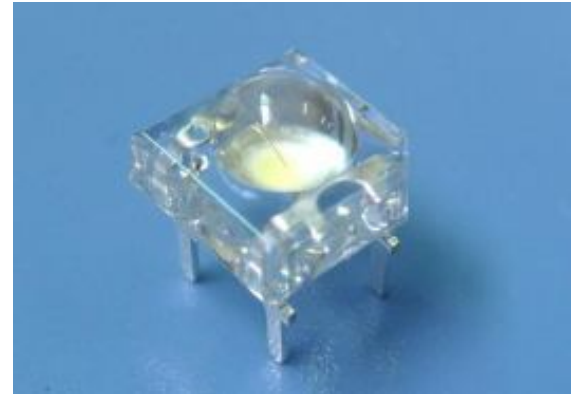


Part: HL-112H238WC-MD



**ATTENTION**  
OBSERVE PRECAUTIONS  
FOR HANDLING  
ELECTROSTATIC  
DISCHARGE  
SENSITIVE  
DEVICES



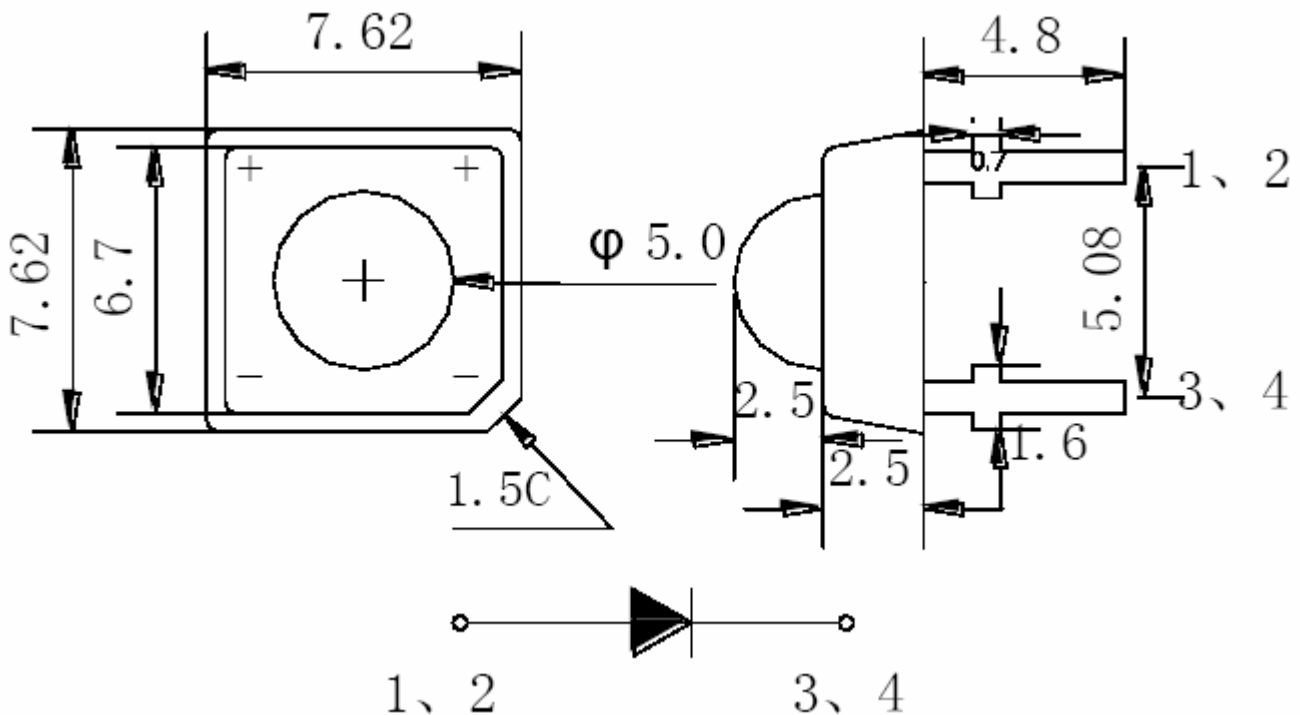
**Features:**

- $\phi 5$  Super Flux LEDs
- LOW POWER CONSUMPTION.
- WIDE VIEWING ANGLE.
- IDEAL FOR BACKLIGHT, LIGHTING AND INDICATOR.
- PACKAGE: 60PCS / PIPE

**Description:**

This devices are made with TS InGaN.

