



DEVELOPMENT SPECIFICATION

PRODUCT: TEMPERATURE COMPENSATED CRYSTAL OSCILLATOR

FREQUENCY: 20.950MHz

VOLTAGE: 5V

PARTS NO. VCT53-CSD50-20.95M

CUSTOMER'S P/N

Version	1.0 Aug.03,2006	MACROBIZES CO., LTD. Tel: +86 518 5816415 Fax:+86 518 5814745 www.macrobizes.com
Approved by		
Checked by		
Designed by		



1. SCOPE This specification relates to the crystal clock oscillator to be supplied by MACROBIZES.

2. CHARACTERISTICS

2-1.GENERAL

Parameter	Condition	Min.	Typ.	Max.	Unit
Output frequency			20.950		MHz
Supply voltage(Vcc)		5			V
Vcont Maximum Rating		0		Vcc	V
Operating Temperature		-30	25	75	°C
Storage Temperature		-40		85	°C
Output Load		10Kohm // 10pF±10%			

2-2.FREQUENCY AND ELECTRICAL CHARACTERISTICS (Vcc=2.8~5.0V Vcont=0~ Vcc Ta=25°C Load=10Kohm//10pF)

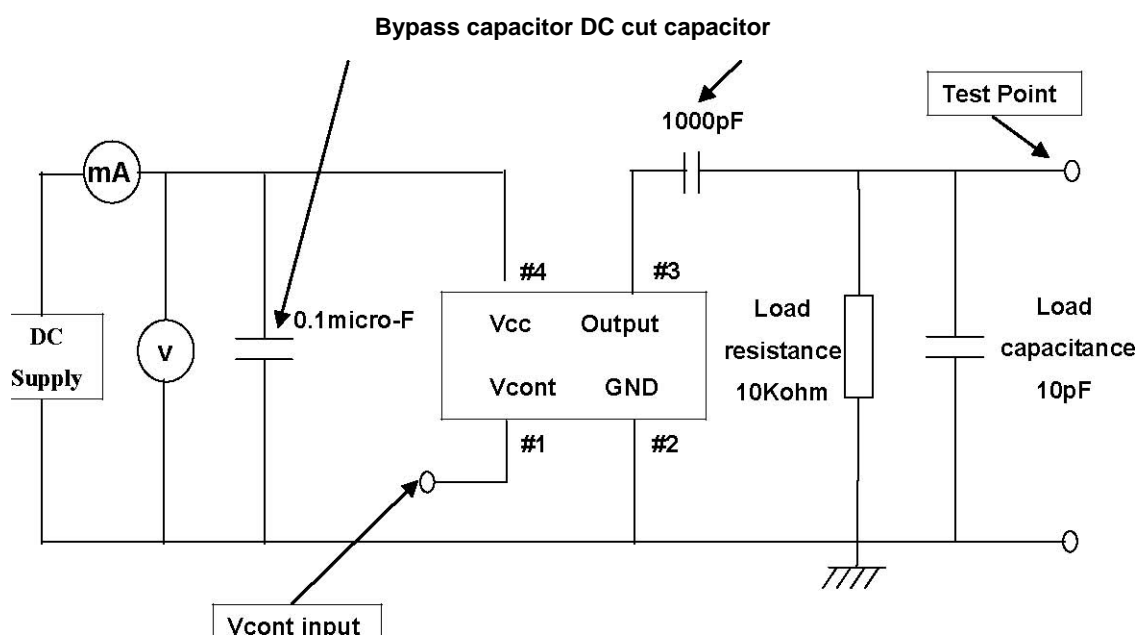
Parameter	Condition	Min.	Typ.	Max.	Unit
Frequency Tolerance	25±2°C	Before reflow	-1.5	+1.5	ppm
		After twice reflow	-2.5	+2.5	ppm
Frequency Stability	-30~75°C	-5.0		+5.0	ppm
Frequency/Voltage coefficient	Vcc±5%	-0.3		+0.3	ppm
Frequency/Load	10Kohm // 10pF±10%	-0.3		+0.3	ppm
Aging	25°C/year	-1.0		+1.0	ppm
Frequency Adjustment	Referenced to Vcont=0~Vcc	Vcont=0~+Vcc	+0	+12	ppm
		Vcont=0~-Vcc	-12	0	ppm
Start Up Time	<±2.5ppm			2	msec

