

Harvatek Surface Mount CHIP LEDs Approval Sheet
Model No.: HT-155USD/UYG

Official Product	HT Part No. HT-155USD/UYG	Your Part No.		Data Sheet No.
Tentative Product	*****	*****		
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DISCLAIMER	3
PRODUCT SPECIFICATION	4
ATTENTION: ELECTROSTATIC DISCHARGE (ESD) PROTECTION.....	5
LABEL SPEC.:	6
LOT NO.	6
PRODUCT FEATURE.....	8
PACKAGE OUTLINE DIMENSION AND RECOMMENDED SOLDERING PATTERN FOR REFLOW SOLDERING	8
ABSOLUTE MAXIMUM RATINGS	8
PACKAGING TAPE, REEL, AND PACKING MODEL	10
TAPE DIMENSION.....	10
REEL DIMENSION	11
PACKING.....	11
DRY PACK	12
PRECAUTIONS	12
REFLOW SOLDERING	13
REWORKING	13
CLEANING	13
REVISE HISTORY	14

Official Product	HT Part No. HT-155USD/UYG	Your Part No.		Data Sheet No.
Tentative Product	*****	*****		
Specifications are subject to changes for improvement without advance notice. Proprietary data, drawings, and company confidential all rights reserved.		05/20/2011	Version of 1.0	Page 2/14

DISCLAIMER

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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.

Official Product	HT Part No. HT-155USD/UYG	Your Part No.		Data Sheet No.
Tentative Product	*****	*****		
Specifications are subject to changes for improvement without advance notice. Proprietary data, drawings, and company confidential all rights reserved.		05/20/2011	Version of 1.0	Page 3/14

Product Specification

	Specification	Material	Quantity
Iv	USD: Q1: 71.5-90 mcd Q2:90-112.5 mcd R1: 112.5-140 mcd R2: 140-180 mcd S1:180-226 mcd S2:226-285 mcd UYG: P1: 45-56 mcd P2:56-71.5 mcd Q1: 71.5-90 mcd Q2:90-112.5 mcd R1: 112.5-140 mcd R2: 140-180 mcd @20mA/ Ta= 25° C Tolerance±10%		
Lambda (λ _D)	USD: 615-630nm UYG: C:567.5-570.5 nm D:570.5-573.5 nm E:573.5-576.5 nm @20mA/ Ta= 25° C Tolerance±0.5nm		
Vf	USD: 1.6-2.4V UYG: 1.6-2.4V @20mA/ Ta= 25° C		
Ir	HT standard		
Resin	Diffused	Epoxy resin	
Carrier tape	According to EIA 481-1A specs	Transparent tape	3000pcs per reel
Reel	According to EIA 481-1A specs	Plastic/ White	
Label	HT standard	Paper	
Packing bag	220x240mm	Aluminum laminated bag/ no-zipper	One reel one bag
Carton	HT standard	Paper	Non-specified

Official Product	HT Part No. HT-155USD/UYG	Your Part No.		Data Sheet No.
Tentative Product	*****	*****		
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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 Iv, λ_D and Vf. 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.

Official Product	HT Part No. HT-155USD/UYG	Your Part No.		Data Sheet No.
Tentative Product	*****	*****		
Specifications are subject to changes for improvement without advance notice. Proprietary data, drawings, and company confidential all rights reserved.		05/20/2011	Version of 1.0	Page 5/14

Label Spec.:



Harvatek P/N

H T - 1 5 5 USD/UYG XXXX



Series Name	Emitting Color	Customer Code
HT-155: 3.2 x 2.7x1.1mm	USD:Ultra Bright Orange @20mA UYG:Ultra Bright Yellow Green @20mA	Customer Product Code

Lot No.

