

**Harvatek Surface Mount CHIP LED Data Sheet  
HT-380FCH**

Official Product	HT Part No. HT-380FCH	Customer Part No.		Data Sheet No.
Tentative Product	*****	*****		HT-380FCH
Specifications are subject to change without notice. Data and drawings herein are copyrighted.		June 05, 2013	Version of 1.0	Page 1/13

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**DISCLAIMER**

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**LIFE SUPPORT POLICY**

HARVATEK’s products are not authorized for use as critical components in life support devices or systems without the express written approval of the President of HARVATEK or HARVATEK INTERNATIONAL. As used herein:

1. Life support devices or systems are devices or systems which, (a) are intended for surgical implant into the body, or (b) support or sustain life, and (c) whose failure to perform when properly used in accordance with instructions for use provided in the labeling, can be reasonably expected to result in a significant injury of the user.
  
2. A critical component in any component of a life support device or system whose failure to perform can be reasonably expected to cause the failure of the life support device or system, or to affect its safety or effectiveness.

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### Product Specifications

	Specification	Material	Quantity
Iv	Red: 150mcd typ. Green: 250mcd typ. Blue: 60mcd typ. @20mA/ Ta= 25° C		
$\lambda_D$	Red : 625 nm typical Green : 525 nm typical Blue : 470 nm typical @20mA/ Ta= 25° C		
Vf	Red : 2.4 V maximum Green : 3.9 V maximum Blue : 3.9 V maximum @20mA/ Ta= 25° C		
Ir	< 100 $\mu$ A @ V <sub>R</sub> = 5 V		
Resin	Water clear	Epoxy resin	
Carrier tape	EIA 481-1A specs	Conductive black tape	500 pcs per reel
Reel	EIA 481-1A specs	Conductive black	
Label	HT standard	Paper	
Packing bag	220x240mm	Aluminum laminated bag/ no-zipper	One reel per bag
Carton	HT standard	Paper	Non-specified

Others:

Each immediate box consists of 5 reels. The 5 reels may not necessarily have the same lot number or the same bin combinations of I<sub>v</sub>,  $\lambda_D$  and V<sub>f</sub>. Each reel has a label identifying its specification; the immediate box consists of a product label as well.

**ATTENTION: Electrostatic Discharge (ESD) protection**




The symbol to the left denotes that ESD precaution is needed. ESD protection for GaP and AlGaAs based chips is necessary even though they are relatively safe in the presence of low static-electric discharge. Parts built with AlInGaP, GaN, or/and InGaN based chips are **STATIC SENSITIVE devices**. ESD precaution must be taken during design and assembly.

If manual work or processing is needed, please ensure the device is adequately protected from ESD during the process.

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**Label Specifications**

<b>HARVATEK</b> TECHNOLOGIES		Date: yyyy/mm/dd 
CUSTOMER P/N: 		
HARVATEK P/N: 	QTY: PCS 	
LOT NO: 		QC
IV BIN: COLOR BIN: VF:		

■ **Harvatek P/N:**

**H T - 3 8 0 F C H - Z Z Z Z**



Series Name	Emitting Color	Customer Code
HT-380 1.6(L)x1.6(W)x0.35(H) mm	FCH RGB (Full Color)	ZZZZ Customer Product Code

■ **Lot No.:**

1 2 3 4 5 6 7 8  
**E 1 7 0 1 2 2 X**

Code 12	Code 3	Code 4	Code 5	Code 6, 7	Code 8
	Mfg. Year	Mfg. Month	Mfg. Date	Lots	Packaging
Internal Tracing Code	Z: 2000	1: Jan. 2: Feb.	1~31/ (30)	01~99, A,B,C...	T: Tape & Reel
	1: 2001	....			
	2: 2002	9: Sep.			
	3: 2003	A: Oct. B: Nov. C: Dec.			
	....				

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**Product Features**

**Electro-Optical Characteristics**

( $I_F @ 20mA, T_a = 25^\circ C$ )

Code for parts	Lighting Color		$V_F(V)$		$\lambda (nm)$			$I_V^*(mcd)$
			typ	max	$\lambda_D$	$\lambda_P$	$\Delta \lambda$	Typical
HT-380FCH	Ultra Bright Red	USD	1.9	2.4	625	630	17	150
	Green	NG	3.3	3.9	525	520	40	250
	Blue	NB	3.3	3.9	470	468	26	60

**Package Outline Dimension and Recommended Soldering Pattern**

Unit: mm Tolerance: +/-0.1

Outline Dim.	Soldering Pattern
Soldering terminals may shift in the x, y direction.	

