

# Kingbright

## Optoelectronic Components

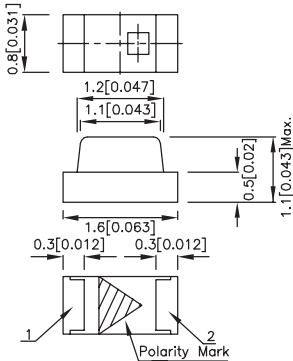
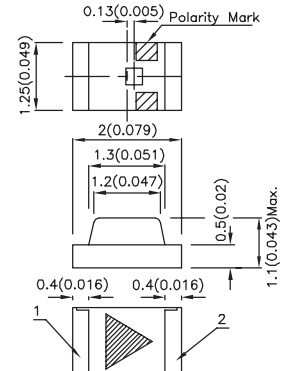
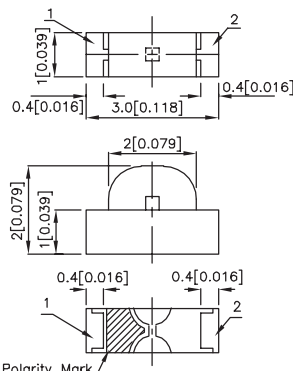
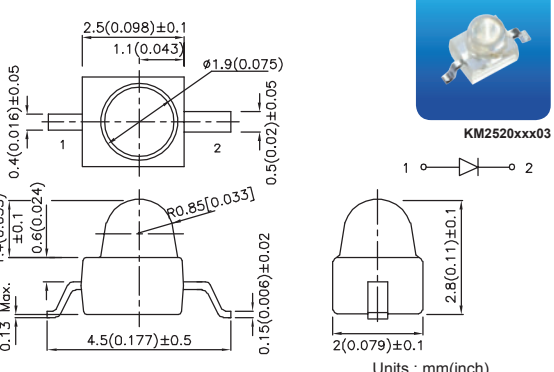
### INFRARED & PHOTOTRANSISTOR

Infrared Emitting Diode 82

Phototransistor 84


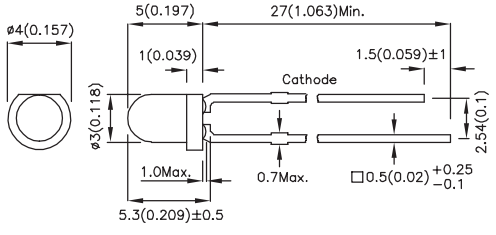

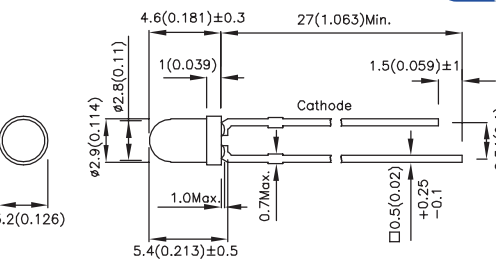

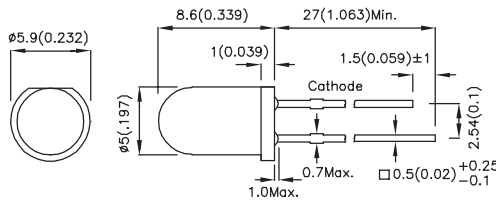
CLUSTER 86

## INFRARED EMITTING DIODE

Part Number	Material	$\lambda_P$ (nm)	Lens Type	Po (mW/sr) @20mA *50mA		Viewing Angle 2 $\theta$ 1/2	Dimensions
				Min.	Typ.		
KP-1608F3C	GaAs	940	water clear	0.8	2	150°	1.6mm x 0.8mm x 1.1mm (0603) 
KP-1608SF4C	GaAlAs	880	water clear	0.8	1.5	150°	
KP-2012F3C	GaAs	940	water clear	0.8	2	160°	2.0mm x 1.25mm x 1.1mm (0805) 
KP-2012SF4C	GaAlAs	880	water clear	0.8	1.5	160°	
KPA-3010F3C	GaAs	940	water clear	0.8	2	160°	3.0mm x 1.0mm x 2.0mm (1104 Right Angle) 
KM2520F3C03	GaAs	940	water clear	3	8	20°	2mm Subminiature IR Emitter 
				*8	*16		

NOTE:  
1. Radiant intensity value is traceable to CIE127-2007 standards.

