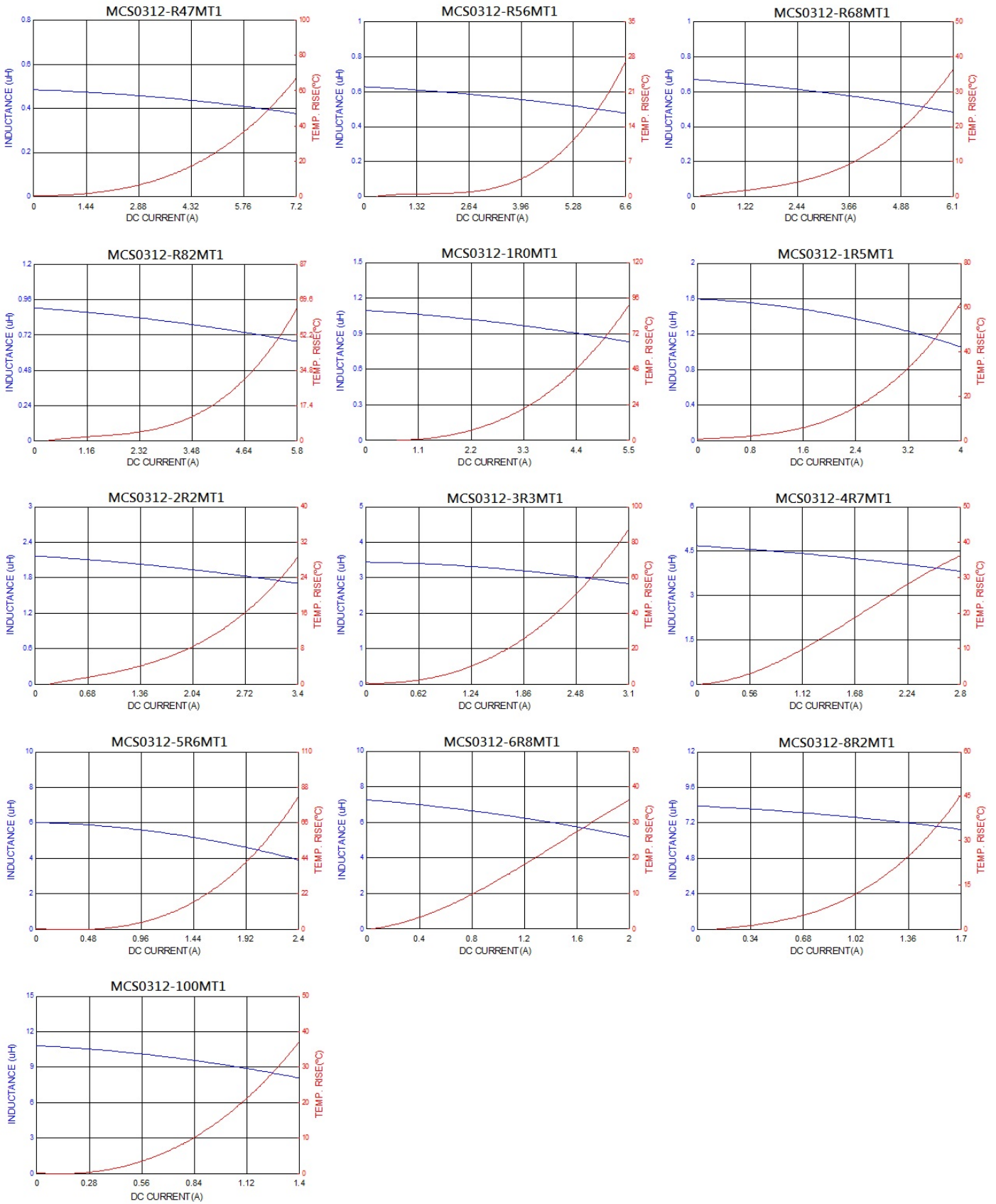
Part Number	Inductance ( $\mu$ H) $\pm 20\%$	DC Resistance ( $m\Omega$ ) Typical	DC Resistance ( $m\Omega$ ) MAX.	I rms (A) Typical	I sat (A) Typical
MCS0312-R47MT1	0.47	25	30	5.0	7.2
MCS0312-R56MT1	0.56	31	36	4.5	6.6
MCS0312-R68MT1	0.68	34	40	4.0	6.1
MCS0312-R82MT1	0.82	41	48	3.5	5.8
MCS0312-1R0MT1	1.00	50	60	3.3	5.5
MCS0312-1R5MT1	1.50	71	85	3.0	4.0
MCS0312-2R2MT1	2.20	98	115	2.7	3.4
MCS0312-3R3MT1	3.30	191	210	2.0	3.1
MCS0312-4R7MT1	4.70	266	293	1.6	2.8
MCS0312-5R6MT1	5.60	310	360	1.5	2.2
MCS0312-6R8MT1	6.80	360	400	1.4	2.0
MCS0312-8R2MT1	8.20	420	463	1.2	1.7
MCS0312-100MT1	10.00	498	550	1.0	1.4