**Package Dimensions:**



Tolerance Grade	Dimension Tolerance (UNIT:mm)			
	0.5~3	3~6	6~30	30~120
Medium (m)	$\pm 0.1$	$\pm 0.2$	$\pm 0.3$	$\pm 0.5$
<b>Chip</b>		<b>Lens Color</b>		
Material	Emitting Color	Water Clear		
InGaN	White			

**■ Absolute Maximum Rating**

Item	Symbol	Absolute Maximum Rating	Unit
Forward Current	IF	20	mA
Peak Forward Current*	IFP	100	mA
Reverse Voltage	VR	5	V
Power Dissipation	PD	80	mW
Electrostatic discharge	ESD	1500	V
Operation Temperature	Topr	-30~+80	°C
Storage Temperature	Tstg	-30~+80	°C
Lead Soldering Temperature*	Tsol	Max. 260°C for 5sec Max.	

\* IFP Conditions: Pulse Width≤10msec

\* Tsol Conditions: 3mm from the base of the epoxy bulb

**■ Typical Optical/ Electrical Characteristics**

Item	Symbol	Condition	Min.	Typ.	Max.	Unit
Forward Voltage	VF	IF=20mA	2.8	3.2	3.6	V
50% Power Angle	2θ 1/2		--	65	--	deg
Luminous Intensity	Iv		2900	--	3770	mcd
Luminous Flux	φv		--	5.5	--	lm
Chromaticity coordinates	X		--	0.31	--	X: ±0.015
	Y		--	0.32	--	Y: ±0.025
Prpcp Wavelength	λD		--	--	--	nm
Recommend Forward Current	IF(rec)	--	--	--	20	mA
Reverse Current	IR	Vr=5V	--	--	10	uA

Notes:

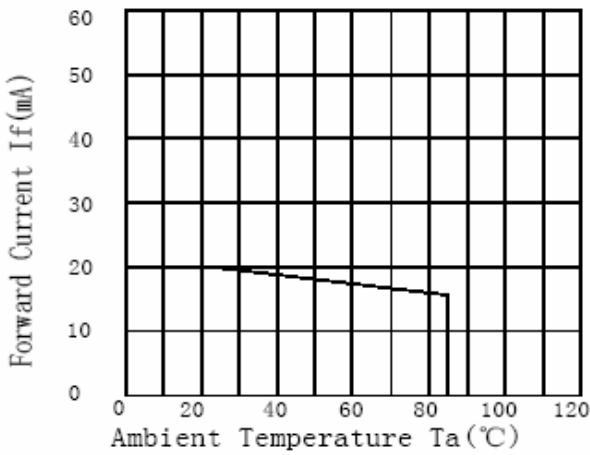
1. Absolute maximum ratings Ta=25°C.
2. Tolerance of measurement of forward voltage±0.1V.
3. Tolerance of measurement of peak Wavelength±2.0nm.
4. Tolerance of measurement of luminous intensity±15%.
5. Tolerance of measurement of angle intensity±15%.

**■ Reliability Performance Test Items And Result**

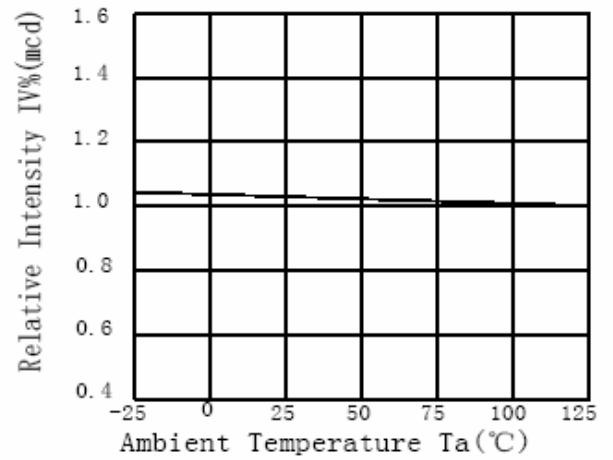
Test Classification	Test Item	Test Conditions	Test Duration	Sample Size	AC/RE
Life Test	Room Temperature DC Operating Life Test	Ta=25°C ±5°C, IF=20mA	1000 hrs	22 pcs	0/1
Environment Test	Thermal Shock Test	100°C ±5°C 5min ↑↓ -40°C ±5°C 5min.	100 cycles	22 pcs	0/1
	Temperature Cycle Test	100°C ±5°C 30min ↑↓5min -40°C ±5°C 30min.	100 cycles	22 pcs	0/1
	Temperature & Cycle Test	85°C ±5°C /85% RH IF=5mA	1000 hrs	22 pcs	0/1
	Temperature Cycle Test	Ta=100°C ±5°C	1000 hrs	22 pcs	0/1
	Low Temperature Storage	Ta=100°C ±5°C	1000 hrs	22 pcs	0/1
Mechanical Test	Resistance to Soldering Heat	Ta=100°C ±5°C	1times	22 pcs	0/1
	Lead Integrity	Load 2.5N(0.25kgf) 0° ~ 90° ~ 0°	3times	22 pcs	0/1