INFRARED EMITTING DIODE

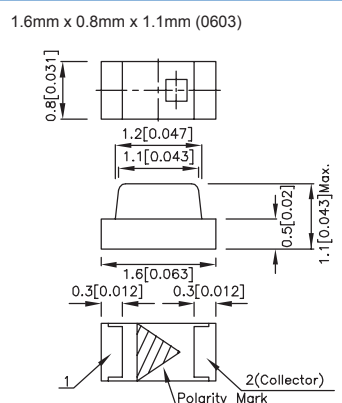
Part Number	Material	$\lambda_P$ (nm)	Lens Type	Po (mW/sr) @20mA *50mA		Viewing Angle 2 $\theta$ 1/2	Dimensions
				Min.	Typ.		
L-34F3C	GaAs	● 940	water clear	3	8	50°	T-1 (3mm) Round  L-34 
				*8	*15	50°	
L-34SF4C	GaAlAs	● 880	water clear	3	16	50°	Units : mm(inch) Tolerance : ±0.25(0.01)
				*5	*20	50°	
L-7104F3C	GaAs	● 940	water clear	3	8	30°	T-1 (3mm) Round  L-7104 
				*12	*25	30°	
L-7104F3BT	GaAs	● 940	blue transparent	3	8	30°	Units : mm(inch) Tolerance : ±0.25(0.01)
				*12	*25	30°	
L-7113F3C	GaAs	● 940	water clear	8	20	20°	T-1 3/4 (5mm) Round  L-7113 
				*25	*50	20°	
L-7113F3BT	GaAs	● 940	blue transparent	8	20	20°	Units : mm(inch) Tolerance : ±0.25(0.01)
				*25	*50	20°	
L-7113SF4C	GaAlAs	● 880	water clear	6	15	20°	Units : mm(inch) Tolerance : ±0.25(0.01)
				*12	*25	20°	
L-7113SF4BT	GaAlAs	● 880	blue transparent	6	15	20°	Units : mm(inch) Tolerance : ±0.25(0.01)
				*12	*25	20°	
L-7113SF6C	GaAlAs	● 860	water clear	18	40	20°	Units : mm(inch) Tolerance : ±0.25(0.01)
				*55	*100	20°	
L-7113SF7C	GaAlAs	● 850	water clear	12	30	20°	Units : mm(inch) Tolerance : ±0.25(0.01)
				*40	*90	20°	

NOTE:  
1. Radiant intensity value is traceable to CIE127-2007 standards.

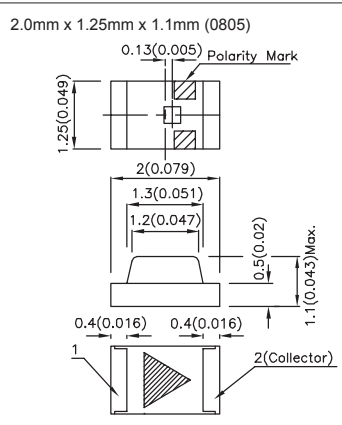
## PHOTOTRANSISTOR

Part Number	Lens Type
KP-1608P1C	water clear
KP-2012P3C	water clear
KP-3216P3C	water clear
KPA-3010P3C	water clear

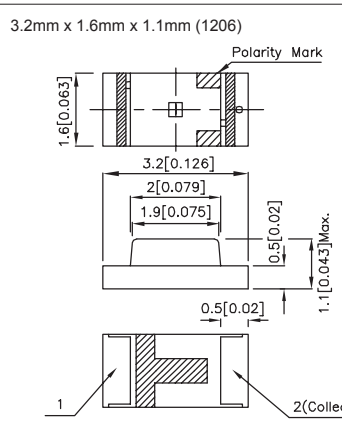
### Dimensions



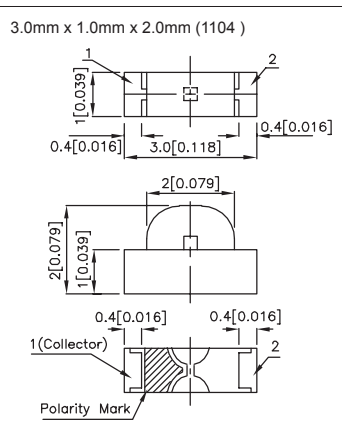
Units : mm(inch)  
Tolerance : ±0.1(0.004)