**Absolute Maximum Ratings**

( $T_a = 25^\circ C$ )

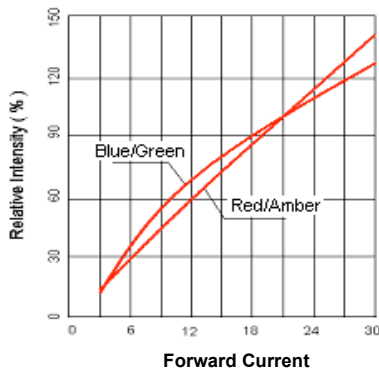
Series	$P_d (mW)$	$I_F (mA)$	$I_{FP} (mA)$	$V_R (V)$	$I_R (\mu A)$	$T_{OP} (^\circ C)$	$T_{ST} (^\circ C)$
Red	46	20	100	5	<100@ $V_R = 5$	-30~+80	-40~+85
Blue/Green	74	20	80				

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

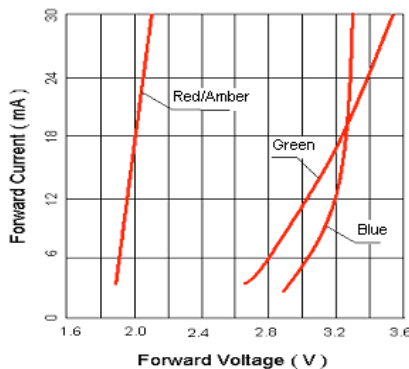
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**Characteristics Curves**

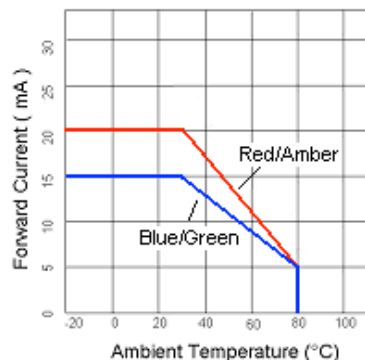
Relative Intensity vs. Forward Current



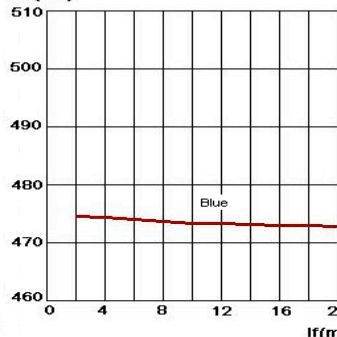
Forward Voltage vs. Forward Current



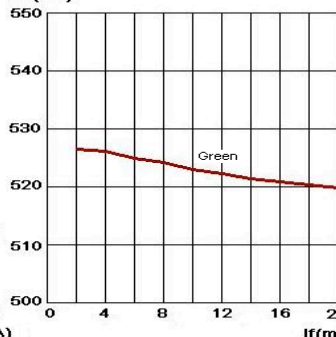
Forward Current vs. Ambient Temperature



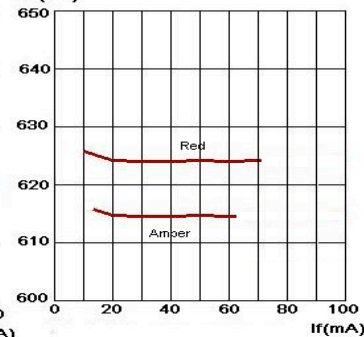
WL(nm)



WL(nm)

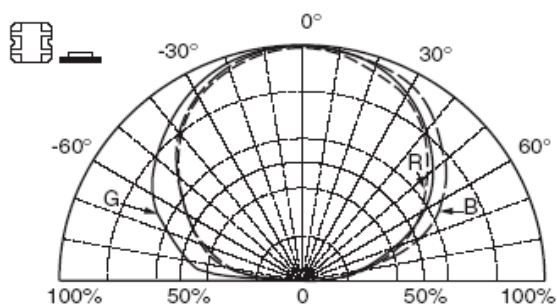


WL(nm)