1	2	3	4	5	6	7	8	9	10
E	1	A	1	A	2	2	L	1	2
Code 1 2		Code 3	Code 4	Code 5	Code 6	Code 7	Code 8	Code 9	Code 10
		Mfg. Year	Mfg. Month	Mfg. Date	Consecutive number		Special code		
Internal Tracing Code		2010-A	1:Jan.	1:A	01~ZZ		000~ZZZ		
		2011-B	2:Feb.	2:B					
		2012-C		3:C					
		2013-D	A:Oct.	26:Z					
		.	B:Nov.	27:7					
		.	C:Dec.	28:8					
				29:9					
				30:3					
				31:4					

Official Product	HT Part No. HT-155USD/UYG	Your Part No.		Data Sheet No.
Tentative Product	*****	*****		
Specifications are subject to changes for improvement without advance notice. Proprietary data, drawings, and company confidential all rights reserved.		05/20/2011	Version of 1.0	Page 6/14

■ Iv Bin:

Color	Bin Code	Spec. Range
Orange	Q1	71.5-90 mcd
	Q2	90-112.5 mcd
	R1	112.5-140 mcd
	R2	140-180 mcd
	S1	180-226 mcd
	S2	226-285 mcd
Yellow Green	P1	45-56 mcd
	P2	56-71.5 mcd
	Q1	71.5-90 mcd
	Q2	90-112.5 mcd
	R1	112.5-140 mcd
	R2	140-180 mcd

■ Color Bin:

Color	Bin Code	Spec. Range
Orange	-	615-630 nm
Yellow Green	C	567.5-570.5 nm
	D	570.5-573.5 nm
	E	573.5-576.5 nm

■ VF BIN:

Color	Bin Code	Spec. Range
Orange	-	1.6-2.4 V
Yellow Green	-	1.6-2.4 V

Official Product	HT Part No. HT-155USD/UYG	Your Part No.		Data Sheet No.
Tentative Product	*****	*****		
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Product Feature

Electro-Optical Characteristics

(I_F @ 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	$\Delta\lambda$	Typ
HT-155USD/UYG	Ultra Bright Orange (USD)	AlInGaP	1.9	2.4	622	636	17	180
	Ultra Bright Yellow Green (UYG)	AlInGaP	2.0	2.4	573	574	20	112.5

Package Outline Dimension and Recommended Soldering Pattern for Reflow Soldering

Unit: mm Tolerance: +/-0.1

Outline Dim.	Soldering Pattern
- Soldering terminal may shift in x, y direction. - LED die 1 and LED die 2 can be the same chips. - Both dices in the package need to be either P side-up or N side-up.	

Absolute Maximum Ratings

(T_a 25 °C)

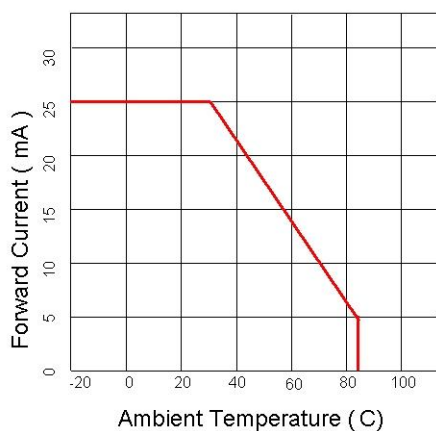
Series		P_d (mW)	I_F (mA)	I_{FP} (mA)	V_R (V)	I_R (uA)	T_{OP} (°C)	T_{ST} (°C)
HT-155	USD	72	30	100**	5	<100@ $V_R = 5$	-30~+80	-40~+85
	UYG							

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

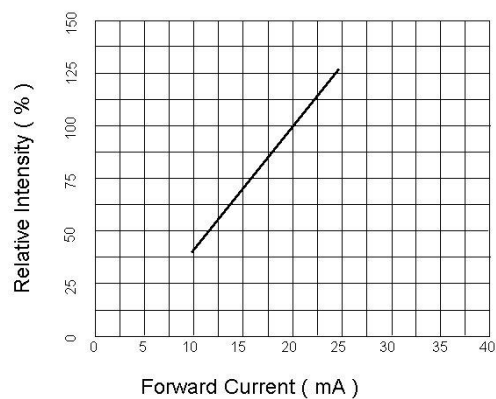
Official Product	HT Part No. HT-155USD/UYG	Your Part No.		Data Sheet No.
Tentative Product	*****	*****		
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Characteristics of HT-155 Series

