

# Surface Mount LEDs

## Explanation of Part Number:

H C L - 1 9 0 3 - 4
  
①                      ②                      ③                      ④

### 1.Surface mount products kinds:

HCL: Chip SMD LEDs.

### 2.Shape distinguish:

- 140: 1208, with reflector flat top, 3.0(L) X 2.0(W) X 1.0(H) mm.
- 150: 1206, flat top, 3.2(L) X 1.6(W) X 1.1(H) mm.
- 151: 1206, with lens, 3.0(L) X 1.5(W) X 1.5(H) mm.
- 153: 1204, right angle, 3.2(L) X 1.0(W) X 1.5(H) mm.
- 155: 1210, flat top dual color, 3.2(L) X 2.7(W) X 1.1(H) mm.
- 156: 1210, with lens dual color, 3.0(L) X 2.5(W) X 1.5(H) mm.
- 170: 0805, flat top, 2.0(L) X 1.25(W) X 1.1(H) mm.
- 190: 0603, flat top, 1.6(L) X 0.8(W) X 0.8(H) mm.
- 191: 0603, flat top, 1.6(L) X 0.8(W) X 0.38(H) mm.

### 3.Dice kinds:

according to chip characteristic distinguish.  
see below table.

### 4.Special lens appearance:

- 1:colored diffusion. 2:colored clear.
- 3:white diffusion. 4:water clear

Type	Material	Absolute Maximum Rating				Electro-Optical Characteristics									
		P <sub>D</sub>	I <sub>F</sub>	I <sub>FM</sub>	V <sub>R</sub>	wavelength			forward voltage			reverse current			
						λ <sub>p</sub>	λ <sub>d</sub>	Δλ	I <sub>F</sub>	typ	Max	I <sub>R</sub>	Max	V <sub>R</sub>	
2	GaP/GaP	90	20	50	5	700	658	100	20	2.20	2.80	20	10	5	
3 ,DG,CG	GaP/GaP	84	25	50	5	570	567	30	20	2.15	2.80	20	10	5	
3BG	AllnGaP/GaAs	100	25	50	5	575	572	20	20	2.20	2.40	20	10	5	
3BA	GalnN/GaN	120	30	100	5	502	505	30	20	3.50	4.00	20	60	4	
3AGCA	GalnN/GaN	120	30	100	5	523	525	45	20	3.50	4.00	20	60	4	
4 AY,FY	AllnGaP/GaAs	100	25	50	5	592	590	25	20	2.00	2.40	20	10	5	
4SY,UY,HY	AllnGaP/GaP	100	30	100	5	592	590	25	20	2.25	2.60	20	10	5	
5 AO,FO	AllnGaP/GaAs	100	25	50	5	620	615	20	20	2.00	2.60	20	10	5	
5AOR	AllnGaP/GaAs	100	25	50	5	635	626	25	20	2.00	2.50	20	10	5	
5SOR,HO	AllnGaP/GaP	100	30	100	5	638	629	25	20	2.25	2.60	20	10	5	
6 DR,CR	GaAlAs/GaAs	110	30	50	5	660	643	30	20	1.80	2.40	20	10	5	
6BR	AllnGaP/GaAs	100	25	50	5	655	638	25	20	2.10	2.60	20	10	5	
6 AR,ARA	GaAlAs/GaAlAs	110	25	50	5	660	645	20	20	1.86	2.50	20	10	5	
6UOR,HOR	AllnGaP/GaP	100	25	50	5	638	629	20	20	2.10	2.40	20	10	10	
7 AA,FA,HA	AllnGaP/GaAs	100	25	50	5	607	605	20	20	2.00	2.40	20	10	5	
8ABC,ABD ABE	GalnN/GaN	120	30	100	5	465	470	35	20	3.50	4.00	20	60	4	
9AWD,AWE YWD,YWE	GalnN/GaN	120	30	100	5	---	---	---	---	3.50	4.00	20	60	4	
unit		mW	mA	mA	V	nm	nm	nm	mA	V	V	mA	uA	V	

I<sub>FM</sub> condition: 1/10 duty cycle, pulse width =0.1ms.

## Contacts:

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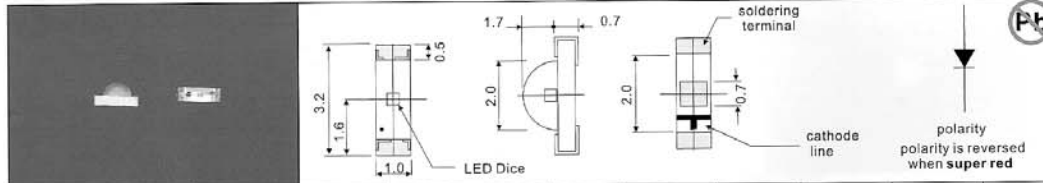
## Surface Mount LEDs

RoHS Conformity

Right Angle Type 3.2mm(L) X 1.0mm(W) X 1.5mm(H)

IF=20mA Ta=25°C

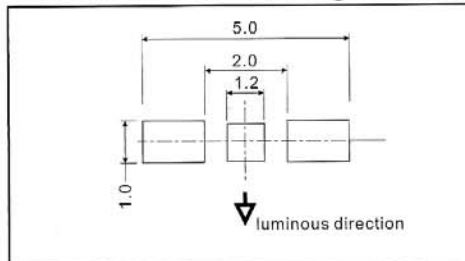
Device No	Color		Wavelength (nm)		VF Typical (V)	Brightness (mcd)		View Angle 2θ1/2
	Emitter	Lens	λp	λd		IV1	IV2	



Device No	Color	Wavelength (nm)	VF (V)	Brightness (mcd)	View Angle
HCL-1532	hi-red	700	2.20	2.7	120
HCL-1533	yellow green	570	2.15	13.5	
HCL-1533BG1	super yellow green	575	2.20	60.0	
HCL-1533SG	standard green	567	2.15	7.0	
HCL-1533PG	pure green	557	2.25	3.9	
HCL-1534	yellow	589	2.10	7.5	
HCL-1534AYL	super yellow	592	2.00	60.0	
HCL-1535	hi-eff red	625	2.05	13.5	
HCL-1535AOR	super fresh red	635	2.00	60.0	
HCL-1536DR	super red	660	1.80	25.5	
HCL-1536CR	super red	660	1.80	37.5	
HCL-1537	amber	610	2.05	6.0	
HCL-1537AA	super amber	610	2.00	60.0	
HCL-1538ABC	super blue	468	3.50	60.0	

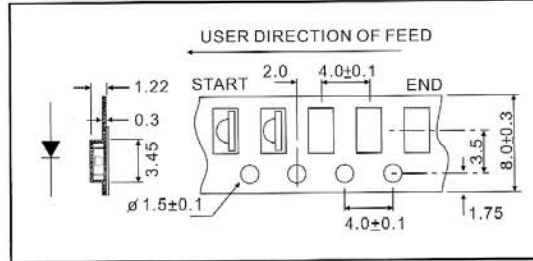
IV1:Labsphere LED-1100 IV2:EXELTRON 2001.

### Recommended Soldering Pattern:



### Tape Specifications:

( 3,000pcs/Reel )



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