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Power Supply Current				20	mA
Output Level	Peak to peak Voltage	0.8			V
Harmonics				-10	dBc
Input Impedance	Vcont	1			Mohm
Phase Noise	Ta=25°C 100Hz offset			-110	dBc/Hz
	Ta=25°C 1KHz offset			-130	dBc/Hz

2-3.TEST CIRCUIT



- 1 The load capacitor includes stray capacitance on the board and probe capacitance.
- 2 Please use DC supply whose rise time(0 to 90%Vcc) is less than 500 micro-seconds. **Note: DC-cut capacitor of output is not put in VC-TCXO. Please add DC-cut capacitor (1000 to 10000pF) in output line, if it is necessary.**

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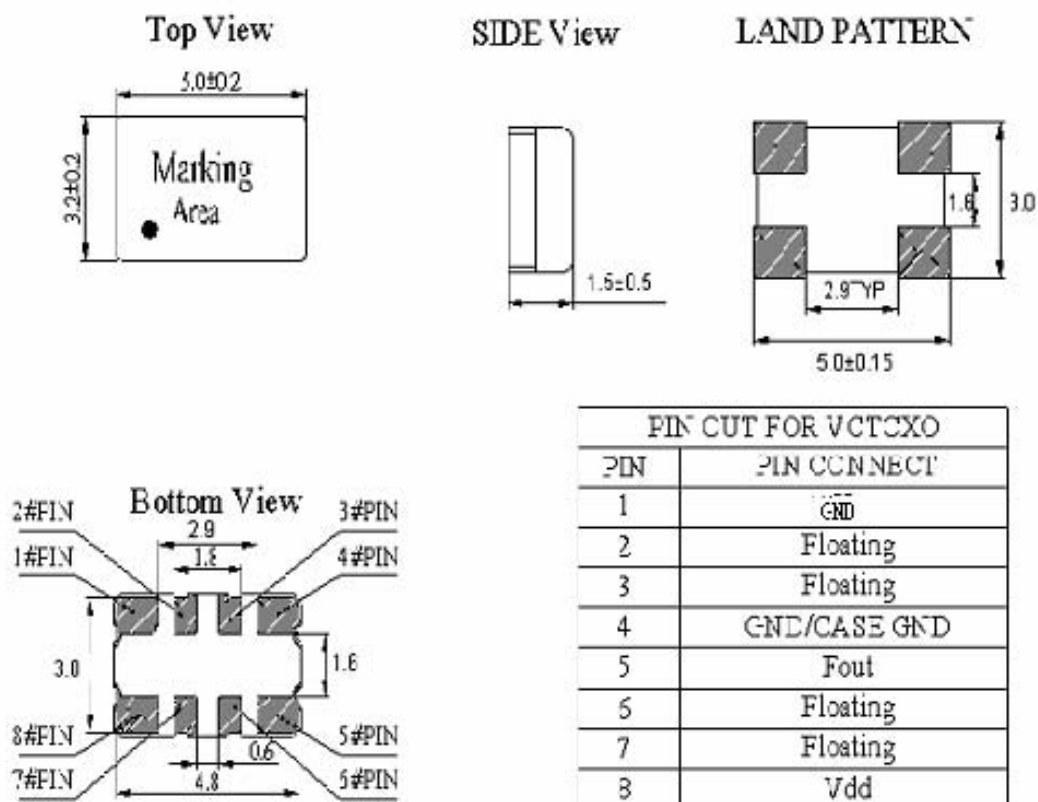
2-4.ENVIRONMENTAL AND MECHANICAL CHARACTERISTICS The following are our reliability test conditions and criteria.