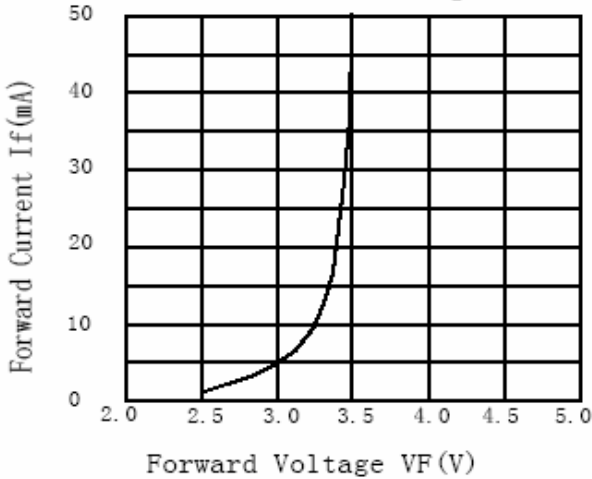
Forward Current vs.  
Ambient Temperature



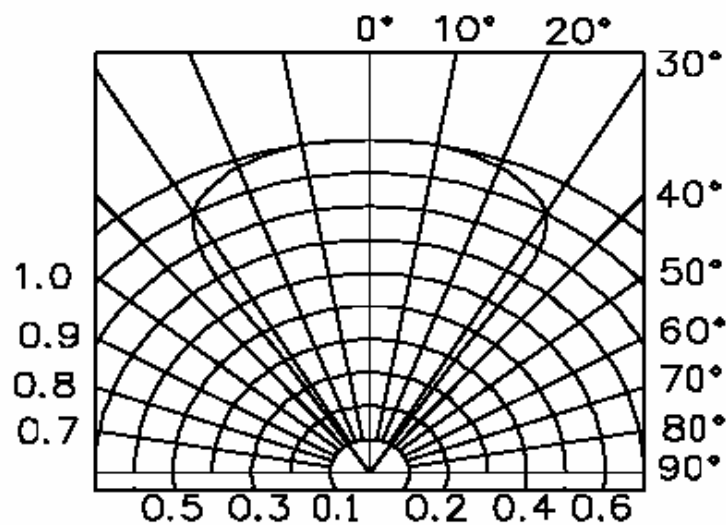
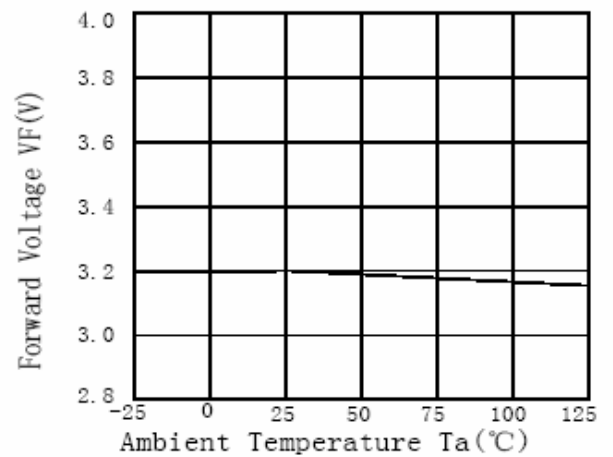
Relative Intensity vs.  
Ambient Temperature

