LED COMPONENTS
2016 CATALOGUE

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About Harvatek

Harvatek Corporation was founded in 1995 and are listed on Taiwan Stock Exchange (TWSE) in 2003 under ticker number 6168. Also one of the SMD LEDs leading manufacturers in the world with 800 employees worldwide.

The global technology leader SMD LED

General Lighting / Display / Back Lighting / Handheld Device

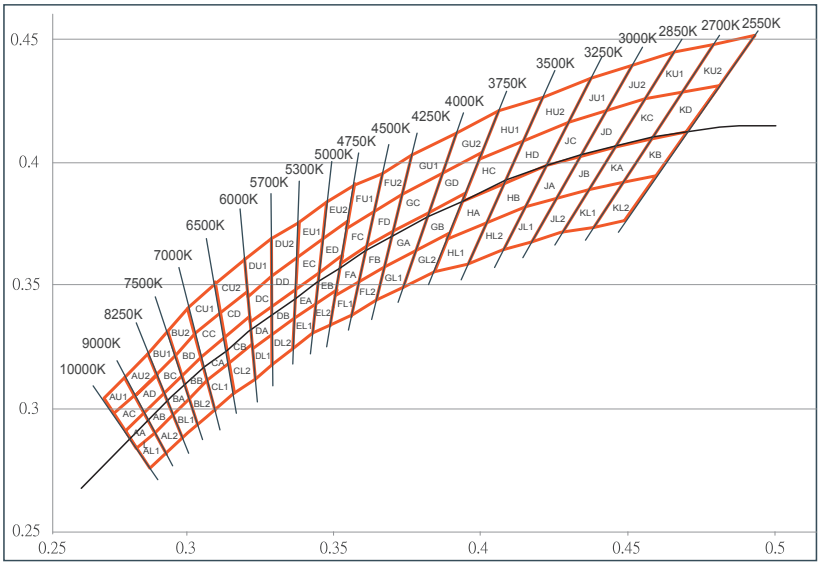
Headquarters and Manufacturing

Manufacturing

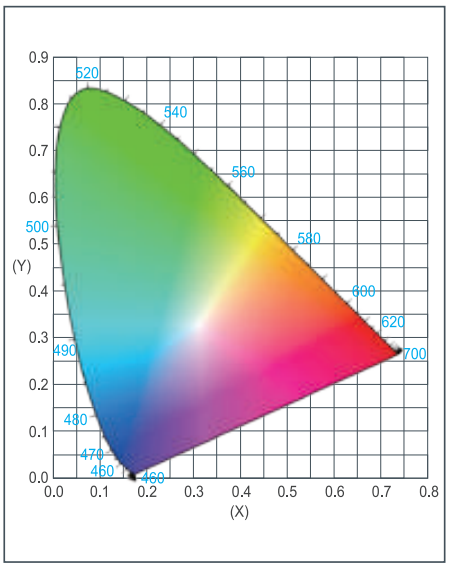
CONTENTS

GENERAL SPECIFICATION

Correlated Color Temperature Rank (Bin Table)



CIE 1931 Chromaticity Diagram



	0.283	0.284		0.295	0.297		0.307	0.311		0.322	0.324		0.337	0.337
	0.279	0.291		0.292	0.306		0.305	0.321		0.322	0.335		0.337	0.349
AA	0.286	0.299	BA	0.298	0.313	CA	0.313	0.329	DA	0.329	0.342	EA	0.345	0.355
	0.289	0.291		0.301	0.304		0.314	0.319		0.329	0.330		0.344	0.343
	0.283	0.284		0.295	0.297		0.307	0.311		0.322	0.324		0.337	0.337
	0.289	0.291		0.301	0.304		0.314	0.319		0.329	0.330		0.344	0.343
	0.286	0.299		0.298	0.313		0.313	0.329		0.329	0.342		0.345	0.355
AB	0.292	0.306	BB	0.305	0.321	CB	0.321	0.337	DB	0.337	0.349	EB	0.353	0.362
	0.295	0.297		0.307	0.311		0.322	0.326		0.337	0.337		0.352	0.349
	0.289	0.291		0.301	0.304		0.314	0.319		0.329	0.330		0.344	0.343
	0.279	0.291		0.292	0.306		0.305	0.321		0.322	0.335		0.337	0.349
	0.275	0.298		0.290	0.314		0.303	0.330		0.321	0.346		0.338	0.362
AC	0.282	0.306	BC	0.296	0.322	CC	0.312	0.339	DC	0.329	0.354	EC	0.346	0.369
	0.286	0.299		0.298	0.313		0.313	0.329		0.329	0.342		0.345	0.355
	0.279	0.291		0.292	0.306		0.305	0.321		0.322	0.335		0.337	0.349
	0.286	0.299		0.298	0.313		0.313	0.329		0.329	0.342		0.345	0.355
	0.282	0.306		0.296	0.322		0.312	0.339		0.329	0.354		0.346	0.369
AD	0.290	0.314	BD	0.303	0.330	CD	0.321	0.348	DD	0.338	0.362	ED	0.355	0.376
	0.292	0.306		0.305	0.321		0.321	0.337		0.337	0.349		0.353	0.362
	0.286	0.299		0.298	0.313		0.313	0.329		0.329	0.342		0.345	0.355
	0.287	0.276		0.298	0.288		0.309	0.299		0.323	0.312		0.336	0.325
	0.283	0.284		0.295	0.297		0.307	0.311		0.322	0.324		0.337	0.337
AL1	0.289	0.291	BL1	0.301	0.304	CL1	0.314	0.319	DL1	0.329	0.330	EL1	0.344	0.343
	0.293	0.282		0.304	0.294		0.316	0.306		0.329	0.318		0.343	0.331
	0.287	0.276		0.298	0.288		0.309	0.299		0.323	0.312		0.336	0.325
	0.293	0.282		0.304	0.294		0.316	0.306		0.329	0.318		0.343	0.331
	0.289	0.291		0.301	0.304		0.314	0.319		0.329	0.330		0.344	0.343
AL2	0.295	0.297	BL2	0.307	0.311	CL2	0.322	0.326	DL2	0.337	0.337	EL2	0.352	0.349
	0.298	0.288		0.309	0.299		0.323	0.312		0.336	0.325		0.350	0.334
	0.293	0.282		0.304	0.294		0.316	0.306		0.329	0.318		0.343	0.331
	0.275	0.298		0.290	0.314		0.303	0.330		0.321	0.346		0.338	0.362
	0.272	0.304		0.286	0.322		0.301	0.342		0.320	0.360		0.338	0.376
AU1	0.279	0.313	BU1	0.294	0.331	CU1	0.310	0.351	DU1	0.329	0.369	EU1	0.348	0.384
	0.282	0.306		0.296	0.322		0.312	0.339		0.329	0.354		0.346	0.369
	0.275	0.298		0.290	0.314		0.303	0.330		0.321	0.346		0.338	0.362
	0.282	0.306		0.296	0.322		0.312	0.339		0.329	0.354		0.346	0.369
	0.279	0.313		0.294	0.331		0.310	0.351		0.329	0.369		0.348	0.384
AU2	0.286	0.322	BU2	0.301	0.342	CU2	0.320	0.360	DU2	0.338	0.376	EU2	0.357	0.391
	0.290	0.314		0.303	0.330		0.321	0.348		0.338	0.362		0.355	0.376
	0.282	0.306		0.296	0.322		0.312	0.339		0.329	0.354		0.346	0.369

	0.351	0.347		0.367	0.358		0.389	0.369		0.415	0.381		0.437	0.389
	0.353	0.360		0.370	0.372		0.394	0.385		0.422	0.398		0.447	0.407
FA	0.362	0.366	GA	0.383	0.380	HA	0.408	0.392	JA	0.434	0.403	KA	0.458	0.410
	0.359	0.352		0.378	0.365		0.402	0.375		0.426	0.385		0.448	0.392
	0.351	0.347		0.367	0.358		0.389	0.369		0.415	0.381		0.437	0.389
	0.359	0.352		0.378	0.365		0.402	0.375		0.426	0.385		0.448	0.392
	0.362	0.366		0.383	0.380		0.408	0.392		0.434	0.403		0.458	0.410
FB	0.370	0.372	GB	0.395	0.388	HB	0.422	0.398	JB	0.447	0.407	KB	0.470	0.413
	0.367	0.358		0.390	0.372		0.415	0.381		0.437	0.389		0.459	0.394
	0.359	0.352		0.378	0.365		0.402	0.375		0.426	0.385		0.448	0.392
	0.353	0.360		0.370	0.372		0.394	0.385		0.422	0.398		0.447	0.407
	0.355	0.374		0.374	0.387		0.400	0.402		0.430	0.417		0.456	0.426
FC	0.364	0.380	GC	0.387	0.396	HC	0.415	0.409	JC	0.443	0.421	KC	0.469	0.429
	0.362	0.366		0.383	0.380		0.408	0.392		0.434	0.403		0.458	0.410
	0.353	0.360		0.370	0.372		0.394	0.385		0.422	0.398		0.447	0.407
	0.362	0.366		0.383	0.380		0.408	0.392		0.434	0.403		0.458	0.410
	0.364	0.380		0.387	0.396		0.415	0.409		0.443	0.421		0.469	0.429
FD	0.374	0.387	GD	0.401	0.404	HD	0.430	0.417	JD	0.456	0.426	KD	0.481	0.432
	0.370	0.372		0.395	0.388		0.422	0.398		0.447	0.407		0.470	0.413
	0.362	0.366		0.383	0.380		0.408	0.392		0.434	0.403		0.458	0.410
	0.350	0.334		0.364	0.344		0.385	0.356		0.407	0.364		0.428	0.372
	0.351	0.347		0.367	0.358		0.389	0.369		0.415	0.381		0.437	0.389
FL1	0.359	0.352	GL1	0.378	0.365	HL1	0.402	0.375	JL1	0.426	0.385	KL1	0.448	0.392
	0.357	0.339		0.374	0.349		0.395	0.359		0.418	0.368		0.438	0.374
	0.350	0.334		0.364	0.344		0.385	0.356		0.407	0.364		0.428	0.372
	0.357	0.339		0.374	0.349		0.395	0.359		0.418	0.368		0.438	0.374
	0.359	0.352		0.378	0.365		0.402	0.375		0.426	0.385		0.448	0.392
FL2	0.367	0.358	GL2	0.390	0.372	HL2	0.415	0.381	JL2	0.437	0.389	KL2	0.459	0.394
	0.364	0.344		0.385	0.356		0.407	0.364		0.428	0.372		0.449	0.376
	0.357	0.339		0.374	0.349		0.395	0.359		0.418	0.368		0.438	0.374
	0.355	0.374		0.374	0.387		0.400	0.402		0.430	0.417		0.456	0.426
	0.357	0.391		0.377	0.403		0.406	0.421		0.438	0.435		0.466	0.445
FU1	0.367	0.396	GU1	0.391	0.412	HU1	0.421	0.426	JU1	0.452	0.440	KU1	0.479	0.448
	0.364	0.380		0.387	0.396		0.415	0.409		0.443	0.421		0.469	0.429
	0.355	0.374		0.374	0.387		0.400	0.402		0.430	0.417		0.456	0.426
	0.364	0.380		0.387	0.396		0.415	0.409		0.443	0.421		0.469	0.429
	0.367	0.396		0.391	0.412		0.421	0.426		0.452	0.440		0.479	0.448
FU2	0.377	0.403	GU2	0.406	0.421	HU2	0.438	0.435	JU2	0.466	0.445	KU2	0.493	0.451
	0.374	0.387		0.401	0.404		0.430	0.417		0.456	0.426		0.481	0.432
	0.364	0.380		0.387	0.396		0.415	0.409		0.443	0.421		0.469	0.429

APPLICATION NOTES

Precautions

- Avoid exposure to moisture at all times during transportation or storage.
- Anti-Static precaution must be taken when handling GaN, InGaN, and A1INGaP products.
- 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. We strongly advise do not drive reverse voltage to LED.
- Avoid operation beyond the limits as specified by the absolute maximum ratings.
- Avoid direct contact the surface of the LED emits light.
- If possible, assemble the unit in a clean room or dust-free environment.
- When the LEDs are illuminating, the maximum ambient temperature should be first considered before operation.
- The appearance and specifications of the products may be modified for improvement without further notice.

Storage

It's recommended to store the products in the following conditions:
Humidity: 60% RH Max.
Temperature: 5℃ ~ 30℃ (14 ℉ ~86 ℉).

- Shelf life in sealed bag : 12 month at <40℃ and <90% RH. (Base on aluminum laminated moisture barrier bag.)
- After the bag is opened, devices that will be subjected to infrared reflow, vapor-phase reflow, or equivalent processing must be :
  1. Mounted within 72 hours at factory conditions of ≦ 30℃ / 60%RH, or
  2. Stored at ≦ 10% RH with zip-lock sealed (time ≦ 168 hours)

Baking

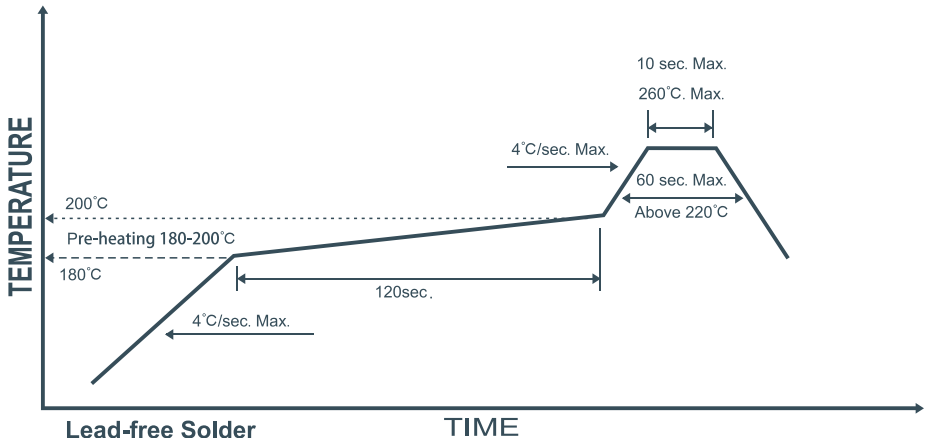
It's recommended to bake before soldering once the pack is unsealed open & re-sealed after 72 hours.
The conditions are as followings:

- 60±3℃ x (12~24hrs) and <5% RH, taped reel type.
- 100±3℃ x (45min~1hr), bulk type.
- 130±3℃ x (15~30min), bulk type.