Item	Test Method	Criteria
High Temp. Storage	+85℃ , NO BIAS ,1000hr	Any variation between the pre-test and post-test frequencies shall remain within±2ppm
Low Temp. Storage	-40℃ , NO BIAS ,1000hr	
Temperature Cycle	-40~85℃ 1hr/cycle 1000cycles(NO BIAS)	
High Temp. Humidity Storage	+85℃ 90~95%RH NO BIAS 1000hr	
Vibration	1.5mm 10Hz ~ 55Hz ~ 10Hz 1min./cycle 2hr/ X,Y,Z direction	
Shock	980M/s ² (1000G) 0.5msec. half sine 3 direction for a time, for 3 times in total	
Drop	160g load (print circuit board etc.) with the sample in any attitude and drop it for 3 times from a height of 75cm onto a concrete in each of the X,Y,Z directions, for 9 times in total	
Resistance to Soldering Heat	IR reflow 255±5℃ 10 sec. 2 times	
solderability	Dip into 230±5 , solder bath for 5sec.	90% of the dipped terminal is soldered

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3 DIMENSIONS AND MARKING (Dimensions) (UNIT mm)



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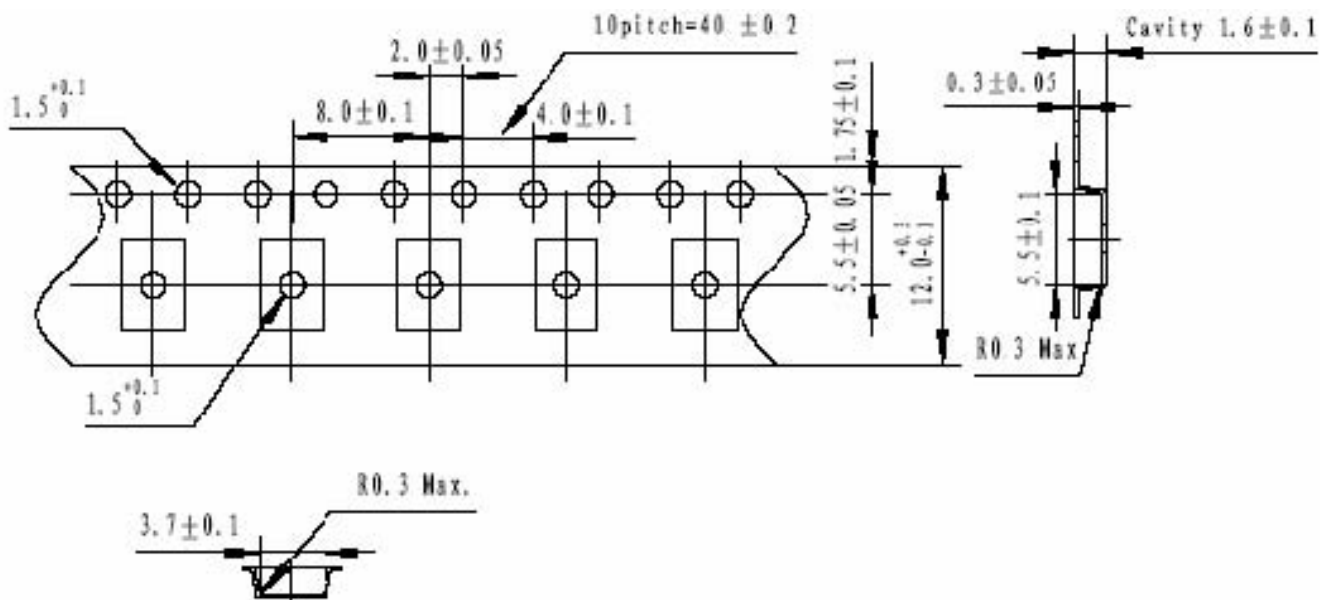