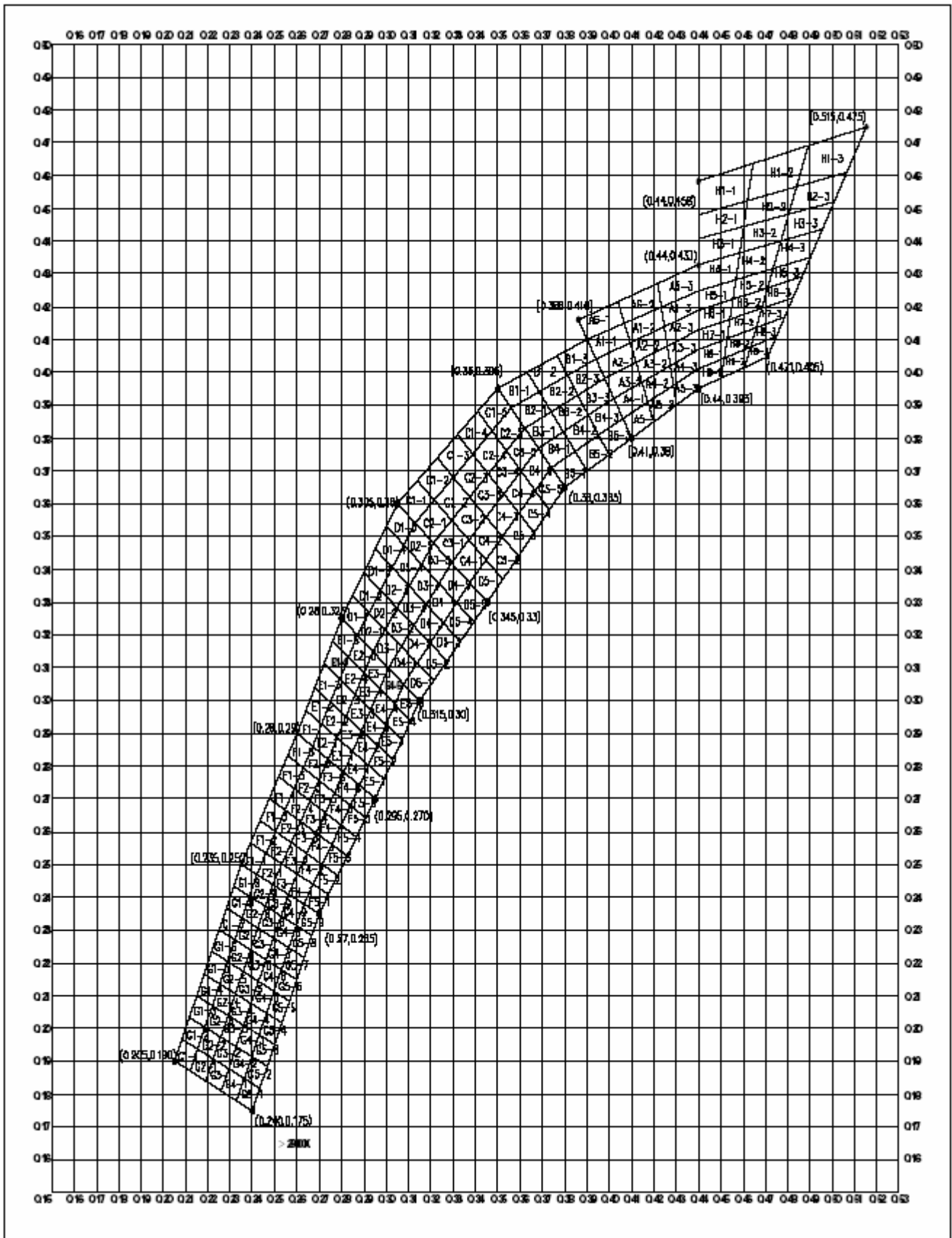


Forward Current vs.  
Forward Voltage

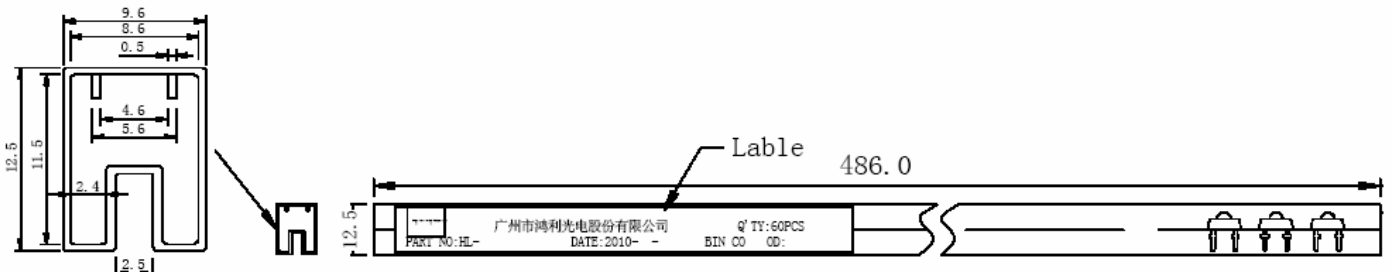


Forward Voltage vs.  
Ambient Temperature





## Package means



### Soldering:

#### 1. Manual Of Soldering

The temperature of the iron tip should not be higher than 260°C (500°F) and Soldering within 3 seconds per solder-land is to be observed.

#### 2. DIP soldering (Wave Soldering):

Preheating: 120°C ~150°C, within 120~180 sec.

Operation heating: 245°C ±5°C within 5 sec. 260°C (Max)

Gradual Cooling (Avoid quenching).