Soldering

Recommend soldering paste specifications:

- Operating temperature : Above 220℃ , 60 sec.
- Peak temperature: 260℃ Max., 10 sec Max..
- Never attempt next proves until the component is cooled down to room temperature after reflow.
- The recommended reflow soldering profile (measured on the surface of the LED terminal) is as following :



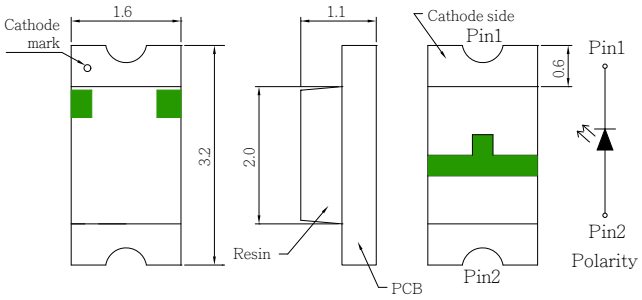
Cleaning

Following are cleaning procedures after soldering :

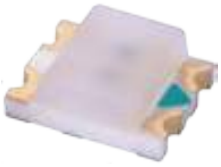
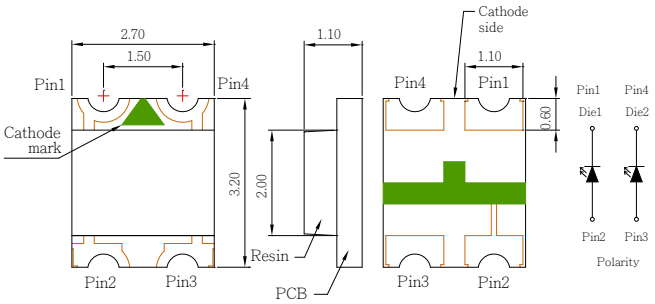
- An alcohol-based solvent such as isopropyl alcohol (IPA) is recommended.
- Temperature x Time should be : <50℃ x 30 sec, or <30℃ x 3 min.
- Ultrasonic cleaning: < 15W/ bath ; Bath volume: 1 liter max.
- Curing : 100℃ max, < 3min.

Cautions of Pick and Place

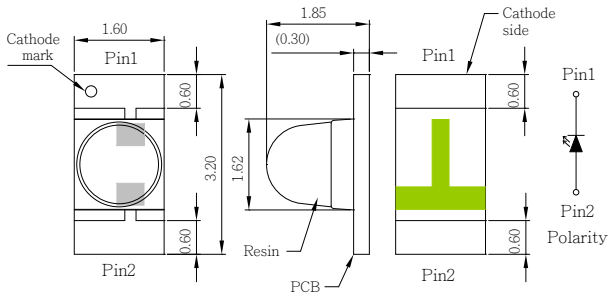
- Avoid stress on the resin at elevated temperature.
- Avoid rubbing or scraping the resin by any object.
- Electric-static may cause damage to the component. Please ensure that the equipment is properly grounded. Use of an ionizer fan is recommended.

Series	Appearance	Outline drawing
B150		

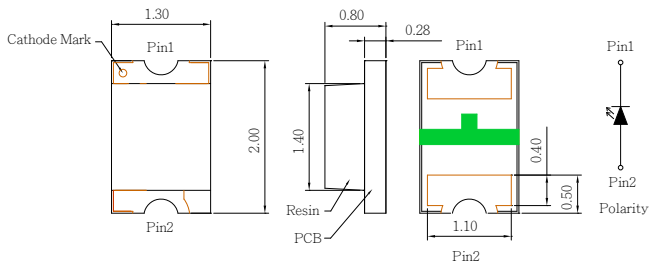
Part Number	Size (LxWxH mm)	Emitting Color	Forward Voltage (V_F)			λD(nm)/ CIE (x, y)	Luminous Intensity (mcd)			I_F (mA)
			min.	typ.	max.		min.	typ.	max.	
B1501TX	3.2*1.6*1.1	○ White	--	3.3	--	x=0.2900 y=0.2850	--	270.0	--	20
B1501USD		● Red	--	2.0	--	632	--	71.5	--	
B1501NG		● Green	--	3.3	--	520	--	285.0	--	
B1501NB		● Blue	--	3.3	--	468	--	112.5	--	
B1501UYG		● Yellow Green	--	2.1	--	573	--	71.5	--	
B1501UY		● Amber	--	2.0	--	591	--	112.5	--	
B1501UD		● Orange	--	2.0	--	611	--	71.5	--	
B1501UR		● Super Red	--	1.8	--	655	--	18.0	--	
B1501URO		● Red	--	2.0	--	639	--	71.5	--	
B1501YG		● Yellow Green	--	2.2	--	568	--	18.0	--	
B1501USD	3.2*1.6*1.1	● Red	--	2.0	--	632	--	18.0	--	5
B1501NB		● Blue	--	2.8	--	470	--	28.5	--	
B1501UYG		● Yellow Green	--	2.1	--	573	--	11.25	--	
B1501UD		● Orange	--	2.0	--	611	--	11.25	--	

Series	Appearance	Outline drawing
B155		

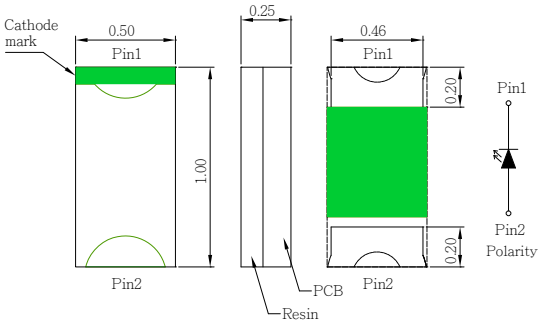
Part Number	Size (LxWxH mm)	Emitting Color	Forward Voltage (V_F)			λD(nm)/ CIE (x, y)	Luminous Intensity (mcd)			I_F (mA)
			min.	typ.	max.		min.	typ.	max.	
B1552USUG	3.2*2.7*1.1	Red	--	2.0	--	639	--	71.0	--	20
		Yellow Green	--	2.1	--	573	--	45.0	--	
B1552USNB		Red	--	2.0	--	632	--	112.0	--	
		Blue	--	3.3	--	468	--	112.0	--	
B1552USUY		Red	--	2.0	--	632	--	112.0	--	
		Amber	--	2.0	--	591	--	71.0	--	
B1552UYNB		Amber	--	2.0	--	591	--	112.0	--	
		Blue	--	3.3	--	468	--	112.0	--	
B1552UYUG		Amber	--	2.0	--	591	--	112.0	--	
		Yellow Green	--	2.1	--	573	--	71.0	--	
B1552USNB	3.2*2.7*1.1	Red	--	2.0	--	624	--	28.0	--	5
		Blue	--	2.8	--	470	--	28.0	--	

Series	Appearance	Outline drawing
B159		

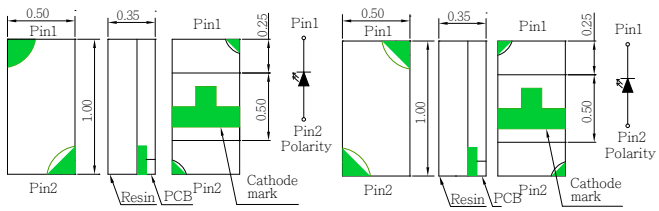
Part Number	Size (LxWxH mm)	Emitting Color	Forward Voltage (V_F)			λD(nm)/ CIE (x, y)	Luminous Intensity (mcd)			I_F (mA)
			min.	typ.	max.		min.	typ.	max.	
B1591USD	3.2*1.6*1.85	Red	--	2.0	--	634	--	900.0	--	20
B1591NG		Green	--	3.3	--	520	--	1440.0	--	
B1591NB		Blue	--	3.3	--	468	--	900.0	--	
B1591UYG		Yellow Green	--	2.1	--	573	--	715.0	--	
B1591UY		Amber	--	2.0	--	591	--	1125.0	--	
B1591UD		Orange	--	2.0	--	611	--	1800 .0	--	
B1591USD	3.2*1.6*1.85	Red	--	2.0	--	632	--	360.0	--	5
B1591NB		Blue	--	2.8	--	470	--	360.0	--	
B1591UYG		Yellow Green	--	2.1	--	573	--	285.0	--	

Series	Appearance	Outline drawing
B170		

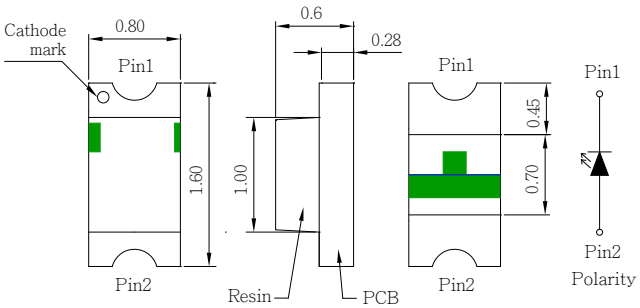
Part Number	Size (LxWxH mm)	Emitting Color	Forward Voltage (V_F)			λD(nm)/ CIE (x, y)	Luminous Intensity (mcd)			I_F (mA)
			min.	typ.	max.		min.	typ.	max.	
B1701USD	2.0*1.3*0.8	Red	--	2.0	--	632	--	112.5	--	20
B1701NG		Green	--	3.3	--	520	--	285.0	--	
B1701NB		Blue	--	3.3	--	468	--	71.5	--	
B1701UYG		Yellow Green	--	2.1	--	573	--	71.5	--	
B1701UY		Amber	--	2.0	--	591	--	71.5	--	
B1701UD		Orange	--	2.0	--	611	--	71.5	--	
B1701NG	2.0*1.3*0.8	Green	--	2.8	--	522	--	71.5	--	5
B1701NB		Blue	--	2.8	--	470	--	28.5	--	
B1701UYG		Yellow Green	--	2.1	--	573	--	11.25	--	
B1701UY		Amber	--	2.0	--	591	--	11.25	--	

Series	Appearance	Outline drawing
B181		

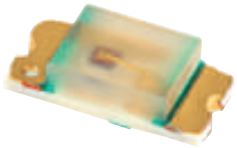
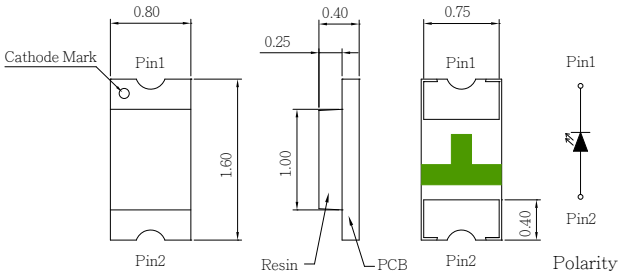
Part Number	Size (LxWxH mm)	Emitting Color	Forward Voltage (V_F)			λD(nm)/ CIE (x, y)	Luminous Intensity (mcd)			I_F (mA)
			min.	typ.	max.		min.	typ.	max.	
B1811NB	1.0*0.5*0.25	Blue	--	3.3	--	468	--	45.0	--	20
B1811NG		Green	--	3.3	--	520	--	285.0	--	
B1811UYG		Yellow Green	--	2.0		573	--	72.5	--	
B1811UD		Orange	--	2.0	--	611	--	112.5	--	
B1811USD		Red	--	2.0	--	632	--	71.5	--	
B1811UY		Amber	--	2.0	--	591	--	71.5	--	
B1811TX	1.0*0.5*0.25	White	--	2.8	--	x=0.2900 y=0.2850	--	140.0	--	5

Series	Appearance	Outline drawing
B185		

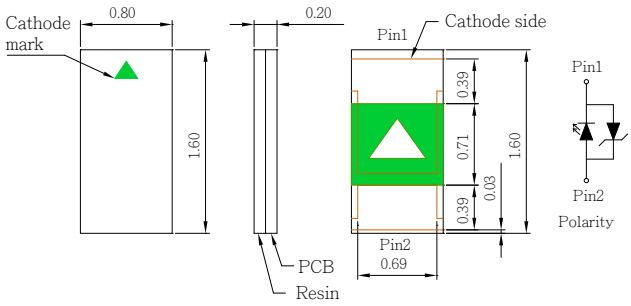
Part Number	Size (LxWxH mm)	Emitting Color	Forward Voltage (V_F)			λD(nm)/ CIE (x, y)	Luminous Intensity (mcd)			I_F (mA)
			min.	typ.	max.		min.	typ.	max.	
B1851TX	1.0*0.5*0.35	○ White	--	2.9	--	x=0.2900 y=0.2850	--	140.0	--	5
B1851NB		● Blue	--	2.8	--	470	--	45.0	--	
B1851NG		● Green	--	2.8	--	522	--	72.5	--	