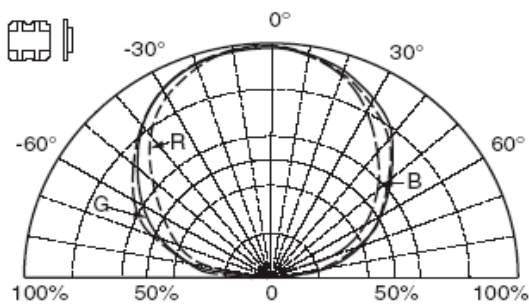


**Wavelength vs. Forward Current**

Directive Characteristics



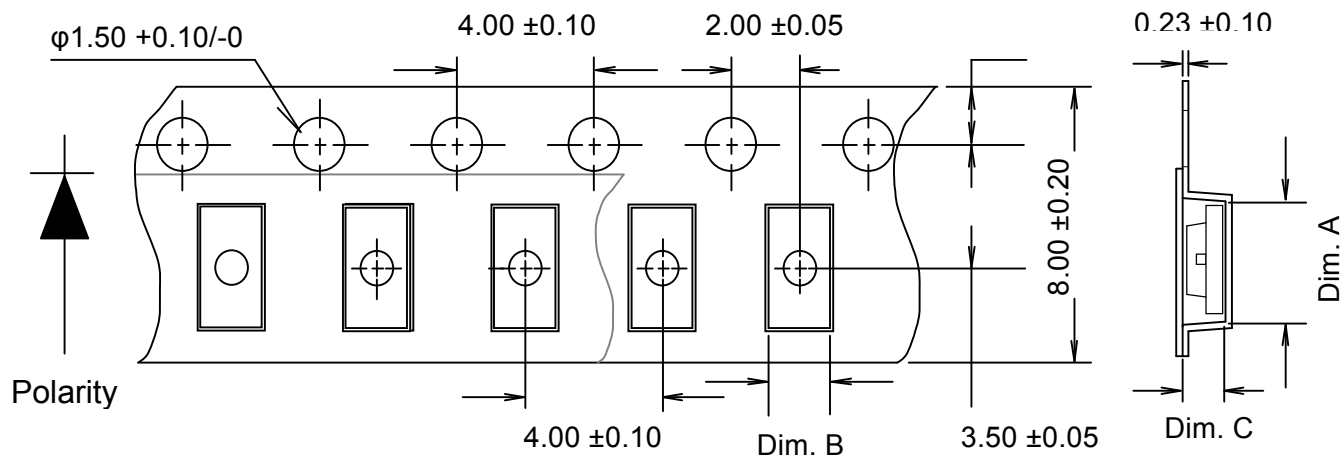
Directive Characteristics



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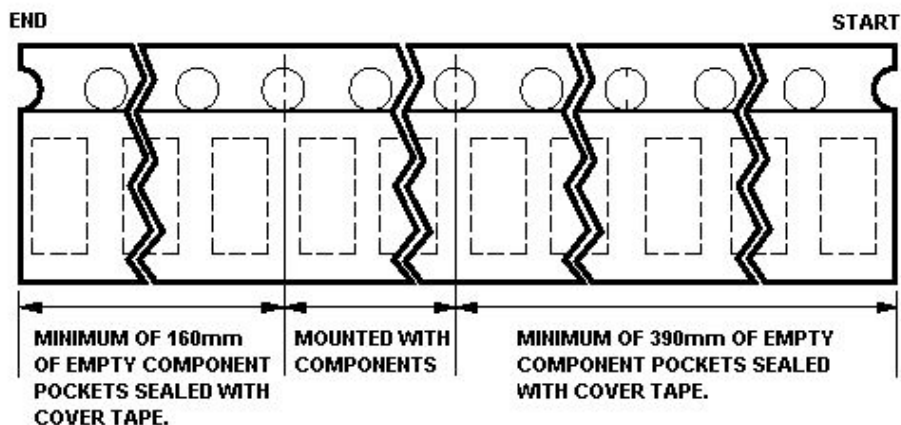
**Packaging**

**Tape Dimension**



Part No.	Dim. A	Dim. B	Dim. C	Q'ty/Reel
HT-380	$1.80 \pm 0.10$	$1.70 \pm 0.10$	$0.65 \pm 0.10$	500 pcs

