

Harvatek Surface Mount CHIP LEDs Approval Sheet
Model No.: HT-T3A8BP-K519

Official Product	HT Part No. HT-T3A8BP-K519	Your Part No.		Data Sheet No.
Tentative Product	*****	*****		
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INTRODUCTION.....	3
ATTENTION: ELECTRICSTATIC DISCHARGE (ESD) PROTECTION	4
LABEL SPEC.:.....	5
BIN CODE.....	6
ELECTRO-OPTICAL CHARACTERISTICS.....	8
PACKAGE OUTLINE DIMENSION AND RECOMMENDED SOLDERING PATTERN FOR REFLOW SOLDERING.....	8
ABSOLUTE MAXIMUM RATINGS.....	8
CHARACTERISTICS OF HT-T3A8BP SERIES	9
PACKAGING TAPE, REEL, AND PACKING MODEL.....	10
TAPE DIMENSION.....	10
REEL DIMENSION	10
PRECAUTION OF APPLICATION	11
DESIGNING 1: SOLDERING PATTERN.....	11
DESIGNING 2: CIRCUIT LAYOUT	11
DESIGNING 3: MAX RATING.....	11
DRY PACK	11
THE PACKAGE.....	12
STORAGE	12
BAKING	12
SOLDERING	12
HANDLING OF SILICONE RESIN LEDS.....	13
REFLOW SOLDERING.....	14
CLEANING.....	14
CAUTIONS OF PICK AND PLACE.....	14

Official Product	HT Part No. HT-T3A8BP-K519	Your Part No.		Data Sheet No.
Tentative Product	*****	*****		
Specifications are subject to changes for improvement without advance notice. Proprietary data, drawings, company confidential all rights reserved.		2008/3/27	Version of 2.0	Page 2/14

Introduction

- *The information contained herein is presented only as a guide for the applications of our products. No responsibility is assumed by HARVATEK for any infringements of intellectual property or other rights of the third parties which may result from it use.*
- *Harvatek is continually effort to improve the quality of its products. Nevertheless, semiconductor devices in general can malfunction or fail due to their inherent electrical sensitivity and vulnerability to physical stress. It is the responsibility of the buyer, when utilizing HARVATEK products, to comply with the standards of safety in making a safe design for the entire system, and to avoid situations in which a malfunction or failure of such HARVATEK products cause loss of human life, bodily injury or damage to property.*
- *The HARVATEK products listed in this document are intended for usage in general electronics (computer, personal equipment, office equipment, industrial robotics, domestic, etc...) These products are neither intended nor warranted for usage in equipment that requires extraordinarily high quality and/or reliability or a malfunction or failure of which may cause loss of human life or bodily injury.*
- *In developing your designs, please ensure that HARVATEK products are used within specified operating ranges as set forth in the most recent HARVATEK products specifications.*
- *Also, please keep in mind the precautions listed in this document.*

Official Product	HT Part No. HT-T3A8BP-K519	Your Part No.		Data Sheet No.
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Product Specification

	Specification	Material	Quantity
Iv	2650-7250mcd Each chip@20mA Ta= 25° C Tolerance±10%		
Chromaticity Coordinates	Refer to page 6~7 Each chip@20mA/ Ta= 25° C		
Vf	White:2.8-3.8V(0.1v/Bin) Each chip@20mA Tolerance±0.05V		
Ir	Each chip:<10uA@Vr = 5V		
Resin	Yellow	Silicon	
Carrier tape	According to EIA 481-1A specs	Conductive black tape	1000pcs per reel
Reel	According to EIA 481-1A specs	Conductive black	
Label	HT standard	Paper	
Packing bag	220x240mm	Aluminum laminated bag/ no-zipper	One reel one bag
Carton	HT standard	Paper	Non-specified

Others:

Every mid-box will be loaded 5 reels. These 5 reels can be different in lot, Iv, lambda, or Vf. Every reel will have an independent label to identify its specification and the mid-box there will have a corresponding label post on it.

ATTENTION: Electricstatic Discharge (ESD) protection









The symbol shown on the page herein to introduce 'Electro-Optical Characteristics'. ESD protection for GaP and AlGaAs based chips is still necessary even though they are safe in low static-electric discharge. Material in AlInGaP, GaN, or/and InGaP based chips are **STATIC SENSITIVE devices**. ESD protection has to considered and taken in the initial design stage.

