Harvatek Surface Mount LEDs Data Sheet
HT-F104TW

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.

Product Specification

	Specification	Material	Quantity
Iv	2000mcd typ. @20mA/ Ta= 25^{O} C Tolerance: ± 10%		
Chromaticity Coordinates	Refer to page 8 @20mA/ Ta= 25^{O} C Tolerance: ± 0.01		
Vf	3.4V max @20mA/ Ta= 25^{O} C Tolerance: ± 0.05V		
Resin	Yellow	Silicone resin	
ESD	500V (HBM)		
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
	Specification	Material	Quantity

Others:

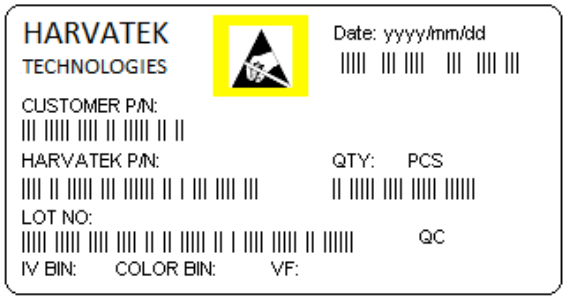
Every mid-box will be loaded 5 reels. These 5 reels can be different in lot, Iv, lambda, or Vf. Every reel will have an independent label to identify its specification and the mid-box there will have a corresponding label post on it.

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. Parts built with AlInGaP, GaN, or/and InGaN 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 protected from ESD during all the process.

Label Spec.



■ Harvatek P/N

H T - F 1 0 4 TW - XXXX

Series Name	Emitting Color	Custom code
HT-F104: 3.8x1.0x0.4mm	TW: White@20mA	XXXX 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 2011-B 2012-C 2013-D . .	1:Jan. 2:Feb. .... A:Oct. B:Nov. C:Dec.	1:A 2:B 3:C ... 26:Z 27:7 28:8 29:9 30:3 31:4	01~ZZ		000~ZZZ		

■ Luminous Intensity (Iv) Bin:

Bin	Luminous Intensity Range (mcd)	
	Minimum	Maximum
Z42	1700	1800
Z51	1800	1900
Z52	1900	2010
Z61	2010	2125
Z62	2125	2250

@20mA / Ta=25^{O} C, Tolerance: ± 10%

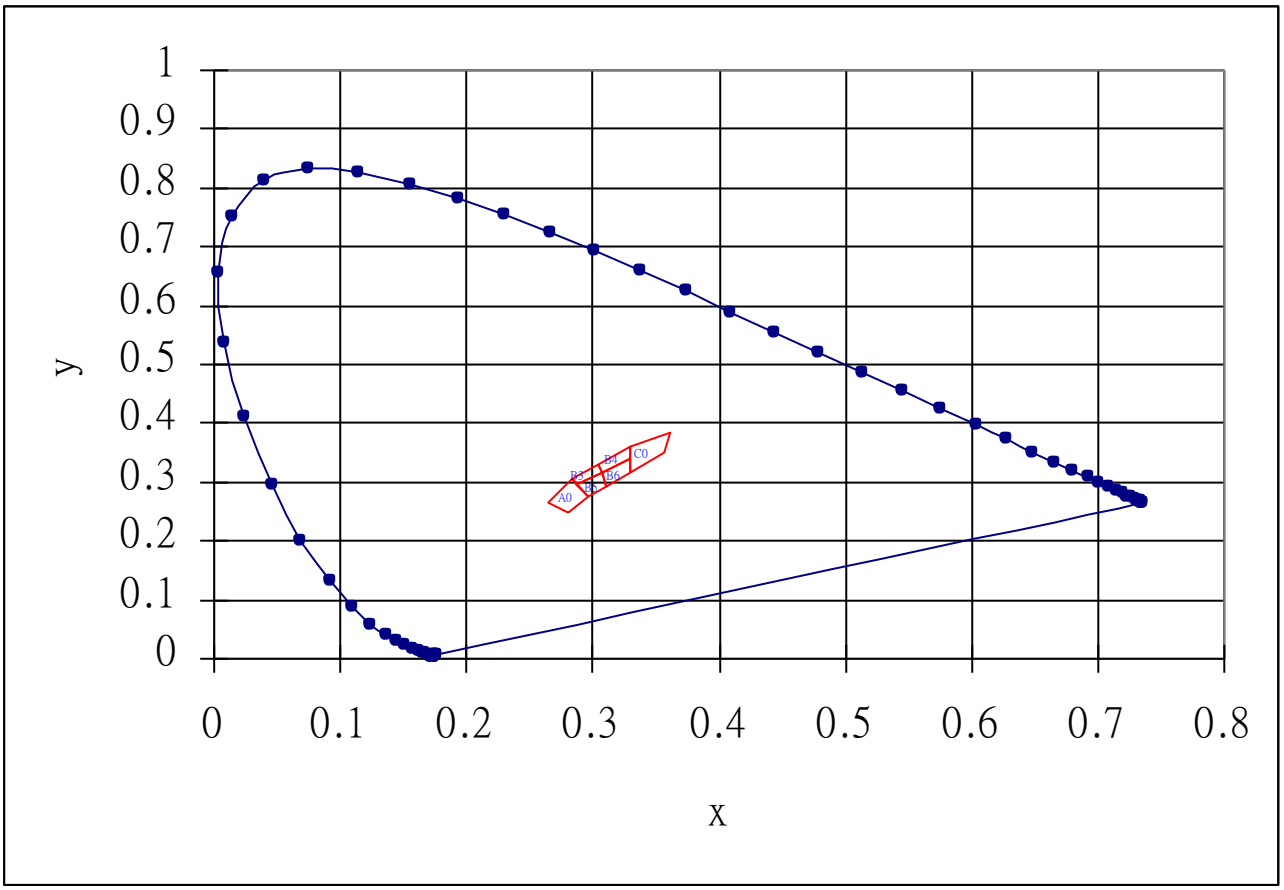
■ Forward Voltage (V_F) Bin:

Bin	Range
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

@20mA / Ta=25^{O} C, Tolerance: ± 0.05 V

■XY Chromaticity Bin:

Color	Bin Code	Spec. Range			
		(x_1,y_1)	(x_2,y_2)	(x_3,y_3)	(x_4,y_4)
	B3	0.307,0.315	0.287,0.295	0.304,0.330	0.283,0.305
	B4	0.307,0.315	0.330,0.339	0.330,0.360	0.304,0.330
	B5	0.296,0.276	0.287,0.295	0.307,0.315	0.311,0.294
	B6	0.311,0.294	0.307,0.315	0.330-0.339	0.330,0.318
	C0	0.330,0.318	0.330,0.360	0.361,0.385	0.356,0.351
@20mA / Ta=25^{O} C, ± 0.01					



@20mA / Ta=25^{O} C, Tolerance: ± 0.01

Product Characteristics

Electro-Optical Characteristics

(I_F @ 20mA, T_a 25 °C)

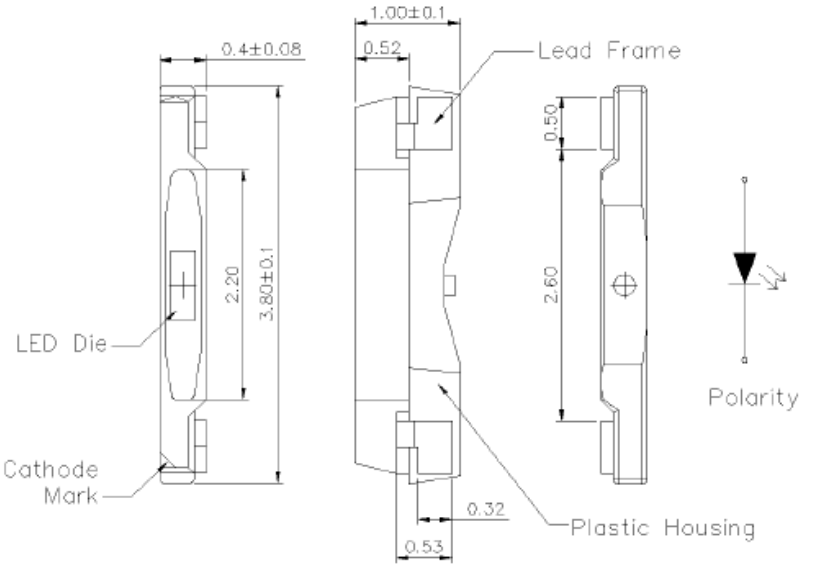
Product No.	Lighting Color	Material	V_F(V)		λ (nm)			I^*_V(mcd)
			Typ.	max	λ_D	λ_P	△λ	Typ.
HT-F104TW	White	InGaN	3.2	3.4	X=0.31 Y=0.33	--	--	2000

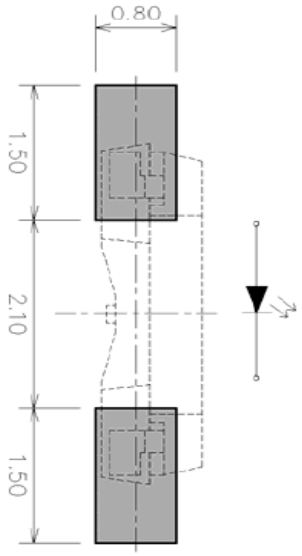
* Per NIST standards

Package Outline Dimension

Unit: mm Tolerance: +/-0.01

Outline Dimension：





Absolute Maximum Ratings

(T_a 25 °C)

