



LED Lamp Products

Explanation of Part Number:

$\frac{H}{①} \frac{B}{②} \frac{5}{③} \frac{d}{-} \frac{4}{④} \frac{3}{⑤} \frac{6}{⑥} \frac{A}{⑦} \frac{R}{⑧} - \frac{C}{/} \frac{F}{⑧} \frac{3}{⑧}$

① **Title:**

H: huey-jann co., ltd.

② **Shape distinguish:**

B: bell (round) type.
 C: cylindrical type.
 R: rectangular type.
 S: step type.
 T: triangular type.

③ **Identification No:**

④ **Lens appearance:**

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

⑤ **Lead frame type:**

1: no reflector cup, stopper lead, 2.54mm pitch.
 2: no reflector cup, short lead, 2.29mm pitch.
 3: big reflector cup, long lead, 2.54mm pitch.
 4: small reflector cup, long lead, 2.54mm pitch.
 8: side look use, 2.54mm pitch.
 9: small reflector cup, 3 lead, 2.54mm pitch.
 0: big reflector cup, 3 lead, 2.54mm pitch.

⑥ **Dice kinds:**

according to chip characteristic distinguish.
 see below table1.

⑦ **View angle:**

A, B, C... (C>B>A).

⑧ **Forming type:**

T	P	F1	F2	F3	F4	F5	F6
tapping see page54,55							

table 1.

Ta=25°C

Type	Material	Absolute Maximum Rating				Electro-Optical Characteristics								
		P _D	I _F	I _{FM}	V _R	wavelength			forward voltage			reverse current		
						λ _p	λ _d	Δλ	I _F	typ	Max	I _F	Max	V _R
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
3BGA	GalnN/SiC	135	30	100	5	502	505	30	20	3.50	4.00	20	10	5
3AG	GalnN/GaN	120	30	100	5	523	525	45	20	3.50	4.00	20	10	5
4	GaAsP/GaP	90	25	50	5	589	585	35	20	2.10	2.80	20	10	5
4 CY,AY,FY	AllnGaP/GaAs	100	25	50	5	592	590	25	20	2.00	2.40	20	10	5
5	GaAsP/GaP	90	30	50	5	625	618	45	20	2.05	2.80	20	10	5
5 CO,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
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
7	GaAsP/GaP	90	30	50	5	610	606	35	20	2.05	2.60	20	10	5
7 CA,AA,FA	AllnGaP/GaAs	100	25	50	5	607	605	20	20	2.00	2.40	20	10	5
8CB	GalnN/SiC	135	30	100	5	468	470	26	20	3.80	4.20	20	10	5
8AB,BB	GalnN/GaN	120	30	100	5	465	470	35	20	3.50	4.00	20	60	4
9CW	GalnN/SiC	135	30	100	5	---	---	---	---	3.80	4.20	20	10	5
9AW,BW	GalnN/GaN	120	30	100	5	---	---	---	---	3.60	4.00	20	60	4
unit		mW	mA	mA	V	nm	nm	nm	mA	V	V	mA	uA	V

I_{FM} condition: 1/10 duty cycle, pulse width =0.1ms.

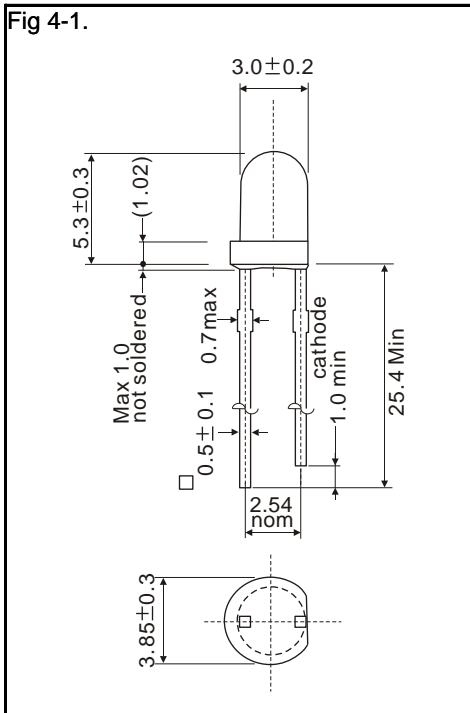


Extra Bright LEDs

IF=20mA Ta=25°C

Device No	Color		Wavelength(nm)		VF Typical (V)	Brightness (mcd)		View Angle 2θ½	Drawing Figure
	Emitter	Lens	λp	λd		Minimum	Typical		
HB3b-443DG	yellow green	water clear	570	567	2.15	250	400	18	4-1
HB3b-443CG	yellow green	water clear	570	567	2.15	500	700	18	
HB3b-443BG	yellow green	water clear	575	572	2.20	1200	1600	14	
HB3b-443BGA	bluish green	water clear	502	505	3.50	1600	3200	14	
HB3b-444CY	yellow	water clear	592	590	2.00	600	900	10	
HB3b-444AY	yellow	water clear	592	590	2.00	1300	1800	10	
HB3b-444FY	yellow	water clear	592	590	2.00	2200	2500	10	
HB3b-445CO	orange	water clear	620	615	2.00	600	900	10	
HB3b-445AO	orange	water clear	620	615	2.00	1300	1800	10	
HB3b-445FO	orange	water clear	620	615	2.00	2200	2500	10	
HB3b-445AOR	fresh red	water clear	635	626	2.00	1500	2000	10	
HB3b-446DR	deep red	water clear	660	643	1.80	400	500	14	
HB3b-446CR	deep red	water clear	660	643	1.80	650	900	14	
HB3b-446BR	soft red	water clear	655	638	2.10	750	1000	10	
HB3b-446AR	deep red	water clear	660	645	1.86	1200	1800	19	
HB3b-446ARA	deep red	water clear	660	645	1.86	1500	2000	19	
HB3b-447CA	amber	water clear	607	605	2.00	600	900	10	
HB3b-447AA	amber	water clear	607	605	2.00	1300	1800	10	
HB3b-447FA	amber	water clear	607	605	2.00	2200	2500	10	
HB3b-448CB	blue	water clear	468	470	3.80	400	800	15	
HB3b-448BB	blue	water clear	465	470	3.50	530	1100	15	

Dimension: Unit : mm.





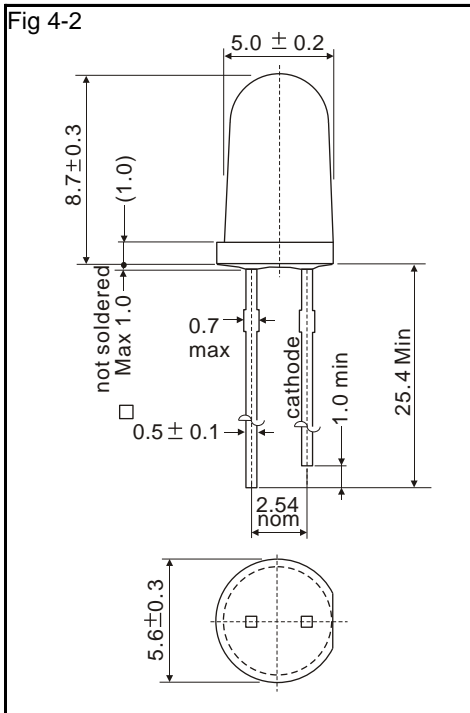
Extra Bright LEDs

IF=20mA Ta=25°C

Device No	Color		Wavelength (nm)		VF Typical (V)	Brightness (mcd)		View Angle 2θ½	Drawing Figure
	Emitter	Lens	λp	λd		Minimum	Typical		
HB5b-433DG	yellow green	water clear	570	567	2.15	550	850	12	4-2
HB5b-433CG	yellow green	water clear	570	567	2.15	800	1200	12	
HB5b-433BG	yellow green	water clear	575	572	2.20	2000	2800	10	
HB5b-433BGA	bluish green	water clear	502	505	3.50	3500	7000	10	
HB5b-434CY	yellow	water clear	592	590	2.00	1500	2000	9	
HB5b-434AY	yellow	water clear	592	590	2.00	2800	3500	9	
HB5b-434FY	yellow	water clear	592	590	2.00	5000	6000	7	
HB5b-435CO	orange	water clear	620	615	2.00	1500	2000	9	
HB5b-435AO	orange	water clear	620	615	2.00	2800	3500	9	
HB5b-435FO	orange	water clear	620	615	2.00	5000	6000	7	
HB5b-435AOR	fresh red	water clear	635	626	2.00	3000	4500	7	
HB5b-436DR	deep red	water clear	660	643	1.80	500	800	6	
HB5b-436CR	deep red	water clear	660	643	1.80	1000	1400	6	
HB5b-436BR	soft red	water clear	655	638	2.10	1200	1500	7	
HB5b-436AR	deep red	water clear	660	643	1.86	2400	3000	7	
HB5b-436ARA	deep red	water clear	660	645	1.86	3000	4000	7	
HB5b-437CA	amber	water clear	607	605	2.00	1500	2000	9	
HB5b-437AA	amber	water clear	607	605	2.00	2800	3500	9	
HB5b-437FA	amber	water clear	607	605	2.00	5000	6000	7	
HB5b-438CB	blue	water clear	468	470	3.80	500	1000	10	
HB5b-438BB	blue	water clear	465	470	3.50	600	1350	10	

φ 5

Dimension: Unit : mm.





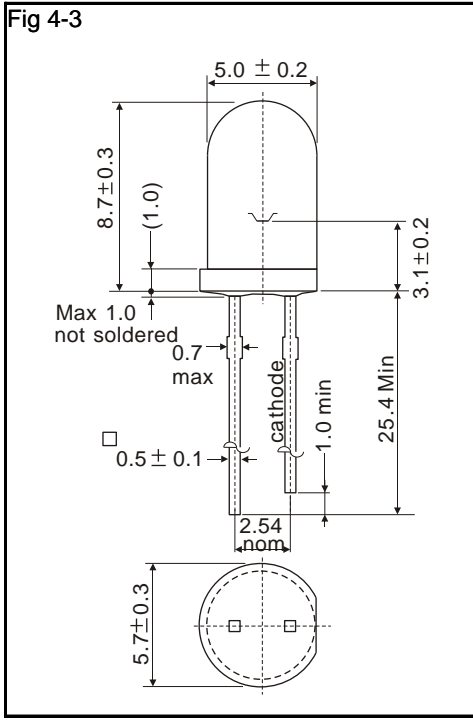
Extra Bright LEDs

IF=20mA Ta=25°C

Device No	Color		Wavelength (nm)		VF Typical (V)	Brightness (mcd)		View Angle 2θ½	Drawing Figure
	Emitter	Lens	λp	λd		Minimum	Typical		
HB5-433DG	yellow green	water clear	570	567	2.15	500	800	14	4-3
HB5-433CG	yellow green	water clear	570	567	2.15	700	1200	14	
HB5-433BG	yellow green	water clear	575	572	2.20	1300	2500	12	
HB5-433BGA	bluish green	water clear	502	505	3.50	3000	6500	12	
HB5-434CY	yellow	water clear	592	590	2.00	1200	1500	12	
HB5-434AY	yellow	water clear	592	590	2.00	2500	3000	12	
HB5-434FY	yellow	water clear	592	590	2.00	4500	5500	12	
HB5-435CO	orange	water clear	620	615	2.00	1200	1500	12	
HB5-435AO	orange	water clear	620	615	2.00	2500	3000	12	
HB5-435FO	orange	water clear	620	615	2.00	4500	5500	12	
HB5-435AOR	fresh red	water clear	635	626	2.00	2500	4500	12	
HB5-436DR	deep red	water clear	660	643	1.80	400	800	12	
HB5-436CR	deep red	water clear	660	643	1.80	800	1200	12	
HB5-436BR	soft red	water clear	655	638	2.10	800	1300	12	
HB5-436AR	deep red	water clear	660	645	1.86	1500	2400	12	
HB5-436ARA	deep red	water clear	660	645	1.86	2000	3500	12	
HB5-437CA	amber	water clear	607	605	2.00	1200	1500	12	
HB5-437AA	amber	water clear	607	605	2.00	2500	3000	12	
HB5-437FA	amber	water clear	607	605	2.00	4500	5500	12	
HB5-438CB	blue	water clear	468	470	3.80	450	950	12	
HB5-438BB	blue	water clear	465	470	3.50	600	1250	12	

φ 5

Dimension: Unit : mm.





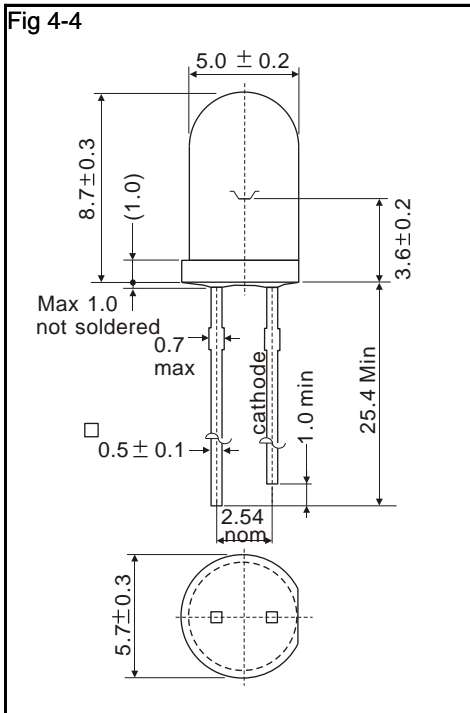
Extra Bright LEDs

IF=20mA Ta=25°C

Device No	Color		Wavelength (nm)		VF Typical (V)	Brightness (mcd)		View Angle 2θ½	Drawing Figure
	Emitter	Lens	λp	λd		Minimum	Typical		
HB5-433DG-B	yellow green	water clear	570	567	2.15	450	600	16	4-4
HB5-433CG-B	yellow green	water clear	570	567	2.15	600	900	16	
HB5-433BG-B	yellow green	water clear	575	572	2.20	1600	2000	15	
HB5-433BGA-B	bluish green	water clear	502	505	3.50	1200	2200	15	
HB5-434CY-B	yellow	water clear	592	590	2.00	1000	1300	15	
HB5-434AY-B	yellow	water clear	592	590	2.00	2300	2800	15	
HB5-434FY-B	yellow	water clear	592	590	2.00	4000	5000	15	
HB5-435CO-B	orange	water clear	620	615	2.00	1000	1300	15	
HB5-435AO-B	orange	water clear	620	615	2.00	2300	2800	15	
HB5-435FO-B	orange	water clear	620	615	2.00	4000	5000	15	
HB5-435AOR-B	fresh red	water clear	635	626	2.00	2000	4000	15	
HB5-436DR-B	deep red	water clear	660	643	1.80	200	450	15	
HB5-436CR-B	deep red	water clear	660	643	1.80	500	900	15	
HB5-436BR-B	soft red	water clear	655	638	2.10	500	950	15	
HB5-436AR-B	deep red	water clear	660	645	1.86	1600	2200	15	
HB5-436ARA-B	deep red	water clear	660	645	1.86	1800	3300	15	
HB5-437CA-B	amber	water clear	607	605	2.00	1000	1300	15	
HB5-437AA-B	amber	water clear	607	605	2.00	2300	2800	15	
HB5-437FA-B	amber	water clear	607	605	2.00	4000	5000	15	
HB5-438CB-B	blue	water clear	468	470	3.80	300	700	15	
HB5-438BB-B	blue	water clear	465	470	3.50	400	930	15	

φ 5

Dimension: Unit : mm.



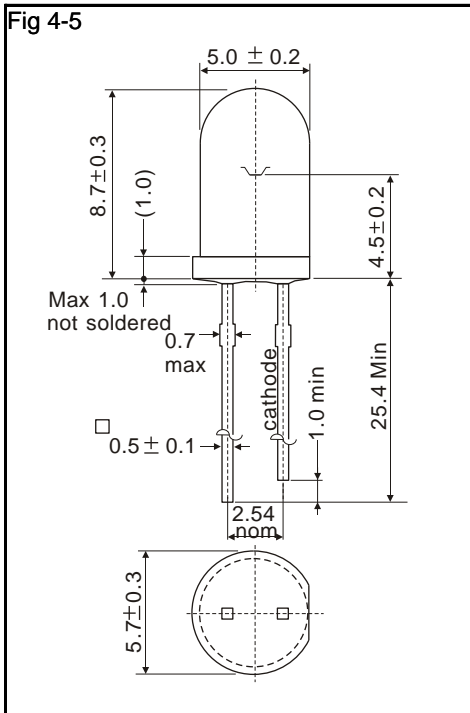


Extra Bright LEDs

IF=20mA Ta=25°C

Device No	Color		Wavelength (nm)		VF Typical (V)	Brightness (mcd)		View Angle 2θ½	Drawing Figure
	Emitter	Lens	λp	λd		Minimum	Typical		
HB5-433DG-C	yellow green	water clear	570	567	2.15	180	300	30	4-5
HB5-433CG-C	yellow green	water clear	570	567	2.15	200	500	30	
HB5-433BG-C	yellow green	water clear	575	572	2.20	400	900	40	
HB5-433BGA-C	bluish green	water clear	502	505	3.50	1800	3500	40	
HB5-434CY-C	yellow	water clear	592	590	2.00	300	450	40	
HB5-434AY-C	yellow	water clear	592	590	2.00	600	1000	40	
HB5-434FY-C	yellow	water clear	592	590	2.00	1800	2400	40	
HB5-435CO-C	orange	water clear	620	615	2.00	300	450	40	
HB5-435AO-C	orange	water clear	620	615	2.00	600	1000	40	
HB5-435FO-C	orange	water clear	620	615	2.00	1800	2400	40	
HB5-435AOR-C	fresh red	water clear	635	626	2.00	1000	1500	40	
HB5-436DR-C	deep red	water clear	660	643	1.80	150	250	30	
HB5-436CR-C	deep red	water clear	660	643	1.80	300	600	30	
HB5-436BR-C	soft red	water clear	655	638	2.10	280	500	40	
HB5-436AR-C	deep red	water clear	660	645	1.86	1500	1800	30	
HB5-436ARA-C	deep red	water clear	660	645	1.86	1600	2800	30	
HB5-437CA-C	amber	water clear	607	605	2.00	300	450	40	
HB5-437AA-C	amber	water clear	607	605	2.00	600	1000	40	
HB5-437FA-C	amber	water clear	607	605	2.00	1800	2400	40	
HB5-438CB-C	blue	water clear	468	470	3.80	150	400	40	
HB5-438BB-C	blue	water clear	465	470	3.50	200	550	40	

Dimension: Unit : mm.