**Note:**

1. Test frequency: 100KHz/1.0V
2. Operating temperature:  $-40\sim+125^{\circ}\text{C}$  (Including self - temperature rise)
3. Storage temperature:
  - 3-1.  $-10\sim+40^{\circ}\text{C}$ , 50~60% RH (Product with taping)
  - 3-2.  $-40\sim+125^{\circ}\text{C}$  (on board)
4. All test data referenced to  $25^{\circ}\text{C}$  ambient.
5. Testing Instrument: Inductance: HP4284A, CH11025, CH3302, CH1320, CH1320S LCR Meter / DC Resistance: CH16502, Agilent33420A Micro ohm meter
6. Heat Rated Current (I rms) will cause the coil temperature rise approximately  $\Delta t$  of  $40^{\circ}\text{C}$
7. Saturation Current (I sat) will cause L0 to drop approximately 30%
8. The part temperature (ambient + temp rise) should not exceed  $125^{\circ}\text{C}$  under worst case operating conditions. Circuit design, component, PCB trace size and thickness, airflow and other cooling provisions all affect the part temperature. Part temperature should be verified in the end application
9. MSL: Level 1

# SPECIFICATION FOR APPROVAL

## 5. ELECTRICAL CURVE



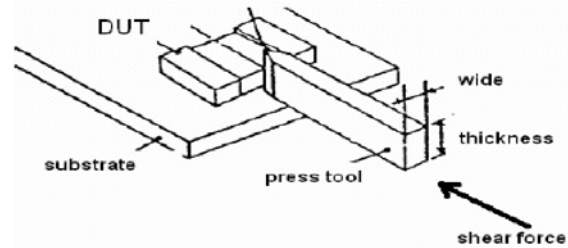
# SPECIFICATION FOR APPROVAL

## 6. RELIABILITY PERFORMANCE

Item	Performance	Test Condition
Life Test		<p><b>Preconditioning:</b> Run through IR reflow for 2 times.(IPC/JEDECJ-STD-020DClassification Reflow Profiles)  <b>Temperature:</b> 125±2°C (Inductor)  <b>Applied current:</b> rated current  <b>Duration:</b> 1000±12hrs                      Measured at room temperature after placing for 24±2 hrs.</p>
Load Humidity		<p><b>Preconditioning:</b> Run through IR reflow for 2 times.(IPC/JEDECJ-STD-020DClassification Reflow Profiles)  <b>Humidity:</b> 85±2% R.H,  <b>Temperature:</b> 85°C±2°C  <b>Duration:</b> 1000hrs Min. with 100% rated current                      Measured at room temperature after placing for 24±2 hrs.</p>
Moisture Resistance	<p><b>Appearance:</b> No damage.  <b>Impedance:</b> within±15% of initial value  <b>Inductance:</b> within±10% of initial value  <b>Q:</b> Shall not exceed the specification value.  <b>RDC:</b> within ±15% of initial value and shall not exceed the specification value</p>	<p><b>Preconditioning:</b> Run through IR reflow for 2 times.(IPC/JEDECJ-STD-020DClassification Reflow Profiles)                      1. Baked at 50°C for 25hrs, measured at room temperature after placing for 4 hrs.                      2. Raise temperature to 65±2°C 90-100%RH in 2.5hrs, and keep 3 hours, cool down to 25°C in 2.5hrs.                      3. Raise temperature to 65±2°C 90-100%RH in 2.5hrs, and keep 3 hours, cool down to 25°C in 2.5hrs,keep at 25°C for 2 hrs then keep at -10°C for 3 hrs                      4. Keep at 25°C 80-100%RH for 15min and vibrate at the frequency of 10 to 55 Hz to 10 Hz, measure at room temperature after placing for 1~2 hrs.</p>
Thermal shock		<p><b>Preconditioning:</b> Run through IR reflow for 2 times.(IPC/JEDECJ-STD-020DClassification Reflow Profiles)  <b>Condition for 1 cycle</b>  <b>Step1:</b> -55±2°C 30±5min  <b>Step2:</b> 25±2°C ≤0.5min  <b>Step3:</b> 125±2°C 30±5min  <b>Number of cycles:</b> 500                      Measured at room femprature after placing for 24±2 hrs.</p>
Vibration		<p><b>Preconditioning:</b> Run through IR reflow for 2 times.(IPC/JEDECJ-STD-020DClassification Reflow Profiles)  <b>Oscillation Frequency:</b> 10~2K~10Hz for 20 minutes  <b>Equipment:</b> Vibration checker  <b>Total Amplitude:</b>1.52mm±10%  <b>Testing Time:</b> 12 hours(20 minutes, 12 cycles each of 3 orientations)</p>