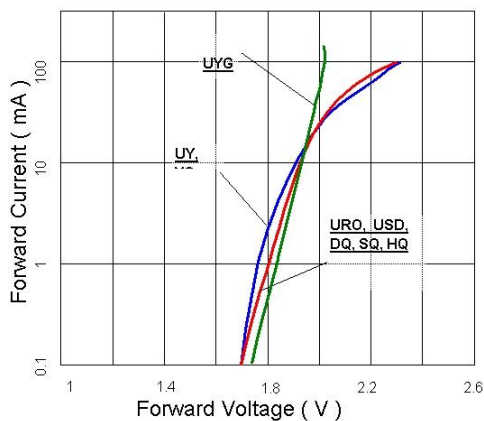
Forward Current vs. Ambient Temperature



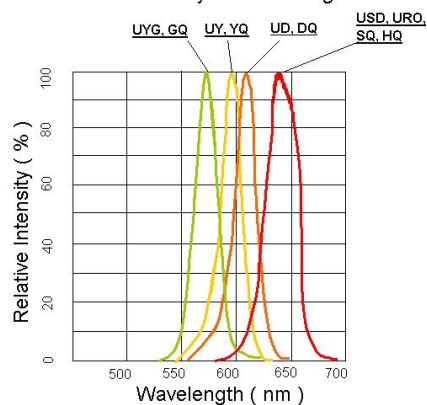
Relative Intensity vs. Forward Current



Forward Voltage vs. Forward Current

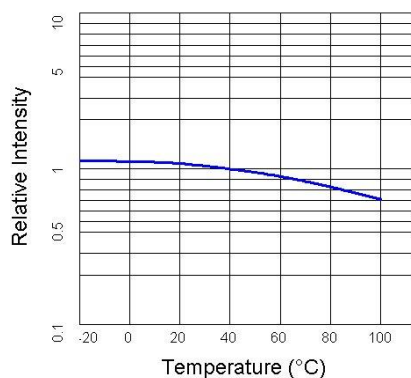


Relative Intensity vs. Wavelength



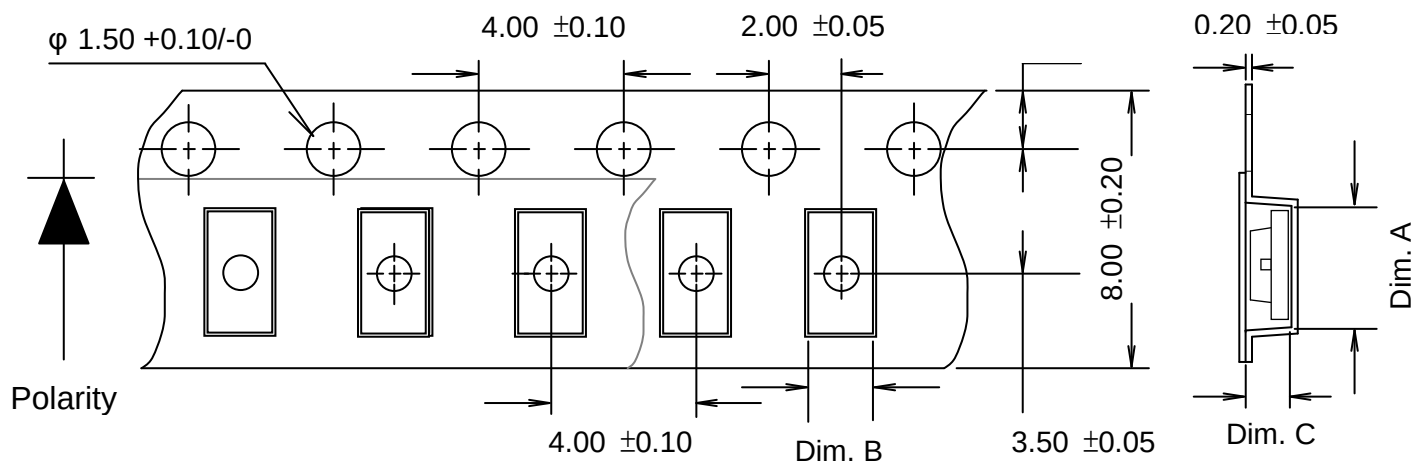
Relative Intensity vs. Ambient Temperature