Extra Bright LEDs

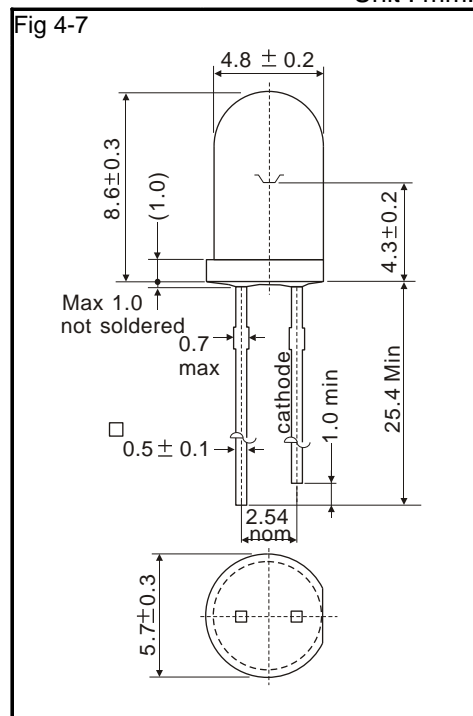
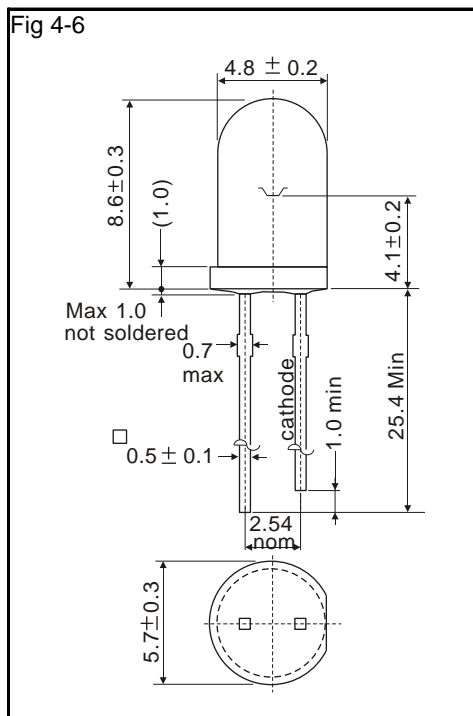
Lamps For Traffic Signal Use.

IF=20mA Ta=25°C

Device No	Color		Wavelength (nm)		VF Typical (V)	Brightness (mcd)		View Angle 2θ½	Drawing Figure
	Emitter	Lens	λp	λd		Minimum	Typical		
HB5d-433BG-C	yellow green	water clear	575	572	2.20	800	1800	24	4-6
HB5d-433BGA-C	bluish green	water clear	502	505	3.5	2500	5000	24	
HB5d-434FY-C	yellow	water clear	592	590	2.00	2000	3800	24	
HB5d-435FO-C	orange	water clear	620	615	2.00	2000	3800	24	
HB5d-435AOR-C	fresh red	water clear	635	626	2.00	2000	3300	24	
HB5d-437FA-C	amber	water clear	607	605	2.00	2000	3800	24	
HB5d-438CB-C	blue	water clear	468	470	3.80	310	650	24	
HB5d-438BB-C	blue	water clear	465	470	3.50	400	860	24	4-7
HB5d-433BG-D	yellow green	water clear	575	572	2.20	700	1500	30	
HB5d-433BGA-D	bluish green	water clear	502	505	3.50	2000	4000	30	
HB5d-434FY-D	yellow	water clear	592	590	2.00	1800	3000	30	
HB5d-435FO-D	orange	water clear	620	615	2.00	1800	3000	30	
HB5d-435AOR-D	fresh red	water clear	635	626	2.00	1800	2800	30	
HB5d-437FA-D	amber	water clear	607	605	2.00	1800	3000	30	
HB5d-438CB-D	blue	water clear	468	470	3.80	250	530	30	
HB5d-438BB-D	blue	water clear	465	470	3.50	330	700	30	

Dimension:

Unit : mm.





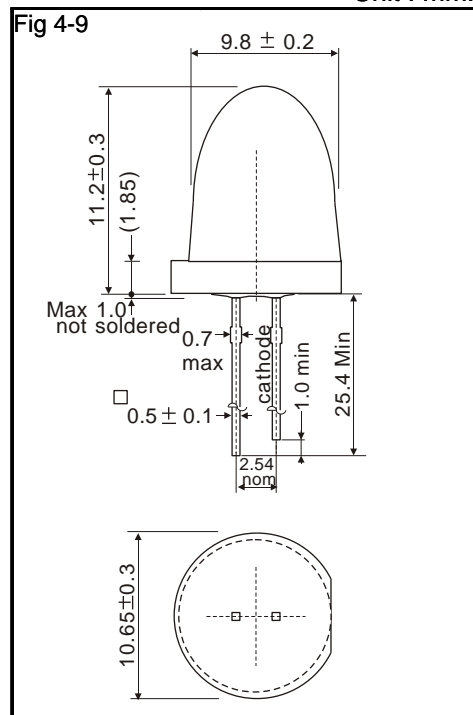
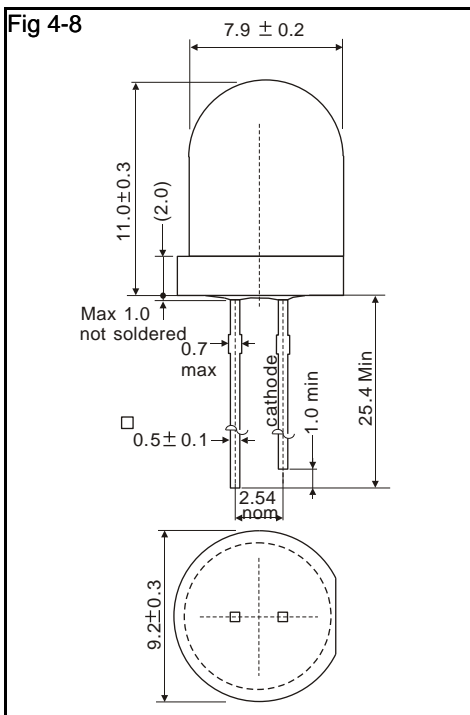
Extra Bright LEDs

IF=20mA Ta=25°C

Device No	Color		Wavelength (nm)		VF Typical (V)	Brightness (mcd)		View Angle 2θ½	Drawing Figure	
	Emitter	Lens	λp	λd		Minimum	Typical			
φ 8	HB8a-433CG	yellow green	water clear	570	567	2.15	300	600	30	4-8
	HB8a-433BG	yellow green	water clear	575	572	2.20	800	1600	25	
	HB8a-433BGA	bluish green	water clear	502	505	3.50	2500	4500	25	
	HB8a-434AY	yellow	water clear	592	590	2.00	1300	2000	25	
	HB8a-434FY	yellow	water clear	592	590	2.00	2400	3600	25	
	HB8a-435AO	orange	water clear	620	615	2.00	1300	2000	25	
	HB8a-435FO	orange	water clear	620	615	2.00	2400	3600	25	
	HB8a-436CR	deep red	water clear	660	643	1.80	500	900	25	
	HB8a-436ARA	deep red	water clear	660	645	1.86	1300	2200	30	
	HB8a-438CB	blue	water clear	468	470	3.80	200	350	30	
φ 10	HB10b-433CG	yellow green	water clear	570	567	2.15	800	1500	10	4-9
	HB10b-433BG	yellow green	water clear	575	572	2.20	2500	4000	7	
	HB10b-433BGA	bluish green	water clear	502	505	3.50	5000	9000	7	
	HB10b-434AY	yellow	water clear	592	590	2.00	4000	7000	7	
	HB10b-434FY	yellow	water clear	592	590	2.00	6000	11200	7	
	HB10b-435AO	orange	water clear	620	615	2.00	4000	7000	7	
	HB10b-435FO	orange	water clear	620	615	2.00	6000	11200	7	
	HB10b-436CR	deep red	water clear	660	643	1.80	1600	2800	8	
	HB10b-436ARA	deep red	water clear	660	645	1.86	5500	8500	10	
	HB10b-438CB	blue	water clear	468	470	3.80	1500	3000	7	

Dimension:

Unit : mm.





Extra Bright LEDs

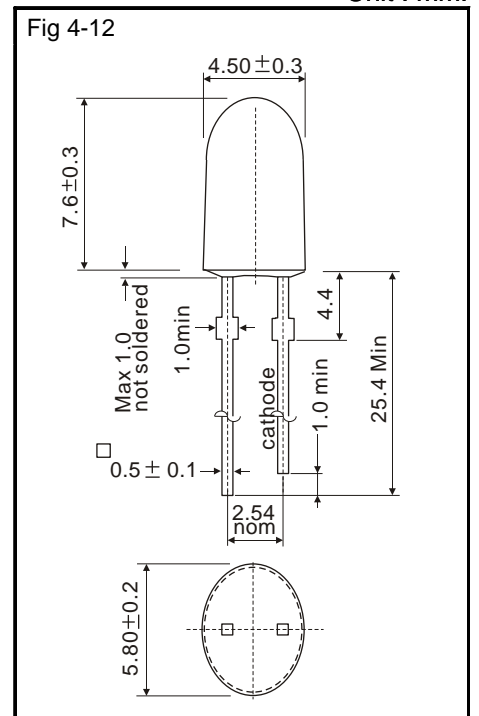
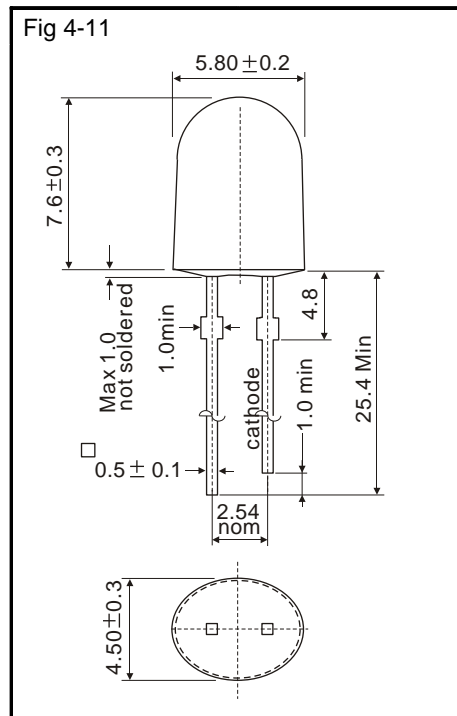
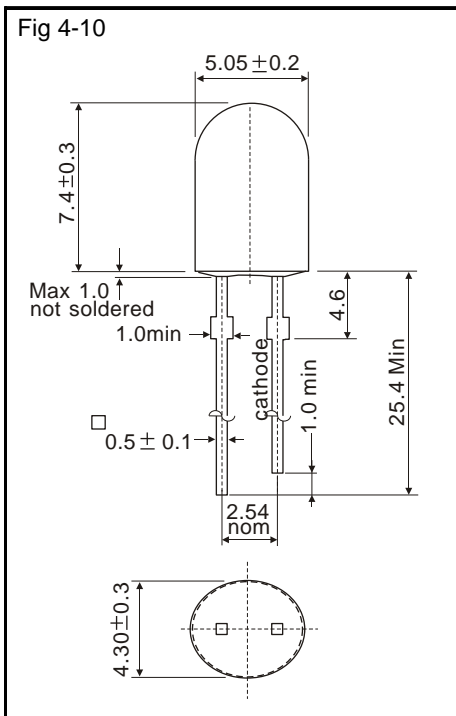
Oval Type

IF=20mA Ta=25°C

Device no	Color		Wavelength (nm)		VF Typical (V)	Brightness (mcd)		View Angle 2θ½	Drawing Figure
	Emitter	Lens	λp	λd		Minimum	Typical		
oval φ	HB4Q-433CG/P	yellow green	water clear	570	567	2.15	300	600	40/20
	HB4Q-433BGA/P	bluish green	water clear	502	505	3.50	2800	4800	40/20
	HB4Q-434FY/P	yellow	water clear	592	590	2.00	1800	4000	40/20
	HB4Q-435FO/P	orange	water clear	620	615	2.00	1800	4000	40/20
	HB4Q-435AOR/P	fresh red	water clear	635	626	2.00	1500	3400	40/20
	HB4Q-436ARA/P	deep red	water clear	660	645	1.86	1400	2800	40/20
	HB4Q-438CB/P	blue	water clear	468	470	3.80	400	700	40/20
	HB4Q-438BB/P	blue	water clear	465	470	3.50	530	950	40/20
oval φ	HB5RH-433CG/P	yellow green	water clear	570	567	2.15	300	600	70/25
	HB5RH-433BGA/P	bluish green	water clear	502	505	3.50	2500	4600	70/25
	HB5RH-434FY/P	yellow	water clear	592	590	2.00	1800	3800	70/25
	HB5RH-435FO/P	orange	water clear	620	615	2.00	1800	3800	70/25
	HB5RH-435AOR/P	fresh red	water clear	635	626	2.00	1500	3300	70/25
	HB5RH-436ARA/P	deep red	water clear	660	645	1.86	1400	2700	70/25
	HB5RH-438CB/P	blue	water clear	468	470	3.80	310	650	70/25
	HB5RH-438BB/P	blue	water clear	465	470	3.50	400	850	70/25
oval φ	HB5RV-433CG/P	yellow green	water clear	570	567	2.15	300	600	25/70
	HB5RV-433BGA/P	bluish green	water clear	502	505	3.50	2500	4600	25/70
	HB5RV-434FY/P	yellow	water clear	592	590	2.00	1800	3800	25/70
	HB5RV-435FO/P	orange	water clear	620	615	2.00	1800	3800	25/70
	HB5RV-435AOR/P	fresh red	water clear	635	626	2.00	1500	3300	25/70
	HB5RV-436ARA/P	deep red	water clear	660	645	1.86	1400	2700	25/70
	HB5RV-438CB/P	blue	water clear	468	470	3.80	310	650	25/70
	HB5RV-438BB/P	blue	water clear	465	470	3.50	400	850	25/70

Dimension:

Unit : mm.