# SPECIFICATION FOR APPROVAL

Item	Performance	Test Condition															
Bending	Appearance: No damage. Impedance: within±15% of initial value Inductance: within±10% of initial value Q: Shall not exceed the specification value. RDC: within ±15% of initial value and shall not exceed the specification value	Shall be mounted on a FR4 substrate of the following dimensions: ≥0805 inch(2012mm):40x100x1.2mm <0805 inch(2012mm):40x100x0.8mm Bending depth: ≥0805 inch(2012mm):1.2mm <0805 inch(2012mm):0.8mm duration of 10 sec.															
Shock	RDC: within ±15% of initial value and shall not exceed the specification value	<table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <thead> <tr> <th>Type</th> <th>Peak value (g's)</th> <th>Normal duration (D) (ms)</th> <th>Wave form</th> <th>Velocity change (V)ft/sec</th> </tr> </thead> <tbody> <tr> <td>SMD</td> <td>50</td> <td>11</td> <td>Half-sine</td> <td>11.3</td> </tr> <tr> <td>Lead</td> <td>50</td> <td>11</td> <td>Half-sine</td> <td>11.3</td> </tr> </tbody> </table>	Type	Peak value (g's)	Normal duration (D) (ms)	Wave form	Velocity change (V)ft/sec	SMD	50	11	Half-sine	11.3	Lead	50	11	Half-sine	11.3
Type	Peak value (g's)	Normal duration (D) (ms)	Wave form	Velocity change (V)ft/sec													
SMD	50	11	Half-sine	11.3													
Lead	50	11	Half-sine	11.3													
Solder ability	More than 95% of the terminal electrode should be covered with solder	Preheat: 150°C,60sec. Solder: Sn96.5% Ag3% Cu0.5% Temperature: 245±5°C Flux for lead free: Rosin. 9.5% Dip time: 4±1sec Depth: completely cover the termination															
Resistance to Soldering Heat		Depth: completely cover the termination <table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <thead> <tr> <th>Temperature(°C)</th> <th>Time(s)</th> <th>Temperature ramp/immersion and emersion rate</th> <th>Number of heat cycles</th> </tr> </thead> <tbody> <tr> <td>260 ±5 (solder temp)</td> <td>10±1</td> <td>25mm/s ±6 mm/s</td> <td>1</td> </tr> </tbody> </table>	Temperature(°C)	Time(s)	Temperature ramp/immersion and emersion rate	Number of heat cycles	260 ±5 (solder temp)	10±1	25mm/s ±6 mm/s	1							
Temperature(°C)	Time(s)	Temperature ramp/immersion and emersion rate	Number of heat cycles														
260 ±5 (solder temp)	10±1	25mm/s ±6 mm/s	1														
Terminal Strength	Appearance: No damage. Impedance: within±15% of initial value Inductance: within±10% of initial value Q: Shall not exceed the specification value. RDC: within ±15% of initial value and shall not exceed the specification value	Preconditioning: Run through IR reflow for 2 times.(IPC/JEDEC J-STD-020DClassification Reflow Profiles) With the component mounted on a PCB with the device to be tested, apply a force (>0805: 1kg, <=0805:0.5kg) to the side of a device being tested. This force shall be applied for 60 +1 seconds. Also the force shall be applied gradually as not to apply a shock to the component being tested.															