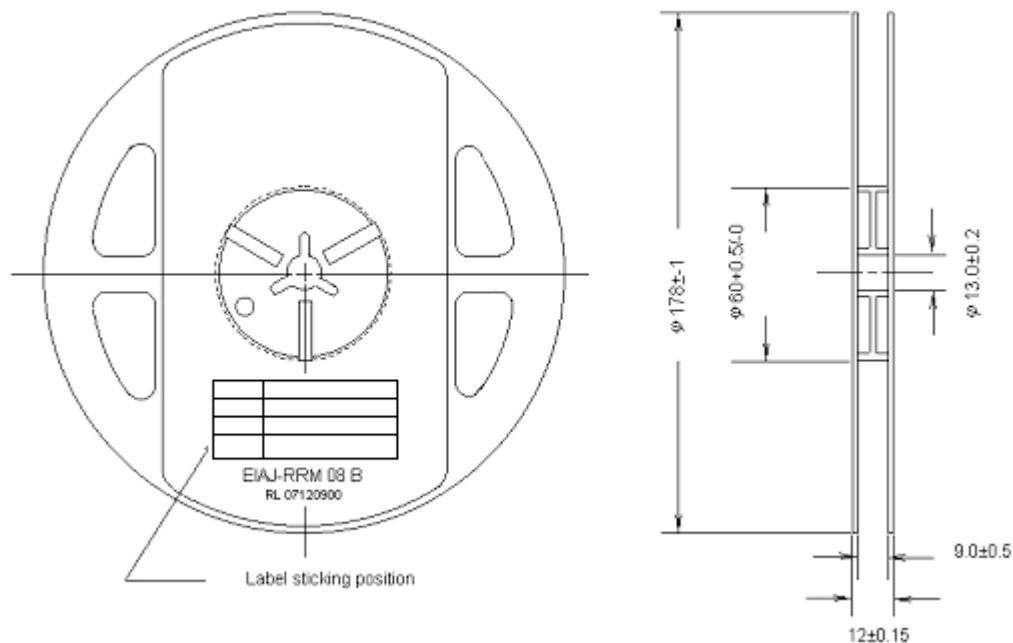
Unit: mm



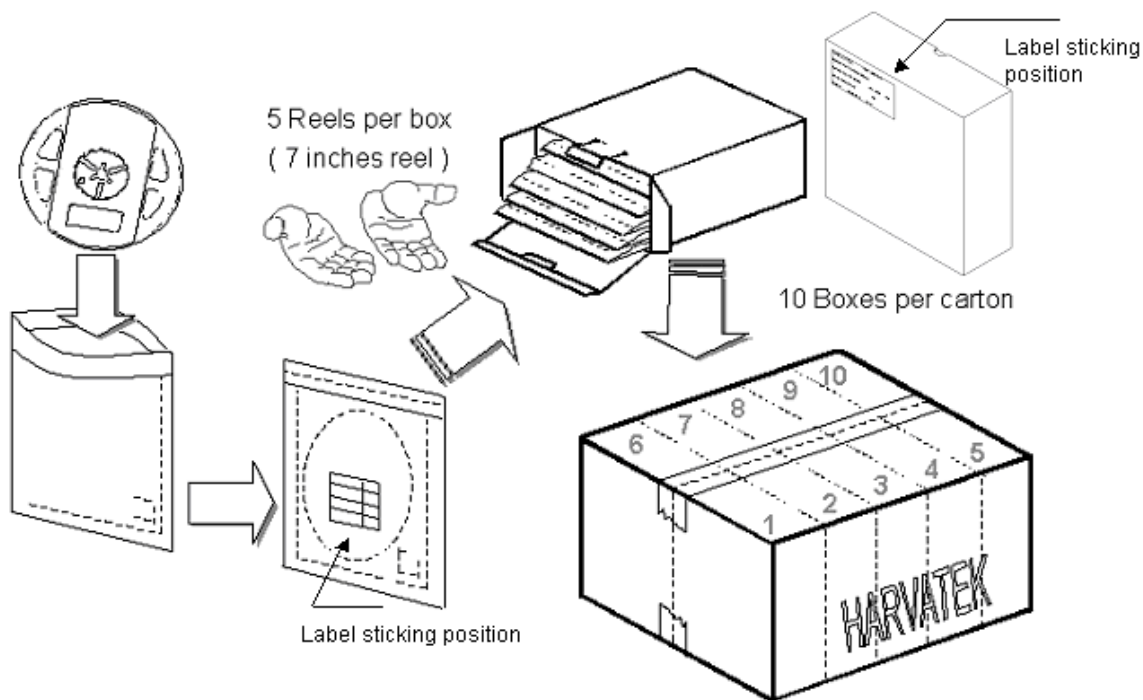
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**Reel Dimension**



