

Harvatek Surface Mount LED Data Sheet HT-V116UD-2914

Official Product	HT-V116UD-2914	Customer Part No.		Data Sheet No.
Preliminary Product	********	*******		HT-V116UD-2914
Specifications are subject to change without notice. Data and drawings herein are copyrighted.		Dec. 20, 2005	Version of 1.0	Page 1/16



DISCLAIMER	3
PRODUCT SPECIFICATIONS	4
ATTENTION: ELECTROSTATIC DISCHARGE (ESD) PROTECTION	4
LABEL SPECIFICATIONS	5
ELECTRO-OPTICAL CHARACTERISTICS	7
PACKAGE OUTLINE DIMENSION AND	
RECOMMENDED SOLDERING PATTERN FOR REFLOW SOLDERING	8
ABSOLUTE MAXIMUM RATINGS	8
CHARACTERISTICS CURVES	
RADIATION PATTERN	10
PACKAGING	11
TAPE DIMENSION	11
REEL DIMENSION	12
Packing	12
DRY PACK	13
PRECAUTIONS	13
REFLOW SOLDERING	14
Reworking	15
CLEANING	15
REVISION HISTORY	16

Official Product	HT-V116UD-2914	Customer Part No.		Data Sheet No.
Preliminary Product	*********	*******		HT-V116UD-2914
Specifications are subject to change without notice. Data and drawings herein are copyrighted.		Dec. 20, 2005	Version of 1.0	Page 2/16



DISCLAIMER

HARVATEK reserves the right to make changes without further notice to any products herein to improve reliability, function or design. HARVATEK does not assume any liability arising out of the application or use of any product or circuit described herein; neither does it convey any license under its patent rights, nor the rights of others.

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.

Official Product	HT-V116UD-2914	Customer Part No.		Data Sheet No.
Preliminary Product	*********	*******		HT-V116UD-2914
Specifications are subject to change without notice. Data and drawings herein are copyrighted.		Dec. 20, 2005	Version of 1.0	Page 3/16



Product Specifications

Specification	Material	Quantity
142.0-360.0 mcd minimum		
@20mA / Ta=25° C, <u>+</u> 10%		
600-609nm		
@20mA / Ta=25 ^o C, <u>+</u> 0.5nm		
2.4V maximum		
@20mA / Ta=25°C, <u>+</u> 0.05 V		
≤1µA @ V _R =5V		
2kV (HBM)		
2		
Clear	Epoxy resin	
Per EIA 481-1A specs	Plastic tape	2000pcs per reel
Per EIA 481-1A specs	Plastic white	
HT standard	Paper	
220x240mm	Aluminum laminated bag/ no-zipper	One reel per bag
HT standard	Paper	
	142.0-360.0 mcd minimum @20mA / Ta=25° C, ± 10% 600-609nm @20mA / Ta=25° C, ± 0.5nm 2.4V maximum @20mA / Ta=25°C, ± 0.05 V ≤1µA @ V _R =5V 2kV (HBM) 2 Clear Per EIA 481-1A specs Per EIA 481-1A specs HT standard 220x240mm	142.0-360.0 mcd minimum @20mA / Ta= 25° C, \pm 10% 600-609nm @20mA / Ta= 25° C, \pm 0.5nm 2.4V maximum @20mA / Ta= 25° C, \pm 0.05 V $\leq 1\mu$ A @ $V_R = 5V$ 2kV (HBM) 2 Clear Epoxy resin Per EIA 481-1A specs Plastic tape Per EIA 481-1A specs Plastic white HT standard Paper 220x240mm Aluminum laminated bag/ no-zipper

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

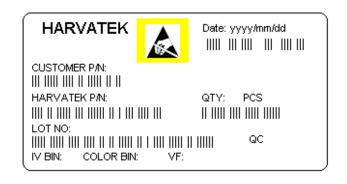
InGaN based chips are **STATIC SENSITIVE devices**. ESD precaution must be taken during design and assembly.