Extra Bright LEDs

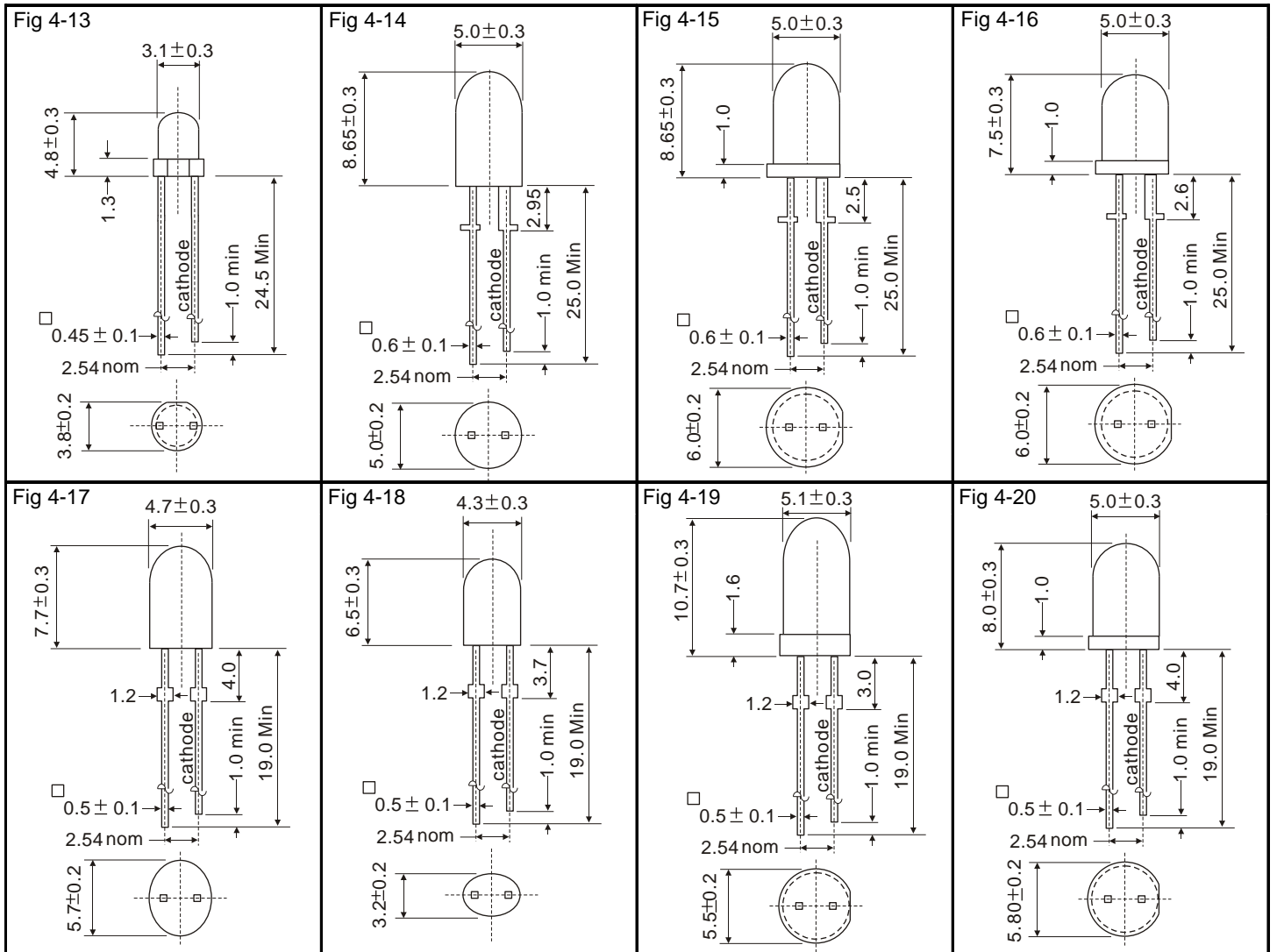
Blue & Green with GaInN (sensitive to static electricity)

IF=20mA Ta=25°C

Device No	Color		λd Wavelength (nm)		VF Typical (V)	Brightness (mcd)		View Angle 20½	Drawing Figure	
	Emitter	Lens	Min	Max		Minimum	Typical			
φ3	HB3h-443AG	green	water clear	520	540	3.5	2000	3500	30	4-13
	HB3h-448AB	blue	water clear	465	475	3.5	530	750		
φ5	HB5N-433AG/P	green	water clear	520	540	3.5	4000	8350	15	4-14
	HB5N-438AB/P	blue	water clear	465	475	3.5	1540	2700		
φ5	HB5-433AG/P	green	water clear	520	540	3.5	2500	4950	30	4-15
	HB5-438AB/P	blue	water clear	465	475	3.5	600	1250		
φ5	HB5Q-433AG/P	green	water clear	520	540	3.5	1800	3300	45	4-16
	HB5Q-438AB/P	blue	water clear	465	475	3.5	320	690		
oval	HB5R-233AG/P	green	water clear	520	540	3.5	1600	3100	70/25	4-17
	HB5R-238AB/P	blue	water clear	465	475	3.5	320	690		
	HB4R-233AG/P	green	water clear	520	540	3.5	1800	3100	80/35	4-18
	HB4R-238AB/P	blue	water clear	465	475	3.5	320	690		
φ5	HB5V-433B/P	bluish green	water clear	498	508	3.5	6000	8000	6	4-19
	HB5L-433B/P	bluish green	water clear	498	508	3.5	2400	4400	30	4-20

Dimension:

Unit:mm.





Extra Bright LEDs

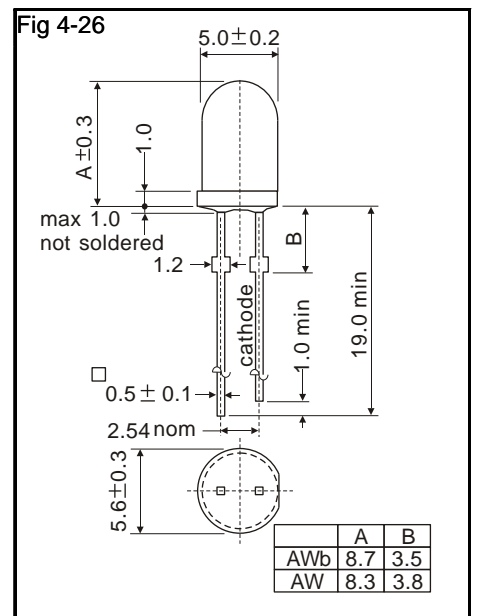
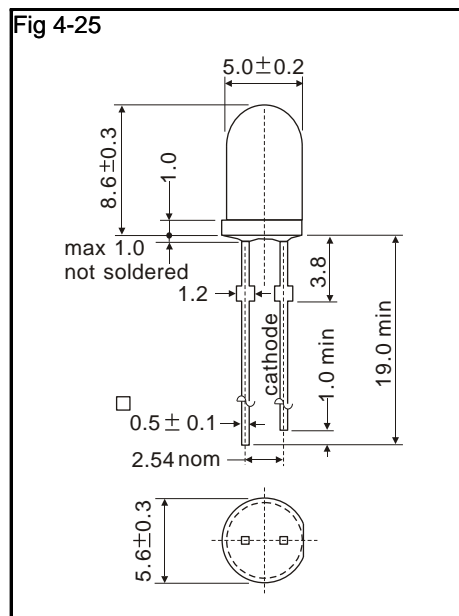
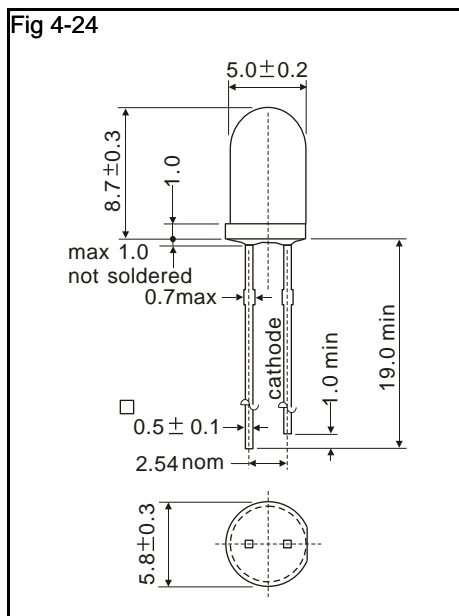
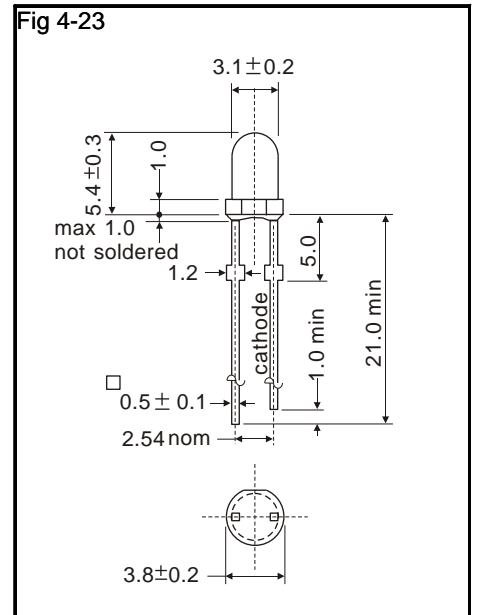
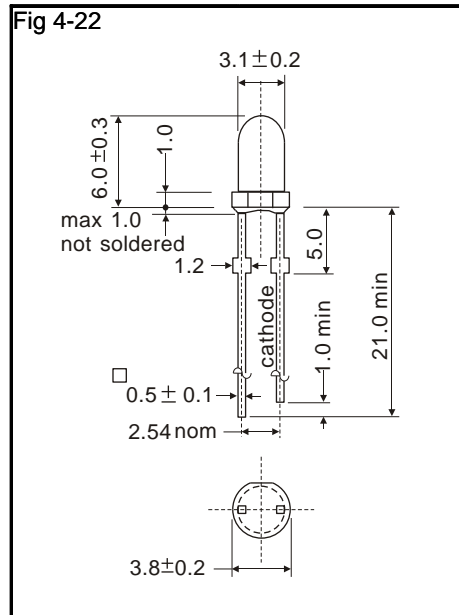
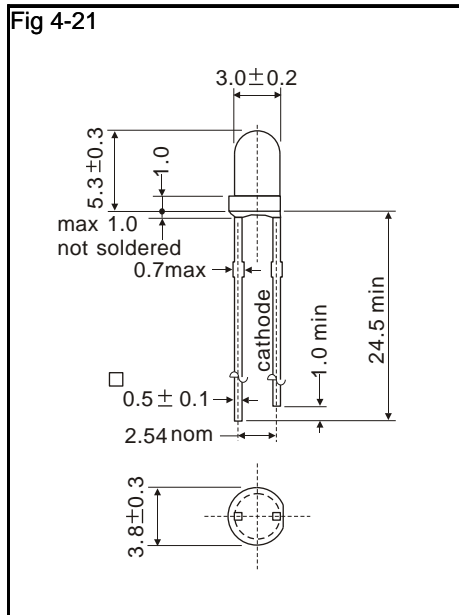
White Color (sensitive to static electricity)

IF=20mA Ta=25°C

Device No	Color		CIE Coordinates		VF Typical (V)	Brightness (mcd)		View Angle 2θ½	Drawing Figure	
	Material	Lens	x	y		Minimum	Typical			
φ3	HB3b-449CW	GaN/SiC	Water clear	0.31	0.32	3.8	500	1000	29	4-21
	HB3b-449BW	GaN/GaN	Water clear	0.31	0.32	3.6	1040	1850	29	
	HB3b-449AW	GaN/GaN	Water clear	0.31	0.32	3.6	1300	2500	29	
	HB3h-449AW/P	GaN/GaN	Water clear	0.31	0.32	3.6	1300	2500	20	4-22
	HB3h-449AW-B/P	InGaN/GaN	Water clear	0.31	0.32	3.6	700	1350	35	4-23
φ5	HB5-439CW	GaN/SiC	Water clear	0.31	0.32	3.8	700	1500	20	4-24
	HB5-439BW	GaN/GaN	Water clear	0.31	0.32	3.6	1500	3300	20	
	HB5-439AW	GaN/GaN	Water clear	0.31	0.32	3.6	1800	4000	20	
	HB5-439BW-C	GaN/GaN	Water clear	0.31	0.32	3.6	500	1000	40	
	HB5-439AW-C	GaN/GaN	Water clear	0.31	0.32	3.6	600	1300	40	
	HB5-439AWb/P	GaN/GaN	Water clear	0.31	0.32	3.6	1800	3800	20	4-25
	HB5-439AW/P	GaN/GaN	Water clear	0.31	0.32	3.6	2000	4000	20	4-26
	HB5-439AWb-C/P	GaN/GaN	Water clear	0.31	0.32	3.6	600	1200	40	
HB5-439AW-C/P	GaN/GaN	Water clear	0.31	0.32	3.6	600	1500	50		

Dimension:

Unit : mm.





Extra Bright LEDs

Super Flux LEDs

Feature:

- High brightness output.
- Designed for high current operation.
- Low thermal resistance.
- Low profile.
- Package in tubes for use with automatic pick and place equipment.

Applications:

- Automotive exterior lighting.
- Small and large area displays.
- Back lighting.

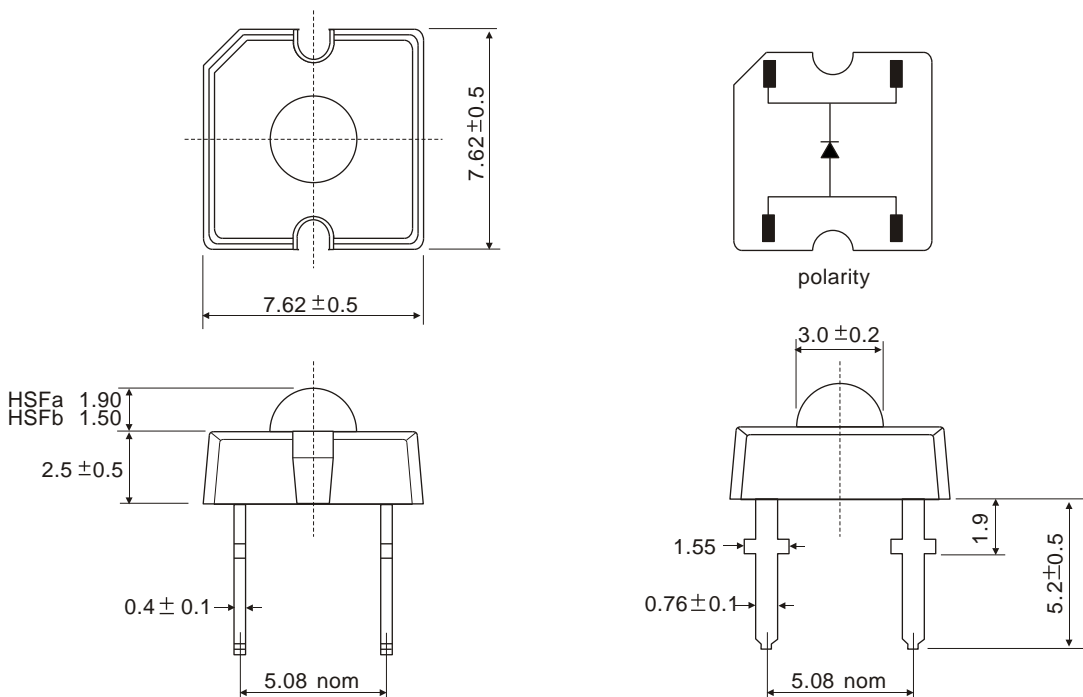
IF=20mA Ta=25°C

Device No	Color		Wavelength (nm)		VF Typical (V)	Brightness (mcd)		View Angle 2θ½	Drawing Figure
	Emitter	Lens	λp	λd		Minimum	Typical		
HSFa-44AY	yellow	water clear	592	590	2.00	630	850	50	4-27
HSFa-44FY	yellow	water clear	592	590	2.00	700	1400		
HSFa-45AO	orange	water clear	620	615	2.00	630	850		
HSFa-45FO	orange	water clear	620	615	2.00	700	1400		
HSFa-45AOR	fresh red	water clear	635	626	2.00	630	900		
HSFa-46ARA	deep red	water clear	660	645	1.86	630	850		
HSFb-44AY	yellow	water clear	592	590	2.00	400	650	70	
HSFb-44FY	yellow	water clear	592	590	2.00	600	1200		
HSFb-45AO	orange	water clear	620	615	2.00	400	650		
HSFb-45FO	orange	water clear	620	615	2.00	600	1200		
HSFb-45AOR	fresh red	water clear	635	626	2.00	400	700		
HSFb-46ARA	deep red	water clear	660	645	1.86	400	650		

Dimension:

Unit : mm. Tolerance:0.25mm.