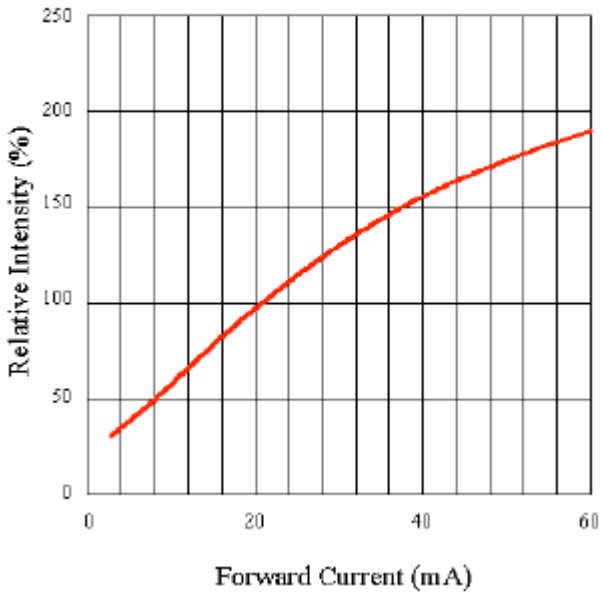
Series	P_d (mW)	I_F (mA)	I_{FP} (mA)	Ir (μA) @ V_R = 5 V	T_{OP} (°C)	T_{ST} (°C)
HT-F104TW	117	25	100	<1μA	-30~+85	-40~+100

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

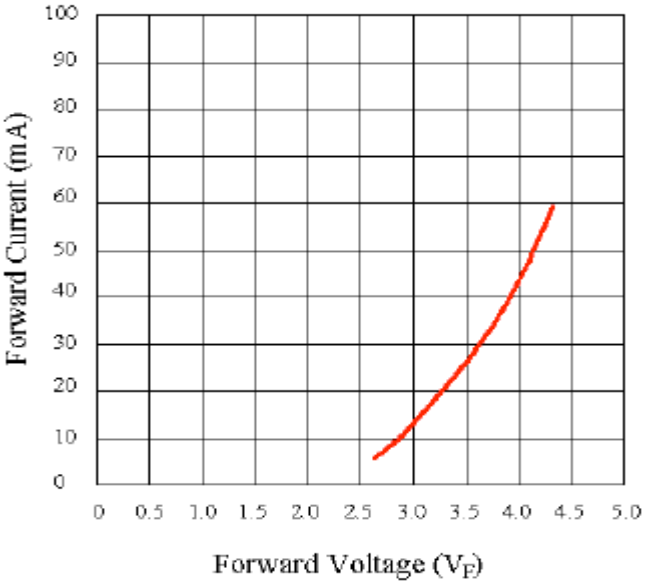
**Remarks: This product should be operated in forward bias. If a reverse voltage is continuously applied to the product, such operation can cause migration resulting in LED damage.