Series	Appearance	Outline drawing
B191		

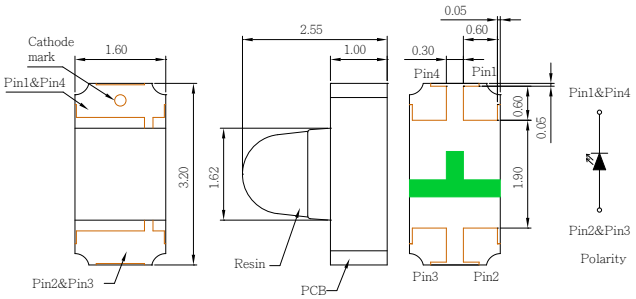
Part Number	Size (LxWxH mm)	Emitting Color	Forward Voltage (V_F)			λD(nm)/ CIE (x, y)	Luminous Intensity (mcd)			I_F (mA)
			min.	typ.	max.		min.	typ.	max.	
B1911TX	1.6*0.8*0.6	○ White	--	3.3	--	x=0.2900 y=0.2850	--	300.0	--	20
B1911USD		● Red	--	2.0	--	632	--	45.0	--	
B1911NG		● Green	--	3.3	--	520	--	285.0	--	
B1911NB		● Blue	--	3.3	--	468	--	71.5	--	
B1911UY		● Amber	--	2.0	--	591	--	112.5	--	
B1911UD		● Orange	--	2.1	--	610	--	112.5	--	
B1911UYG		● Yellow Green	--	2.1	--	573	--	71.5	--	
B1911USD	1.6*0.8*0.6	● Red	--	2.0	--	632	--	36.0	--	5
B1911NB		● Blue	--	2.8	--	470	--	18.0	--	
B1911UYG		● Yellow Green	--	2.1	--	573	--	11.25	--	
B1911UY		● Amber	--	2.0	--	591	--	18.0	--	

Series	Appearance	Outline drawing
B193		

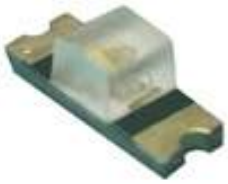
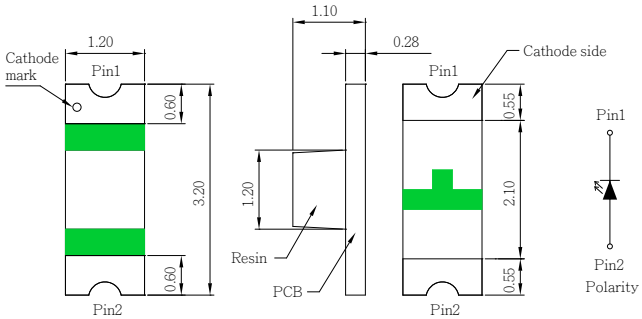
Part Number	Size (LxWxH mm)	Emitting Color	Forward Voltage (V_F)			λD(nm)/ CIE (x, y)	Luminous Intensity (mcd)			I_F (mA)
			min.	typ.	max.		min.	typ.	max.	
B1931TX	1.6*0.8*0.4	○ White	--	3.3	--	x=0.2900 y=0.2850	--	300.0	--	20
B1931USD		Red	--	2.0	--	632	--	71.5	--	
B1931NG		Green	--	3.3	--	520	--	285.0	--	
B1931NB		Blue	--	3.3	--	468	--	112.5	--	
B1931UD		Orange	--	2.0	--	611	--	112.5	--	
B1931UY		Amber	--	2.0	--	591	--	71.5	--	
B1931USD	1.6*0.8*0.4	Red	--	2.0	--	632	--	28.5	--	5
B1931UYG		Yellow Green	--	2.1	--	573	--	18.0	--	
B1931NG		Green	--	2.8	--	522	--	112.5	--	
B1931NB		Blue	--	2.8	--	470	--	28.5	--	
B1931UD		Orange	--	2.0	--	611	--	18.0	--	
B1931UY		Amber	--	2.0	--	591	--	28.5	--	

Series	Appearance	Outline drawing
E19R		

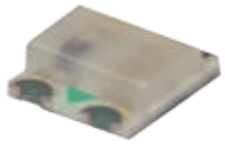
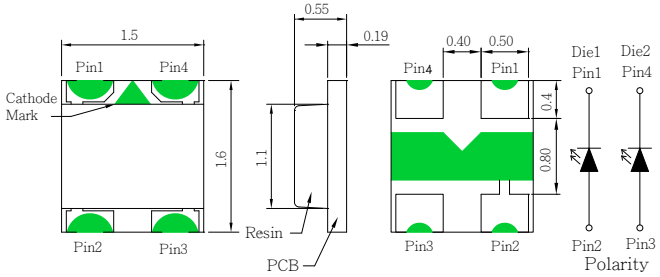
Part Number	Size (LxWxH mm)	Emitting Color	Forward Voltage (V_F)			λD(nm)/ CIE (x, y)	Luminous Intensity (mcd)			I_F (mA)
			min.	typ.	max.		min.	typ.	max.	
E19R1TX	1.6*0.8*0.2	○ White	--	3.3	--	x=0.2900 y=0.2850	--	580.0	--	20
E19R1TX		○ White	--	2.8	--	x=0.2900 y=0.2850	--	180.0	--	5

Series	Appearance	Outline drawing
B259		

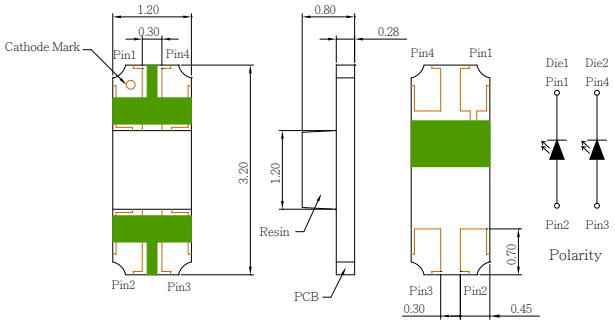
Part Number	Size (LxWxH mm)	Emitting Color	Forward Voltage (V_F)			λD(nm)/ CIE (x, y)	Luminous Intensity (mcd)			I_F (mA)
			min.	typ.	max.		min.	typ.	max.	
B2591NG	3.2*1.6*2.55	Green	--	3.3	--	520	--	285.0	--	20

Series	Appearance	Outline drawing
B260		

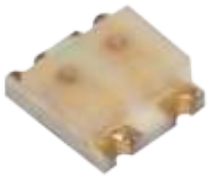
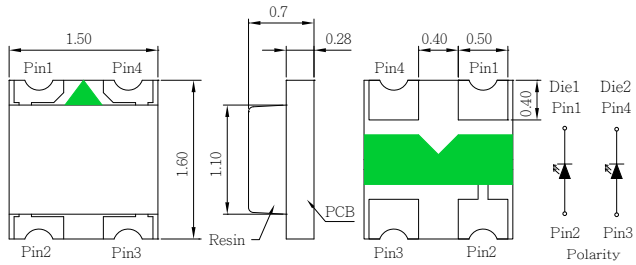
Part Number	Size (LxWxH mm)	Emitting Color	Forward Voltage (V_F)			λD(nm)/ CIE (x, y)	Luminous Intensity (mcd)			I_F (mA)
			min.	typ.	max.		min.	typ.	max.	
B2601USD	3.2*1.2*1.1	Red	--	2.0	--	632	--	71.5	--	20
B2601NG		Green	--	3.3	--	520	--	285.0	--	
B2601NB		Blue	--	3.3	--	468	--	112.5	--	
B2601UYG		Yellow Green	--	2.1	--	573	--	71.5	--	
B2601UY		Amber	--	2.0	--	591	--	180.0	--	
B2601USD	3.2*1.2*1.1	Red	--	2.0	--	632	--	18.0	--	5
B2601NG		Green	--	2.8	--	522	--	112.5	--	
B2601NB		Blue	--	2.8	--	470	--	18.0	--	
B2601UYG		Yellow Green	--	2.1	--	573	--	11.3	--	
B2601UY		Amber	--	2.0	--	591	--	18.0	--	
B2601UD		Orange	--	2.0	--	611	--	18.0	--	

Series	Appearance	Outline drawing
B261		

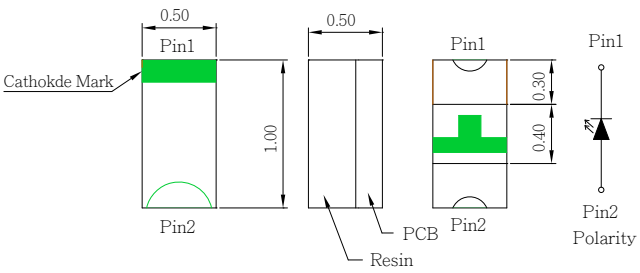
Part Number	Size (LxWxH mm)	Emitting Color	Forward Voltage (V_F)			λD(nm)/ CIE (x, y)	Luminous Intensity (mcd)			I_F (mA)
			min.	typ.	max.		min.	typ.	max.	
B2612USNB	1.6*1.5*0.55	Red	--	2.0	--	624	--	71.5	--	20
		Blue	--	3.3	--	470	--	71.5	--	
B2612UGNB		Yellow Green	--	2.1	--	571	--	71.5	--	
		Blue	--	3.3	--	470	--	71.5	--	
B2612UGUY		Yellow Green	--	2.1	--	574	--	45.0	--	
		Amber	--	2.1	--	593	--	71.5	--	
B2612USUG		Red	--	2.0	--	624	--	71.5	--	
		Yellow Green	--	2.1	--	571	--	71.5	--	
B2612UDUG		Orange	--	2.0	--	605	--	71.5	--	
		Yellow Green	--	2.1	--	571	--	45.0	--	
B2612UDNB		Orange	--	2.0	--	605	--	71.5	--	
		Blue	--	3.3	--	470	--	71.5	--	
B2612UDTX	1.6*1.5*0.55	Orange	--	2.0	--	605	--	28.5	--	5
		White	--	2.9	--	x=0.2900 y=0.2850	--	110.0	--	
B2612UYNG		Amber	--	2.0	--	589	--	28.5	--	
		Green	--	3.3	--	525	--	71.5	--	
B2612UDNB		Orange	--	2.0	--	605	--	28.5	--	
		Blue	--	2.8	--	472	--	18.0	--	

Series	Appearance	Outline drawing
B263		

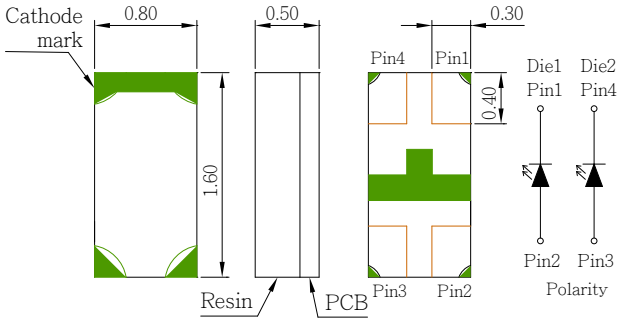
Part Number	Size (LxWxH mm)	Emitting Color	Forward Voltage (V_F)			λD(nm)/ CIE (x, y)	Luminous Intensity (mcd)			I_F (mA)
			min.	typ.	max.		min.	typ.	max.	
B2632USNB	3.2*1.2*0.8	Red	--	2.0	--	624	--	45.0	--	20
		Blue	--	3.3	--	470	--	71.5	--	
B2632USUG		Red	--	2.0	--	624	--	112.5	--	
		Yellow Green	--	2.1	--	571	--	71.5	--	
B2632USNG		Red	--	2.0	--	624	--	180.0	--	
		Green	--	3.3	--	525	--	285.0	--	
B2632UDNB	3.2*1.2*0.8	Orange	--	2.0	--	605	--	28.5	--	5
		Blue	--	2.8	--	472	--	28.5	--	
B2632USNG		Red	--	2.0	--	624	--	45.0	--	
		Green	--	2.8	--	529	--	112.5	--	

Series	Appearance	Outline drawing
B264		

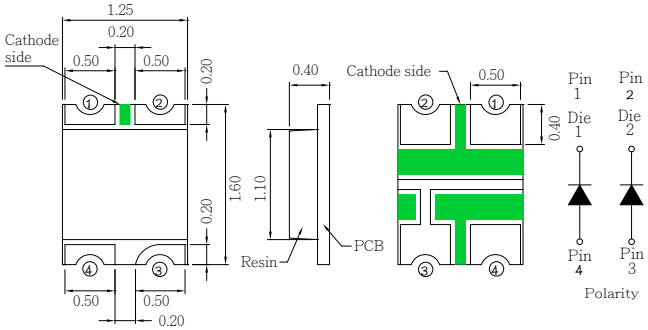
Part Number	Size (LxWxH mm)	Emitting Color	Forward Voltage (V_F)			λD(nm)/ CIE (x, y)	Luminous Intensity (mcd)			I_F (mA)
			min.	typ.	max.		min.	typ.	max.	
B2642USUG	1.6*1.5*0.7	Red	--	1.9	--	622	--	71.5	--	20
		Yellow Green	--	2.0	--	573	--	45.0	--	

Series	Appearance	Outline drawing
B284		

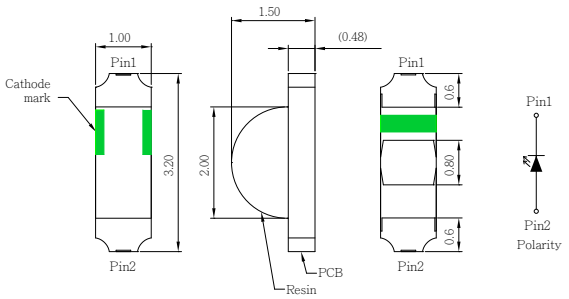
Part Number	Size (LxWxH mm)	Emitting Color	Forward Voltage (V_F)			λD(nm)/ CIE (x, y)	Luminous Intensity (mcd)			I_F (mA)
			min.	typ.	max.		min.	typ.	max.	
B2841USD	1.0*0.5*0.5	Red	--	2.0	--	624	--	71.5	--	20
B2841NG		Green	--	3.3	--	525	--	285.0	--	
B2841NB		Blue	--	3.3	--	470	--	71.5	--	
B2841UD		Orange	--	2.0	--	605	--	71.5	--	
B2841UYG		Yellow Green	--	2.1	--	571	--	71.5	--	
B2841TX		White	--	3.2	--	x=0.2900 y=0.2850	--	700.0	--	
B2841USD	1.0*0.5*0.5	Red	--	2.0	--	624	--	18.0	--	5
B2841NB		Blue	--	3.3	--	472	--	18.0	--	
B2841NG		Green	--	3.3	--	529	--	71.5	--	
B2841TX		White	--	3.2	--	x=0.2900 y=0.2850	--	130.0	--	