4 TAPE AND REEL PACKING

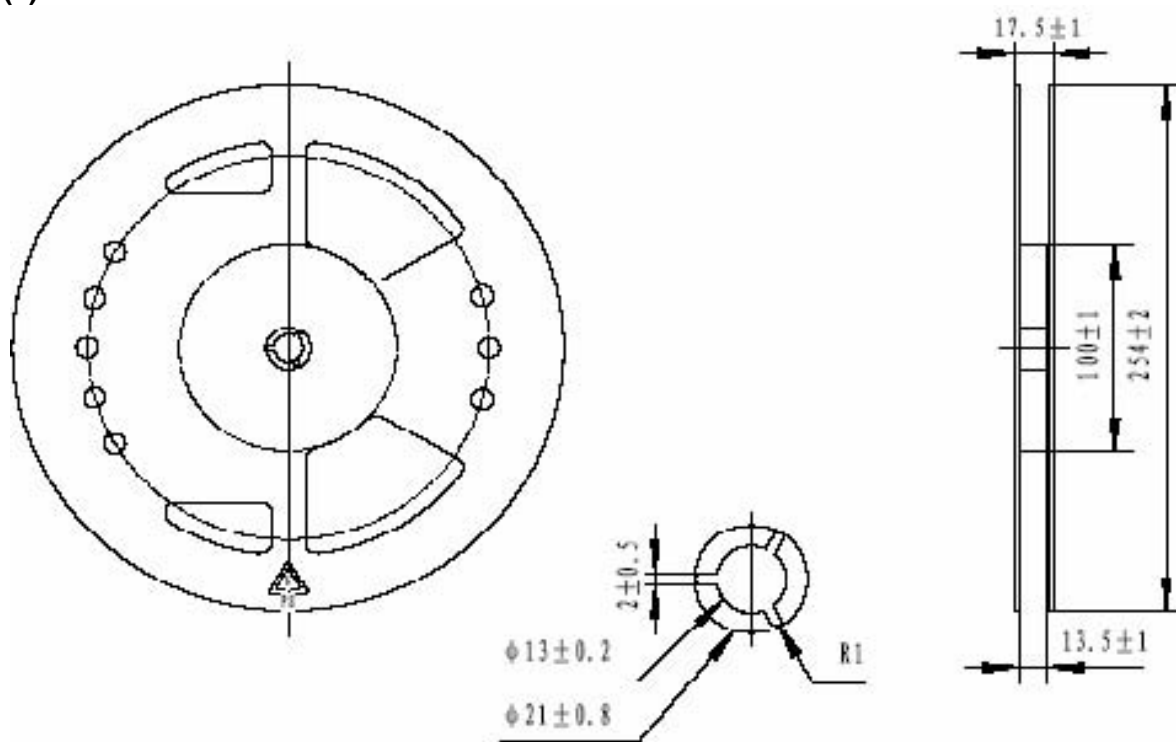
4-1. TAPING SPECIFICATION

Subject to 481A & JIS C 0806

(1) Tape Dimensions Material of Carrier Tape: Black conductive PS



(2) Reel Dimensions Material of the Reel: PS



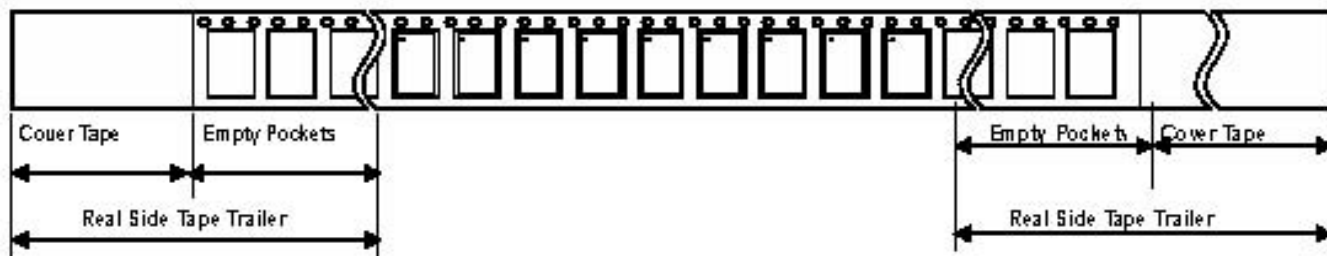
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(3) Packing