Characteristics Curves

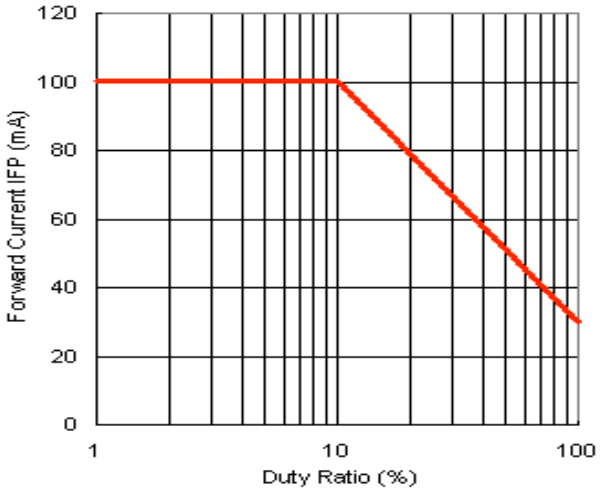
Relative Intensity vs. Forward Current



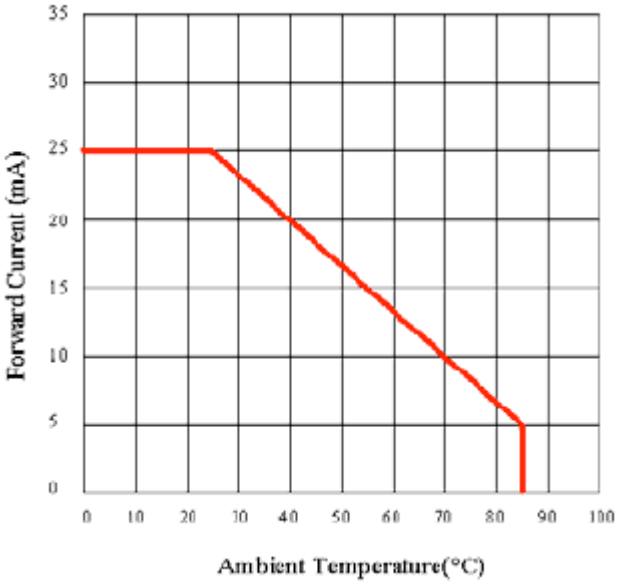
Forward Voltage vs. Forward Current

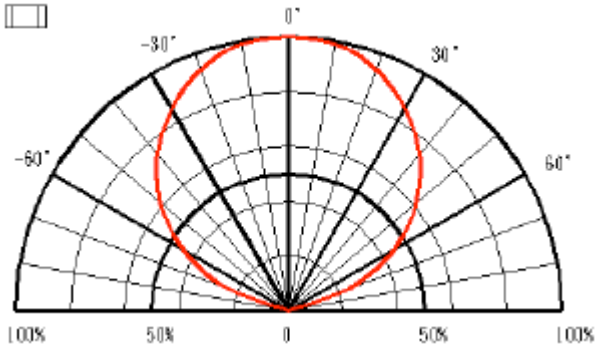


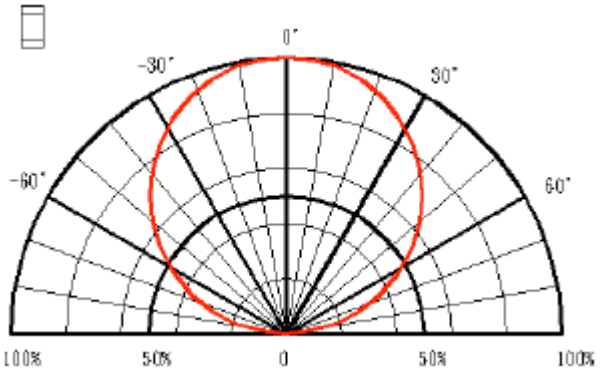
Forward Current vs. Duty Ratio



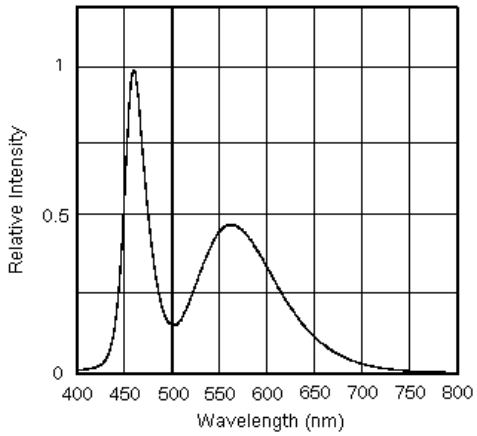
Forward Current vs. Ambient Temperature