Series	Appearance	Outline drawing
B297		

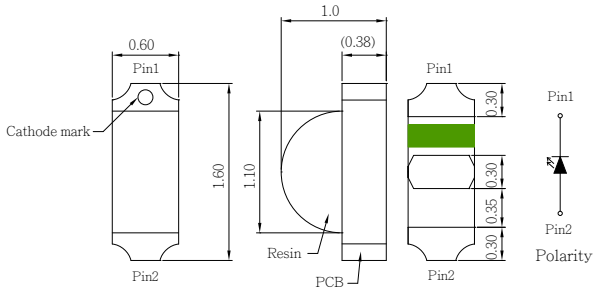
Part Number	Size (LxWxH mm)	Emitting Color	Forward Voltage (V_F)			λD(nm)/ CIE (x, y)	Luminous Intensity (mcd)			I_F (mA)
			min.	typ.	max.		min.	typ.	max.	
B2972USUG	1.6*0.8*0.5	Red	--	2.0	--	624	--	112.5	--	20
		Yellow Green	--	2.1	--	573	--	71.5	--	
B2972UDNB		Orange	--	2.0	--	605	--	71.5	--	
		Blue	--	3.3	--	470	--	71.5	--	
B2972UDUG		Orange	--	2.0	--	605	--	71.5	--	
		Yellow Green	--	2.1	--	571	--	71.5	--	
B2972USNB		Red	--	2.0	--	624	--	71.5	--	
		Blue	--	3.3	--	470	--	71.5	--	
B2972USNG		Red	--	2.0	--	624	--	112.5	--	
		Green	--	3.3	--	525	--	180.0	--	
B2972UGNB		Yellow Green	--	2.1	--	571	--	71.5	--	
		Blue	--	3.3	--	470	--	71.5	--	
B2972UDNB	1.6*0.8*0.5	Orange	--	2.0	--	605	--	18.0	--	5
		Blue	--	2.8	--	472	--	18.0	--	
B2972UGNB		Yellow Green	--	2.1	--	571	--	18.0	--	
		Blue	--	2.8	--	470	--	28.5	--	
B2972USNB		Red	--	2.0	--	624	--	28.5	--	
		Blue	--	2.8	--	472	--	28.5	--	

Series	Appearance	Outline drawing
B2G3		

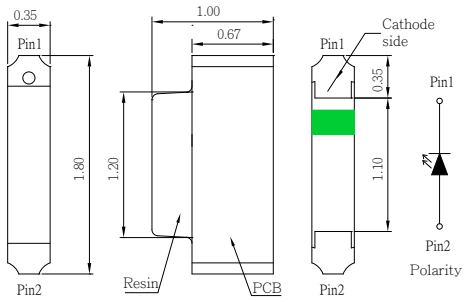
Part Number	Size (LxWxH mm)	Emitting Color	Forward Voltage (V_F)			λD(nm)/ CIE (x, y)	Luminous Intensity (mcd)			I_F (mA)
			min.	typ.	max.		min.	typ.	max.	
B2G32NBUD	1.6*1.25*0.4	Blue	--	3.3	--	468	--	112.5	--	20
		Orange	--	2.0	--	611	--	112.5	--	
B2G32NBUY		Blue	--	3.3	--	468	--	112.5	--	
		Amber	--	2.0	--	591	--	71.5	--	
B2G32UYUG		Amber	--	2.0	--	591	--	112.5	--	
		Yellow Green	--	2.1	--	573	--	71.5	--	
B2G32USNB	1.6*1.25*0.4	Red	--	2.0	--	632	--	28.5	--	5
		Blue	--	3.3	--	470	--	18.0	--	

Series	Appearance	Outline drawing
B110		

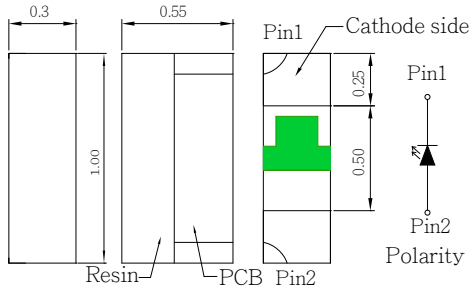
Part Number	Size (LxWxH mm)	Emitting Color	Forward Voltage (V_F)			λD(nm)/ CIE (x, y)	Luminous Intensity (mcd)			I_F (mA)
			min.	typ.	max.		min.	typ.	max.	
B1101USD	3.2*1.5*1.0	Red	--	2.0	--	624	--	71.5	--	20
B1101NG		Green	--	3.3	--	527.5	--	360.0	--	
B1101NB		Blue	--	3.3	--	470	--	71.5	--	
B1101UY		Amber	--	2.0	--	589	--	71.5	--	
B1101UYG		Yellow Green	--	2.1	--	571	--	45.0	--	
B1101USD	3.2*1.5*1.0	Red	--	2.0	--	624	--	28.5	--	5
B1101NB		Blue	--	2.8	--	472	--	28.5	--	
B1101UYG		Yellow Green	--	2.1	--	571	--	18.8	--	
B1101UY		Amber	--	2.0	--	589	--	18.0	--	
B1101UD		Orange	--	2.0	--	603	--	28.5	--	

Series	Appearance	Outline drawing
B121		

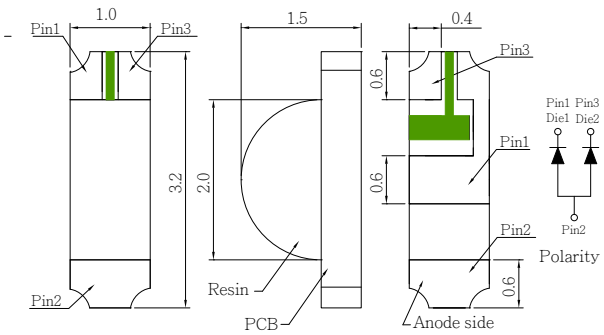
Part Number	Size (LxWxH mm)	Emitting Color	Forward Voltage (V_F)			λD(nm)/ CIE (x, y)	Luminous Intensity (mcd)			I_F (mA)
			min.	typ.	max.		min.	typ.	max.	
B1211USD	1.6*1.0*0.6	Red	--	2.0	--	624	--	112.5	--	20
B1211NG		Green	--	3.3	--	527	--	285.0	--	
B1211NB		Blue	--	3.3	--	470	--	71.5	--	
B1211UYG		Yellow Green	--	2.1	--	571	--	112.5	--	
B1211UY		Amber	--	2.0	--	590	--	112.5	--	
B1211UD		Orange	--	2.0	--	605	--	71.5	--	
B1211TX		White	--	3.3	--	x=0.2900 y=0.2850	--	340.0	--	
B1211NG	1.6*1.0*0.6	Green	--	2.8	--	529	--	112.5	--	5
B1211NB		Blue	--	2.8	--	472	--	28.5	--	
B1211UYG		Yellow Green	--	2.1	--	571	--	28.5	--	
B1211UY		Amber	--	2.0	--	590	--	28.5	--	
B1211UD		Orange	--	2.0	--	605	--	28.5	--	
B1211TX		White	--	3.3	--	x=0.2900 y=0.2850	--	105.0	--	

Series	Appearance	Outline drawing
B12H		

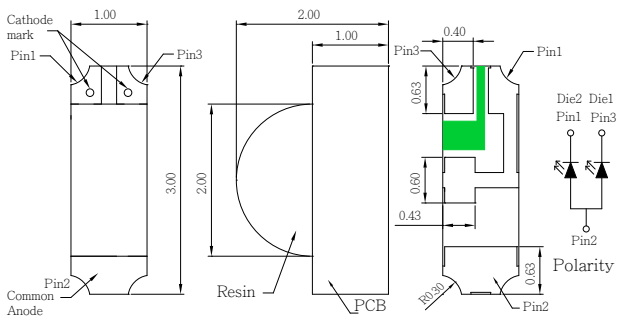
Part Number	Size (LxWxH mm)	Emitting Color	Forward Voltage (V_F)			λD(nm)/ CIE (x, y)	Luminous Intensity (mcd)			I_F (mA)
			min.	typ.	max.		min.	typ.	max.	
B12H1USD	1.8*1.0*0.35	● Red	--	2.0	--	624	--	18.0	--	5
B12H1NG		● Green	--	2.8	--	525	--	112.5	--	
B12H1NB		● Blue	--	2.8	--	470	--	18.0	--	
B12H1TX		○ White	--	3.0	--	x=0.3100 y=0.3100	--	85.0	--	

Series	Appearance	Outline drawing
B186		

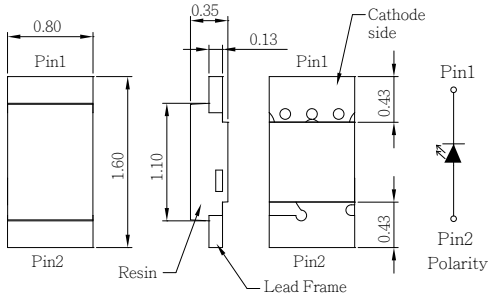
Part Number	Size (LxWxH mm)	Emitting Color	Forward Voltage (V_F)			λD(nm)/ CIE (x, y)	Luminous Intensity (mcd)			I_F (mA)
			min.	typ.	max.		min.	typ.	max.	
B1861USD	1.0*0.55*0.3	● Red	--	2.0	--	624	--	45.0	--	5
B1861NG		● Green	--	2.8	--	525	--	71.5	--	
B1861NB		● Blue	--	2.8	--	472	--	28.5	--	
B1861TX		○ White	--	2.8	--	x=0.2900 y=0.2850	--	100.0	--	

Series	Appearance	Outline drawing
B210		

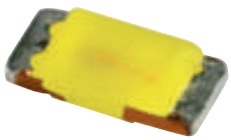
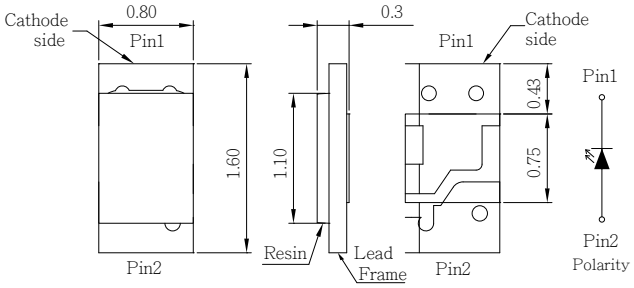
Part Number	Size (LxWxH mm)	Emitting Color	Forward Voltage (V_F)			λD(nm)/ CIE (x, y)	Luminous Intensity (mcd)			I_F (mA)
			min.	typ.	max.		min.	typ.	max.	
B2102UDUG	3.2*1.5*1.0	Orange	--	2.0	--	605	--	71.5	--	20
		Yellow Green	--	2.1	--	571	--	71.5	--	
B2102UGNB		Yellow Green	--	2.1	--	571	--	71.5	--	
		Blue	--	3.3	--	470	--	71.5	--	
B2102USNG		Red	--	2.0	--	624	--	71.5	--	
		Green	--	3.3	--	525	--	285.0	--	
B2102UDNB		Orange	--	2.0	--	605	--	71.5	--	
		Blue	--	3.3	--	470	--	45.0	--	
B2102UDNG		Orange	--	2.0	--	605	--	71.5	--	
		Green	--	3.3	--	525	--	285.0	--	
B2102USNB		Red	--	2.0	--	624	--	71.5	--	
		Blue	--	3.3	--	470	--	71.5	--	
B2102USUG		Red	--	2.0	--	624	--	71.5	--	
		Yellow Green	--	2.1	--	571	--	71.5	--	
B2102UYNG		Amber	--	2.0	--	589	--	71.5	--	
		Green	--	3.3	--	529	--	285.0	--	
B2102UDNB	3.2*1.5*1.0	Orange	--	2.0	--	605	--	18.0	--	5
		Blue	--	2.8	--	472	--	28.5	--	
B2102UYNG		Amber	--	2.0	--	589	--	28.5	--	
		Green	--	2.8	--	529	--	180.0	--	
B2102UDUG		Orange	--	2.0	--	605	--	18.0	--	
		Yellow Green	--	2.1	--	571	--	18.0	--	

Series	Appearance	Outline drawing
B213		

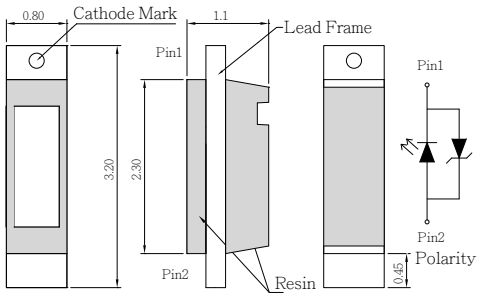
Part Number	Size (LxWxH mm)	Emitting Color	Forward Voltage (V_F)			λD(nm)/ CIE (x, y)	Luminous Intensity (mcd)			I_F (mA)
			min.	typ.	max.		min.	typ.	max.	
B2132USUG	3.0*2.0*1.0	Red	--	2.0	--	624	--	112.5	--	5
		Yellow Green	--	2.1	--	571	--	71.5	--	