If manual work/process is needed, please ensure the device is well protective from ESD during all the process.

Official Product	HT Part No. HT-T3A8BP-K519	Your Part No.	Data Sheet No.
Tentative Product	*****	*****	
Specifications are subject to changes for improvement without advance notice. Proprietary data, drawings, company confidential all rights reserved.		2008/3/27	Version of 2.0
			Page 4/14

Label Spec.:

HARVATEK		DATE: dd/mm/yyyy		
CUSTOMER P/N:				
HARVATEK P/N:		QTY:	PCS	
				
LOT NO:		QC:		
		VF:		
IV BIN:		COLOR BIN:		

■ Customer P/N: To Be Defined

■ Harvatek P/N

H T - T 3 A 8 BP-K519



Series Name	Emitting Color
HT-T3A8: 5.4*5.0*1.5mm (Ceramics)	BP: White Each chip @ 20mA Kxxx Product code

■ Lot No.

1 2 3 4 5 6 7 8 9 10
P 1 2 2 3 0 A - D T

Code 1	Code 2	Code 3	Code 4, 5	Code 6, 7	Code 9	Code 10
	Mfg. Year	Mfg. Month	Mfg. Date	Lots	Resin Color	Packaging
Internal Tracing Code	Z: 2000 1: 2001 2: 2002 3: 2003	1: Jan. 2: Feb. 9: Sep. A: Oct. B: Nov. C: Dec.	1~31/ (30)	01~99, A,B,C...	D: Milky White	T: Taped Reel

Official Product	HT Part No. HT-T3A8BP-K519	Your Part No.	Data Sheet No.
Tentative Product	*****	*****	
Specifications are subject to changes for improvement without advance notice. Proprietary data, drawings, company confidential all rights reserved.		2008/3/27	Version of 2.0
			Page 5/14

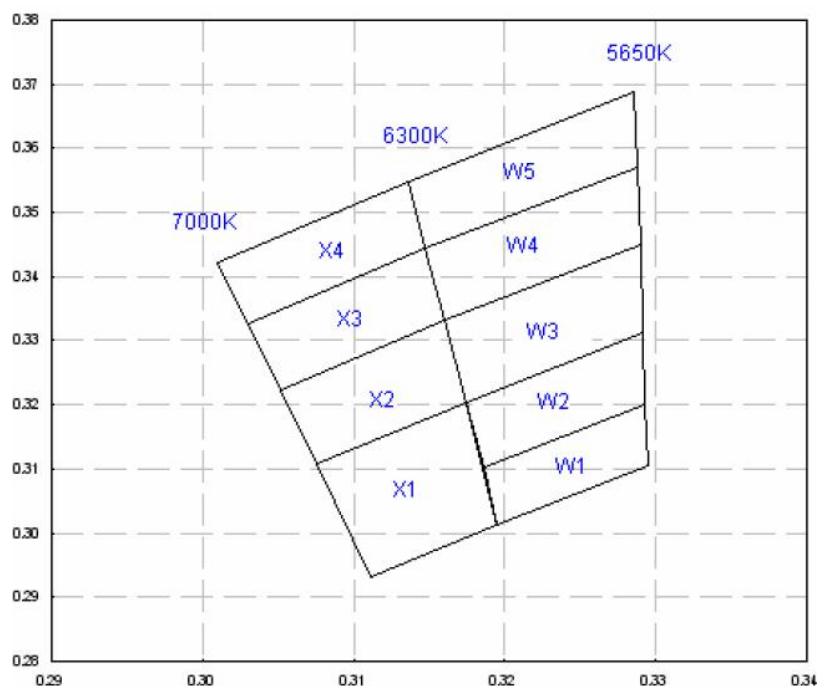
BIN CODE

■ Iv bin:

Color	Bin Code	Spec. Range
White	ZL	2650-3250mcd
	ZM	3250-3950mcd
	ZN	3950-4850mcd
	ZO	4850-5950mcd
	ZP	5950-7250mcd

Luminous Intensity Measurement Allowance is $\pm 10\%$

■ Color Bin:



Official Product	HT Part No. HT-T3A8BP-K519	Your Part No.	Data Sheet No.
Tentative Product	*****	*****	
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			Page 6/14

■ Vf Bin:

Color	Bin Code	Spec. Range
White	H1	2.8-2.9V
	H2	2.9-3.0V
	H3	3.0-3.1V
	H4	3.1-3.2V
	J1	3.2-3.3V
	J2	3.3-3.4V
	J3	3.4-3.5V
	J4	3.5-3.6V
	K1	3.6-3.7V
	K2	3.7-3.8V

Forward Voltage Measurement Allowance is $\pm 0.05V$

Official Product	HT Part No. HT-T3A8BP-K519	Your Part No.		Data Sheet No.
Tentative Product	*****	*****		
Specifications are subject to changes for improvement without advance notice. Proprietary data, drawings, company confidential all rights reserved.		2008/3/27	Version of 2.0	Page 7/14

Electro-Optical Characteristics

(Each chip @ 20mA, T_a 25 °C)

Code for parts	Lighting Color	Material	V _F (V)		λ(nm)			I _V (mcd)
			typ	max	λ _D	λ _P	Δλ	Min
HT-T3A8BP-xxxx	White	InGaN	3.2	3.7	x(typ.)=0.30 y(typ.)=0.31	-	-	3600

Package Outline Dimension and Recommended Soldering Pattern for Reflow Soldering

Unit: mm Tolerance: +/-0.25

Outline Dim.	Soldering Pattern

Soldering terminal may shift in x, y direction.

Absolute Maximum Ratings

(T_a 25 °C)

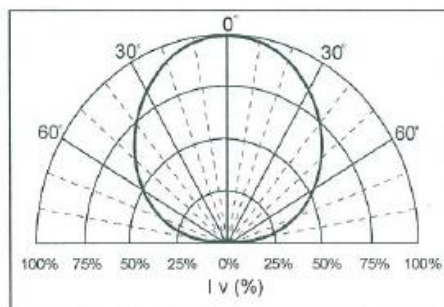
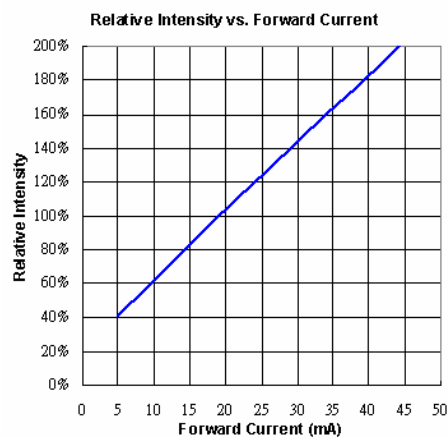
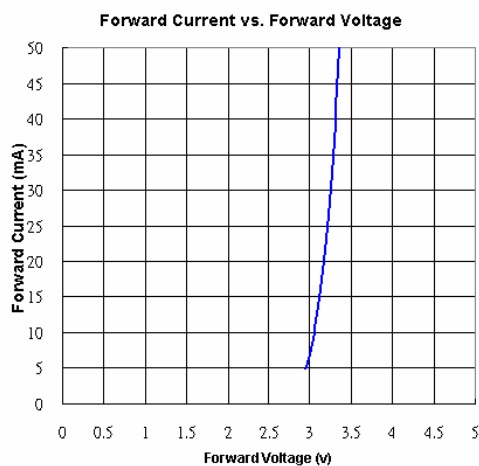
Series	Color	P _d (mW)	I _F (mA)*	I _{FP} (mA)**	V _R (V)	I _R (uA)	T _{OP} (°C)	T _{ST} (°C)
HT-T3A8BP	White	111	30	100**	5	<10@ V _R = 5	-40~+85	-40~+100

* each chip

** Condition for I_{FP} is pulse of 1/10 duty and 0.1msec width

Official Product	HT Part No. HT-T3A8BP-K519	Your Part No.		Data Sheet No.
Tentative Product	*****	*****		
Specifications are subject to changes for improvement without advance notice. Proprietary data, drawings, company confidential all rights reserved.		2008/3/27	Version of 2.0	Page 8/14