Pulsed 20mA; 300us pulse, 10ms period



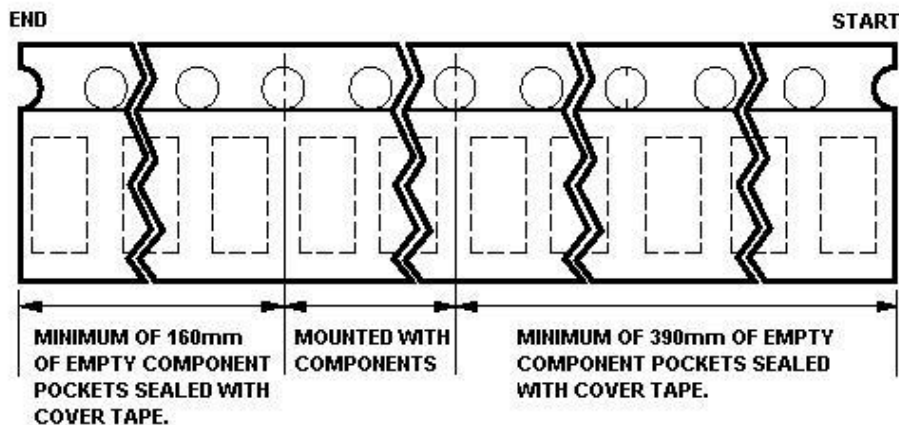
Official Product	HT Part No. HT-155USD/UYG	Your Part No.		Data Sheet No.
Tentative Product	*****	*****		
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Packaging Tape, Reel, and Packing Model Tape Dimension



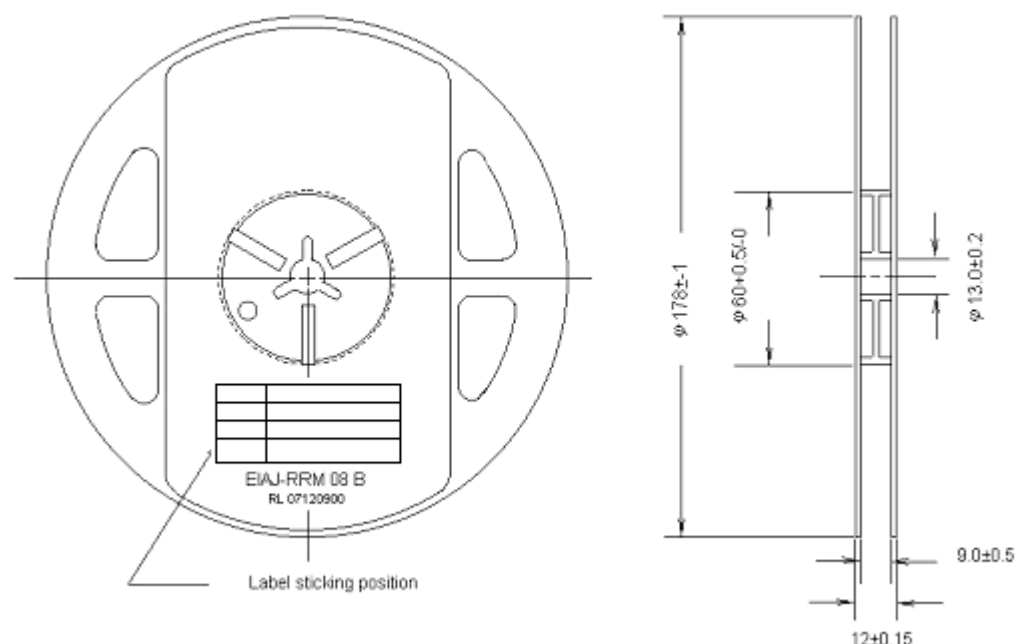
Part No.	Dim. A	Dim. B	Dim. C	Q'ty/Reel
HT-155	3.52 ± 0.10	3.02 ± 0.10	1.40 ± 0.10	3K