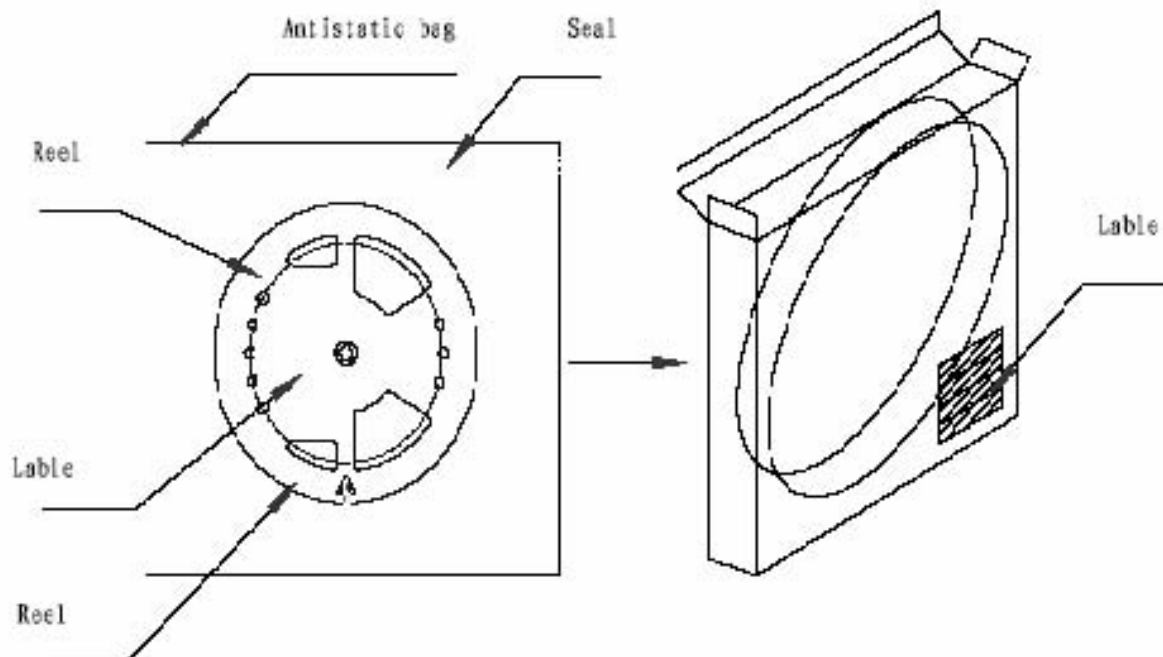
User Direction of Feed

End



Item		Empty Space
Tape Leader	Cover Tape	Min.500mm
	Empty Pockets	Min.20 Pockets
Tape Trailer	Cover Tape	Min.0mm
	Empty Pockets	Min.40mm