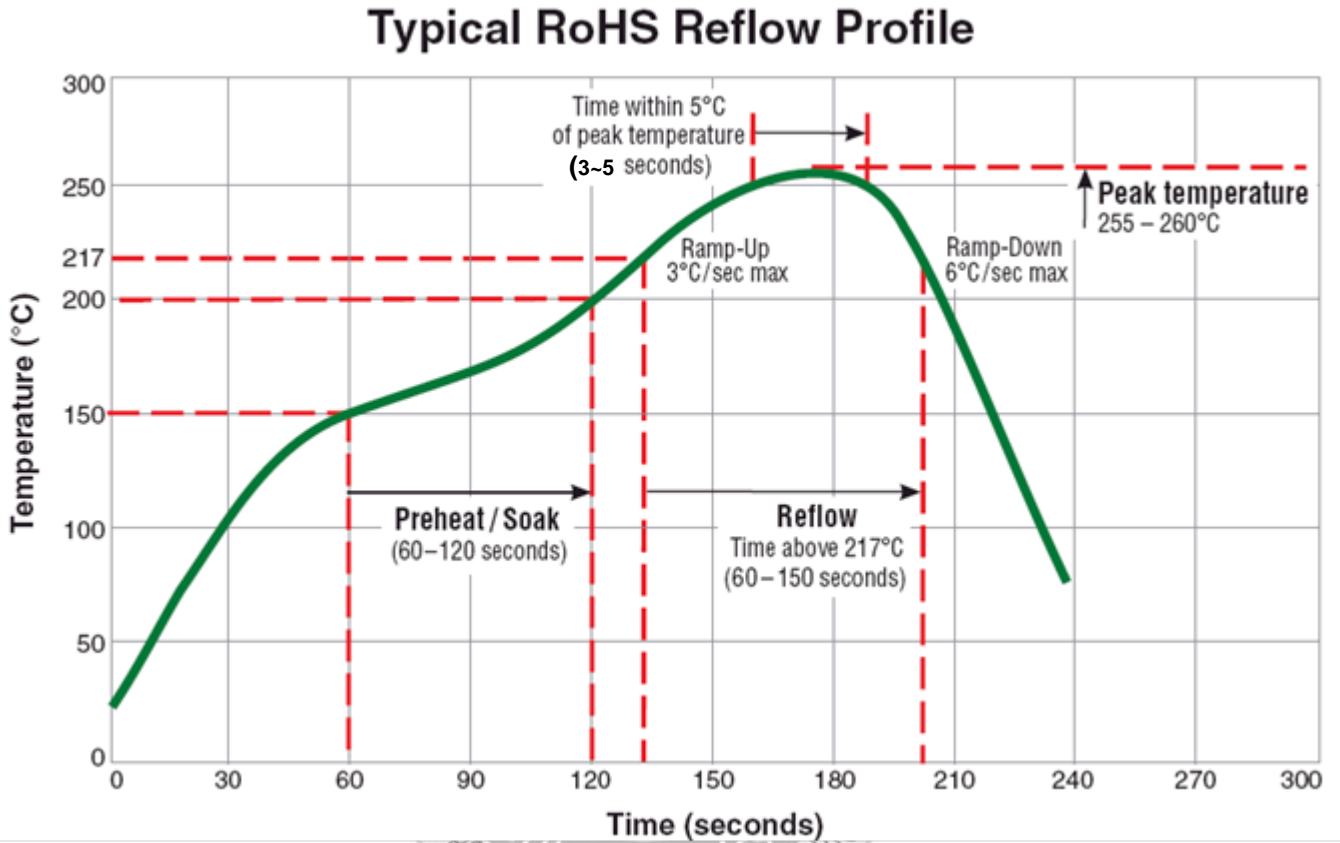


**Note:** When there are questions concerning measurement result: measurement shall be made after 48±2 hours of recovery under the standard condition.