Fig 4-27





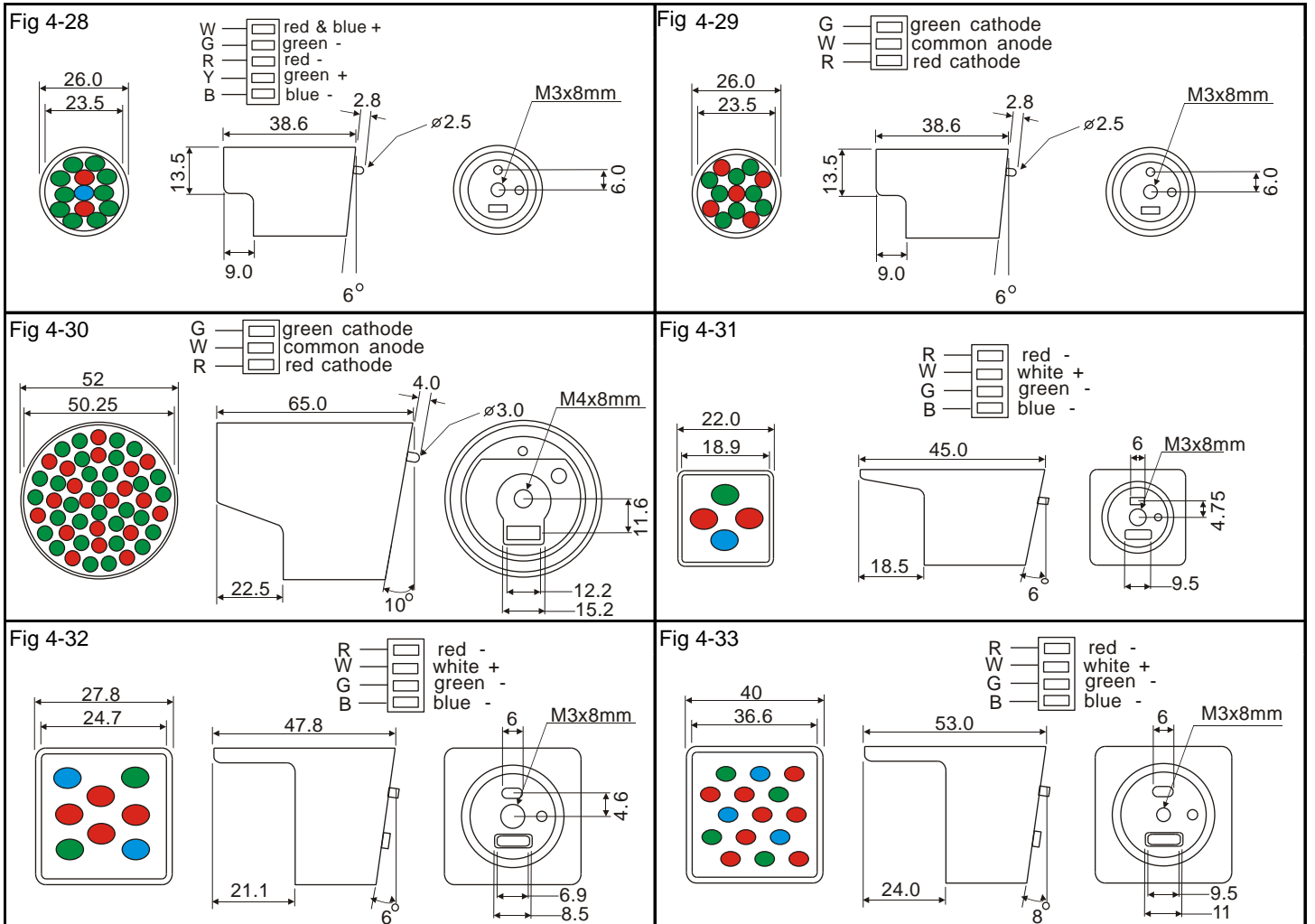
Cluster LEDs

Ta=25°C

Device No	Emitter Color		Absolute Maximum Ratings					Electrical/Optical Characteristics			
	Color	LED number	Pd (W)	IF (mA)	VR	Temp. operate	Temp. storage	λ_p	Forward Voltage VF (V)	IF (mA)	Brightness (cd)
4-28 HJ-26201A	Red	2	0.072	25	10	-25~+85 °C	-30~+85 °C	660	3.6	20	0.75
	yellow green	10	0.450	50	25			570	11.0	40	2.50
	blue	1	0.072	25	5			468	3.6	20	0.65
4-29 HJ-26580	Red	5	0.285	30	25	-25~+80 °C	-30~+90 °C	660	9.0	20	1.10
	yellow green	8	0.610	70	20			570	8.8	50	1.20
4-30 HJ-52000A	Red	20	1.140	60	50	-20~+80 °C	-20~+90 °C	660	18.0	40	7.00
	yellow green	30	2.250	100	50			570	21.5	60	7.50
4-31 HJ-22211(1/0)	Red	2	0.114	30	10	-25~+80 °C	-25~+90 °C	660	3.6	20	1.00
	green	1	0.072	30	5			525	3.6	20	1.40
	blue	1	0.072	30	5			468	3.6	20	0.65
4-32 HJ-28422(1/0)	Red	4	0.228	30	20	-25~+80 °C	-25~+90 °C	660	7.2	20	2.00
	Green	2	0.144	30	10			525	7.2	20	2.80
	Blue	2	0.144	30	10			468	7.2	20	1.25
4-33 HJ-40843(1/0)	Red	8	0.456	60	20	-25~+80 °C	-25~+90 °C	660	7.2	40	4.00
	Green	4	0.288	60	10			525	7.2	40	5.60
	Blue	3	0.216	30	15			468	10.5	20	1.75

Dimension:

Unit : mm. Tolerance:0.5mm.





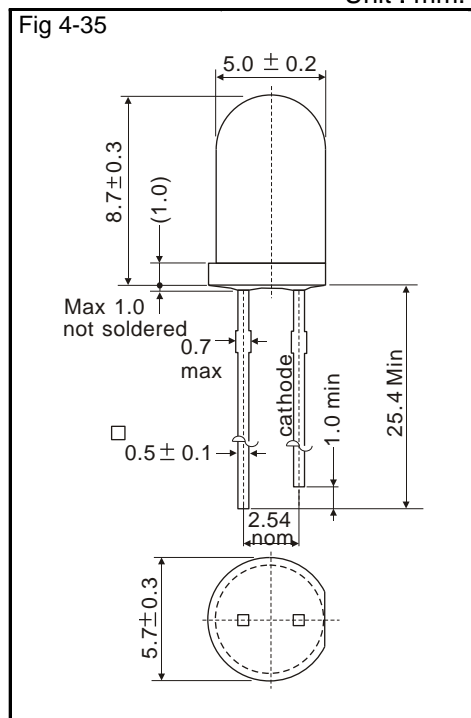
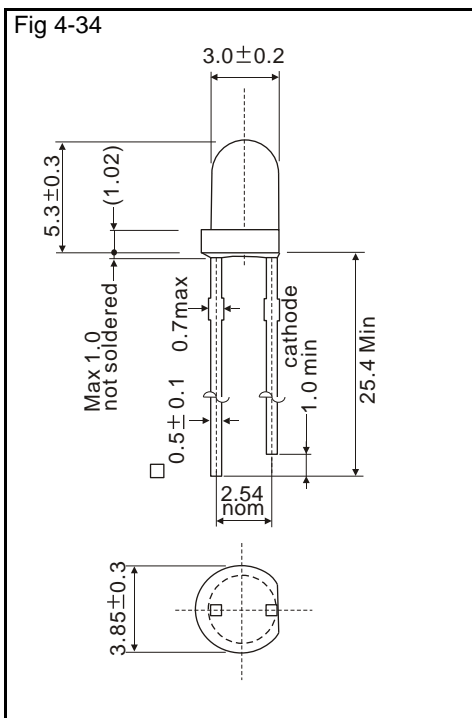
High Voltage LEDs

IF=10mA Ta=25°C

Device No	Color		Wavelength (nm)		VF Typical (V)	Brightness (mcd)		View Angle 2θ½	Drawing Figure	
	Emitter	Lens	λp	λd		Minimum	Typical			
φ 3	HB3b-142-5V	hi-red	colored diffused	700	658	5.0	1.0	2.5	40	4-34
	HB3b-145R-5V	hi-eff red	colored diffused	625	618		12.5	20.0		
	HB3b-143-5V	yellow green	colored diffused	570	567		20	30.0		
	HB3b-144-5V	yellow	colored diffused	589	585		10.0	20.0		
	HB3b-145-5V	orange	colored diffused	625	618		12.5	20.0		
	HB3b-142-12V	hi-red	colored diffused	700	658	12.0	1.0	2.5		
	HB3b-145R-12V	hi-eff red	colored diffused	625	618		12.5	20.0		
	HB3b-143-12V	yellow green	colored diffused	570	567		20.0	30.0		
	HB3b-144-12V	yellow	colored diffused	589	585		10.0	20.0		
	HB3b-145-12V	orange	colored diffused	625	618		12.5	20.0		
φ 5	HB5-132-5V	hi-red	colored diffused	700	658	5.0	1.0	2.5	30	4-35
	HB5-135R-5V	hi-eff red	colored diffused	625	618		12.5	25.0		
	HB5-133-5V	yellow green	colored diffused	570	567		20.0	40.0		
	HB5-134-5V	yellow	colored diffused	589	585		10.0	25.0		
	HB5-135-5V	orange	colored diffused	625	618		12.5	25.0		
	HB5-132-12V	hi-red	colored diffused	700	658	12.0	1.0	2.5		
	HB5-135R-12V	hi-eff red	colored diffused	625	618		12.5	25.0		
	HB5-133-12V	yellow green	colored diffused	570	567		20.0	40.0		
	HB5-134-12V	yellow	colored diffused	589	585		10.0	25.0		
	HB5-135-12V	orange	colored diffused	625	618		12.5	25.0		

Dimension:

Unit : mm.





Low Current LEDs

IF=2mA Ta=25°C

Device No	Color		Wavelength (nm)		VF Typical (V)	Brightness (mcd)		View Angle 20½	Drawing Figure	
	Emitter	Lens	λp	λd		Minimum	Typical			
φ 3	HB3b-142D	hi-eff red	colored diffused	625	618	1.70	2.0	3.5	40	4-36
	HB3b-143D	yellow green	colored diffused	570	567	1.90	3.5	6.5	40	
	HB3b-144D	yellow	colored diffused	589	585	1.80	1.5	3.0	40	
	HB3b-145D	orange	colored diffused	625	618	1.70	2.0	3.5	40	
	HB3b-446D	super red	water clear	660	643	1.65	10.0	20.0	12	
φ 5	HB5-132D	hi-eff red	colored diffused	625	618	1.70	2.0	5.0	30	4-37
	HB5-133D	yellow green	colored diffused	570	567	1.90	4.0	7.0	30	
	HB5-134D	yellow	colored diffused	589	585	1.80	1.5	3.0	30	
	HB5-135D	orange	colored diffused	625	618	1.70	2.0	5.0	30	
	HB5-436D	super red	water clear	660	643	1.65	16.0	30.0	10	

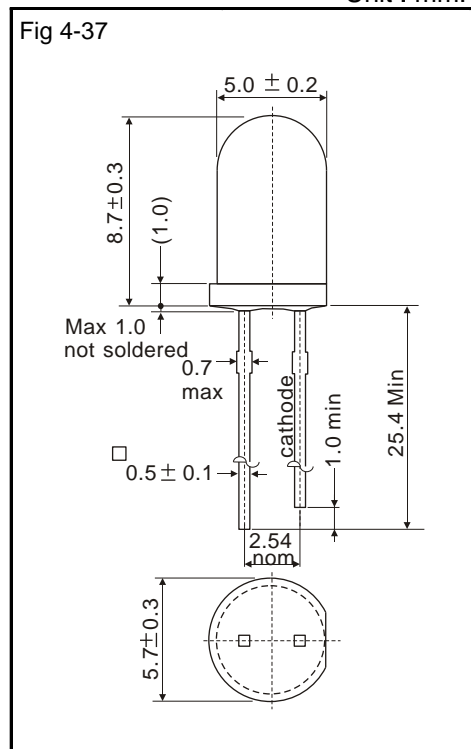
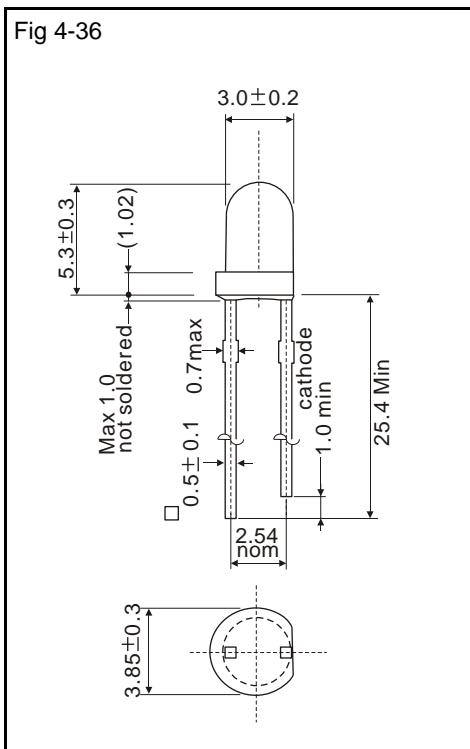
Blinking LEDs

IF=20mA Ta=25°C

Device No	Color		Wavelength (nm)		VF Typical (V)	Brightness (mcd)		View Angle 20½	Drawing Figure	
	Emitter	Lens	λp	λd		Minimum	Typical			
φ 3	HFB3b-142	hi red	colored diffused	700	657	3~12	0.4	1.0	40	4-36
	HFB3b-145	hi-eff red	colored diffused	625	618		3.5	6.0		
	HFB3b-143	yellow green	colored diffused	570	567		5.0	8.0		
	HFB3b-144	yellow	colored diffused	589	585		3.5	5.5		
φ 5	HFB5-132	hi red	colored diffused	660	657	3~12	0.5	1.1	30	4-37
	HFB5-135	hi-eff red	colored diffused	625	618		6.0	11.0		
	HFB5-133	yellow green	colored diffused	570	567		7.0	13.0		
	HFB5-134	yellow	colored diffused	589	585		6.0	10.0		
	HFB5-436ARA	super red	water clear	660	645		600	2000	20	

Dimension:

Unit : mm.





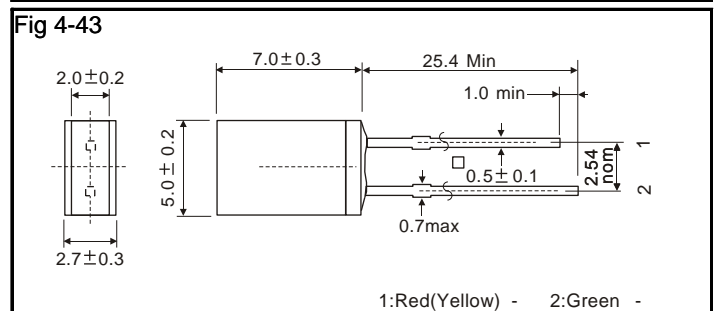
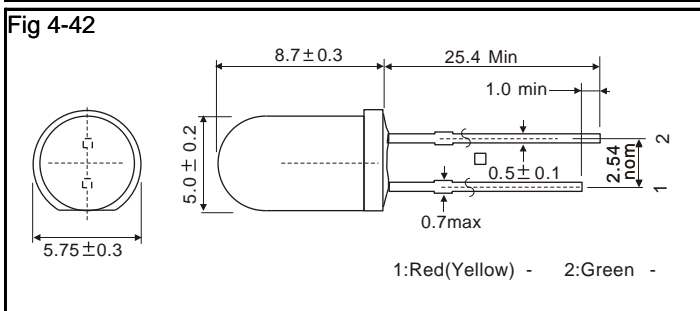
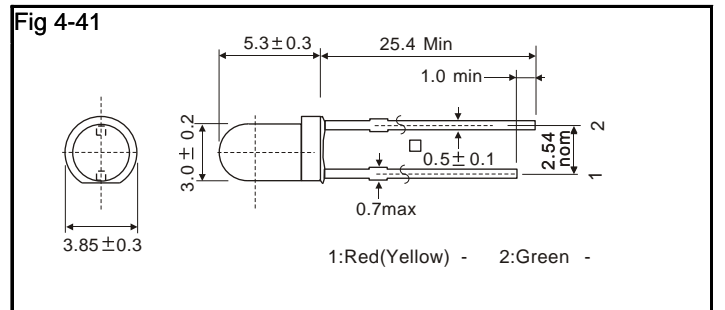
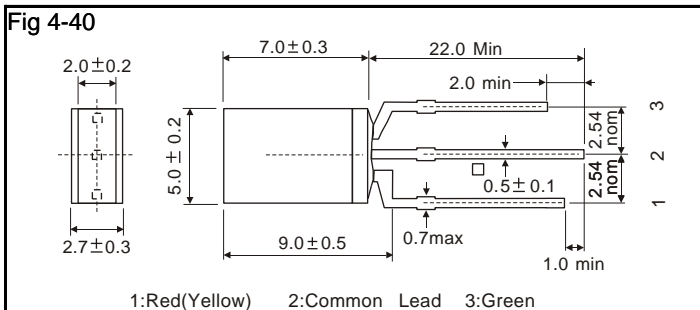
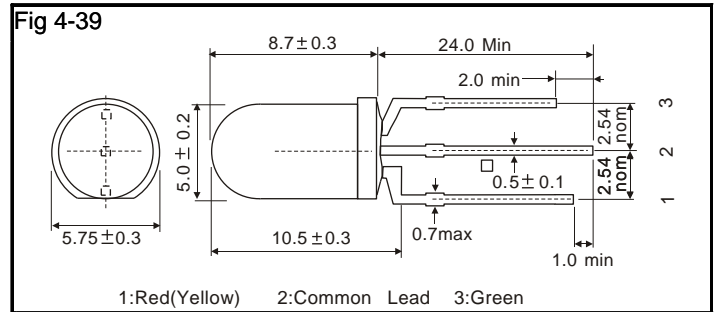
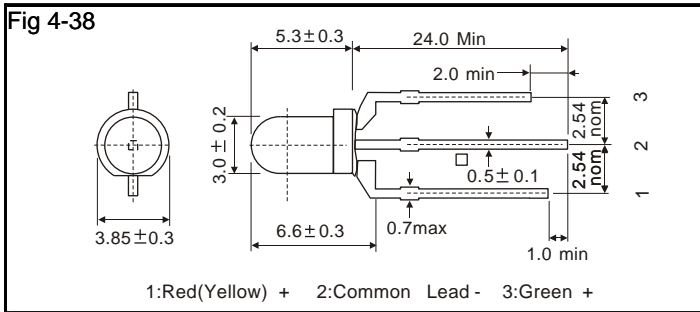
Dual Color LEDs

IF=20mA Ta=25°C

Device No	Color		Wavelength (nm)		VF Typical (V)	Brightness (mcd)		View Angle 20½	Drawing Figure
	Emitter	Lens	λp	λd		Minimum	Typical		
φ3 HB3b-390GC	hi-eff red	white diffused	625	618	2.05	30	50	40	4-38
	yellow green		570	567	2.15	30	50		
	yellow	white diffused	589	585	2.10	25	40		
	yellow green		570	567	2.15	30	50		
φ5 HB5-300GC	hi-eff red	white diffused	625	618	2.05	35	60	40	4-39
	yellow green		570	567	2.15	35	60		
	yellow	white diffused	589	585	2.10	25	40		
	yellow green		570	567	2.15	35	60		
HB5-4063A	super red	water clear	660	643	1.80	200	300	15	
	yellow green		570	567	2.25	160	250		
2 X 5 HR2-300GC	hi-eff red	white diffused	625	618	2.05	5	10	100	4-40
	yellow green		570	567	2.15	5.5	11		
	yellow	colored diffused	589	585	2.10	4.5	8		
	yellow green		570	567	2.15	5	10		
φ3 HB3b-310G	hi-eff red	white diffused	625	618	2.05	16	25	45	4-41
	yellow green		570	567	2.15	20	30		
	yellow	colored diffused	589	585	2.10	10	20		
	yellow green		570	567	2.15	20	30		
φ5 HB5-310G	hi-eff red	white diffused	625	618	2.05	25	45	45	4-42
	yellow green		570	567	2.15	30	50		
	yellow	colored diffused	589	585	2.10	18	35		
	yellow green		570	567	2.15	30	50		
2 X 5 HR2-310G	hi-eff red	white diffused	625	618	2.05	2.5	5.0	125	4-43
	yellow green		570	567	2.15	2.5	5.0		
	yellow	colored diffused	589	585	2.10	2.0	4.0		
	yellow green		570	567	2.15	2.5	4.0		

Dimension:

Unit : mm.