Series	Appearance	Outline drawing
F196		

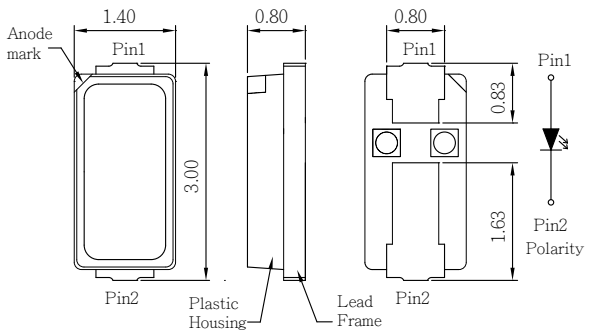
Part Number	Size (LxWxH mm)	Emitting Color	Forward Voltage (V_F)			λD(nm)/ CIE (x, y)	Luminous Intensity (mcd)			I_F (mA)
			min.	typ.	max.		min.	typ.	max.	
F1961TX	1.6*0.8*0.4	○ White	--	3.2	--	x=0.2900 y=0.2850	--	650.0	--	20
F1961TX	1.6*0.8*0.4	○ White	--	2.9	--	x=0.2900 y=0.2850	--	220.0	--	5
F1961UYG		● Yellow Green	--	2.0	--	573	--	28.5	--	

Series	Appearance	Outline drawing
F199		

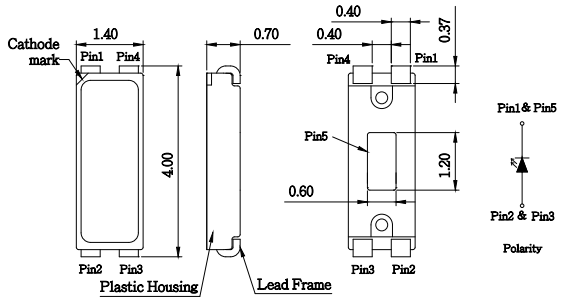
Part Number	Size (LxWxH mm)	Emitting Color	Forward Voltage (V_F)			λD(nm)/ CIE (x, y)	Luminous Intensity (mcd)			I_F (mA)
			min.	typ.	max.		min.	typ.	max.	
F1991TX	1.6*0.8*0.3	○ White	--	2.85	--	x=0.2900 y=0.2850	--	250.0	--	5

Series	Appearance	Outline drawing
V118		

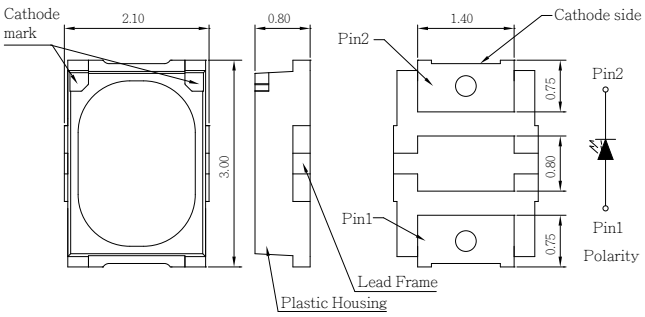
Part Number	Size (LxWxH mm)	Emitting Color	Forward Voltage (V_F)			λD(nm)/ CIE (x, y)	Luminous Intensity (mcd)			I_F (mA)
			min.	typ.	max.		min.	typ.	max.	
V1181NB	3.2*1.1*0.8	● Blue	--	3.3	--	468	--	180.0	--	20

Series	Appearance	Outline drawing
T136		

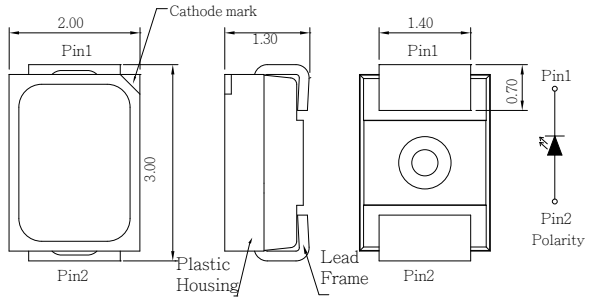
Part Number	Size (LxWxH mm)	Emitting Color	CRI	Forward Voltage (V_F)			CIE(x,y)/ CCT(K)	Luminous Flux (lm)			I_F (mA)
				min.	typ.	max.		min.	typ.	max.	
T1361DND	3.0*1.4*0.8	Warm White	> 80	--	3.2	--	3000	--	11.0	--	30
T1361DND		Neutral White	> 80	--	3.2	--	4000	--	11.0	--	

Series	Appearance	Outline drawing
T140		

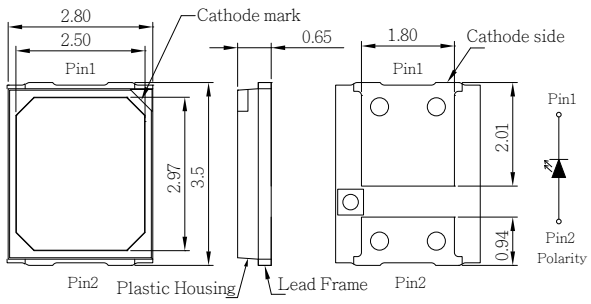
Part Number	Size (LxWxH mm)	Emitting Color	CRI	Forward Voltage (V_F)			CIE(x,y)/ CCT(K)	Luminous Flux (lm)			I_F (mA)
				min.	typ.	max.		min.	typ.	max.	
T1401TX	4.0*1.4*0.7	White	--	3.2	--	--	x=0.2610 y=0.2240	--	18.0	--	60

Series	Appearance	Outline drawing
T157		

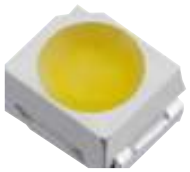
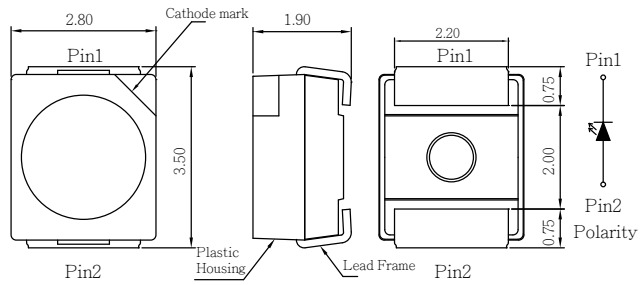
Part Number	Size (LxWxH mm)	Emitting Color	CRI	Forward Voltage (V_F)			CIE(x,y)/ CCT(K)	Luminous Flux (lm)			I_F (mA)
				min.	typ.	max.		min.	typ.	max.	
T1571TXC	3.0*2.1*0.8	Warm White	> 80	--	2.8	--	3000	--	11.4	--	30
		Neutral White	> 80	--	2.8	--	4000	--	12.0	--	
		Cold White	> 80	--	2.8	--	5600	--	12.0	--	
T1572TXD		Warm White	> 80	--	6.5	--	3000	--	19.0	--	
		Neutral White	> 80	--	6.5	--	4000	--	20.0	--	
		Cold White	> 80	--	6.5	--	5600	--	20.0	--	

Series	Appearance	Outline drawing
T159		

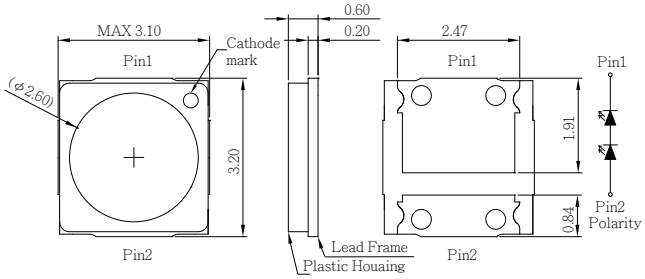
Part Number	Size (LxWxH mm)	Emitting Color	CRI	Forward Voltage (V_F)			CIE(x,y)/ CCT(K)	Luminous Flux (lm)			I_F (mA)
				min.	typ.	max.		min.	typ.	max.	
T1591TXC	3.0*2.0*1.3	○ Pure White	> 70	--	3.2	--	6000	--	7.3	--	20
T1591TXC		○ Neutral White	> 70	--	3.2	--	4000	--	7.3	--	
T1591TXC		○ Warm White	> 70	--	3.2	--	3000	--	6.8	--	
T1591TXD		○ Neutral White	> 80	--	3.2	--	4000	--	6.9	--	
T1591TXD		○ Warm White	> 80	--	3.2	--	3000	--	6.4	--	

Series	Appearance	Outline drawing
T165		

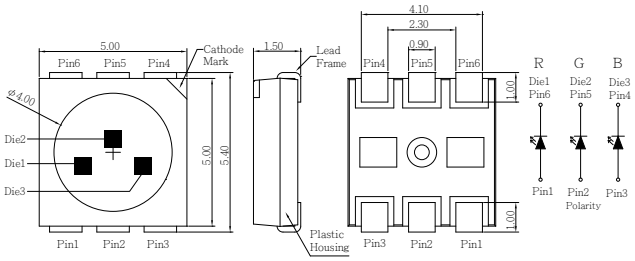
Part Number	Size (LxWxH mm)	Emitting Color	CRI	Forward Voltage (V_F)			CIE(x,y)/ CCT(K)	Luminous Flux (lm)			I_F (mA)
				min.	typ.	max.		min.	typ.	max.	
T1651JXD	3.5*2.8*0.65	○ Warm White	> 80	--	3.3	--	3000	--	24.0	--	60
		○ Neutral White	> 80	--	3.3	--	4000	--	24.0	--	
		○ Cold White	> 80	--	3.3	--	6000	--	24.0	--	

Series	Appearance	Outline drawing
T169		

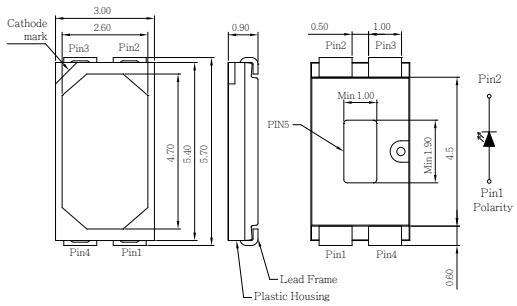
Part Number	Size (LxWxH mm)	Emitting Color	CRI	Forward Voltage (V_F)			CIE(x,y)/ CCT(K)	Luminous Intensity (mcd)			I_F (mA)
				min.	typ.	max.		min.	typ.	max.	
T1691TXD	3.5*2.8*1.9	○ White	> 80	--	3	--	x=0.3450 y=0.3500	--	2400.0	--	20
		○ Neutral White	> 80	--	3	--	x=0.3800 y=0.3800	--	2300.0	--	
		○ Warm White	> 80	--	3	--	x=0.4350 y=0.4050	--	2200.0	--	
T1691TXC	3.5*2.8*1.9	○ White	> 80	--	3.2	--	x=0.3250 y=0.3380	--	2650.0	--	

Series	Appearance	Outline drawing
T323		

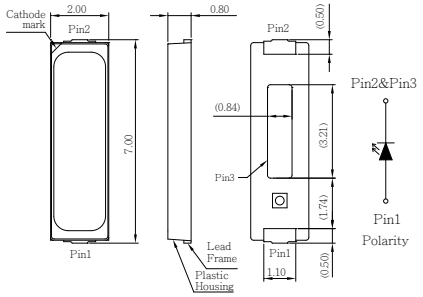
Part Number	Size (LxWxH mm)	Emitting Color	CRI	Forward Voltage (V_F)			CIE(x,y)/ CCT(K)	Luminous Flux (lm)			I_F (mA)
				min.	typ.	max.		min.	typ.	max.	
T3232MND	3.2*3.1*0.6	○ Cold White	> 80	--	6.6	--	6000	--	90.0	--	150
T3231TXD		○ Cold White	> 80	--	3.2	--	6000	--	110.0	--	350
T3233TXC		○ Cold White	>70	--	9.0	--	6000	--	114.0	--	120
T3236TXD		○ Cold White	> 80	--	19.0	--	6000	--	116.0	--	60
T3232TXD		○ Cold White	> 80	--	6.6	--	6000	--	95.0	--	150
T3233NB	3.2*3.1*0.6	● Blue	--	--	8.5	--	464	--	21.0	--	100
T3234USD		● Red	--	--	8.5	--	632	--	30.0	--	
T3233DNY		● PC Amber	--	--	8.5	--	x=0.5720 y=0.4100	--	73.0	--	

Series	Appearance	Outline drawing
T3A83		

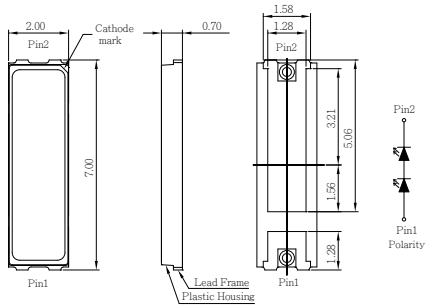
Part Number	Size (LxWxH mm)	Emitting Color	CRI	Forward Voltage (V_F)			CIE(x,y)/ CCT(K)	Luminous Intensity (mcd)			I_F (mA)
				min.	typ.	max.		min.	typ.	max.	
T3A83FCH	5.4*5.0*1.5	Red	--	--	2.2	--	628	--	675.0	--	20
		Green	--	--	3.2	--	523	--	1440.0	--	
		Blue	--	--	3.2	--	472	--	285.0	--	