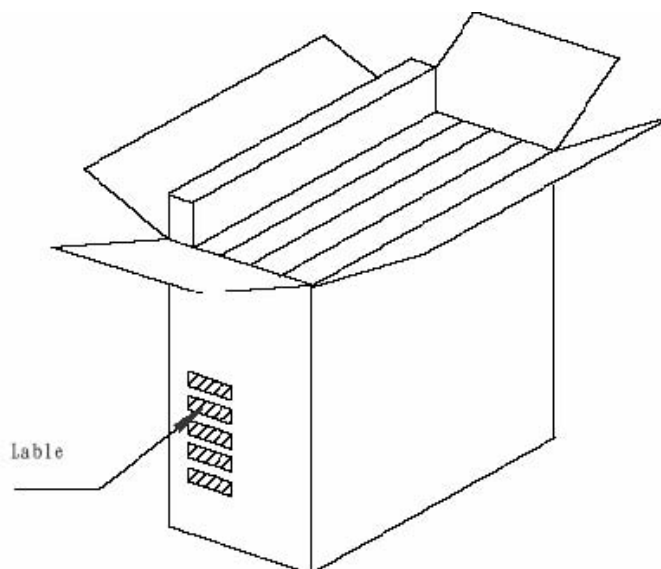
4-2. INNER CARTON



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4-3. OUTER CARTON



4-4.MARKING

(1)Marking Labels are affixed to reel, inner carton and outer carton.

(2)Each label contains the following information.

- (a) Manufacturer's name or symbol
- (b) Parts name or type
- (c) Frequency
- (d) Quantity
- (e) Reel number
- (f) Manufacturer's code (EIAJ code)

4-5 QUANTITY

2000pcs/reel (max. 5 reels in outer carton)

4-6.STORAGE ENVIRONMENT

- ▣ Storage the reel at normal temperature and humidity
- ▣ Open the packing just before using
- ▣ Do not expose the sun
- ▣ Do not storage with some erosive chemicals
- ▣ Nothing is allowed to put on the reel or carton to prevent mechanical damage

4-7.HANDLING

- ▣ Handle with care to prevent the damage of tape ,reel and products

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5. NOTES

5-1. HANDLING

(ELECTROSTATIC DISCHARGES)

This device contains a CMOS IC. Please take precautionary measures against ESD damage.

(SHOCK RELIABILITY)

This device contains a quartz crystal, so please do not give too much shock or vibration. Surface mounters can be used for assembling, but be sure to check your machine conditions before using them.

(ULTRASONIC CLEANING)

Also be sure to check your cleaning condition of ultrasonic cleaning apparatus.

(TEMPRRATURE AND HUMIDITY)

We recommend to store and use device under normal temperature and humidity for frequency stability. Condensation may cause this device damages.

5-2. CIRCUIT DESIGNS

(POWER LINES)

Bypass capacitor(0.1micro-F) should be connected to Vcc .

Please use DC supply whose rise time (0 to 90%Vcc) is less than 500 micro-seconds.

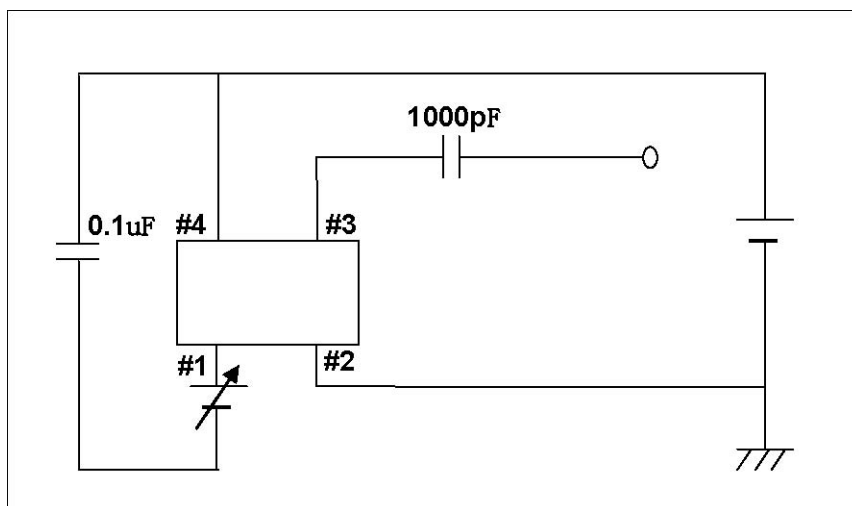
(OUTPUT LINE)

DC cut capacitor (1000pF) should be connected to Output.