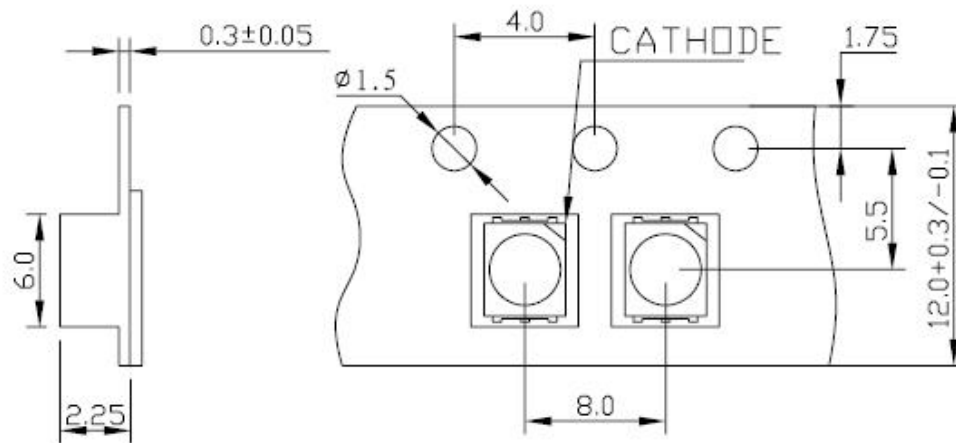
Characteristics of HT-T3A8BP Series



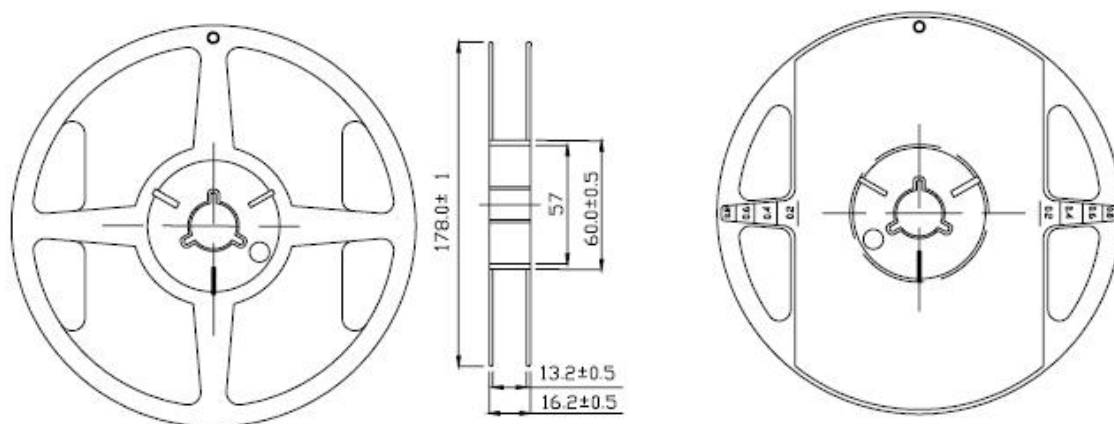
Official Product	HT Part No. HT-T3A8BP-K519	Your Part No.		Data Sheet No.
Tentative Product	*****	*****		
Specifications are subject to changes for improvement without advance notice. Proprietary data, drawings, company confidential all rights reserved.		2008/3/27	Version of 2.0	Page 9/14

Packaging Tape, Reel, and Packing Model

Tape Dimension



Reel Dimension



Notes:

- 1.All dimensions are in mm, tolerance is ± 2.0 mm unless otherwise noted.
- 2.Specifications are subject to change without notice.

Official Product	HT Part No. HT-T3A8BP-K519	Your Part No.		Data Sheet No.
Tentative Product	*****	*****		
Specifications are subject to changes for improvement without advance notice. Proprietary data, drawings, company confidential all rights reserved.		2008/3/27	Version of 2.0	Page 10/14

Precaution of Application**Designing 1: Soldering pattern**

The dimensions of the recommended soldering pattern may not meet every user. Please confirm and study first before designing the soldering pattern in order to obtain the best performance of soldering.

Designing 2: Circuit layout

Due to the circuit design is not available, assuming the circuit is in parallel and a resistor that is put in series in the circuit, it cannot provide an effective current-limiting function to the LEDs due to each LED had a different inherent resistance.

In general, the LEDs usually have a different inherent resistance. Different inherent resistance will cause different current, the LED on the different path would be driven at different power, and the result was the LED with a higher resistance would be dimmer than the other.

To solve this situation, a suitable resistor is put in series with each LED to limit the current disparity through the LED will be very useful.

Designing 3: Max Rating

Any application should refer to the specifications of absolute maximum ratings.