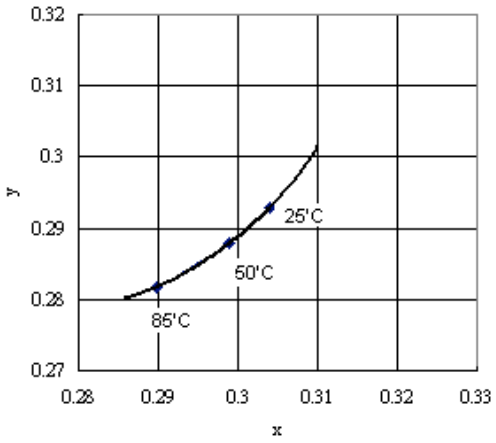




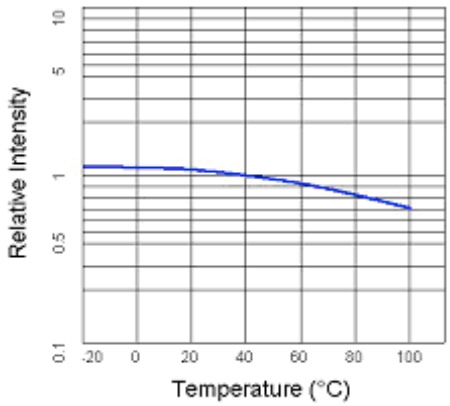
Spectrum



Ambient Temperature vs. Chromaticity Coordinate

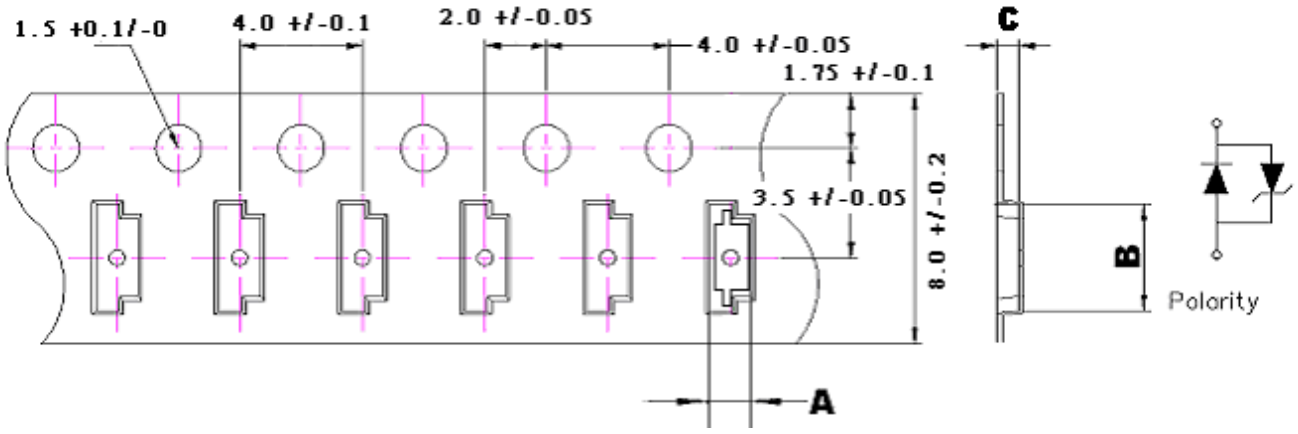


Relative Intensity vs. Ambient Temperature



Packaging Tape, Reel, and Packing Model

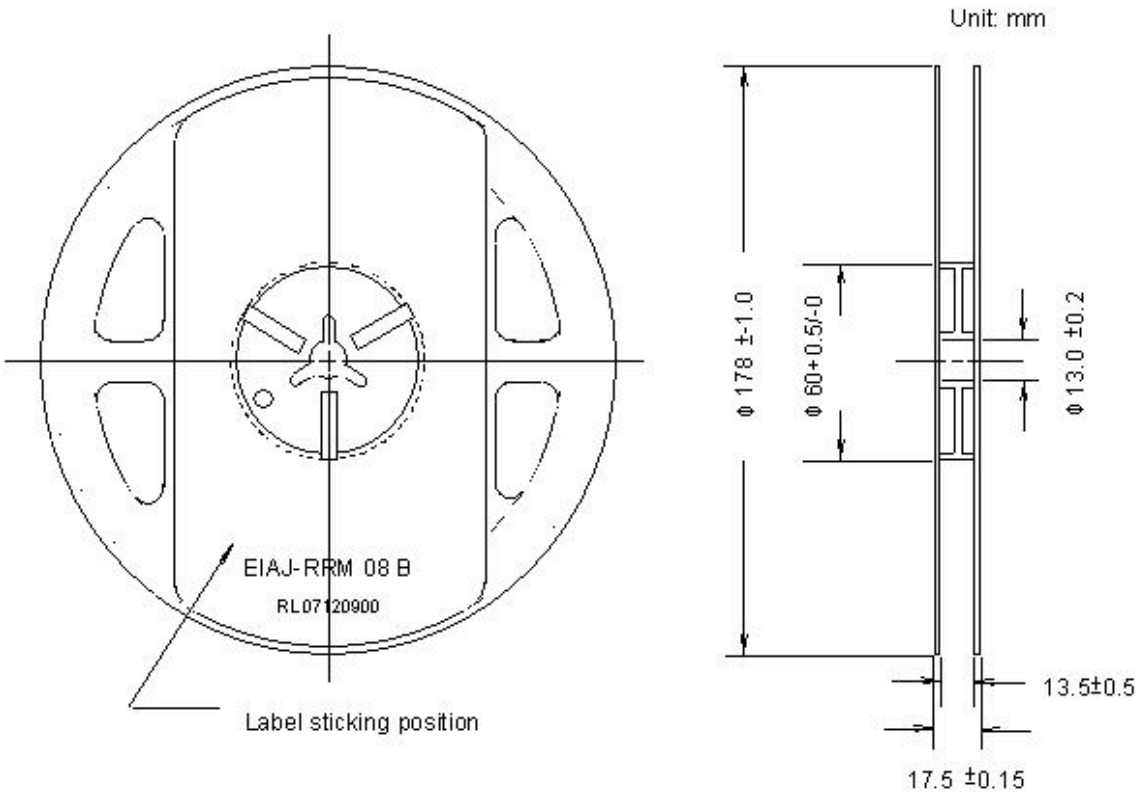
Tape Dimension



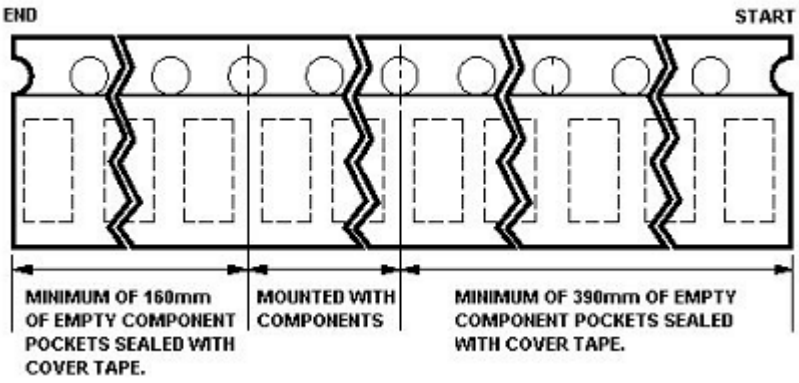
Part No.	Dim. A	Dim. B	Dim. C	Q'ty/Reel
HT-F104				1K