**Packing**



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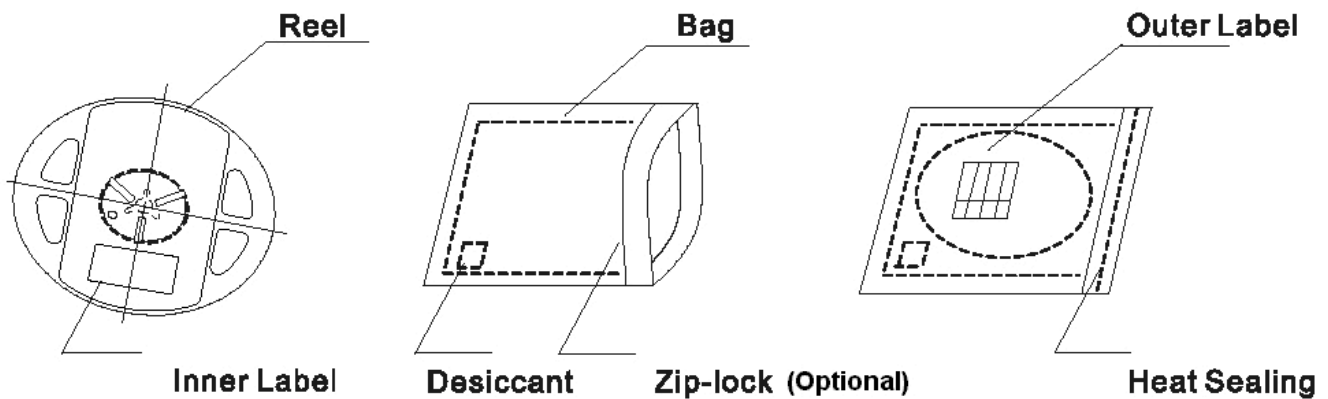
5 boxes per carton is available depending on shipment quantity.

**Dry Pack**

All SMD optical devices are **MOISTURE SENSITIVE**. Avoid exposure to moisture at all times during transportation or storage. Every reel is packaged in a moisture protected anti-static bag. Each bag is properly sealed prior to shipment.

Upon request, a humidity indicator will be included in the moisture protected anti-static bag prior to shipment.

The packaging sequence is as follows:



**PRECAUTIONS**

1. Avoid exposure to moisture at all times during transportation or storage.
2. Anti-Static precaution must be taken when handling GaN, InGaN, and AlInGaP products.
3. It is suggested to connect the unit with a current limiting resistor of the proper size. Avoid applying a reverse voltage beyond the specified limit.
4. Avoid operation beyond the limits as specified by the absolute maximum ratings.
5. Avoid direct contact with the surface through which the LED emits light.

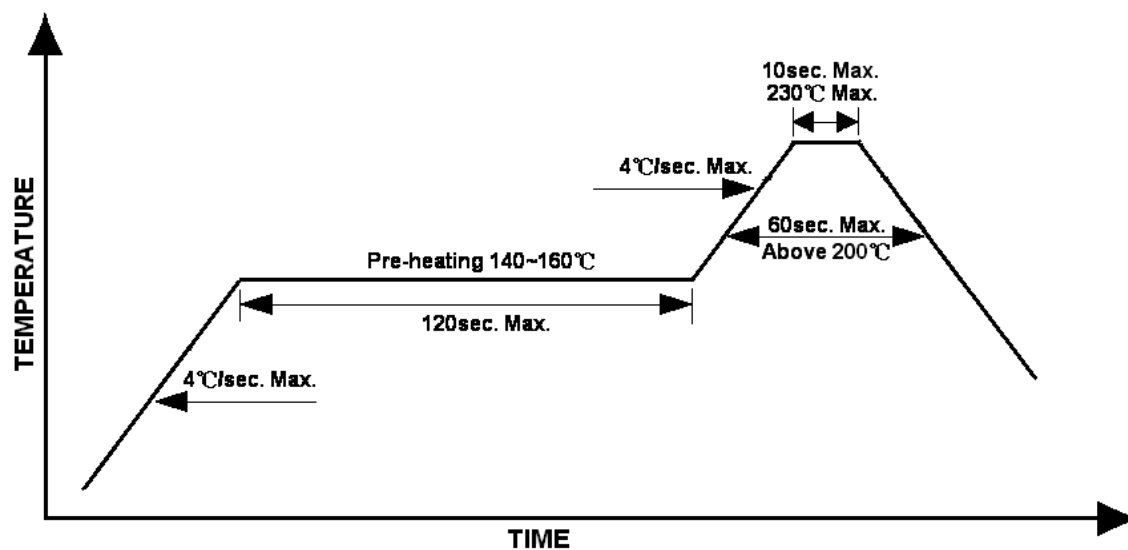
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6. If possible, assemble the unit in a clean room or dust-free environment.