Normal Indicator LEDs

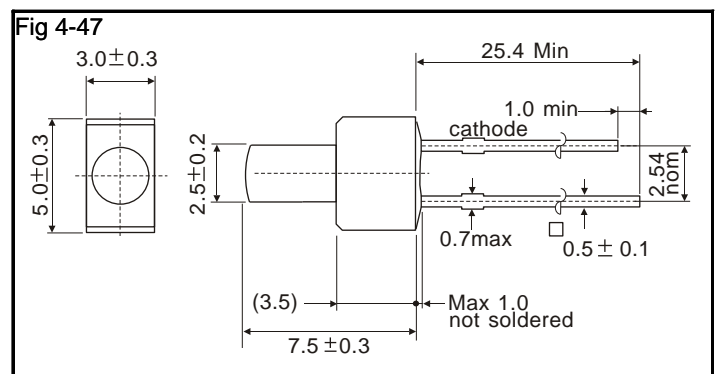
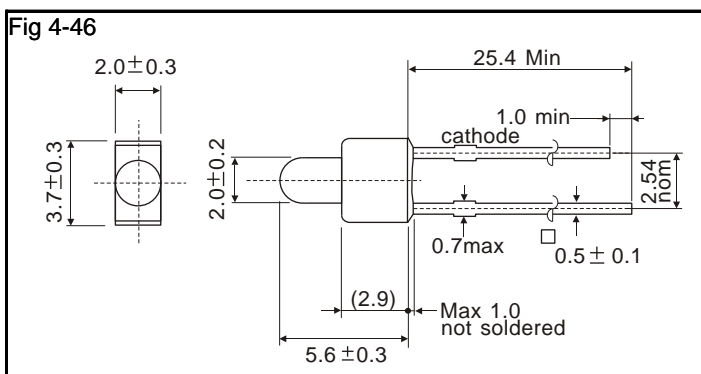
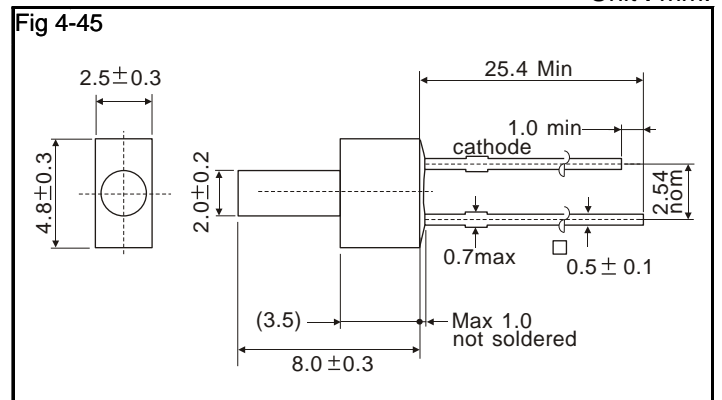
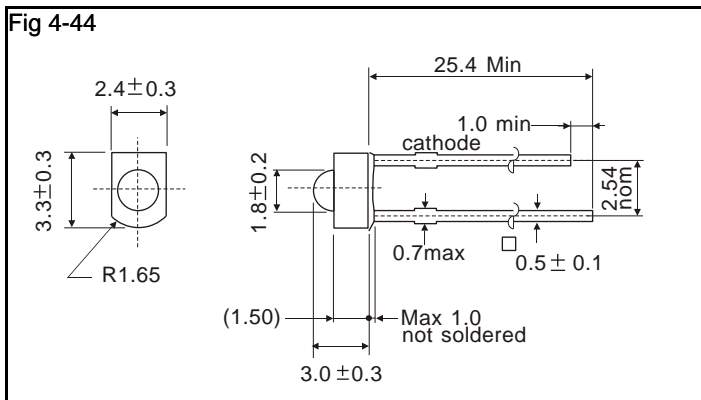
Step Type LEDs

IF=20mA Ta=25°C

Device No	Color		Wavelength (nm)		VF Typical (V)	Brightness (mcd)		View Angle 2θ½	Drawing Figure	
	Emitter	Lens	λp	λd		Minimum	Typical			
φ 1.8	HS2-142	hi-red	colored diffused	700	658	2.20	0.5	1.0	55	4-44
	HS2-145R	hi-eff red	colored diffused	625	618	2.05	6.0	10.0		
	HS2-143	yellow green	colored diffused	570	567	2.15	8.0	15.0		
	HS2-144	yellow	colored diffused	589	585	2.10	5.0	8.0		
	HS2-145	orange	colored diffused	625	618	2.05	6.0	10.0		
φ 2	HS2N-132	hi-red	colored diffused	700	658	2.20	0.4	0.8	125	4-45
	HS2N-135R	hi-eff red	colored diffused	625	618	2.05	4.0	7.0		
	HS2N-133	yellow green	colored diffused	570	567	2.15	4.0	7.0		
	HS2N-134	yellow	colored diffused	589	585	2.10	3.0	6.0		
	HS2N-135	orange	colored diffused	625	618	2.05	4.0	7.0		
φ 2	HS3-142	hi-red	colored diffused	700	658	2.20	1.0	1.9	30	4-46
	HS3-145R	hi-eff red	colored diffused	625	618	2.05	6.0	11.0		
	HS3-143	yellow green	colored diffused	570	567	2.15	6.0	12.0		
	HS3-144	yellow	colored diffused	589	585	2.10	6.0	10.0		
	HS3-145	orange	colored diffused	625	618	2.05	6.0	11.0		
φ 2.5	HS5-132	hi-red	colored diffused	700	658	2.20	0.8	1.2	60	4-47
	HS5-135R	hi-eff red	colored diffused	625	618	2.05	7.0	12.0		
	HS5-133	yellow green	colored diffused	570	567	2.15	8.0	15.0		
	HS5-134	yellow	colored diffused	589	585	2.10	7.0	12.0		
	HS5-135	orange	colored diffused	625	618	2.05	7.0	12.0		
	HS5-136DR	super red	colored diffused	660	643	1.80	30.0	50.0		

Dimension:

Unit : mm.





Normal Indicator LEDs

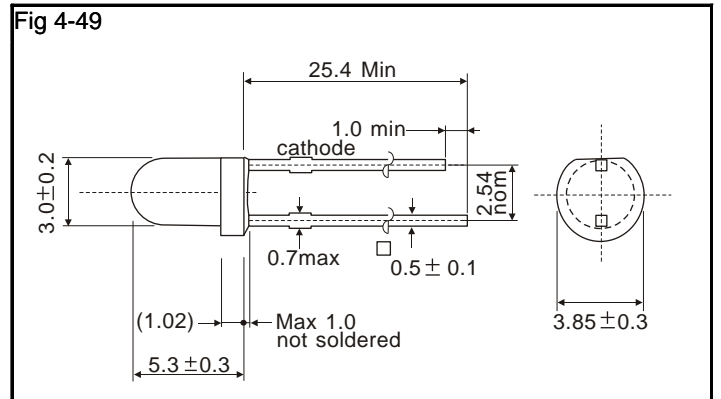
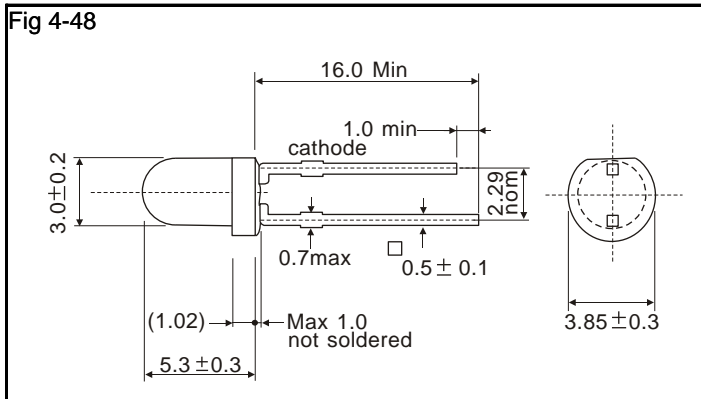
Standard Diameter 3mm type LEDs

IF=20mA Ta=25°C

Device No	Color		Wavelength (nm)		VF Typical (V)	Brightness (mcd)		View Angle 20½	Drawing Figure
	Emitter	Lens	λp	λd		Minimum	Typical		
HB3b-122	hi-red	colored diffused	700	658	2.20	2.0	5.0	50	4-48
HB3b-125R	hi-eff red	colored diffused	625	618	2.05	10.0	15.0		
HB3b-123	yellow green	colored diffused	570	567	2.15	15.0	25.0		
HB3b-124	yellow	colored diffused	589	585	2.10	10.0	15.0		
HB3b-125	orange	colored diffused	625	618	2.05	10.0	15.0		
HB3b-142	hi-red	colored diffused	700	658	2.20	2.0	5.0	40	4-49
HB3b-145R	hi-eff red	colored diffused	625	618	2.05	20.0	35.0		
HB3b-143	yellow green	colored diffused	570	567	2.15	20.0	40.0		
HB3b-144	yellow	colored diffused	589	585	2.10	20.0	30.0		
HB3b-945	orange	colored diffused	625	618	2.05	20.0	35.0		
HB3b-147	Amber	colored diffused	610	607	2.05	20.0	30.0	24	
HB3b-242	hi-red	color transparent	700	658	2.20	3.0	8.0		
HB3b-245R	hi-eff red	color transparent	625	618	2.05	30.0	50.0		
HB3b-243	yellow green	color transparent	570	567	2.15	45.0	80.0		
HB3b-244	yellow	color transparent	589	585	2.10	30.0	50.0		
HB3b-245	orange	color transparent	625	618	2.05	30.0	50.0	24	
HB3b-442	hi-red	water clear	700	658	2.20	3.0	8.0		
HB3b-443	yellow green	water clear	570	567	2.15	45.0	80		
HB3b-444	yellow	water clear	589	585	2.10	30.0	50.0		
HB3b-445	hi-eff red	water clear	625	618	2.05	30.0	50.0		

Dimension:

Unit : mm.





Normal Indicator LEDs

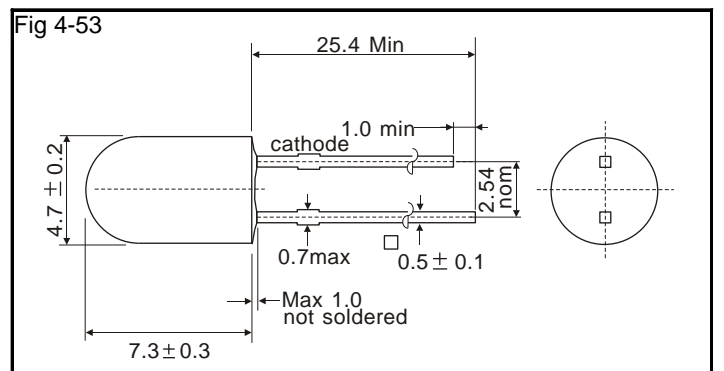
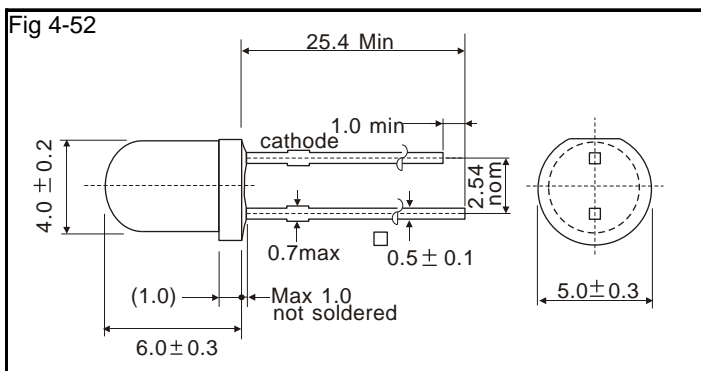
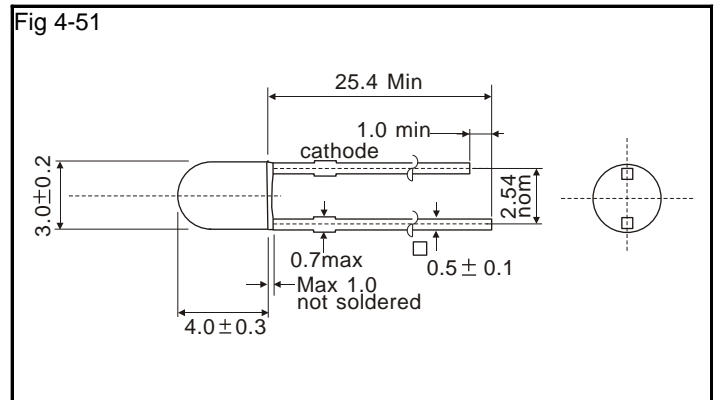
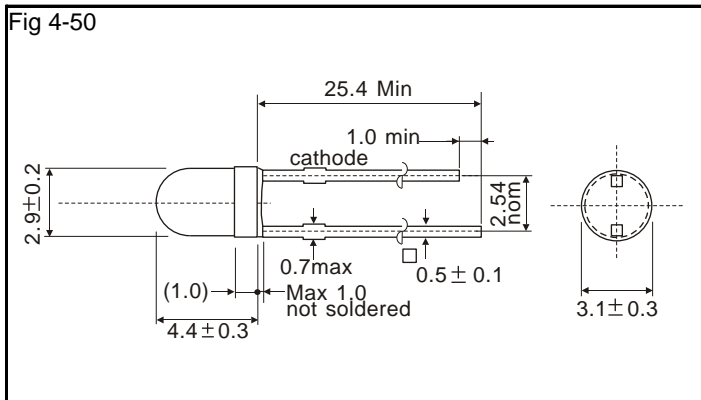
3mm & 4.7mm Round type LEDs

IF=20mA Ta=25°C

Device No	Color		Wavelength (nm)		VF Typical (V)	Brightness (mcd)		View Angle 2θ½	Drawing Figure	
	Emitter	Lens	λp	λd		Minimum	Typical			
φ 3	HB3J-142	hi-red	colored diffused	700	658	2.20	2.0	5.0	60	4-50
	HB3J-145R	hi-eff red	colored diffused	625	618	2.05	20.0	35.0		
	HB3J-143	yellow green	colored diffused	570	567	2.15	20.0	40.0		
	HB3J-144	yellow	colored diffused	589	585	2.10	15.0	30.0		
	HB3J-145	orange	colored diffused	625	618	2.05	20.0	35.0		
φ 3	HB3N-142	hi-red	colored diffused	700	658	2.20	2.0	5.0	60	4-51
	HB3N-145R	hi-eff red	colored diffused	625	618	2.05	20.0	35.0		
	HB3N-143	yellow green	colored diffused	570	567	2.15	20.0	40.0		
	HB3N-144	yellow	colored diffused	589	585	2.10	15.0	30.0		
	HB3N-145	orange	colored diffused	625	618	2.05	20.0	35.0		
φ 4	HB4a-132	hi-red	colored diffused	700	658	2.20	1.0	20.0	40	4-52
	HB4a-135R	hi-eff red	colored diffused	625	618	2.05	30.0	45.0		
	HB4a-133	yellow green	colored diffused	570	567	2.15	30.0	50.0		
	HB4a-134	yellow	colored diffused	589	585	2.10	30.0	40.0		
	HB4a-135	orange	colored diffused	625	618	2.05	30.0	45.0		
φ 4.7	HB4-132	hi-red	colored diffused	700	658	2.20	2.0	5.0	50	4-53
	HB4-135R	hi-eff red	colored diffused	625	618	2.05	9.0	18.0		
	HB4-133	yellow green	colored diffused	570	567	2.15	10.0	20.0		
	HB4-134	yellow	colored diffused	589	585	2.10	8.0	15.0		
	HB4-135	orange	colored diffused	625	618	2.05	9.0	18.0		

Dimension:

Unit : mm.