Series	Appearance	Outline drawing
T530		

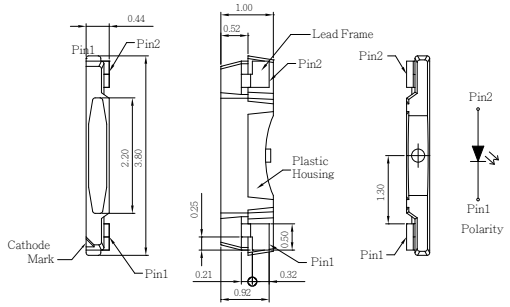
Part Number	Size (LxWxH mm)	Emitting Color	CRI	Forward Voltage (V_F)			CIE(x,y)/ CCT(K)	Luminous Flux (lm)			I_F (mA)
				min.	typ.	max.		min.	typ.	max.	
T5301TXD	5.7*3.0*0.9	Cold White	> 80	--	3.2	--	6500	--	56.0	--	150
		Neutral White	> 80	--	3.2	--	4000	--	55.0	--	
		Warm White	> 80	--	3.2	--	2750	--	52.0	--	

Series	Appearance	Outline drawing
T720		

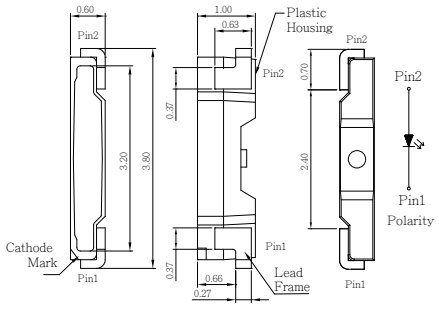
Part Number	Size (LxWxH mm)	Emitting Color	CRI	Forward Voltage (V_F)			CIE(x,y)/ CCT(K)	Luminous Flux (lm)			I_F (mA)
				min.	typ.	max.		min.	typ.	max.	
T7201TX	7.0*2.0*0.8	○ White	--	--	3.3	--	x=0.2700 y=0.2400	--	35.0	--	120

Series	Appearance	Outline drawing
T722		

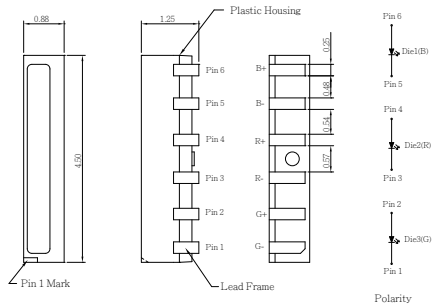
Part Number	Size (LxWxH mm)	Emitting Color	CRI	Forward Voltage (V_F)			CIE(x,y)/ CCT(K)	Luminous Flux (lm)			I_F (mA)
				min.	typ.	max.		min.	typ.	max.	
T7222TX	7.0*2.0*0.7	○ White	--	--	6.5	--	x=0.2800 y=0.2600	--	93.0	--	150

Series	Appearance	Outline drawing
F104		

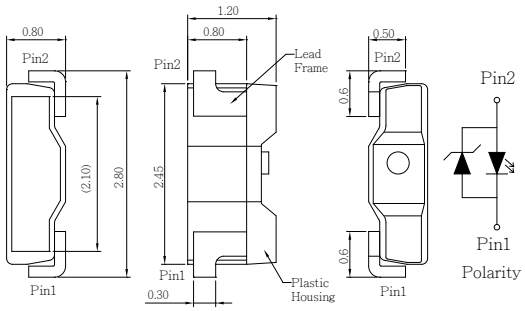
Part Number	Size (LxWxH mm)	Emitting Color	Forward Voltage (V_F)			CIE(x,y)/ CCT(K)	Luminous Intensity (mcd)			I_F (mA)
			min.	typ.	max.		min.	typ.	max.	
F1041TX	3.8*1.0*0.44	White	--	3.2	--	x=0.2750 y=0.2550	--	1800.0	--	20
F1041NB		Blue	--	3.1	--	462	--	285.0	--	
F1041NG		Green	--	3.1	--	517	--	1400.0	--	
F1041UD		Orange	--	2.0	--	611	--	200.0	--	
F1041USD		Red	--	2.0	--	632	--	130.0	--	
F1041UY		Yellow	--	2.0	--	591	--	285.0	--	

Series	Appearance	Outline drawing
F107		

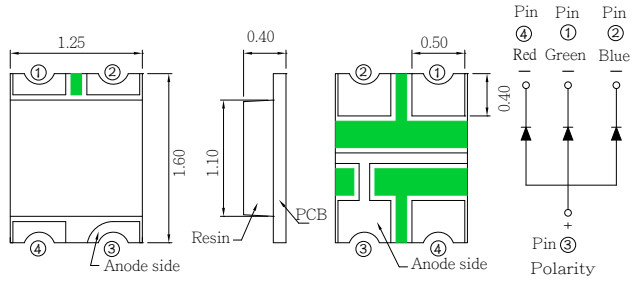
Part Number	Size (LxWxH mm)	Emitting Color	Forward Voltage (V_F)			CIE(x,y)/ CCT(K)	Luminous Intensity (mcd)			I_F (mA)
			min.	typ.	max.		min.	typ.	max.	
F1071TX	3.8*1.0*0.60	White	--	3.1	--	x=0.3140 y=0.3200	--	2900.0	--	20
F1071NB		Blue	--	3.1	--	464	--	400.0	--	
F1071NG		Green	--	3.1	--	517	--	1300.0	--	
F1071UD		Orange	--	2.1	--	611	--	350.0	--	
F1071USD		Red	--	2.1	--	630	--	1000.0	--	
F1071UY		Yellow	--	2.1	--	594	--	230.0	--	
F1071UYG		Yellow Green	--	2.1	--	574	--	170.0	--	

Series	Appearance	Outline drawing
F3NC3		

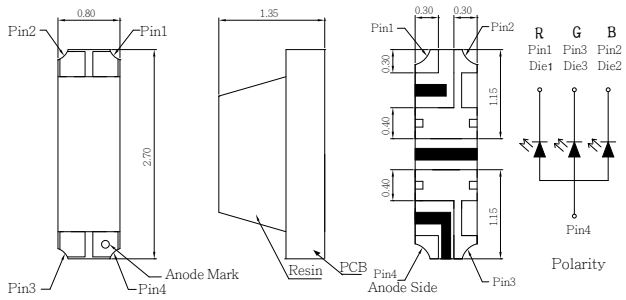
Part Number	Size (LxWxH mm)	Emitting Color	CRI	Forward Voltage (V_F)			λD(nm)/ CIE (x, y)	Luminous Intensity (mcd)			I_F (mA)
				min.	typ.	max.		min.	typ.	max.	
F3NC3GRB	4.5*1.25*0.88	Red	--	--	2.0	--	624	--	500.0	--	20
		Green	--	--	3.3	--	525	--	1200.0	--	
		Blue	--	--	3.3	--	470	--	300.0	--	

Series	Appearance	Outline drawing
V108		

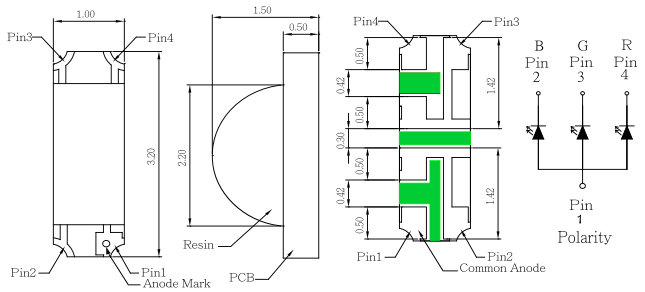
Part Number	Size (LxWxH mm)	Emitting Color	Forward Voltage (V_F)			CIE(x,y)/ CCT(K)	Luminous Intensity (mcd)			I_F (mA)
			min.	typ.	max.		min.	typ.	max.	
V1081TX	2.8*1.2*0.8	White	--	3.2	--	x=0.2850 y=0.2700	--	1610.0	--	20

Series	Appearance	Outline drawing
B3G33		

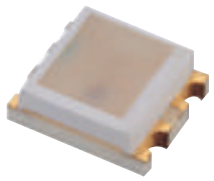
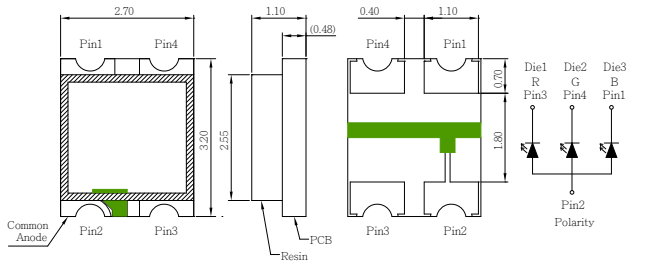
Part Number	Size (LxWxH mm)	Emitting Color	Forward Voltage (V_F)			λD(nm)/ CIE (x, y)	Luminous Intensity (mcd)			I_F (mA)
			min.	typ.	max.		min.	typ.	max.	
B3G33FCH	1.6*1.25*0.4	Red	--	2.0	--	632	--	112.5	--	20
		Green	--	3.3	--	520	--	285.0	--	
		Blue	--	3.3	--	468	--	71.5	--	

Series	Appearance	Outline drawing
B3213		

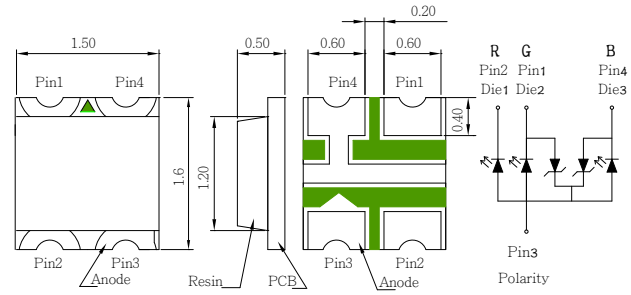
Part Number	Size (LxWxH mm)	Emitting Color	Forward Voltage (V_F)			λD(nm)/ CIE (x, y)	Luminous Intensity (mcd)			I_F (mA)
			min.	typ.	max.		min.	typ.	max.	
B3213GBR	2.70*1.35*0.8	Red	--	2.0	--	632	--	54.0	--	5
		Green	--	3.3	--	520	--	195.0	--	
		Blue	--	3.3	--	468	--	54.0	--	

Series	Appearance	Outline drawing
B3173		

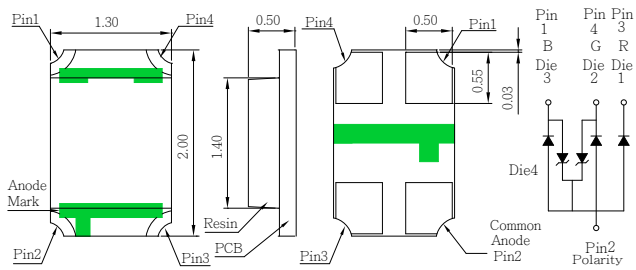
Part Number	Size (LxWxH mm)	Emitting Color	Forward Voltage (V_F)			λD(nm)/ CIE (x, y)	Luminous Intensity (mcd)			I_F (mA)
			min.	typ.	max.		min.	typ.	max.	
B3173BGR	3.2*1.5*1.0	Red	--	2.0	--	632	--	450.0	--	20
		Green	--	2.6	--	520	--	850.0	--	
		Blue	--	2.6	--	468	--	140.0	--	

Series	Appearance	Outline drawing
B3583		

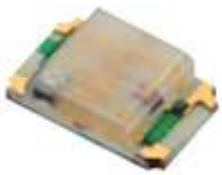
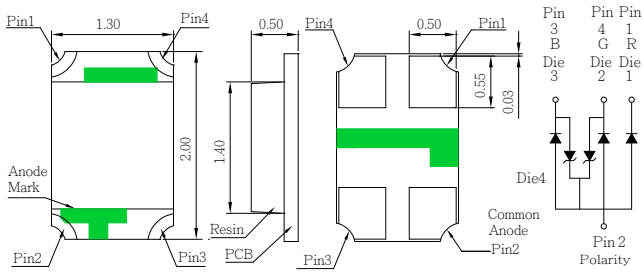
Part Number	Size (LxWxH mm)	Emitting Color	Forward Voltage (V_F)			λD(nm)/ CIE (x, y)	Luminous Intensity (mcd)			I_F (mA)
			min.	typ.	max.		min.	typ.	max.	
B3583FCH	3.2*2.7*1.1	Red	--	2.0	--	632	--	71.5	--	20
		Green	--	3.3	--	520	--	285.0	--	
		Blue	--	3.3	--	468	--	71.5	--	

Series	Appearance	Outline drawing
E3613		

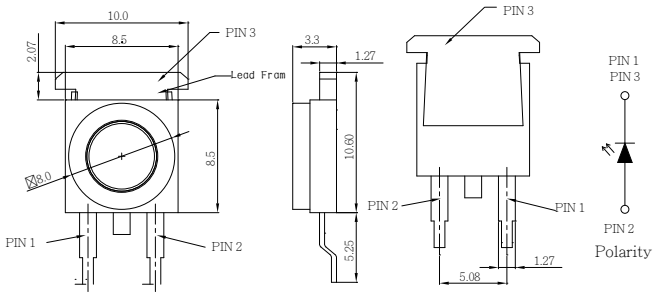
Part Number	Size (LxWxH mm)	Emitting Color	Forward Voltage (V_F)			λD(nm)/ CIE (x, y)	Luminous Intensity (mcd)			I_F (mA)
			min.	typ.	max.		min.	typ.	max.	
E3613RGB	1.6*1.5*0.5	Red	--	1.9	--	630	--	100.0	--	10
		Green	--	2.9	--	521	--	360.0	--	
		Blue	--	2.9	--	465	--	100.0	--	