Units : mm(inch)  
Tolerance : ±0.1(0.004)



Units : mm(inch)  
Tolerance : ±0.2(0.008)



Units : mm(inch)  
Tolerance : ±0.15(0.006)


### Electrical And Radiant Characteristics TA =25°C

Parameter	Symbol	Part Number	Min.	Typ.	Max.	Unit	Test Condition
Collector-to-Emitter Breakdown Voltage	$V_{BR\ CE0}$	-	30	-	-	V	$I_C=100\mu A$ $E_e=0mW/cm^2$
Emitter-to-Collector Breakdown Voltage	$V_{BR\ ECO}$	-	5	-	-	V	$I_E=100\mu A$ $E_e=0mW/cm^2$
Collector-to-Emitter Saturation Voltage	$V_{CE(SAT)}$	-	-	-	0.8	V	$I_C=2mA$ $E_e=20mW/cm^2$
Collector Dark Current	$I_{CEO}$	-	-	-	100	nA	$V_{CE}=10V$ $E_e=0mW/cm^2$
Rise Time (10% to 90%)	$T_R$	-	-	15	-	$\mu s$	$V_{CE}=5V$ $I_C=1mA$ $R_L=1K\Omega$
Fall Time (90% to 10%)	$T_F$	-	-	15	-	$\mu s$	
On State Collector Current	$I_{(ON)}$	KP-1608P1C	0.1	0.3	-	mA	$V_{CE}=5V,$ $E_e=1mW/cm^2$ $\lambda=940nm$
		KP-2012P3C	0.2	0.4			
		KP-3216P3C	0.2	0.4			
		KPA-3010P3C	0.2	0.4			

### Absolute Maximum Rating TA =25°C

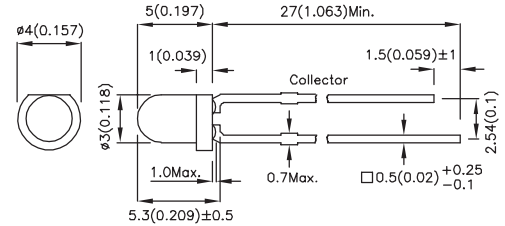
Parameter	Maximum Ratings
Collector-to-Emitter Voltage	30V
Emitter-to-Collector Voltage	5V
Power Dissipation at (or below) 25°C Free Air Temperature	100mW
Operating Temperature Range	-40°C~ +85°C
Storage Temperature Range	-40°C~ +85°C

PHOTOTRANSISTOR

Part Number	Lens Type	Dimensions
L-3DP3BT	blue transparent	T-1 (3mm) Phototransistor  L-3D
L-7113P3C	water clear	

Electrical And Radiant Characteristics  $T_A = 25^\circ\text{C}$

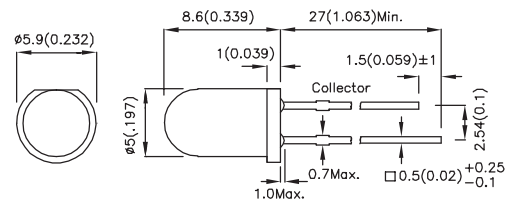
Parameter	Symbol	Part Number	Min.	Typ.	Max.	Unit	Test Condition
Collector-to-Emitter Breakdown Voltage	$V_{BR\ CE0}$	-	30	-	-	V	$I_C=100\mu\text{A}$ $E_e=0\text{mW}/\text{cm}^2$
Emitter-to-Collector Breakdown Voltage	$V_{BR\ ECO}$	-	5	-	-	V	$I_E=100\mu\text{A}$ $E_e=0\text{mW}/\text{cm}^2$
Collector-to-Emitter Saturation Voltage	$V_{CE(SAT)}$	-	-	-	0.8	V	$I_C=2\text{mA}$ $E_e=20\text{mW}/\text{cm}^2$
Collector Dark Current	$I_{CEO}$	-	-	-	100	nA	$V_{CE}=10\text{V}$ $E_e=0\text{mW}/\text{cm}^2$
Rise Time (10% to 90%)	$T_R$	-	-	15	-	$\mu\text{s}$	$V_{CE}=5\text{V}$ $I_C=1\text{mA}$ $R_L=1\text{K}\Omega$
Fall Time (90% to 10%)	$T_F$	-	-	15	-	$\mu\text{s}$	
On State Collector Current	$I_{(ON)}$	L-3DP3BT	0.1	0.2	-	mA	$V_{CE}=5\text{V}$ , $E_e=1\text{mW}/\text{cm}^2$ $\lambda=940\text{nm}$
		L-7113P3C	0.5	2.5			