Normal Indicator LEDs

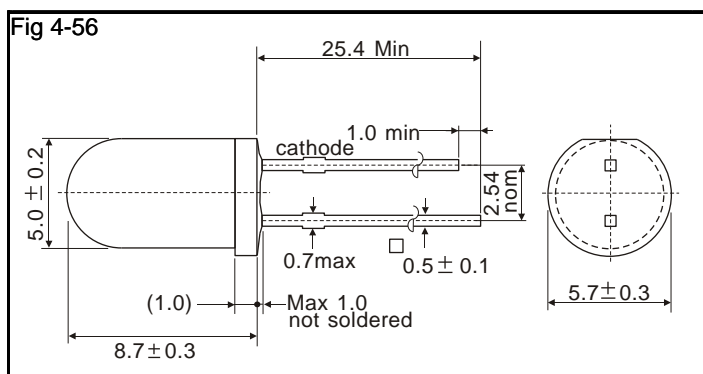
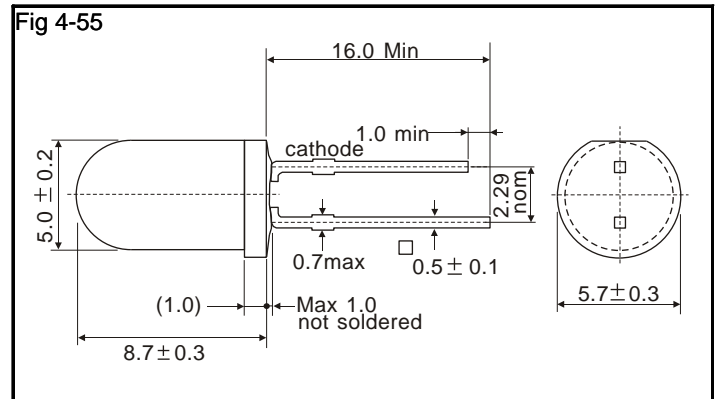
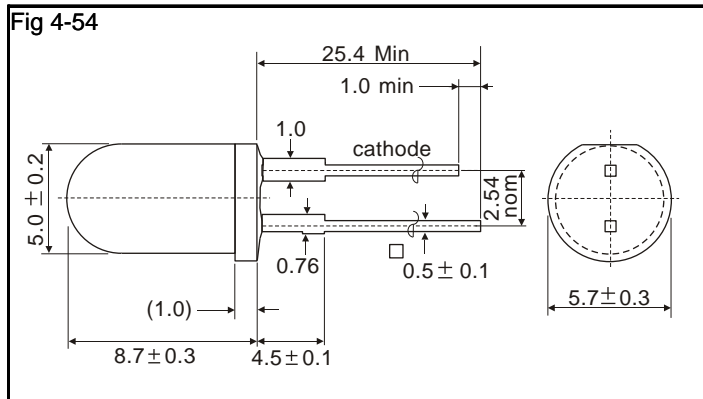
5mm Round type LEDs

IF=20mA Ta=25°C

Device No	Color		Wavelength (nm)		VF Typical (V)	Brightness (mcd)		View Angle 2θ½	Drawing Figure	
	Emitter	Lens	λp	λd		Minimum	Typical			
5 5	HB5-112	hi-red	colored diffused	700	658	2.20	1.0	3.0	50	4-54
	HB5-115R	hi-eff red	colored diffused	625	618	2.05	6.0	11.0		
	HB5-113	yellow green	colored diffused	570	567	2.15	6.0	12.0		
	HB5-114	yellow	colored diffused	589	585	2.10	6.0	10.0		
	HB5-115	orange	colored diffused	625	618	2.05	6.0	11.0		
5 5	HB5-122	hi-red	colored diffused	700	658	2.20	0.9	1.5	40	4-55
	HB5-123	yellow green	colored diffused	570	567	2.15	6.0	12.0		
	HB5-124	yellow	colored diffused	589	585	2.10	6.0	10.0		
5 5	HB5-132	hi-red	colored diffused	700	658	2.20	2.0	6.5	30	4-56
	HB5-232		colored transparent	700	658	2.20	4.5	8.0	15	
	HB5-135R		colored diffused	625	618	2.05	40.0	60.0	30	
	HB5-235R	hi-eff red	colored transparent	625	618	2.05	75.0	120	15	
	HB5-435		water clear	625	618	2.05	75.0	120	15	
	HB5-133		colored diffused	570	567	2.15	50.0	80.0	30	
	HB5-233	yellow green	colored transparent	570	567	2.15	100	150	15	
	HB5-433		water clear	570	567	2.15	100	150	15	
	HB5-134		colored diffused	589	585	2.10	35.0	50.0	30	
	HB5-234	yellow	colored transparent	589	585	2.10	60.0	100	15	
	HB5-434		water clear	589	585	2.10	60.0	100	15	
	HB5-135	orange	colored diffused	625	618	2.05	40.0	60.0	30	
	HB5-235		colored transparent	625	618	2.05	75.0	120	20	
	HB5-137	amber	colored diffused	610	607	2.05	35.0	50.0	30	

Dimension:

Unit : mm.





Normal Indicator LEDs

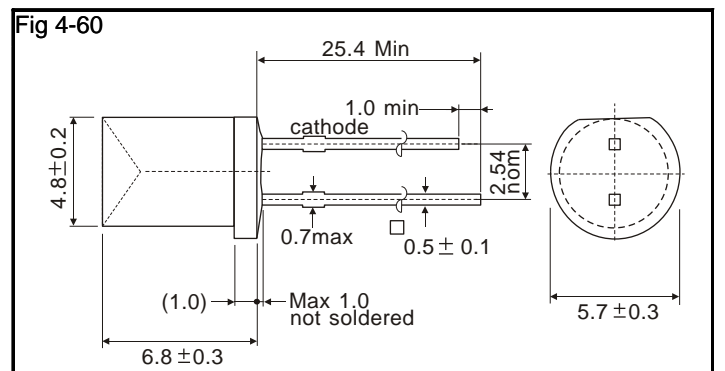
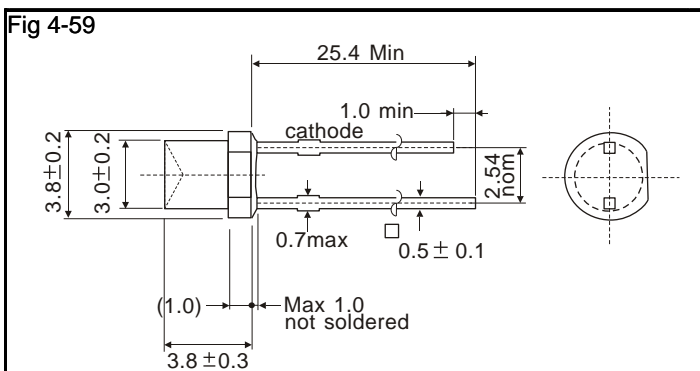
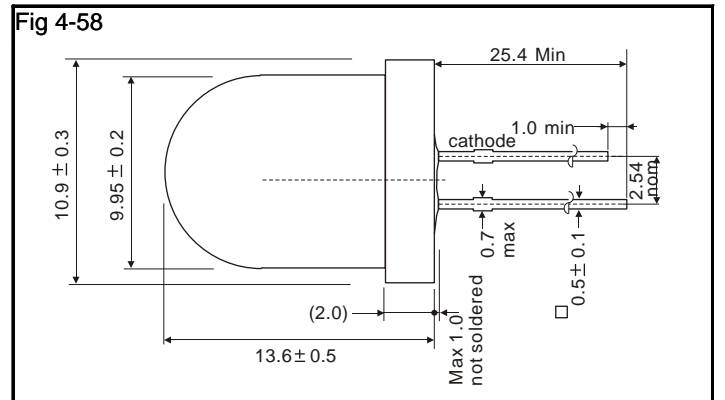
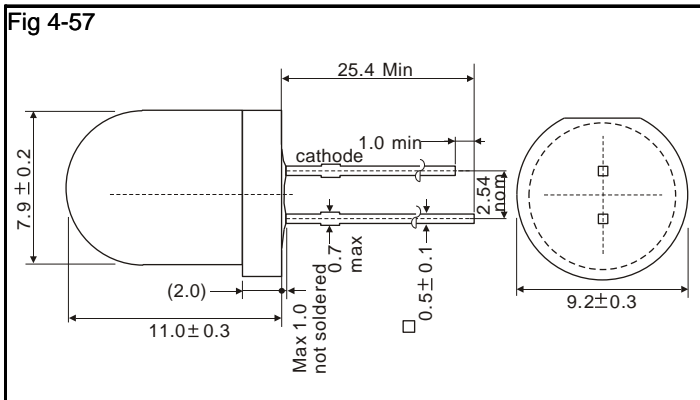
8,10mm Round & Cup type LEDs

IF=20mA Ta=25°C

Device No	Color		Wavelength (nm)		VF Typical (V)	Brightness (mcd)		View Angle 2θ½	Drawing Figure	
	Emitter	Lens	λp	λd		Minimum	Typical			
φ 8	HB8a-132	hi- red	colored diffused	700	658	2.20	1.0	2.0	45	4-57
	HB8a-133	yellow green	colored diffused	570	567	2.15	12.0	20.0		
	HB8a-134	yellow	colored diffused	589	585	2.10	12.0	20.0		
	HB8a-135 R	orange	colored diffused	625	618	2.05	10.0	16.0		
φ 10	HB10-132	hi- red	colored diffused	700	658	2.20	1.0	2.0	50	4-58
	HB10-133	yellow green	colored diffused	570	567	2.15	12.0	20.0		
	HB10-134	yellow	colored diffused	590	585	2.10	12.0	20.0		
	HB10-135R	orange	colored diffused	625	618	2.05	10.0	16.0		
φ 3 back light	HB3C-242	hi-red	colored transparent	700	658	2.20	0.5	1.0	180	4-59
	HB3C-245R	hi-eff red	colored transparent	625	618	2.05	8.0	14.0		
	HB3C-243	yellow green	colored transparent	570	567	2.15	10.0	15.0		
	HB3C-244	yellow	colored transparent	590	585	2.10	7.0	13.0		
	HB3C-245	orange	colored transparent	625	618	2.05	8.0	14.0		
	HB3C-445	orange	water clear	625	618	2.05	8.0	14.0		
φ 4.8 back light	HB5C-232	hi-red	colored transparent	700	658	2.20	0.5	1.0	135	4-60
	HB5C-235R	hi-eff red	colored transparent	625	618	2.05	5.0	9.0		
	HB5C-233	yellow green	colored transparent	570	567	2.15	5.0	11.0		
	HB5C-443	yellow green	water clear	570	567	2.15	5.0	11.0		
	HB5C-234	yellow	colored transparent	590	585	2.10	4.0	8.0		
	HB5C-235	orange	colored transparent	625	618	2.05	5.0	9.0		

Dimension:

Unit : mm.





Normal Indicator LEDs

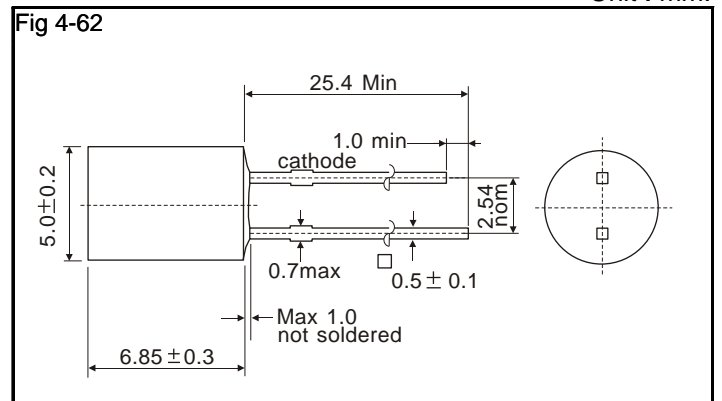
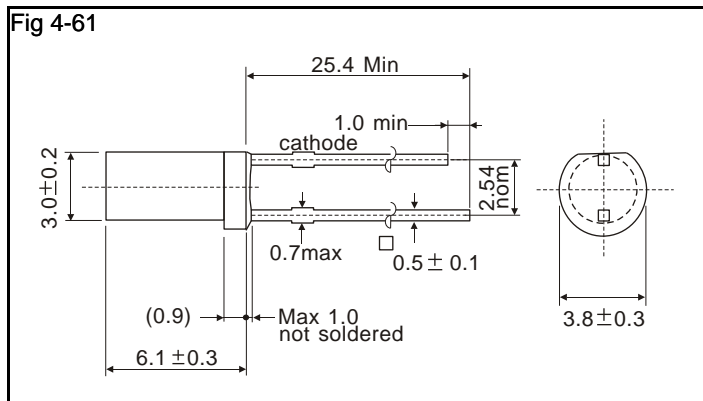
Cylindrical Type LEDs

IF=20mA Ta=25°C

Device No	Color		Wavelength (nm)		VF Typical (V)	Brightness (mcd)		View Angle 2θ½	Drawing Figure	
	Emitter	Lens	λp	λd		Minimum	Typical			
φ 3	HC3-142	hi-red	colored diffused	700	658	2.20	1.0	2.5	110	4-61
	HC3-342	hi-red	white diffused	700	658	2.20	1.0	2.5		
	HC3-145R	hi-eff red	colored diffused	625	618	2.05	6.0	9.0		
	HC3-143	yellow green	colored diffused	570	567	2.15	7.0	11.0		
	HC3-144	yellow	colored diffused	589	585	2.10	5.0	8.0		
	HC3-145	orange	colored diffused	625	618	2.05	6.0	9.0		
φ 5	HC5-132	hi-red	colored diffused	700	658	2.20	0.5	0.8	140	4-62
	HC5-135R	hi-eff red	colored diffused	625	618	2.05	3.5	7.0		
	HC5-133	yellow green	colored diffused	570	567	2.15	5.0	9.0		
	HC5-134	yellow	colored diffused	589	585	2.10	3.5	7.0		
	HC5-135	orange	colored diffused	625	618	2.05	3.5	7.0		

Dimension:

Unit : mm.