Unit: mm

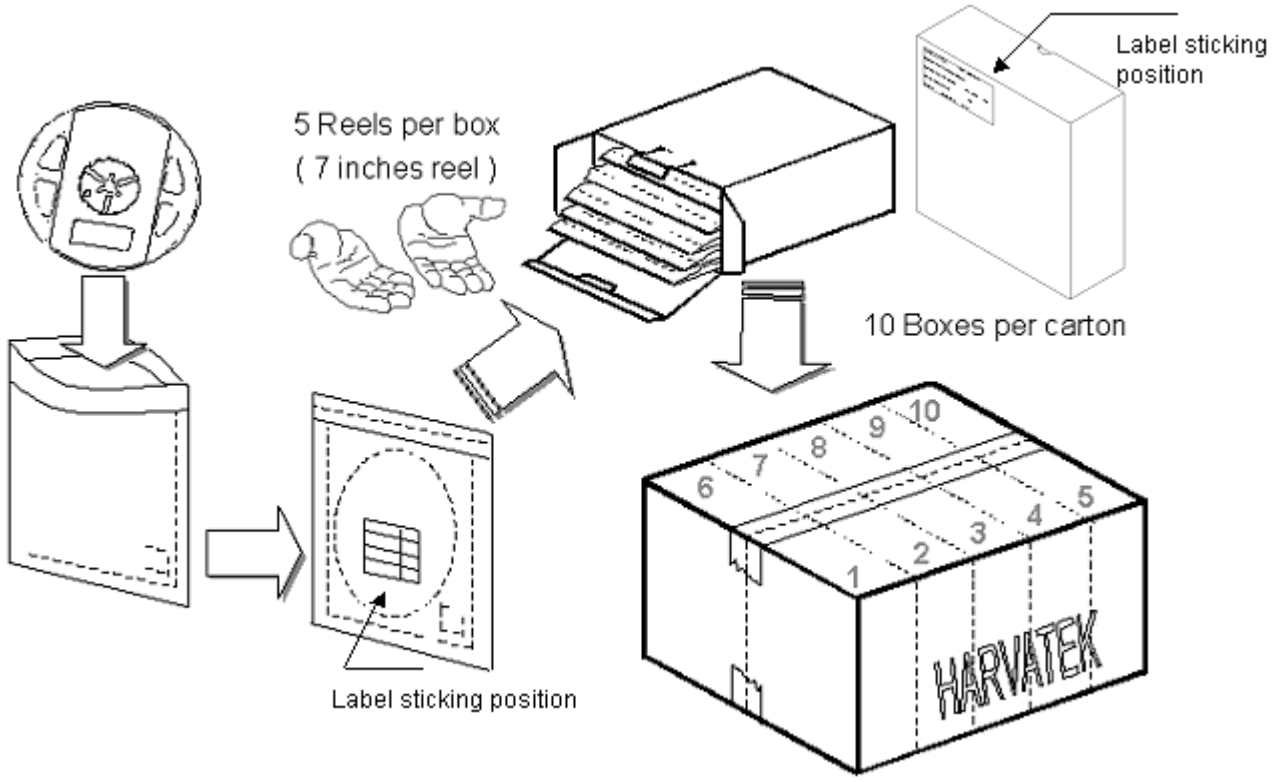
Reel Dimension



Tape Leader and Trailer Dimension



Packing Model



5 boxes per carton is available according to shipping quantity.