Units : mm(inch)  
Tolerance :  $\pm 0.25(0.01)$

Absolute Maximum Rating  $T_A = 25^\circ\text{C}$

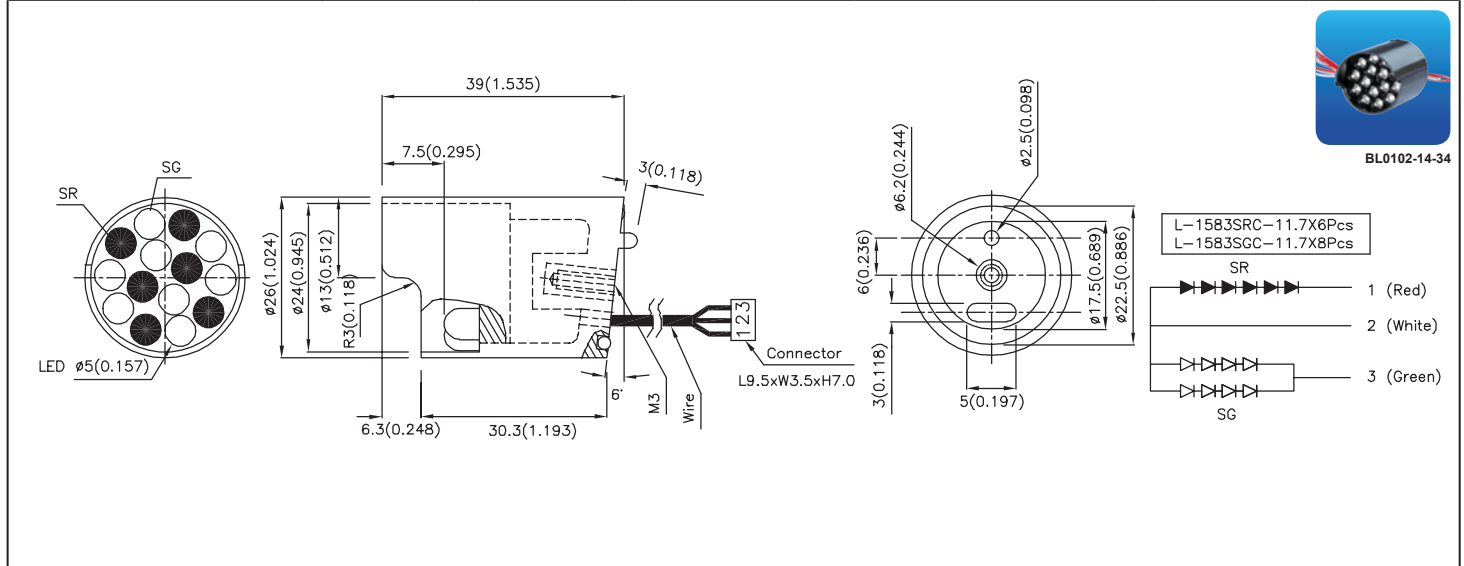
Parameter	Maximum Ratings
Collector-to-Emitter Voltage	30V
Emitter-to-Collector Voltage	5V
Power Dissipation at (or below) $25^\circ\text{C}$ Free Air Temperature	100mW
Operating Temperature Range	$-40^\circ\text{C} \sim +85^\circ\text{C}$
Storage Temperature Range	$-40^\circ\text{C} \sim +85^\circ\text{C}$
Lead Soldering Temperature (>5mm For 5sec)	$260^\circ\text{C}$