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

Official Product	HT-V116UD-2914	Customer Part No.		Data Sheet No.
Preliminary Product	*********	********		HT-V116UD-2914
Specifications are subject to change without notice. Data and drawings herein are copyrighted.		Dec. 20, 2005	Version of 1.0	Page 4/16



Label Specifications



Customer P/N: To Be Defined

Harvatek P/N:



	Series Name	Emitting Color	Customer Code
HT-V	116	UD	2914
HT:	Harvatek	AlinGaP Amber @ 20mA	Customer Product Code
V116:	0.6mm side-emitting series		
	with zener diode		
	3.2(L) x 1.1(W) x 0.6(H) mm		

Lot No.:

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

Official Product	HT-V116UD-2914	Customer Part No.		Data Sheet No.
Preliminary Product	*********	*******		HT-V116UD-2914
Specifications are subject to change without notice. Data and drawings herein are copyrighted.		Dec. 20, 2005	Version of 1.0	Page 5/16



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. 9: Sep. A: Oct. B: Nov. C: Dec.	1~31/ (30)	01~99, A,B,C	D: Diffused	T: Tape & Reel

Luminous Intensity (Iv) Bin:

Color	Bin Code	Spec. Range	
	R2	142.0-180.0 mcd	
Ambor	S1	180.0-227.0mcd	
Amber	S2	227.0-285.0mcd	
	T1	285.0-360.0 mcd	

Forward Voltage (Vf) Bin:

Color	Bin Code	Spec. Range
Amber	-	2.4V max

Official Product	HT-V116UD-2914	Customer Part No.		Data Sheet No.
Preliminary Product	*********	*******		HT-V116UD-2914
Specifications are subject to change without notice. Data and drawings herein are copyrighted.		Dec. 20, 2005	Version of 1.0	Page 6/16



Dominant Wavelength Bin (λ_D) Bin:

Color	Bin Code	Spec. Range
	В	600.0-603.0 mcd
Amber	С	603.0-606.0mcd
	D	606.0-609.0mcd

Product Features:

Electro-Optical Characteristics

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

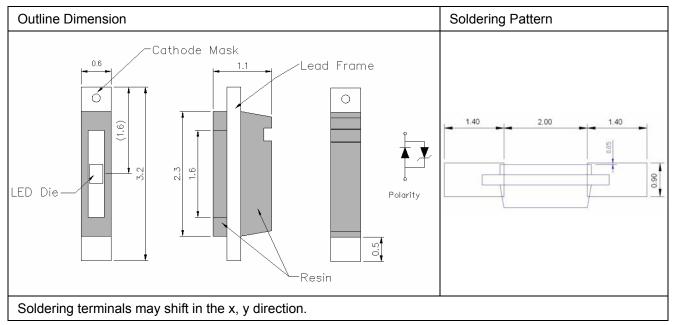
Code for parts	Code for parts Lighting Color		V _F	(V)		λ(nm)		I _V (mcd)
Code for parts Lighting Color		Material	typ	max	λ_{D}	λ_{P}	Δλ	Тур
HT-V116UD	Blue	AllnGaP	1.9	2.4	605	609	17	250

Official Product	HT-V116UD-2914	Customer Part No.		Data Sheet No.
Preliminary Product	*********	*******		HT-V116UD-2914
Specifications are subject to change without notice. Data and drawings herein are copyrighted.		Dec. 20, 2005	Version of 1.0	Page 7/16



Package Outline Dimension and Recommended Soldering Pattern for Reflow Soldering

Unit: mm Tolerance: +/-0.1



Absolute Maximum Ratings

 $(T_a = 25 \circ C)$

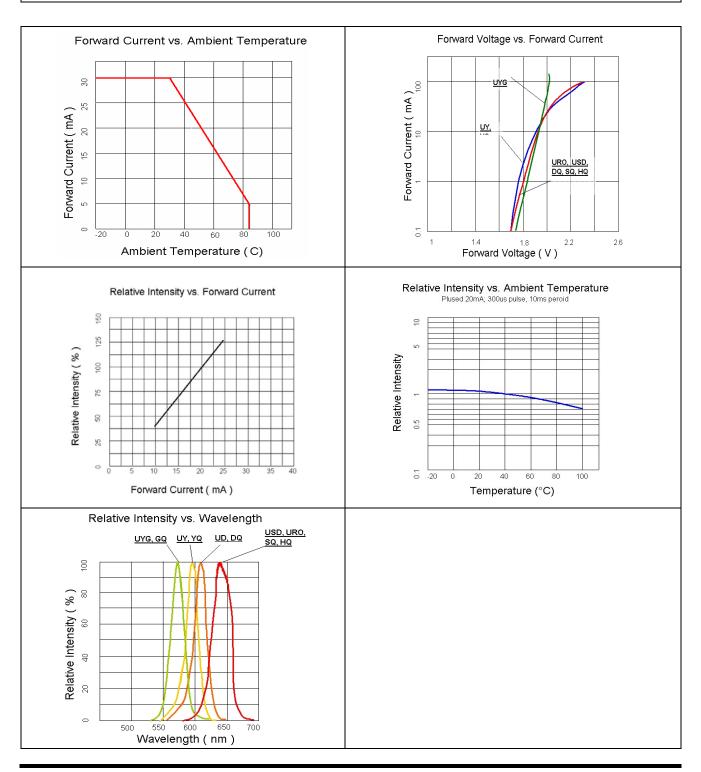
Series	P _d (mW)	I _F (mA)	I _{FP} (mA)	V _R (V)	I _R (uA)	T _{OP} (°C)	T _{ST} (°C)
HT-V116UD	72	30	100**	5	≤1 @ V _R = 5V	-40~+100	-40~+100