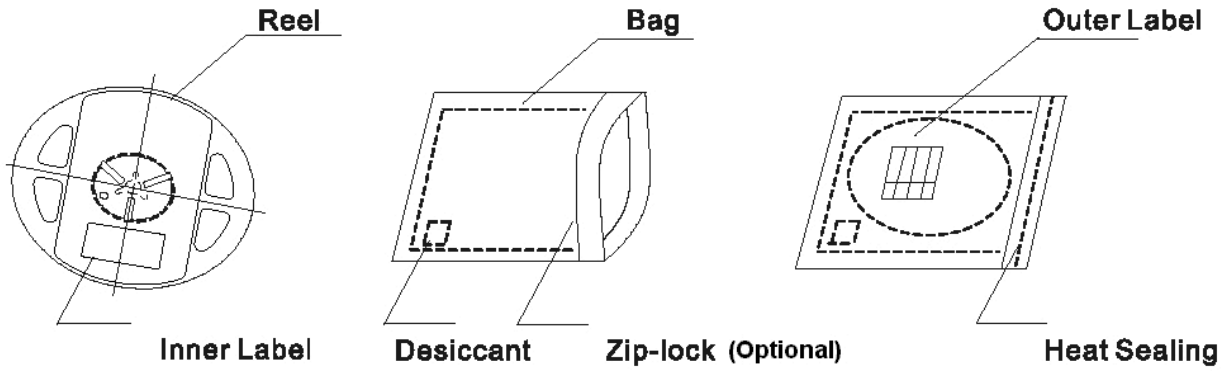
Cardboard Box Size	Dimensions(cm)	Reel/box	Quantity/box (pcs)
Small	45 x 26 x 30	25 reels Max.	50, 000 Max
Large	50 x 46 x 30	50 reels Max.	100, 000 Max

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.

The package is the following:



Storage

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

Humidity: 60 %RH Max.

Temperature: 5 ^{O}C ~30 ^{O}C (41^{O}F~86 ^{O}F)

1 Shelf life in sealed bag: 12 month at<40 ^{O}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 ≦ 30 ^{O}C /60% RH, or

2.2 Stored at ≦ 20% RH with zip-lock sealed.

Baking

It's recommended to bake before soldering when the pack is unsealed after 15 days. The conditions are as followings:

a) 60 ±3^{O}C×(12~24hrs) and < 5% RH, taped reel type

b) 100±3^{O}C×(45min~1hr), bulk type

c) 130±3^{O}C×(15~30min), bulk type

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.

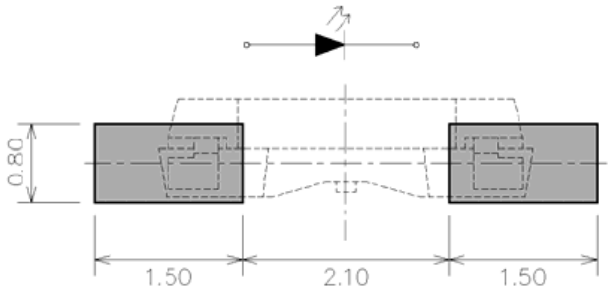
Electric-static may cause damage to the component. Please confirm that the equipment grounding well. Using an ionizer fan is recommended.

PRECAUTIONS

1. Avoid absorbing moisture at any time during transportation or storage.
2. Anti-Static process is needed especially when handling GaN, InGaN, and AlInGaP products.
3. It is suggested to connect the unit with a proper series current limit resistor. Avoid driving reverse voltage over the specification of LEDs when turning the unit ON/OFF.
4. Any application should refer to the specifications of absolute maximum ratings.
5. Avoid any direct contact with the viewing area.
6. If possible, assemble the unit in a clean room or dust-free environment.

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. Recommended soldering pattern is listed below.



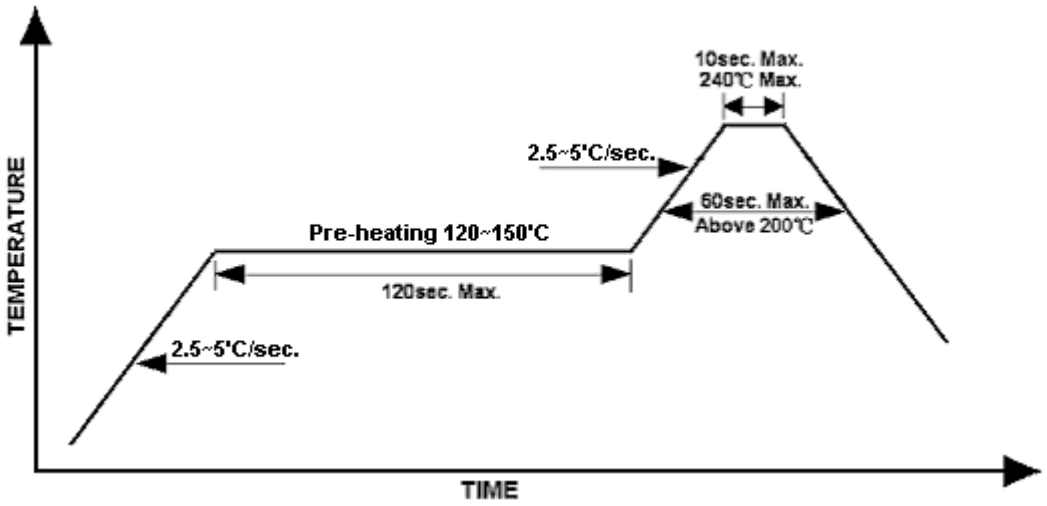
unit: mm

Soldering terminal may shift in x, y direction.