Normal Indicator LEDs

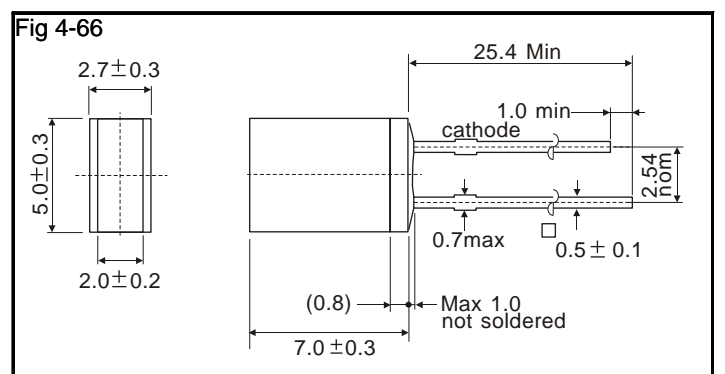
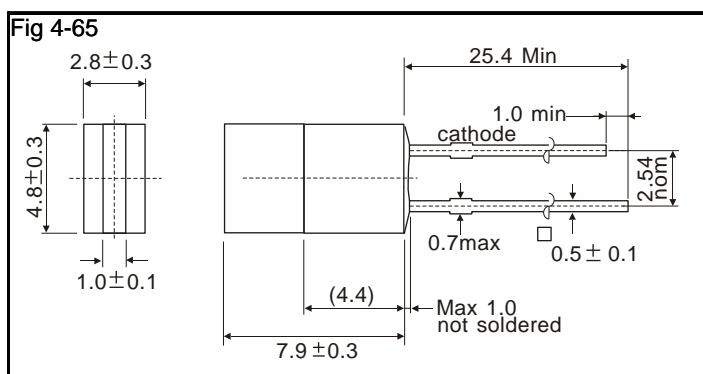
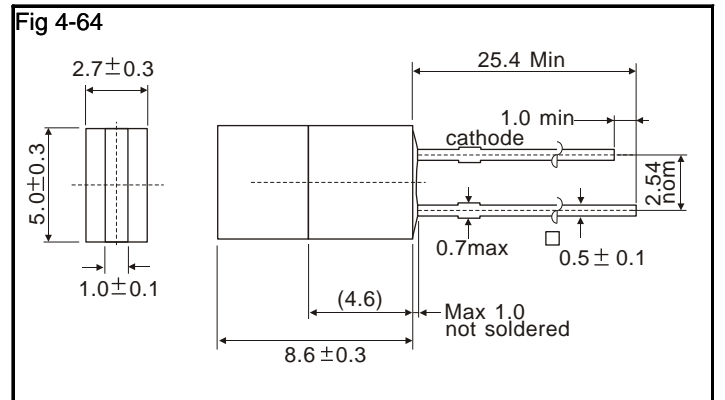
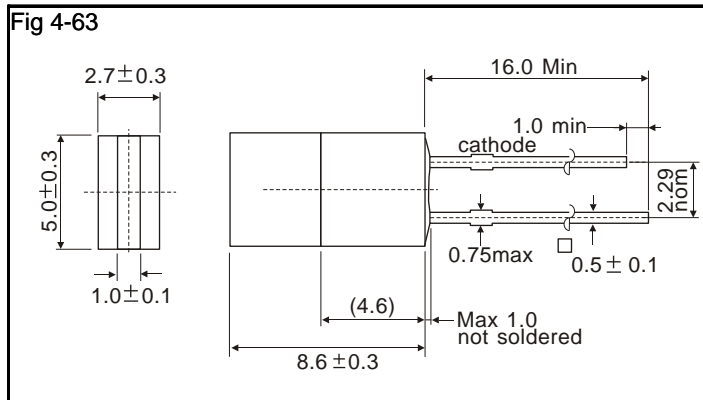
Rectangular type LEDs

IF=20mA Ta=25°C

Device No	Color		Wavelength (nm)		VF Typical (V)	Brightness (mcd)		View Angle 2θ½	Drawing Figure	
	Emitter	Lens	λp	λd		Minimum	Typical			
1x5.0	HR1-122	hi-red	colored diffused	700	658	2.20	0.5	1.0	120	4-63
	HR1-125R	hi-eff red	colored diffused	625	618	2.05	3.5	7.0		
	HR1-123	yellow green	colored diffused	570	567	2.15	4.0	8.0		
	HR1-124	yellow	colored diffused	589	585	2.10	3.0	6.0		
	HR1-125	orange	colored diffused	625	618	2.05	3.5	7.0		
1x5.0	HR1-132	hi-red	colored diffused	700	658	2.20	0.5	1.0	120	4-64
	HR1-135R	hi-eff red	colored diffused	625	618	2.05	3.5	7.0		
	HR1-133	yellow green	colored diffused	570	567	2.15	4.0	8.0		
	HR1-134	yellow	colored diffused	589	585	2.10	3.0	6.0		
	HR1-135	orange	colored diffused	625	618	2.05	3.5	7.0		
1x4.8	HR1b-132	hi-red	colored diffused	700	658	2.20	0.5	1.0	120	4-65
	HR1b-135R	hi-eff red	colored diffused	625	618	2.05	3.5	7.0		
	HR1b-133	yellow green	colored diffused	570	567	2.15	4.0	8.0		
	HR1b-134	yellow	colored diffused	589	585	2.10	3.0	6.0		
	HR1b-135	orange	colored diffused	625	618	2.05	3.5	7.0		
2x5.0	HR2-132	hi-red	colored diffused	700	658	2.20	0.5	1.0	125	4-66
	HR2-135R	hi-eff red	colored diffused	625	618	2.05	3.5	7.0		
	HR2-133	yellow green	colored diffused	570	567	2.15	4.0	8.0		
	HR2-134	yellow	colored diffused	589	585	2.10	3.0	6.0		
	HR2-135	orange	colored diffused	625	618	2.05	3.5	7.0		

Dimension:

Unit : mm.





Normal Indicator LEDs

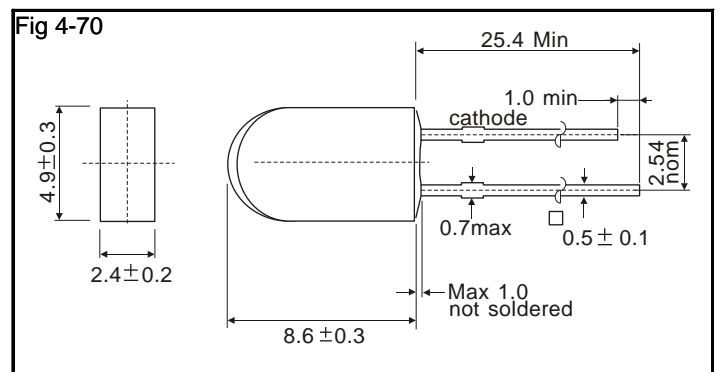
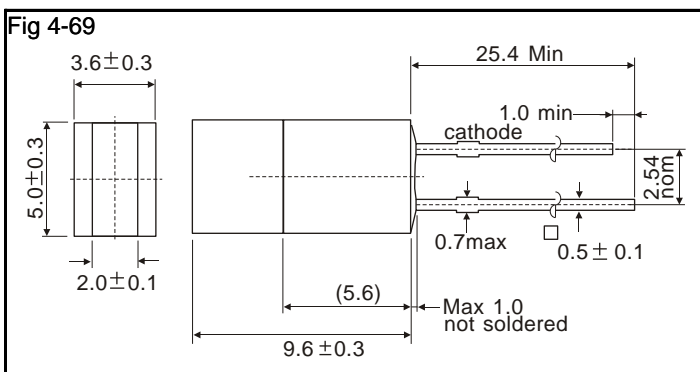
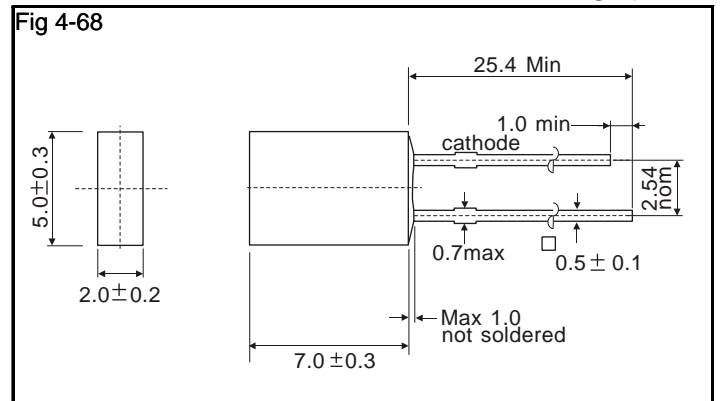
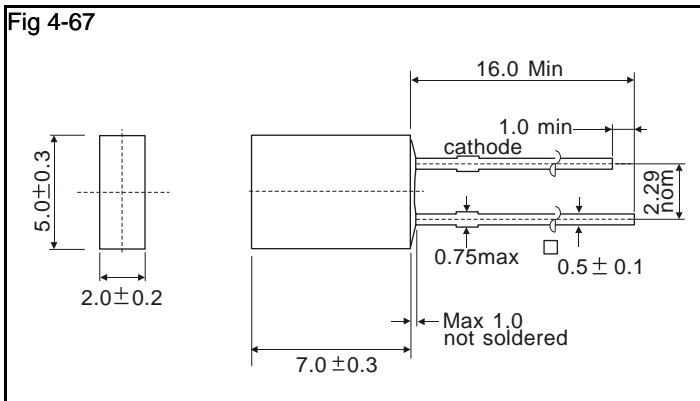
Rectangular type LEDs

IF=20mA Ta=25°C

Device No	Color		Wavelength (nm)		VF Typical (V)	Brightness (mcd)		View Angle 2θ½	Drawing Figure	
	Emitter	Lens	λp	λd		Minimum	Typical			
2x5.0	HR2N-122	hi-red	colored diffused	700	658	2.20	0.4	0.8	150	4-67
	HR2N-125R	hi-eff red	colored diffused	625	618	2.05	2.5	5.0		
	HR2N-123	yellow green	colored diffused	570	567	2.15	3.0	6.0		
	HR2N-124	yellow	colored diffused	589	585	2.10	2.5	5.0		
	HR2N-125	orange	colored diffused	625	618	2.05	2.5	5.0		
2x5.0	HR2N-132	hi-red	colored diffused	700	658	2.20	0.5	1.0	150	4-68
	HR2N-135R	hi-eff red	colored diffused	625	618	2.05	3.5	7.0		
	HR2N-133	yellow green	colored diffused	570	567	2.15	4.5	8.0		
	HR2N-134	yellow	colored diffused	589	585	2.10	3.0	6.0		
	HR2N-135	orange	colored diffused	625	618	2.05	3.5	7.0		
2x5.0	HR2a-132	hi-red	colored diffused	700	658	2.20	0.6	1.6	125	4-69
	HR2a-135R	hi-eff red	colored diffused	625	618	2.05	3.0	5.0		
	HR2a-133	yellow green	colored diffused	570	567	2.15	3.5	6.0		
	HR2a-134	yellow	colored diffused	589	585	2.10	2.5	4.0		
	HR2a-135	orange	colored diffused	625	618	2.05	3.0	5.0		
2.4x4.9	HRB2-432	hi-red	water clear	700	658	2.20	2.0	5.0	85	4-70
	HRB2-433	yellow green	water clear	570	567	2.15	30	50		
	HRB2-434	yellow	water clear	589	585	2.10	20	30		
	HRB2-435	orange	water clear	625	618	2.05	25	40		

Dimension:

Unit : mm.





Normal Indicator LEDs

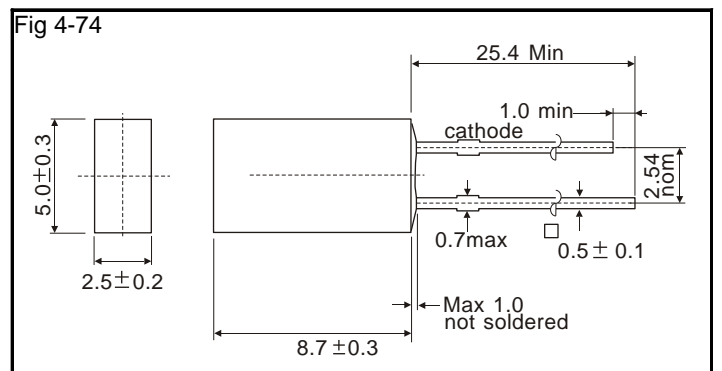
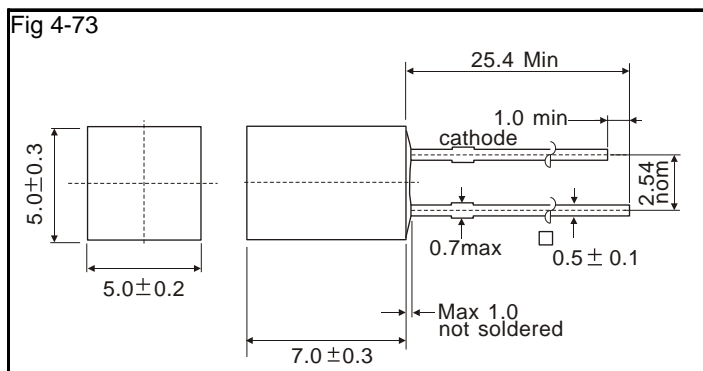
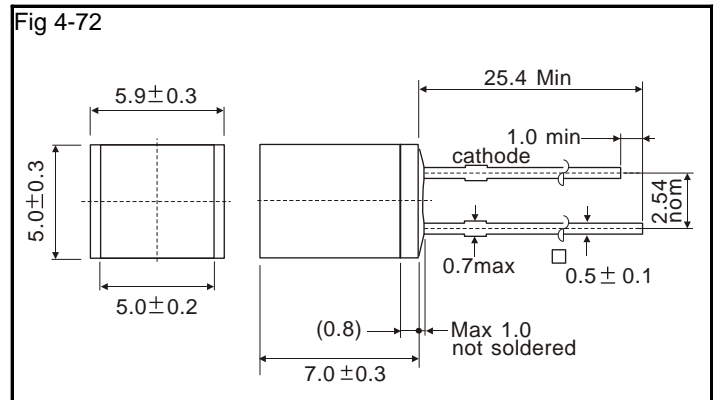
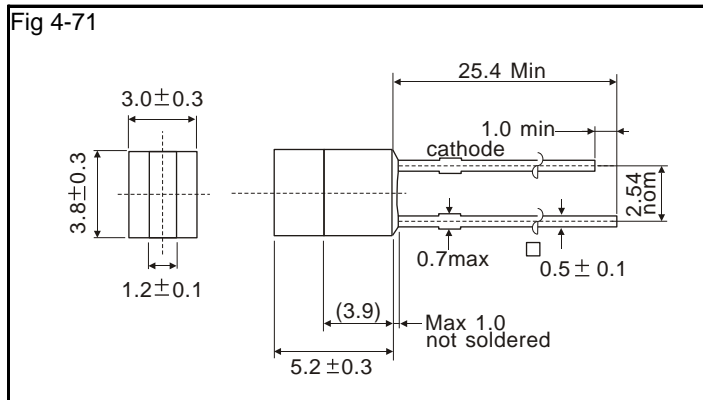
Rectangular type LEDs

IF=20mA Ta=25°C

Device No	Color		Wavelength (nm)		VF Typical (V)	Brightness (mcd)		View Angle 2θ½	Drawing Figure	
	Emitter	Lens	λp	λd		Minimum	Typical			
1.2x3.8	HR3d-142	hi-red	colored diffused	700	658	2.20	0.6	1.2	120	4-71
	HR3d-145R	hi-eff red	colored diffused	625	618	2.05	4.0	8.0		
	HR3d-143	yellow green	colored diffused	570	567	2.15	5.0	10		
	HR3d-144	yellow	colored diffused	589	585	2.10	3.0	6.0		
	HR3d-145	orange	colored diffused	625	618	2.05	4.0	8.0		
5.0x5.0	HR5-132	hi-red	colored diffused	700	658	2.20	0.3	0.6	110	4-72
	HR5-135R	hi-eff red	colored diffused	625	618	2.05	3.0	6.0		
	HR5-133	yellow green	colored diffused	570	567	2.15	4.0	7.0		
	HR5-134	yellow	colored diffused	589	585	2.10	2.0	5.0		
	HR5-135	orange	colored diffused	625	618	2.05	3.0	6.0		
5.0x5.0	HR5N-132	hi-red	colored diffused	700	658	2.20	0.3	0.6	110	4-73
	HR5N-135R	hi-eff red	colored diffused	625	618	2.05	3.0	6.0		
	HR5N-133	yellow green	colored diffused	570	567	2.15	4.0	7.0		
	HR5N-134	yellow	colored diffused	589	585	2.10	2.0	5.0		
	HR5N-135	orange	colored diffused	625	618	2.05	3.0	6.0		
2.5x5.0	HR5b-132	hi-red	colored diffused	700	658	2.20	0.6	1.1	120	4-74
	HR5b-135R	hi-eff red	colored diffused	625	618	2.05	3.5	6.0		
	HR5b-133	yellow green	colored diffused	570	567	2.15	3.5	6.0		
	HR5b-134	yellow	colored diffused	589	585	2.10	3.0	5.5		
	HR5b-135	orange	colored diffused	625	618	2.05	3.5	6.0		

Dimension:

Unit : mm.