Units : mm(inch)  
Tolerance :  $\pm 0.25(0.01)$

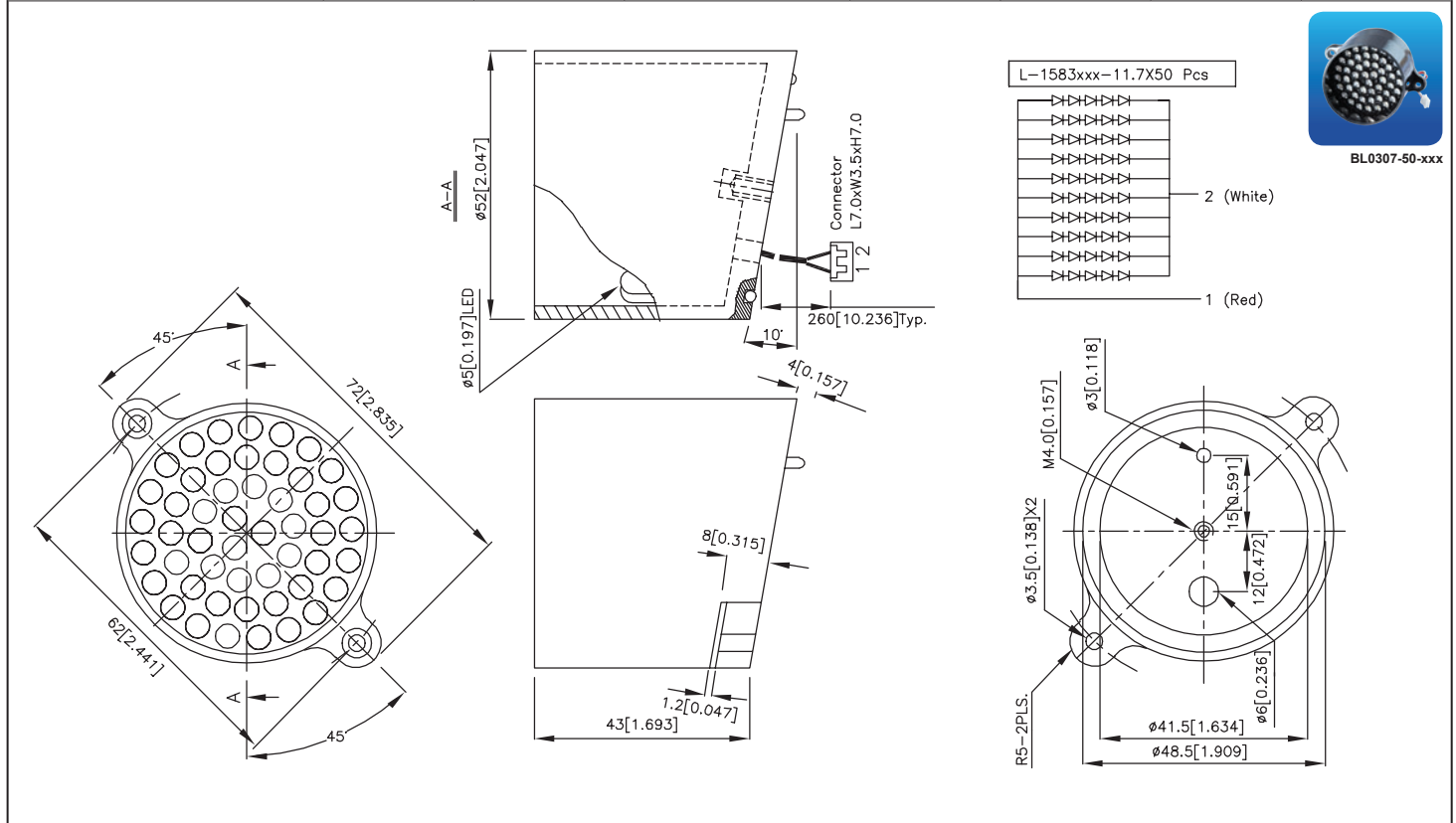
## 26mm

Part Number	Material	$\lambda_D$ (nm)	Lens Type	Iv (mcd)		Viewing Angle	IF(mA)
				Min.	Typ.		
BL0102-14-34	GaAlAs	640	water clear	600	1200	40°	20
	GaP	568	water clear	800	1600	40°	40



## 52mm

Part Number	Material	$\lambda_D$ (nm)	Lens Type	Iv (mcd)		Viewing Angle	IF(mA)
				Min.	Typ.		
BL0307-50-44	GaAlAs	640	water clear	5000	10000	40°	200
BL0307-50-46	GaP	568	water clear	5000	10000	40°	200



### NOTES:

1. All dimensions are in millimeters( inches).
2. Tolerance is  $\pm 0.25\text{mm}(0.01\text{'})$  unless otherwise noted.
3. Luminous intensity value is traceable to CIE127-2007 standards.