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

Official Product	HT-V116UD-2914	Customer Part No.		Data Sheet No.
Preliminary Product	*********	*******		HT-V116UD-2914
Specifications are subject to change without notice. Data and drawings herein are copyrighted.		Dec. 20, 2005	Version of 1.0	Page 8/16



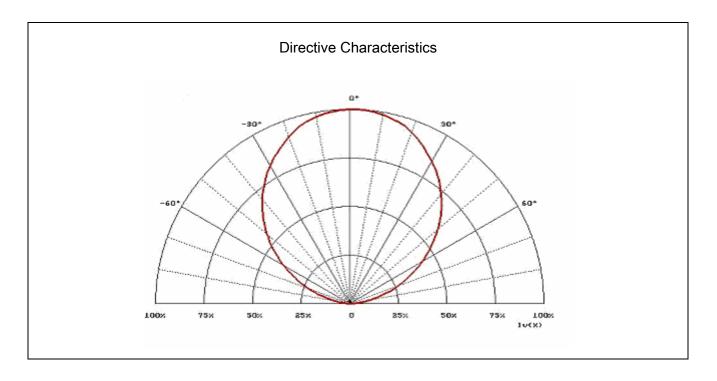
Characteristics Curves



Official Product	HT-V116UD-2914	Customer Part No.		Data Sheet No.
Preliminary Product	*********	******		HT-V116UD-2914
Specifications are subject drawings herein are copy	t to change without notice. Data and righted.	Dec. 20, 2005	Version of 1.0	Page 9/16



Radiation Pattern



Official Product	HT-V116UD-2914	Customer Part No.		Data Sheet No.
Preliminary Product	*********	*******		HT-V116UD-2914
Specifications are subject to change without notice. Data and drawings herein are copyrighted.		Dec. 20, 2005	Version of 1.0	Page 10/16