Unit: mm

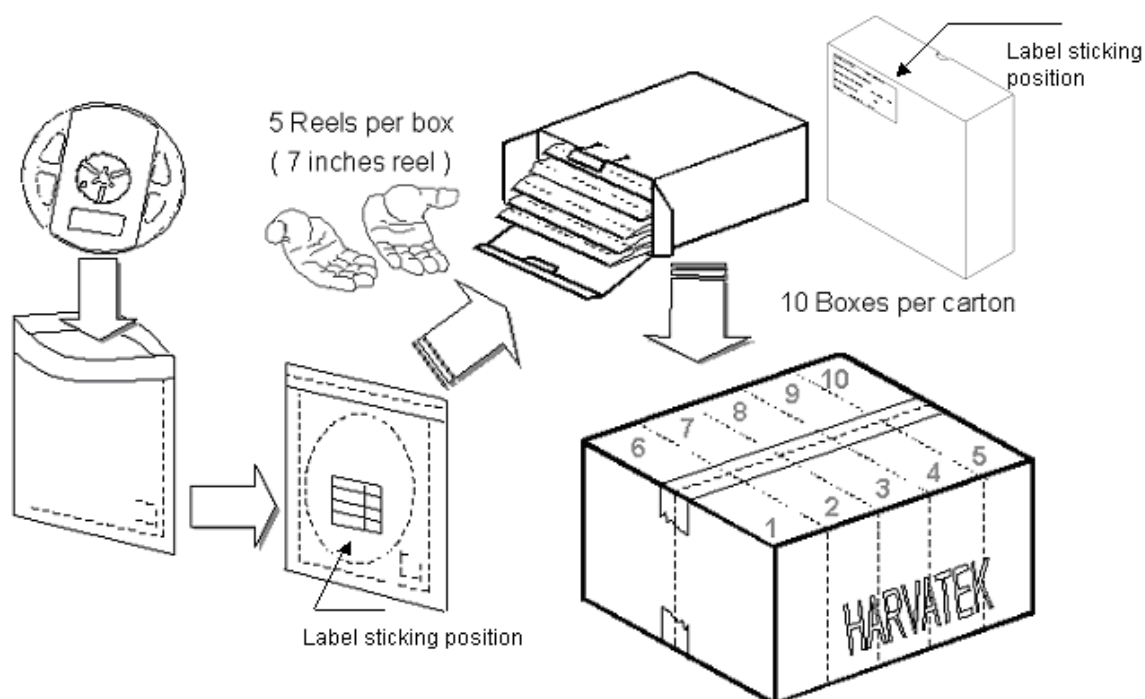


Official Product	HT Part No. HT-155USD/UYG	Your Part No.	Data Sheet No.
Tentative Product	*****	*****	
Specifications are subject to changes for improvement without advance notice. Proprietary data, drawings, and company confidential all rights reserved.		05/20/2011	Version of 1.0
			Page 10/14

Reel Dimension



Packing



5 boxes per carton is available depending on shipment quantity.