# SPECIFICATION FOR APPROVAL

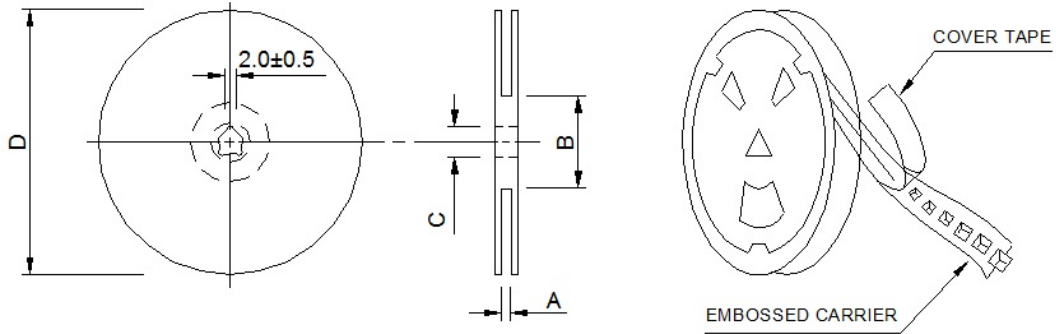
## 7. TYPICAL RoHS REFLOW PROFILE



# SPECIFICATION FOR APPROVAL

## 8. PACKING

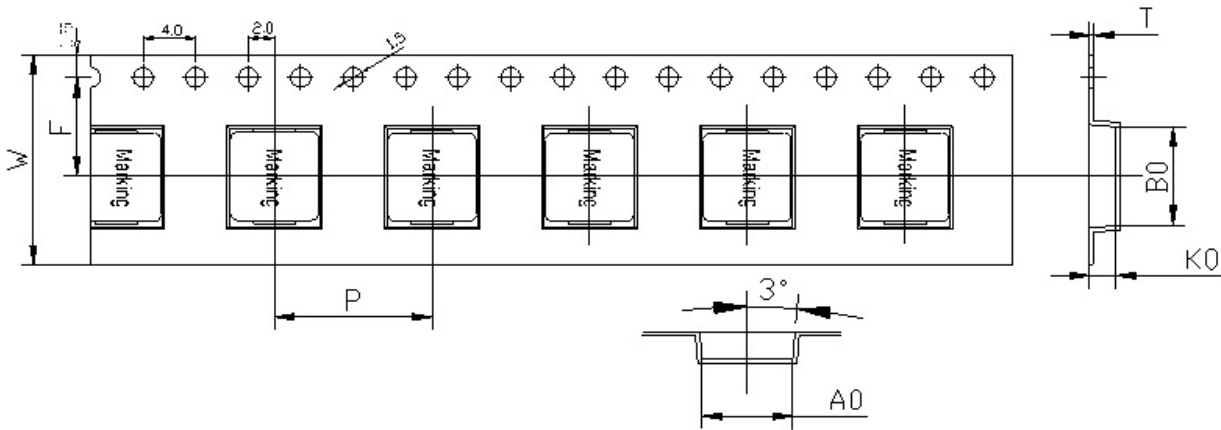
### 8-1 Reel Dimension



UNIT: mm

A	B	C	D
12.4+2/-0	100±2	13+0.5/-0.2	330

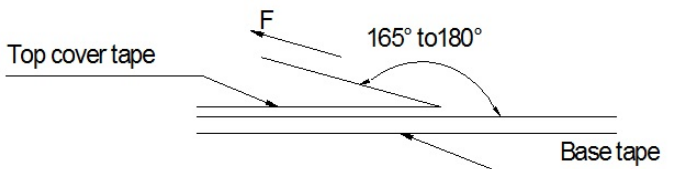
### 8-2 Tape Dimension



UNIT: mm

Bo	Ao	Ko	P	W	F	T
3.8±0.1	3.5±0.1	1.5±0.1	8.0±0.1	12±0.3	5.5±0.1	0.35±0.05

### 8-3 Tearing Off Force



The force for tearing off cover tape is 10 to 130 grams in the arrow direction under the following conditions (referenced ANSI/EIA-481-D-2008 of 4.11 standard).

Room Temp. (°C)	Room Humidity (%)	Room atm (hPa)	Tearing Speed mm/min
5~35	45~85	860~1060	300

### 8-4 Packaging Quantity

Chip/Reel	4000
Inner box	8000
Carton	32000