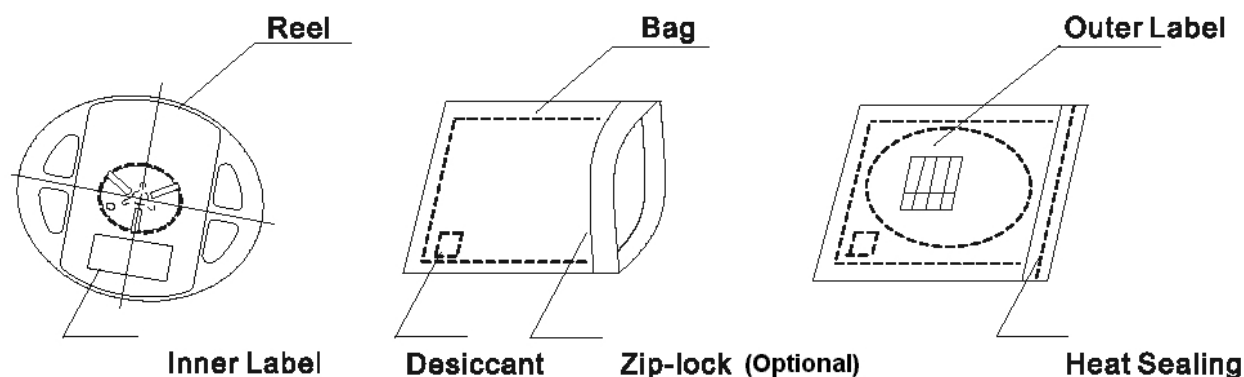
Dry Pack

Any SMD optical device, like this chip LED, is **MOISTURE SENSITIVE device**. Avoid absorbing moisture at any time during transportation or storage. Every reel will be packaged in the moisture barrier anti-static bag (Specific bag material will depend upon customers' requirement or option). And the bag is well sealed before shipment.

By customer's requirement, we will put a humidity indicator in each moisture barrier anti-static bag before shipment.

Official Product	HT Part No. HT-T3A8BP-K519	Your Part No.		Data Sheet No.
Tentative Product	*****	*****		
Specifications are subject to changes for improvement without advance notice. Proprietary data, drawings, company confidential all rights reserved.		2008/3/27	Version of 2.0	Page 11/14

The package



Storage

It's recommended to store the products in the following conditions:

Humidity: 60 %RH Max.

Temperature: 5 °C ~30 °C (41°F~86 °F)

- 1 Shelf life in sealed bag: 12 month at <40 °C and <90%RH. (Base on aluminum laminated moisture barrier bag.)
- 2 After the bag is opened, devices that will be subjected to infrared reflow, vapor-phase reflow, or equivalent processing must be:
 - 2.1 Mounted within 72 hours at factory conditions of $\leq 30^{\circ}\text{C}$ /60% RH, or
 - 2.2 Stored at $\leq 20\%$ RH with zip-lock sealed.

Baking

It's recommended to bake before soldering once the pack is unsealed open & re-sealed after 72 hours. The conditions are as followings:

60 $\pm 3^{\circ}\text{C} \times (12 \sim 24 \text{ hrs})$ and < 5% RH, taped reel type

100 $\pm 3^{\circ}\text{C} \times (45 \text{ min} \sim 1 \text{ hr})$, bulk type

130 $\pm 3^{\circ}\text{C} \times (15 \sim 30 \text{ min})$, bulk type

Soldering

Manual soldering (We do not recommend this method strongly.)

Soldering wire: 63/37 Sn/Pb, flux contained.

To prevent cracking, please bake before manual soldering, if the device is subject to moisture.

Temperature at tip of soldering tool : 300 °C $\pm 5^{\circ}\text{C}$ Max.(25W)

It's banned to load any stress on the resin during soldering.

Soldering time : 3 ± 1 sec

Official Product	HT Part No. HT-T3A8BP-K519	Your Part No.	Data Sheet No.
Tentative Product	*****	*****	
Specifications are subject to changes for improvement without advance notice. Proprietary data, drawings, company confidential all rights reserved.		2008/3/27	Version of 2.0
			Page 12/14

Handling of Silicone Resin LEDs

Handling Indications

During processing, mechanical stress on the surface should be minimized as much as possible. Sharp objects of all types should not be used to pierce the sealing compound.