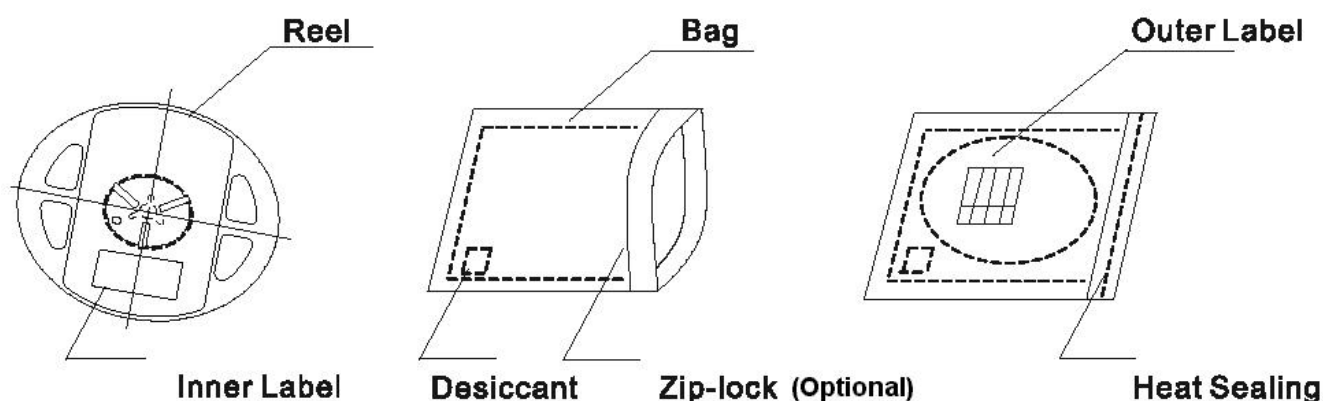
Official Product	HT Part No. HT-155USD/UYG	Your Part No.	Data Sheet No.
Tentative Product	*****	*****	
Specifications are subject to changes for improvement without advance notice. Proprietary data, drawings, and company confidential all rights reserved.		05/20/2011	Version of 1.0
			Page 11/14

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

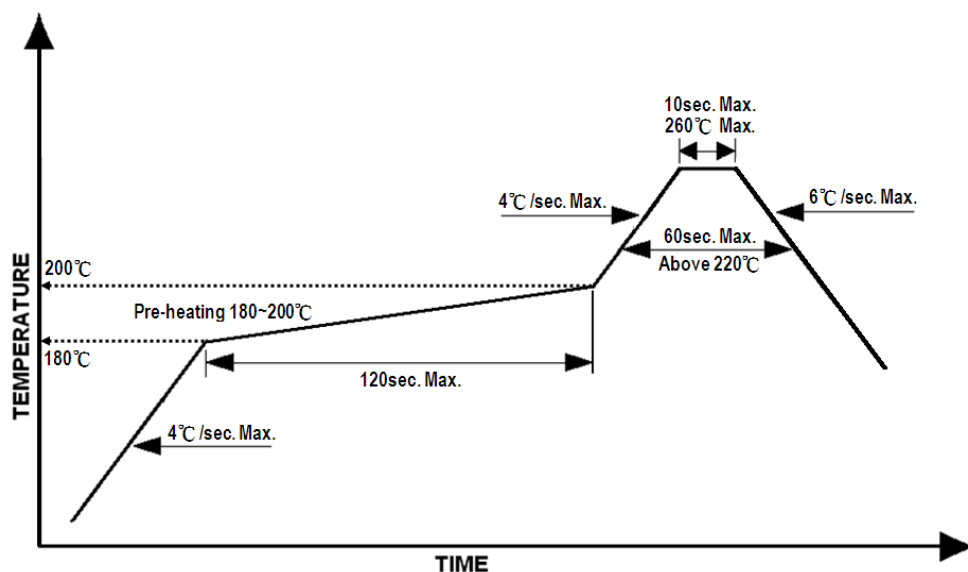
Official Product	HT Part No. HT-155USD/UYG	Your Part No.		Data Sheet No.
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Reflow Soldering

Recommend soldering paste specifications:

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

Lead-free Solder Profile



Reworking

- Rework should be completed **within 3 seconds** in 300 °C < T < 350 °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
- Ultrasonic cleaning: < 15W/ bath; bath volume ≤ 1liter
- Curing: 100 °C max, <3min

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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.

Revise History

Rev.	Descriptions	Date	Page
1.0	-	05/20/2011	-

Official Product	HT Part No. HT-155USD/UYG	Your Part No.		Data Sheet No.
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Specifications are subject to changes for improvement without advance notice. Proprietary data, drawings, and company confidential all rights reserved.		05/20/2011	Version of 1.0	Page 14/14