Series	Appearance	Outline drawing
E3723		

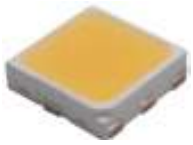
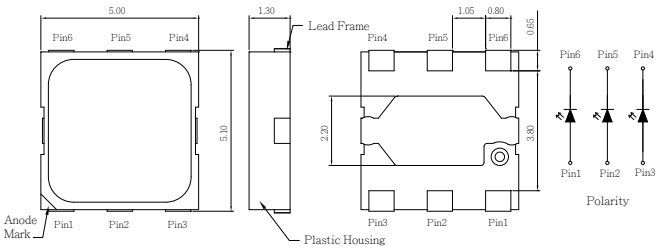
Part Number	Size (LxWxH mm)	Emitting Color	Forward Voltage (V_F)			λD(nm)/ CIE (x, y)	Luminous Intensity (mcd)			I_F (mA)
			min.	typ.	max.		min.	typ.	max.	
E3723FCH	2.0*1.3*0.5	Red	--	2.0	--	632	--	112.5	--	20
		Green	--	3.3	--	520	--	180.0	--	
		Blue	--	3.3	--	468	--	71.5	--	

Series	Appearance	Outline drawing
E3743		

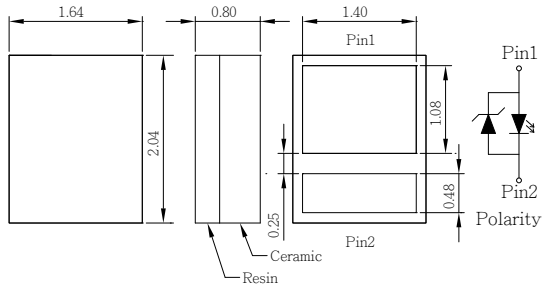
Part Number	Size (LxWxH mm)	Emitting Color	Forward Voltage (V_F)			λD(nm)/ CIE (x, y)	Luminous Intensity (mcd)			I_F (mA)
			min.	typ.	max.		min.	typ.	max.	
E3743FCH	2.0*1.3*0.5	Red	--	2.0	--	632	--	112.5	--	20
		Green	--	3.3	--	520	--	285.0	--	
		Blue	--	3.3	--	468	--	71.5	--	

Series	Appearance	Outline drawing
P178		

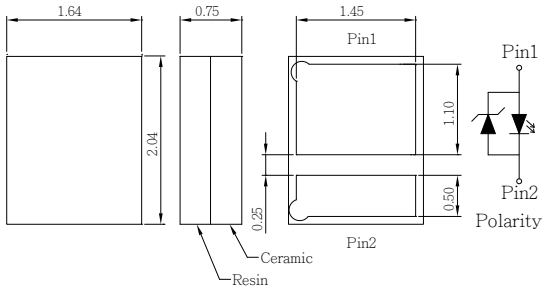
Part Number	Size (LxWxH mm)	Emitting Color	CRI	Forward Voltage (V_F)			CIE(x,y)/ CCT(K)	Luminous Flux (lm)			I_F (mA)
				min.	typ.	max.		min.	typ.	max.	
P178TX	15.85*10*3.3	○ Pure White	>70	--	3.3	--	6000	--	105.0	--	350
		○ Neutral White	>70	--	3.3	--	4000	--	90.0	--	
		○ Warm White	>70	--	3.3	--	3000	--	90.0	--	

Series	Appearance	Outline drawing
T3A63		

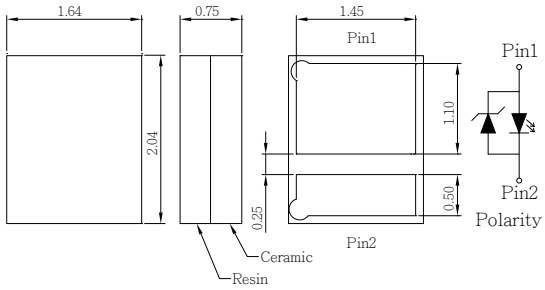
Part Number	Size (LxWxH mm)	Emitting Color	CRI	Forward Voltage (V_F)			CIE(x,y)/ CCT(K)	Luminous Flux (lm)			I_F (mA)
				min.	typ.	max.		min.	typ.	max.	
T3A63TXD	5.4*5.1*1.0	○ Cold White	>80	--	3.2	3.5	x=0.3450 y=0.3500	--	105.0	--	300
		○ Neutral White	>80	--	3.2	3.5	x=0.3800 y=0.3800	--	100.0	--	
		○ Warm White	>80	--	3.2	3.5	x=0.4350 y=0.4050	--	95.0	--	

Series	Appearance	Outline drawing
D1711		

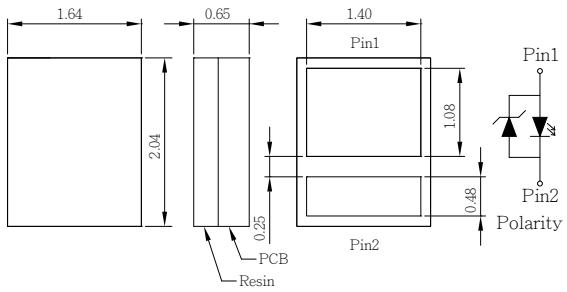
Part Number	Size (LxWxH mm)	Emitting Color	Forward Voltage (V_F)			CIE(x,y)/ CCT(K)	Luminous Flux (lm)			Peak Pulse I_F (mA)
			min.	typ.	max.		min.	typ.	max.	
D1711MN	2.04*1.64*0.8	○ Pure White	--	3.3	--	6000	--	210.0	--	1000
		○ Pure White	--	3.2	--	6000	--	100.0	--	500

Series	Appearance	Outline drawing
D1771		

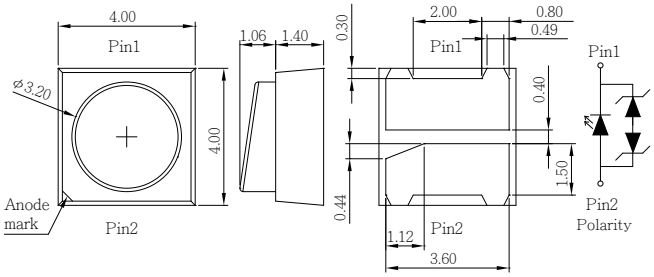
Part Number	Size (LxWxH mm)	Emitting Color	Forward Voltage (V_F)			CIE(x,y)/ CCT(K)	Luminous Flux (lm)			Peak Pulse I_F (mA)
			min.	typ.	max.		min.	typ.	max.	
D1771CW	2.04*1.64*0.75	○ Pure White	--	3.5	--	5500	--	320.0	--	1000

Series	Appearance	Outline drawing
D1771		

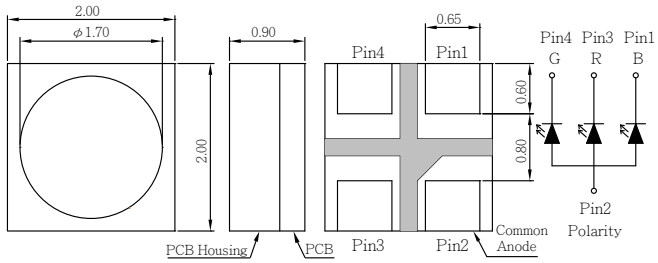
Part Number	Size (LxWxH mm)	Emitting Color	Forward Voltage (V_F)			CIE(x,y)/ CCT(K)	Luminous Flux (lm)			Peak Pulse I_F (mA)
			min.	typ.	max.		min.	typ.	max.	
D1771WW	2.04*1.64*0.75	○ Warm White	--	3.5	--	2500	--	200.0	--	1000

Series	Appearance	Outline drawing
E17C1		

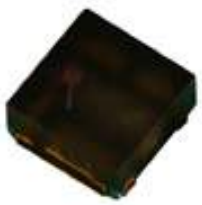
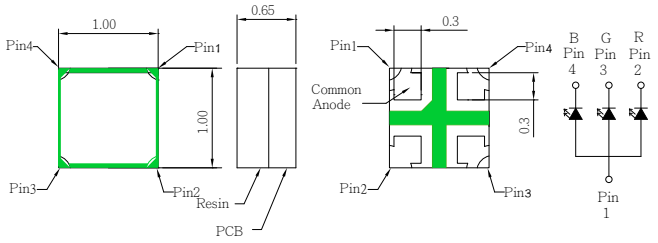
Part Number	Size (LxWxH mm)	Emitting Color	Forward Voltage (V_F)			CIE(x,y)/ CCT(K)	Luminous Flux (lm)			Peak Pulse I_F (mA)
			min.	typ.	max.		min.	typ.	max.	
E17C1MN	2.04*1.64*0.65	○ Pure White	--	3.5	--	6000	--	210.0	--	1000
		○ Pure White	--	3.2	--	6000	--	110.0	--	500

Series	Appearance	Outline drawing
HTM140C1CW		

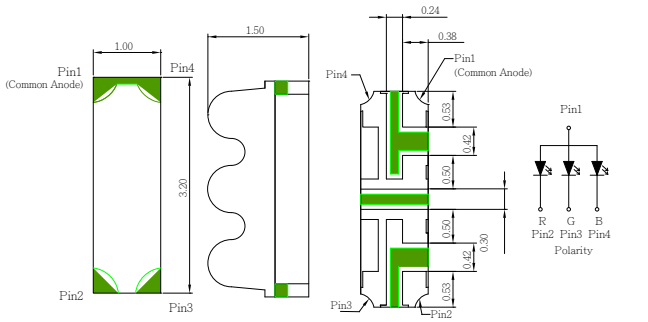
Part Number	Size (LxWxH mm)	Emitting Color	Forward Voltage (V_F)		CIE(x,y)/ CCT(K)	Luminous Flux (lm)		Illumance	Peak Pulse I_F (mA)
			typ.	max.		typ.	max.	Lux	
HTM140C1CW	4.0*4.0*2.46	○ Pure White	3.5	--	5500	320.0	--	150	1000

Series	Appearance	Outline drawing
B2C23		

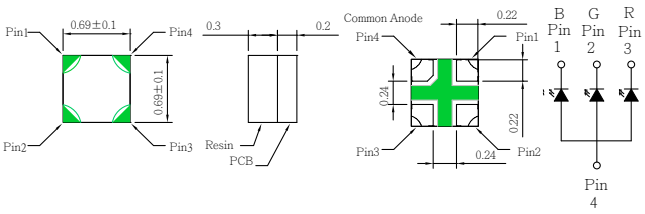
Part Number	Size (LxWxH mm)	Emitting Color	Forward Voltage (V_F)			λD(nm)/ CIE (x, y)	Luminous Intensity (mcd)			I_F (mA)
			min.	typ.	max.		min.	typ.	max.	
B2C23FCH	2.0*2.0*0.9	Red	--	1.9	--	624	--	90.0	--	20
		Green	--	3.2	--	525	--	360.0	--	
		Blue	--	3.3	--	470	--	45.0	--	

Series	Appearance	Outline drawing
B30S3		

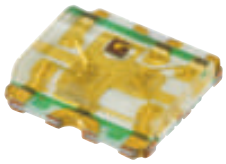
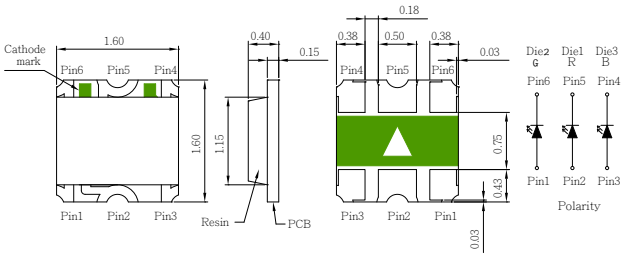
Part Number	Size (LxWxH mm)	Emitting Color	Forward Voltage (V_F)			λD(nm)/ CIE (x, y)	Luminous Intensity (mcd)			I_F (mA)
			min.	typ.	max.		min.	typ.	max.	
B30S3RGB	1.0*1.0*0.65	Red	--	2.0	--	621	--	58.0	--	10
		Green	--	2.8	--	529	--	85.0	--	5
		Blue	--	3.0	--	469	--	17.0	--	5

Series	Appearance	Outline drawing
B31G3		

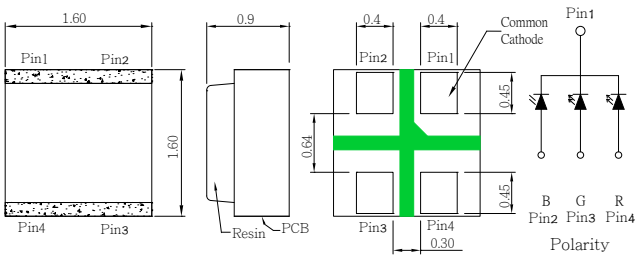
Part Number	Size (LxWxH mm)	Emitting Color	Forward Voltage (V_F)			λD(nm)/ CIE (x, y)	Luminous Intensity (mcd)			I_F (mA)
			min.	typ.	max.		min.	typ.	max.	
B31G3BGR	3.2*1.5*1.0	Red	--	2.0	--	630	--	950.0	--	20
		Green	--	2.6	--	518	--	1500.0	--	
		Blue	--	2.6	--	463	--	330.0	--	

Series	Appearance	Outline drawing
B3673		

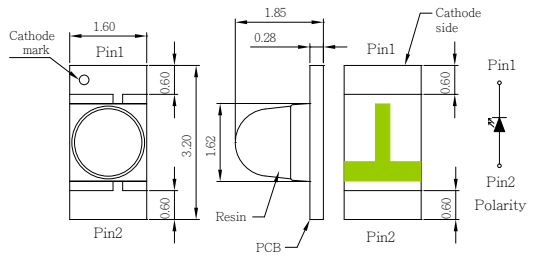
Part Number	Size (LxWxH mm)	Emitting Color	Forward Voltage (V_F)			λD(nm)/ CIE (x, y)	Luminous Intensity (mcd)			I_F (mA)
			min.	typ.	max.		min.	typ.	max.	
B3673RGB	0.69*0.69*0.5	Red	--	2.0	--	622	--	75.0	--	10
		Green	--	2.85	--	530	--	90.0	--	5
		Blue	--	2.95	--	468	--	20.0	--	5