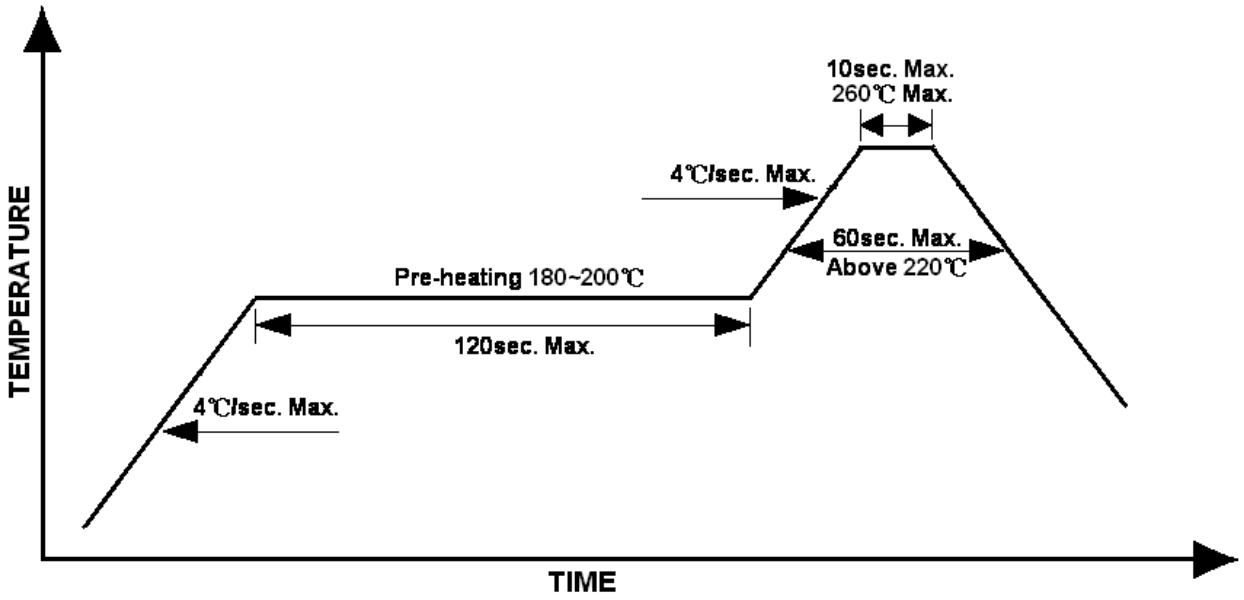
Re-flow Soldering

- Recommend tin glue specifications:
  Melting temperature: 178~192 ^{O}C
- Never take next process until the component is cooled down to room temperature after re-flow.
- The recommended re-flow soldering profile (measuring on the surface of the LED resin) is following:

Lead Solder



Lead-free Solder



Rework

- Customer must finish rework within 5 sec. under 260 ^{O}C.
- The head of iron cannot touch copper foil.
- Twin-head type is preferred.

Cleaning

The conditions of cleaning after soldering:

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

Temperature×Time: <50 ^{O}C×30sec, or <30 ^{O}C×3min

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

Curing: 100 ^{O}C max, <3min

Do not contact with component on the assembly board.

Revision History

Changes since last revision	Page	Version No.	Revision Date
Initial Release		V1.0	06-25-2013

X-ON Electronics

Largest Supplier of Electrical and Electronic Components

Click to view similar products for Standard LEDs - SMD ***category:***

Click to view products by Harvatek ***manufacturer:***

Other Similar products are found below :

LTST-C190KYKT LTST-C19GD2WT LTST-N683GBEW LTW-170ZDC 598-8110-100F 598-8170-100F 598-8610-202F 67-22VRVGC/TR8 AAAF5060QBFSEEZGS HLMA-QG00-S0021 HLMP-6305-L0011 ALMD-LB36-SV002 APT1608QGW 15-21UYC/S530-A3/TR8 EAST2012YA0 EASV1803BA0 LG M67K-H1J2-24-0-2-R18-Z LS A676-P2S1-1 SML310BATT86 SML-LX0606SISUGC/A SML-LXL1307SRC-TR SML-LXR851SIUPGUBC LT1ED53A FAT801-S AM27ZGC03 APB3025SGNC APFA3010SURKCGKQBDC APHK1608VGCA APT2012QGW LTST-C250KGKT LTW-010DCG LTW-020ZDCG LTW-21TS5 LTW-220DS5 LY L29K-H1J2-26 UYGT801-S 42-21UYC/S530-A3/TR8 LO T67F-V1AB-24-1 YGFR411-H 598-8330-117F SML-LX0402IC-TR CMDA20AYAA7D1S CMDA16AYDR7A1X 598-8040-100F 598-8070-100F 598-8140-100F 598-8610-200F EAST2012GA0 EAPL3527GA5 EASV3020YGA0