**Reflow Soldering**

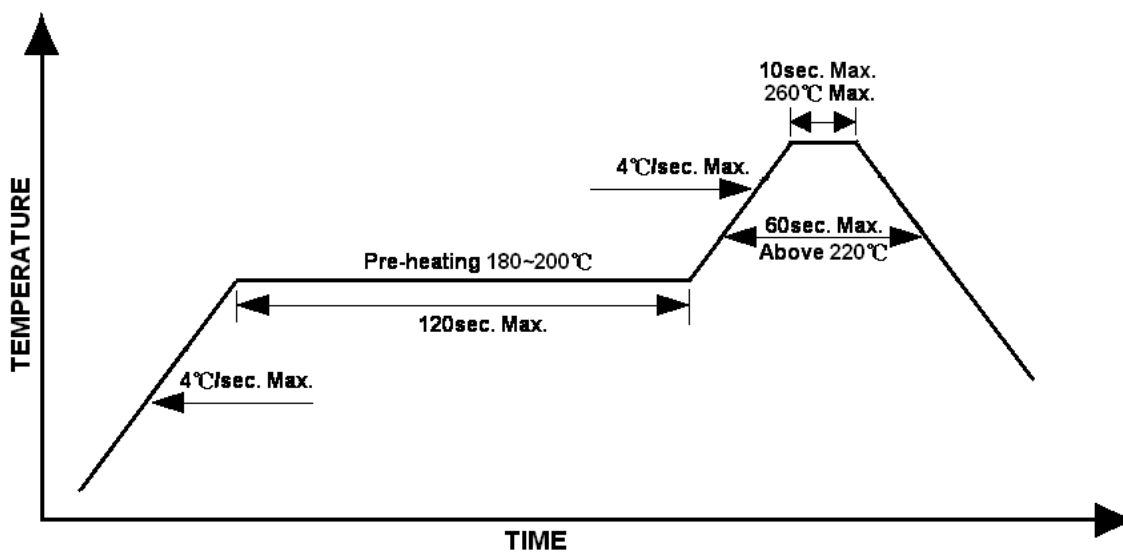
- Recommended tin glue specifications: melting temperature in the range of 178~192 °C
- The recommended reflow soldering profile is as follows (temperatures indicated are as measured on the surface of the LED resin):

Lead Solder Profile



Lead-free Solder Profile

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### Reworking

- Rework should be completed within 5 seconds under 260 °C.
- The iron tip must not come in contact with the copper foil.
- Twin-head type is preferred.

### Cleaning

Following are cleaning procedures after soldering:

- An alcohol-based solvent such as isopropyl alcohol (IPA) is recommended.
- Temperature x Time should be 50°C x 30sec. or <30°C x 3min
- Ultra sonic cleaning: < 15W/ bath; bath volume ≤ 1liter
- Curing: 100 °C max, <3min

### Cautions of Pick and Place

- Avoid stress on the resin at elevated temperature.
- Avoid rubbing or scraping the resin by any object.
- Electric-static may cause damage to the component. Please ensure that the equipment is properly grounded. Use of an ionizer fan is recommended.

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**Revision History**

<b>Changes since last revision</b>	<b>Page</b>	<b>Version No.</b>	<b>Revision Date</b>
New format		1.0	06/05/2013

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