Normal Indicator LEDs

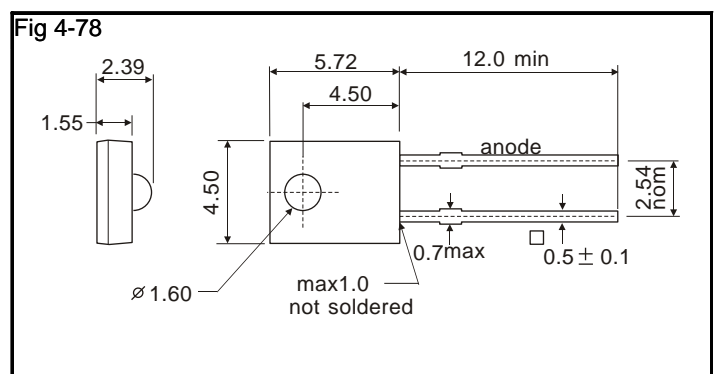
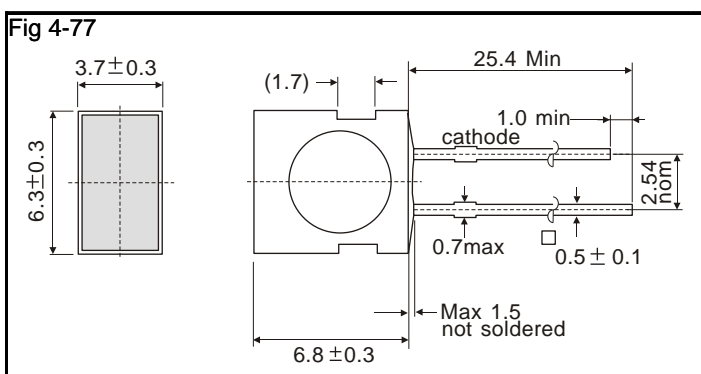
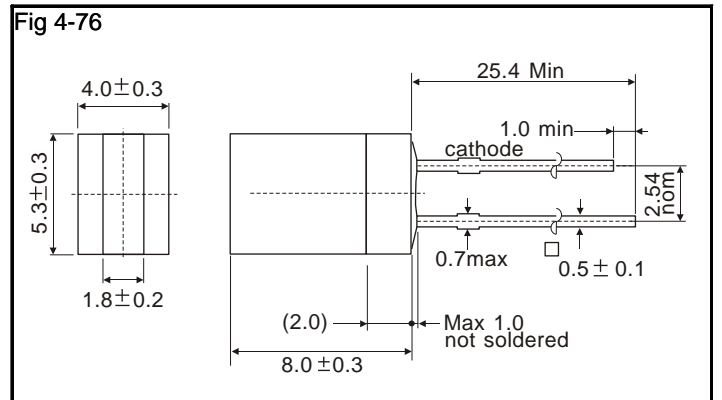
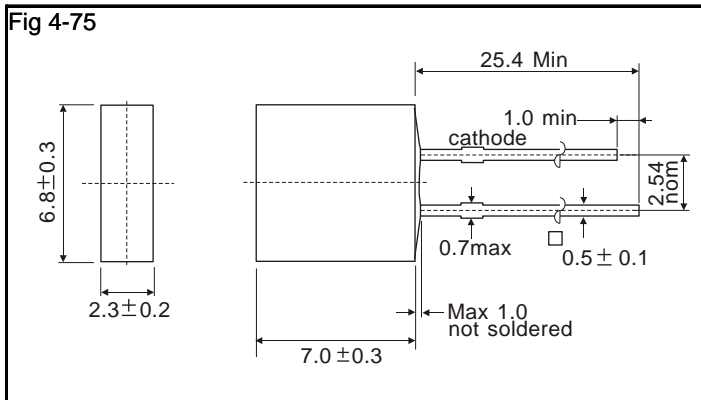
Rectangular type LEDs

IF=20mA Ta=25°C

Device No	Color		Wavelength (nm)		VF Typical (V)	Brightness (mcd)		View Angle 2θ½	Drawing Figure	
	Emitter	Lens	λp	λd		Minimum	Typical			
2.3x6.8	HR7-132	hi-red	colored diffused	700	658	2.20	0.5	1.0	110	4-75
	HR7-135R	hi-eff red	colored diffused	625	618	2.05	2.5	5.0		
	HR7-133	yellow green	colored diffused	570	567	2.15	3.5	7.0		
	HR7-134	yellow	colored diffused	589	585	2.10	2.0	4.0		
	HR7-135	orange	colored diffused	625	618	2.05	2.5	5.0		
1.8x5.3	HR8-132	hi-red	colored diffused	700	658	2.20	0.6	1.1	120	4-76
	HR8-135R	hi-eff red	colored diffused	625	618	2.05	3.5	6.0		
	HR8-133	yellow green	colored diffused	570	567	2.15	3.5	6.0		
	HR8-134	yellow	colored diffused	589	585	2.10	3.0	5.5		
	HR8-135	orange	colored diffused	625	618	2.05	3.5	6.0		
3.7x6.3	HR9a-132	hi-red	colored diffused	700	658	2.20	0.6	1.1	120	4-77
	HR9a-135R	hi-eff red	colored diffused	625	618	2.05	3.5	6.0		
	HR9a-133	yellow green	colored diffused	570	567	2.15	3.5	6.0		
	HR9a-134	yellow	colored diffused	589	585	2.10	3.0	5.5		
	HR9a-135	orange	colored diffused	625	618	2.05	3.5	6.0		
side look	HB1b-485	hi-eff red	water clear	625	618	2.05	10	25	40	4-78
	HB1b-483	yellow green	water clear	570	567	2.15	12.5	27		
	HB1b-484	yellow	water clear	589	585	2.10	10	2.		
	HB1b-486CR	super red	water clear	660	643	1.80	45	90		
	HB1b-486AR	super red	water clear	660	643	1.90	90	150		

Dimension:

Unit : mm.





Holder LEDs

Explanation of Part Number:

H 5
/ 2 Y 2 G 1 H
- 1 3

①
②
③
④

① Shape distinguish:

② No of LED & color kinds:

H: hi-red 700nm.

G: green 570nm.

Y: yellow 589nm

from left to right or top to bottom as drawing.

I: hi-eff red 625nm

E: orange 625nm.

S: super red 660nm.

③ Lens appearance:

1: colored diffusion.

2: colored clear.

3: white diffusion.

4: water clear

④ Lead frame type:

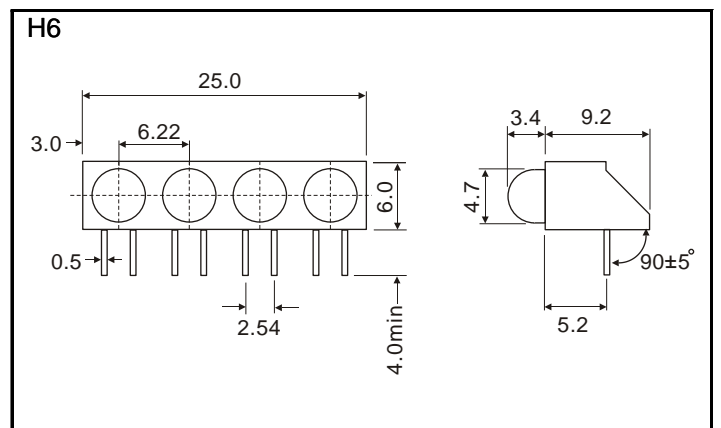
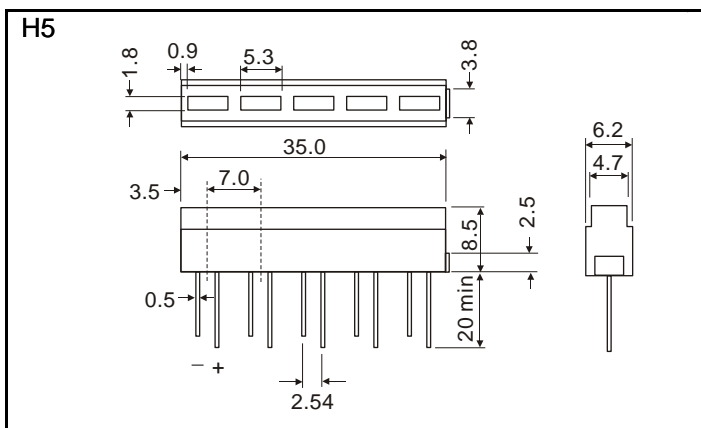
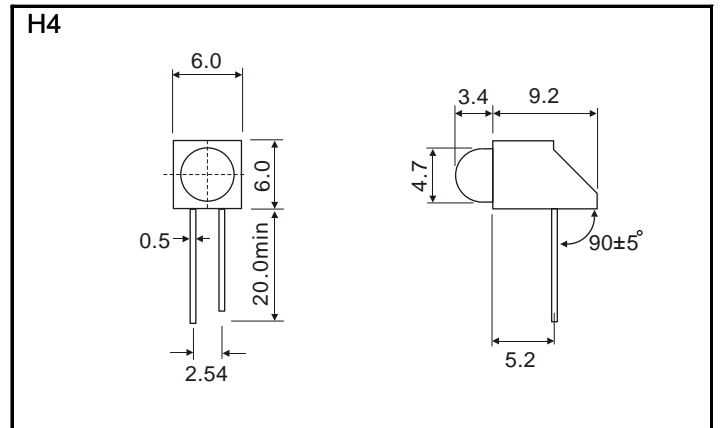
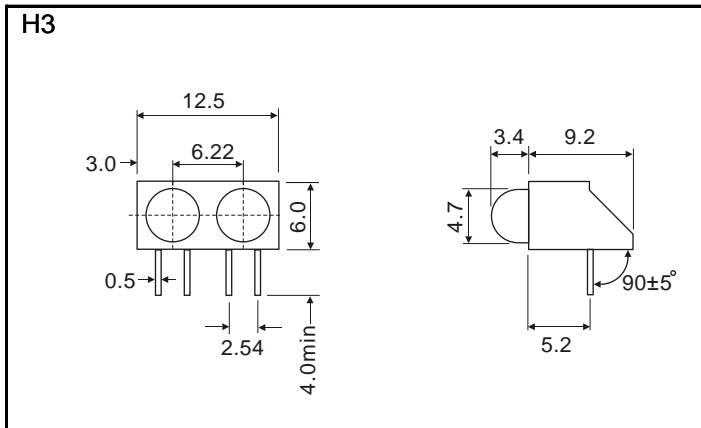
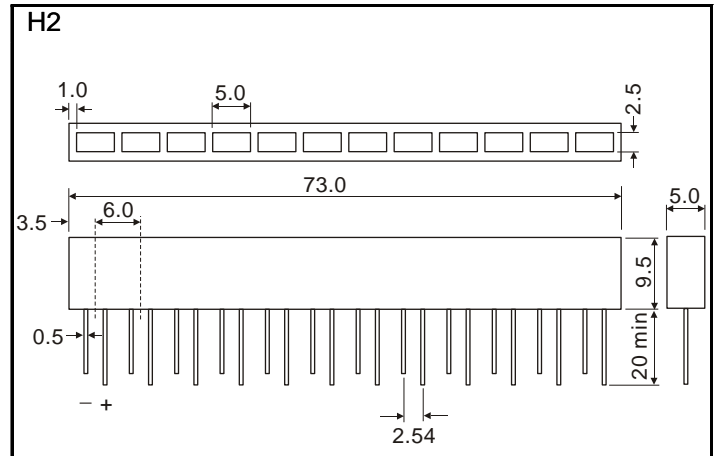
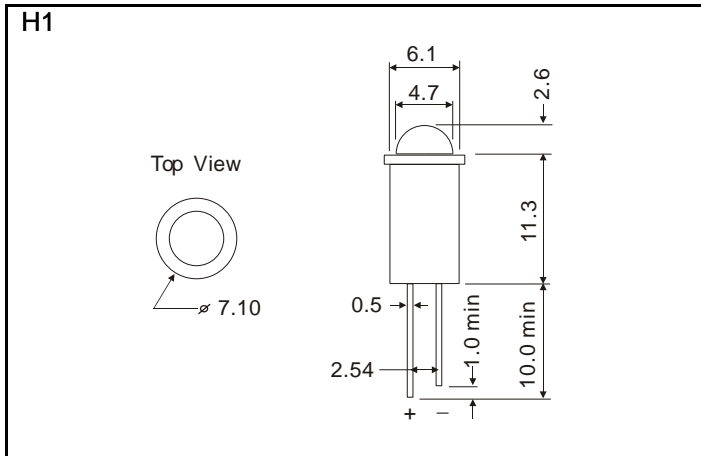
2: no reflector cup, short lead, 2.29mm pitch.

3: big reflector cup, long lead, 2.54mm pitch.

4: small reflector cup, long lead, 2.54mm pitch.

Dimension:

Unit : mm. Tolerance:0.25mm





Holder LEDs

Explanation of Part Number:

H 5 / 2 Y 2 G 1 H - 1 3

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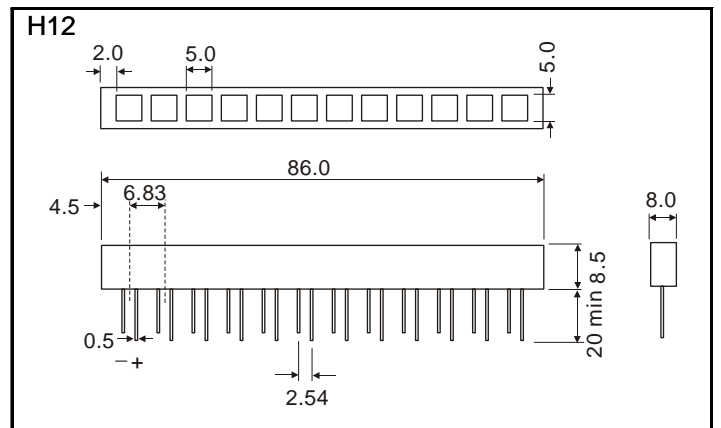
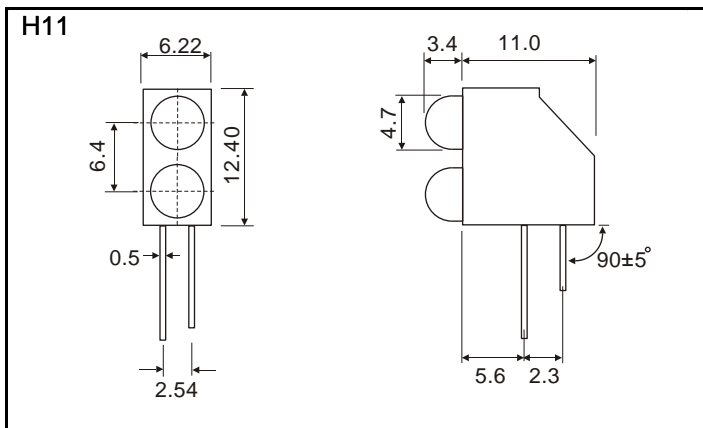
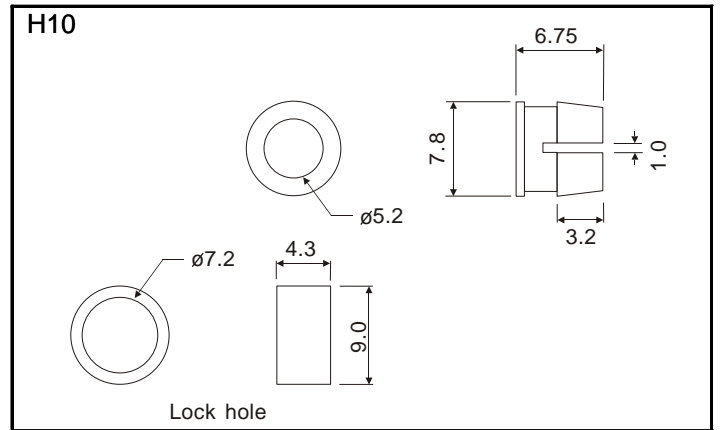
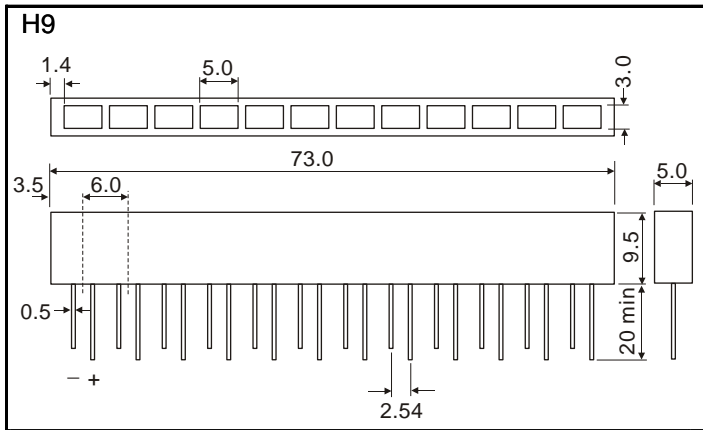
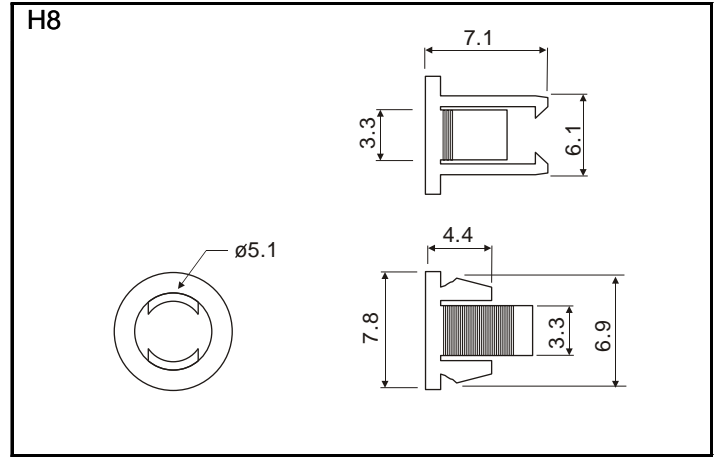
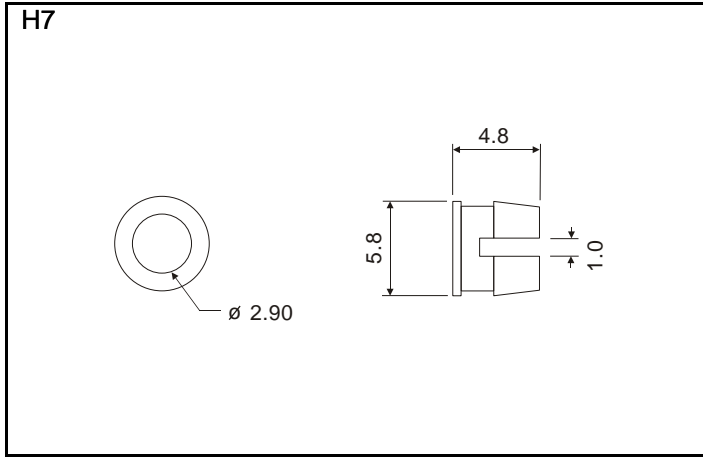
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④ Lead frame type:

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Dimension:

Unit : mm. Tolerance:0.25mm





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Dimension:

Unit : mm. Tolerance:0.25mm