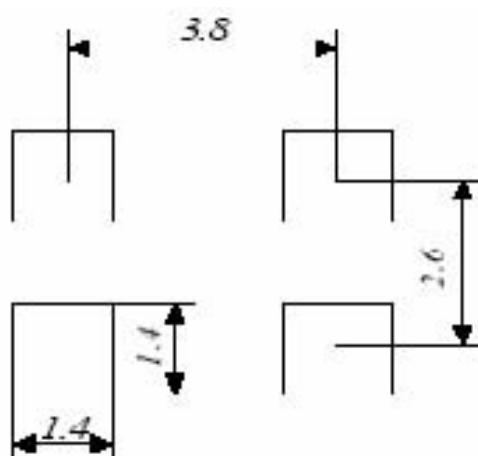
As a long output line may cause irregular output, please take care to design that output line is as short as possible, and also keep high level signal source away from this device.

(RECOMMENDED CIRCUIT)

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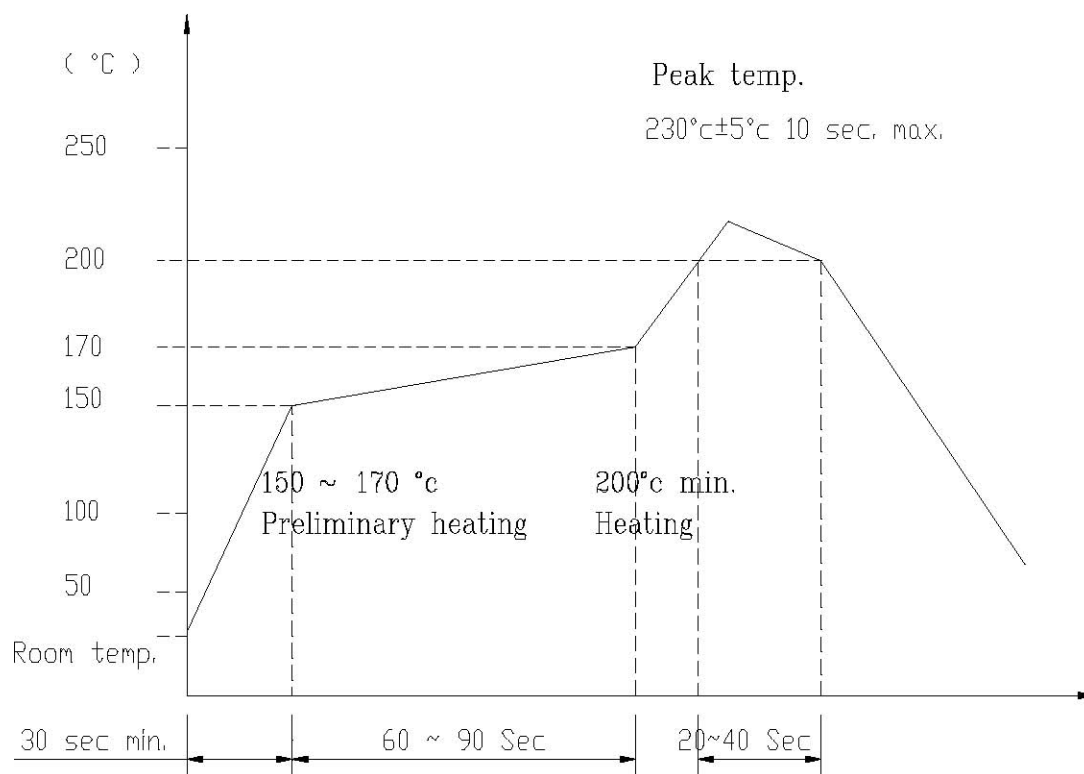


(RECOMMENDED LAND PATTERN)



(INFRARED REFLOW TEMP . PROFILE)

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