Series	Appearance	Outline drawing
B3803		

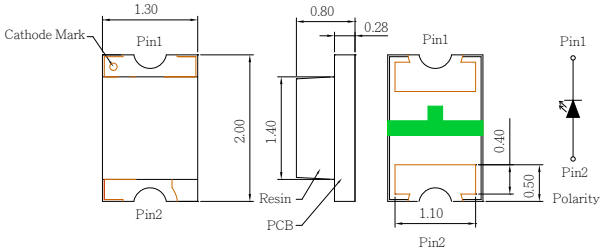
Part Number	Size (LxWxH mm)	Emitting Color	Forward Voltage (V_F)			λD(nm)/ CIE (x, y)	Luminous Intensity (mcd)			I_F (mA)
			min.	typ.	max.		min.	typ.	max.	
B3803FCH	1.6*1.6*0.4	Red	--	2.0	--	632	--	112.5	--	20
		Green	--	3.3	--	520	--	180.0	--	
		Blue	--	3.3	--	468	--	112.5	--	

Series	Appearance	Outline drawing
B38C3		

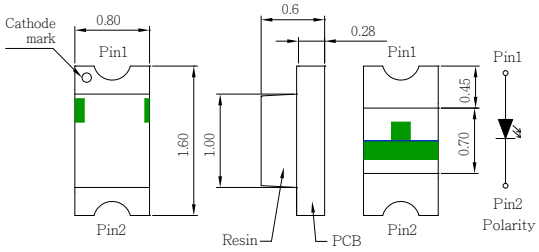
Part Number	Size (LxWxH mm)	Emitting Color	Forward Voltage (V_F)			λD(nm)/ CIE (x, y)	Luminous Intensity (mcd)			I_F (mA)
			min.	typ.	max.		min.	typ.	max.	
B38C3BGR	1.6*1.6*0.9	Red	--	2.0	--	623.0	--	100.0	--	10
		Green	--	2.8	--	532.0	--	135.0	--	5
		Blue	--	2.8	--	470.0	--	27.0	--	5

Series	Appearance	Outline drawing
B1591IRP		

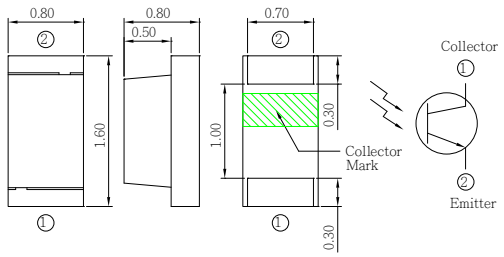
Part Number	Size (LxWxH mm)	Emitting Color	Forward Voltage (V_F)			λD(nm)/ CIE (x, y)	Radiant Intensity@20mA mW/sr			Max Rating (mA)
			min.	typ.	max.		min.	typ.	max.	
B1591IRP	3.2*1.6*1.85	Infrared Emitter	--	1.6	1.9	855	--	1.6	1.9	100

Series	Appearance	Outline drawing
B1701IRP		

Part Number	Size (LxWxH mm)	Emitting Color	Forward Voltage (V_F)			λD(nm)/ CIE (x, y)	Radiant Intensity@100mA mW/sr			Max Rating (mA)
			min.	typ.	max.		min.	typ.	max.	
B1701IRP	2.0x1.3x0.8	Infrared Emitter	--	1.49	1.8	850	3	--	10	200

Series	Appearance	Outline drawing
B1911IR		

Part Number	Size (LxWxH mm)	Emitting Color	Forward Voltage (V_F)			λD(nm)/ CIE (x, y)	Radiant Intensity@5mA mW/sr			Max Rating (mA)
			min.	typ.	max.		min.	typ.	max.	
B1911IR	1.6x0.8x0.6	Infrared Emitter	--	1.35	1.7	880	0.1	2	4	20

Series	Appearance	Outline drawing
B19H1PT		

Part Number	Size (LxWxH mm)	Emitting Color	λD(nm)/ CIE (x, y)	Test Conditions
B19H1PT	1.6x0.8x0.8	Phototransistor	940	Ee=1mW /cm2 · λP=940nm, VCE=5V

Series	Appearance
HCD88XX	

Part Number	Size (LxWxH mm)	Color	CA/ CC	λD(nm)/ CIE(x,y)	Resin Color	Face Color	Luminous Intensity (mcd)		
							min.	typ.	max.
HCD88XX	55.23*14.22*9.2	○ White	CA	x=0.2900 y=0.3100	White	Gray	--	180.0	--

Series	Appearance
HCD88XX	

Part Number	Size (LxWxH mm)	Color	Dot Diameter (mm)	CA/ CC	λD(nm)/ CIE(x,y)	Resin Color	Face Color	Luminous Intensity (mcd)		
								min.	typ.	max.
HCD88XX-R	12.66*17.74*6.3	● Red	1.98	CA	631	White	Black	--	8.6	--
HCD88XX-UY		● Yellow	1.98	CA	587	White	Black	--	8.6	--

Series	Appearance
HCD89XX	

Part Number	Size (LxWxH mm)	Color	CA/ CC	λD(nm)/ CIE(x,y)	Resin Color	Face Color	Luminous Intensity (mcd)		
							min.	typ.	max.
HCD89XX	36.4*10*7	● Green	CA	572	White	Black	0.8	2.1	--

Series	Appearance
HCD89XX	

Part Number	Size (LxWxH mm)	Color	CA/ CC	λD(nm)/ CIE(x,y)	Resin Color	Face Color	Luminous Intensity (mcd)		
							min.	typ.	max.
HCD89XX	40.18*10*12	○ White	CA	x=0.2150 y=0.1850	White	Black	9.0	15.0	--

Series	Appearance
HCD89XX	

Part Number	Size (LxWxH mm)	Color	Face Color	Luminous Intensity (mcd)			I_F (mA)
				min.	typ.	max.	
HCD89XX	25x19.05x8	● Red	Black	--	21.7	--	10
		● Green		--	70	--	5
		● Blue		--	21.7	--	5

Series	Appearance
HCD89XX-R	

Part Number	Size (LxWxH mm)	Color	CA/ CC	λD(nm)/ CIE(x,y)	Resin Color	Face Color	Luminous Intensity (mcd)		
							min.	typ.	max.
HCD89XX-R	7.6*11*3.8	● Red	CA	625	White	Gray	7.0	20.0	--

Series	Appearance
HCD89XX-B	

Part Number	Size (LxWxH mm)	Color	CA/ CC	λD(nm)/ CIE(x,y)	Resin Color	Face Color	Luminous Intensity (mcd)		
							min.	typ.	max.
HCD89XX-B	30.26*10*6.1	Blue	CA	470	White	Black	1.7	3.8	--

Series	Appearance
HCD88XX	

Part Number	Size (LxWxH mm)	Color	CA/ CC	λD(nm)/ CIE(x,y)	Resin Color	Face Color	Luminous Intensity (mcd)		
							min.	typ.	max.
HCD88XX	20.2*16.0*5.8	Yellow Green	CA	570	White	Gray	--	6.0	10.0

Series	Appearance
HNT42XX	

Part Number	Size (LxWxH mm)	Color	CA/ CC	λD(nm)/ CIE(x,y)	Resin Color	Face Color	Luminous Intensity (mcd)		
							min.	typ.	max.
HNT42XX	30.02*12.8*7	Red	CA	639	White	Gray	0.2	0.65	--

Series	Appearance
HOVL-5Y40PAR-5825	

Part Number	Size (LxWxH mm)	Emitting Color	Forward Voltage (V_F)			λD (nm)	Luminous Intensity (mcd)			Viewing Angle	I_F (mA)
			min.	typ.	max.	typ.	min.	typ.	max.	typ.	
HOVL-5Y40PAR-5825	5.0 Oval LAMP	Yellow	1.8	--	2.6	590-596	2300.0	--	4000.0	35/70	20

Series	Appearance
HV-I7YG55L-MP9A	

Part Number	Size (LxWxH mm)	Emitting Color	Forward Voltage (V_F)			λD (nm)	Luminous Intensity (mcd)			Viewing Angle	I_F (mA)
			min.	typ.	max.	typ.	min.	typ.	max.	typ.	
HV-I7YG55L-MP9A	2.9 Round LAMP	Yellow Green	--	2.1	2.6	572	11.0	25.0	--	55	20

Series	Appearance
HV-7W60TR-5394	

Part Number	Size (LxWxH mm)	Emitting Color	Forward Voltage (V_F)			λD (nm)	Luminous Intensity (mcd)			Viewing Angle	I_F (mA)
			min.	typ.	max.	typ.	min.	typ.	max.	typ.	
HV-7W60TR-5394	3.0 Round LAMP	○ White	--	3.2	3.6	x=0.3100 y=0.3000	700.0	1700.0	--	60	20

Series	Appearance
HV-7Y36WCXL	

Part Number	Size (LxWxH mm)	Emitting Color	Forward Voltage (V_F)			λD (nm)	Luminous Intensity (mcd)			Viewing Angle	I_F (mA)
			min.	typ.	max.	typ.	min.	typ.	max.	typ.	
HV-7Y36WCXL	3.0 Round LAMP	● Yellow	--	2.1	2.6	590	20.0	50.0	--	36	20

Series	Appearance
HV-8B50-3778	

Part Number	Size (LxWxH mm)	Emitting Color	Forward Voltage (V_F)			λD (nm)	Luminous Intensity (mcd)			Viewing Angle	I_F (mA)
			min.	typ.	max.	typ.	min.	typ.	max.	typ.	
HV-8B50-3778	5.0 Round LAMP	Blue	--	3.0	3.6	468	680.0	--	850.0	50	20

Series	Appearance
HV-8NG15WCXL	

Part Number	Size (LxWxH mm)	Emitting Color	Forward Voltage (V_F)			λD (nm)	Luminous Intensity (mcd)			Viewing Angle	I_F (mA)
			min.	typ.	max.	typ.	min.	typ.	max.	typ.	
HV-8NG15WCXL	5.0 Round LAMP	Green	--	3.2	4	520	8500.0	25000.0	--	15	20

Series	Appearance
HV-8W15WTXCB	

Part Number	Size (LxWxH mm)	Emitting Color	Forward Voltage (V_F)			λD (nm)	Luminous Intensity (mcd)			Viewing Angle	I_F (mA)
			min.	typ.	max.	typ.	min.	typ.	max.	typ.	
HV-8W15WTXCB	5.0 Round LAMP	○ White	--	3.2	3.6	x=0.3100 y=0.3200	--	40000.0	--	15	20

Series	Appearance
1515	

Part Number	Size (LxWxH mm)	Emitting Color	CRI	Forward Voltage (V_F)			CCT(K)	Luminous Flux (lm)			I_F (mA)
				min.	typ.	max.		min.	typ.	max.	
CT91CCMD	15*15*1.95	○ Cold White	>80	32	36	40	5000	-	1300.0	-	260
CT91NCMD		○ Neutral White	>80				4000	-	1260.0	-	
CT91WCMD		○ Warm White	>80				3000	-	1210.0	-	
CT91CTAJ		○ Cold White	>93				5000	-	1012.0	-	
CT91WTAJ		○ Warm White	>97				3000	-	965.0	-	
CT91WCNC		○ Warm White	>70				2200	-	1105.0	-	

Series	Appearance
1818	

Part Number	Size (LxWxH mm)	Emitting Color	CRI	Forward Voltage (V_F)			CCT(K)	Luminous Flux (lm)			I_F (mA)
				min.	typ.	max.		min.	typ.	max.	
CTP5CCMD	17.85*17.85*1.95	○ Cold White	>80	32	36	40	5000	-	2700.0	-	550
CTP5NCMD		○ Neutral White	>80				4000	-	2650.0	-	
CTP5WCMD		○ Warm White	>80				3000	-	2550.0	-	

Series	Appearance
2828	

Part Number	Size (LxWxH mm)	Emitting Color	CRI	Forward Voltage (V_F)			CCT(K)	Luminous Flux (lm)			I_F (mA)
				min.	typ.	max.		min.	typ.	max.	
CT90CCMD	27.35*27.35*1.95	Cold White	>80	36	39	42	5000	-	7900.0	-	1400
CT90NCMD		Neutral White	>80				4000	-	7600.0	-	
CT90WCMD		Warm White	>80				3000	-	7400.0	-	
CT90CTAJ		Cold White	>93				5000	-	6750.0	-	
CT90WTAJ		Warm White	>97				3000	-	5420.0	-	
CT90WCNC		Warm White	>70				2200	-	7080.0	-	
CT88CCMD	27.35*27.35*1.95	Cold White	>80	32	36	40	5000	-	9230.0	-	1925
CT88NCMD		Neutral White	>80				4000	-	9120.0	-	
CT88WCMD		Warm White	>80				3000	-	8730.0	-	

Series	Appearance
7070	

Part Number	Size (LxWxH mm)	Emitting Color	CRI	Forward Voltage (V_F)			CCT(K)	Luminous Flux (lm)			I_F (mA)
				min.	typ.	max.		min.	typ.	max.	
XTU1CCMD	70*70*1.95	Cold White	>80	30	34	37	5000	-	31800.0	-	8500
XTU1NCMD		Neutral White	>80				4000	-	30600.0	-	
XTU1WCMD		Warm White	>80				3000	-	29500.0	-	
XTU1CTAJ		Cold White	>90				5000	-	27650.0	-	
XTU1WTAJ		Warm White	>95				3000	-	22150.0	-	

Series	Appearance		
MX01			
Part Number	**Pitch**	**Emitting Color**	**Input voltage**
MX01	20mm or 40mm	Red	4.5
		White	
		Blue	
		Amber	
		Green	

Notice :

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