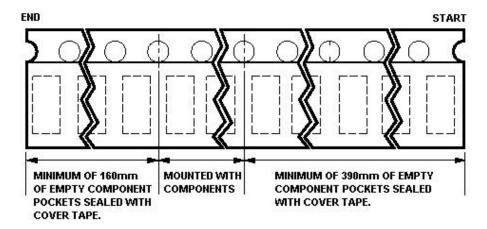


Packaging

Tape Dimension

Part No.	Dim. A	Dim. B	Dim. C	Q'ty/Reel
HT-V116	-	-	-	2K

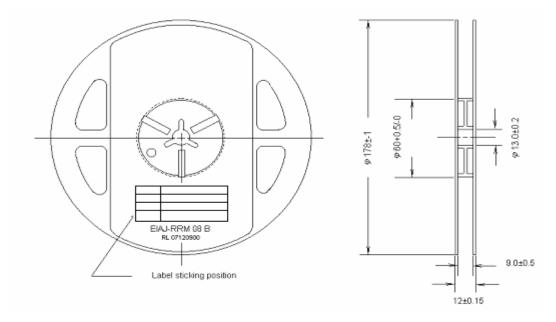
Unit: mm



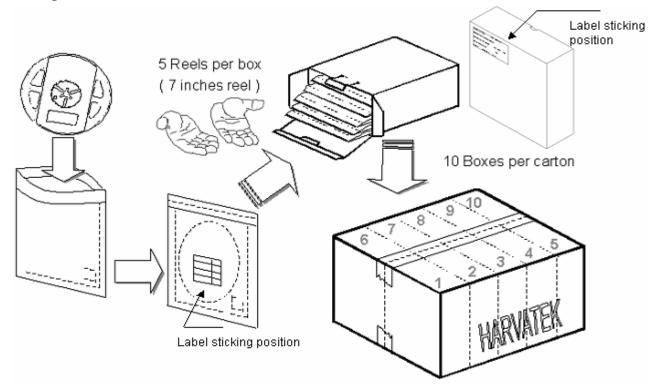
Official Product	HT-V116UD-2914	Customer Part No.		Data Sheet No.
Preliminary Product	******	*******		HT-V116UD-2914
Specifications are subject to change without notice. Data and drawings herein are copyrighted.		Dec. 20, 2005	Version of 1.0	Page 11/16



Reel Dimension



Packing



5 boxes per carton is available depending on shipment quantity.

Official Product	HT-V116UD-2914	Customer Part No.		Data Sheet No.
Preliminary Product	*********	*******		HT-V116UD-2914
Specifications are subject to change without notice. Data and drawings herein are copyrighted.		Dec. 20, 2005	Version of 1.0	Page 12/16

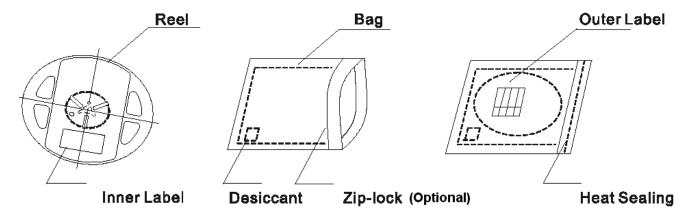


Dry Pack

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 AllnGaP 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.

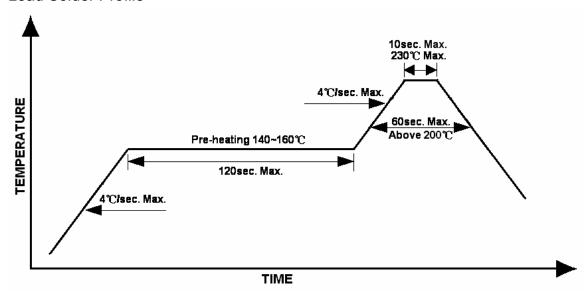
Official Product	HT-V116UD-2914	Customer Part No.		Data Sheet No.
Preliminary Product	*******	*******		HT-V116UD-2914
Specifications are subject to change without notice. Data and drawings herein are copyrighted.		Dec. 20, 2005	Version of 1.0	Page 13/16



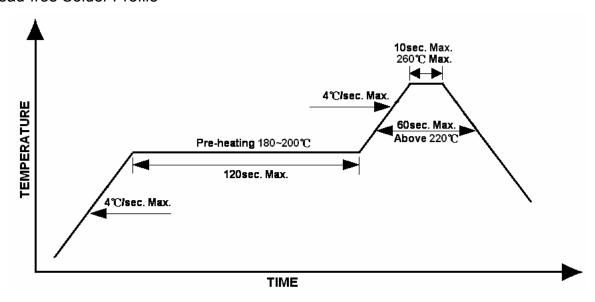
Reflow Soldering

- 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



Official Product	HT-V116UD-2914	Customer Part No.		Data Sheet No.
Preliminary Product	*********	*******		HT-V116UD-2914
Specifications are subject to change without notice. Data and drawings herein are copyrighted.		Dec. 20, 2005	Version of 1.0	Page 14/16



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.

Official Product	HT-V116UD-2914	Customer Part No.		Data Sheet No.
Preliminary Product	*********	*********		HT-V116UD-2914
Specifications are subject to change without notice. Data and drawings herein are copyrighted.		Dec. 20, 2005	Version of 1.0	Page 15/16



Revision History

Changes since last revision	Page	Version No.	Revision Date
Initial release for stamp-off 2914		1.0	12-20-2005

Official Product	HT-V116UD-2914	Customer Part No.		Data Sheet No.
Preliminary Product	*********	*********		HT-V116UD-2914
Specifications are subject to change without notice. Data and drawings herein are copyrighted.		Dec. 20, 2005	Version of 1.0	Page 16/16