Figure 1

In general, LEDs should only be handled from the side. By the way, this also applies to LEDs without a silicone sealant, since the surface can also become scratched.

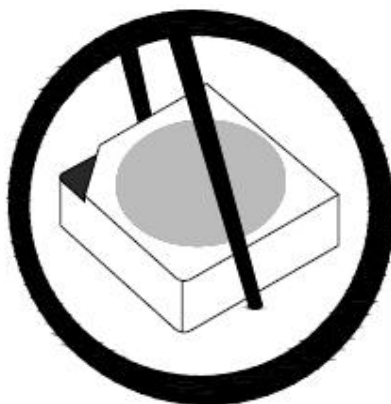


Figure 2

When populating boards in SMT production, there are basically no restrictions regarding the from of the pick and place nozzle, except that mechanical pressure on the surface of the resin must be prevented.

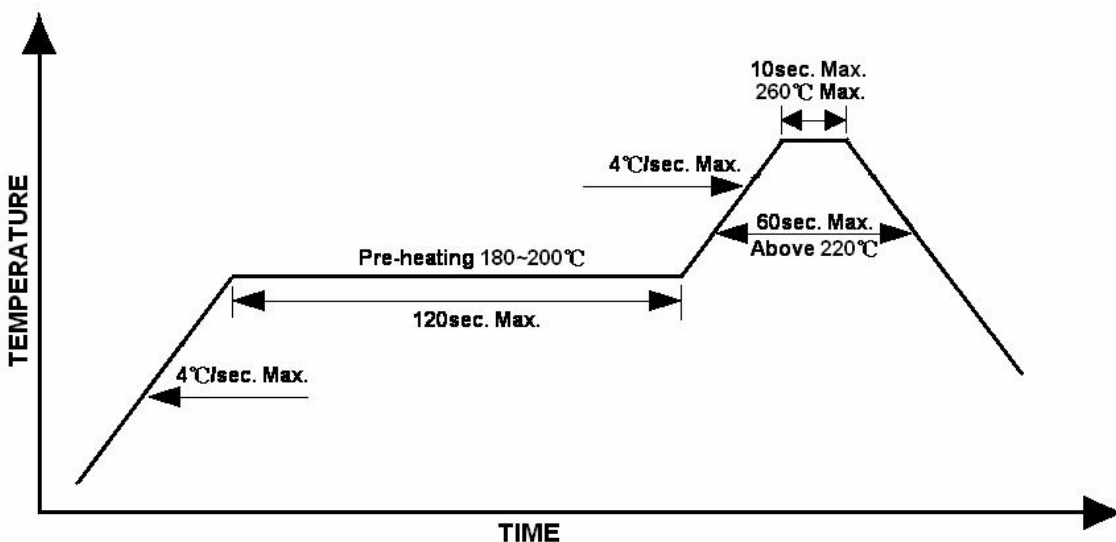
This is assured by choosing a pick and place nozzle which is large than LEDs reflector area.

Official Product	HT Part No. HT-T3A8BP-K519	Your Part No.	Data Sheet No.
Tentative Product	*****	*****	
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			Page 13/14

Reflow Soldering

1. Recommend soldering paste specifications:
2. Operating temp.: Above 220 °C ,60sec
3. Peak temp.:260 °CMax.,10sec Max.
4. Never take next process until the component is cooled down to room temperature after reflow.
5. The recommended reflow soldering profile (measuring on the surface of the LED terminal) is following:

Lead-free Solder



Cleaning

The conditions of cleaning after soldering:

An alcohol-based solvent such as isopropyl alcohol (IPA) is recommended.

Temperature×Time: <50 °C×30sec, or <30 °C×3min

Ultra sonic cleaning: < 15W/ bath; Bath volume: 1liter max.

Curing: 100 °C max, <3min

Do not contact with component on the assembly board.

Cautions of Pick and Place

It should be avoided to load stress on the resin during high temperature.

Avoid rubbing or scraping the resin by any object.

Electric-static may cause damage to the component. Please confirm that the equipment grounding well. Using an ionizer fan is recommended.

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Tentative Product	*****	*****	
Specifications are subject to changes for improvement without advance notice. Proprietary data, drawings, company confidential all rights reserved.		2008/3/27	Version of 2.0
			Page 14/14