



**Kingbright**



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**Optoelectronic Components**

**2022-2024**

# Infrared & Phototransistor

Kingbright's selection of infrared emitting diode products are suitable for consumer applications, home automation, computer peripherals and industrial applications. Selections are available in both SMD and through-hole packages.



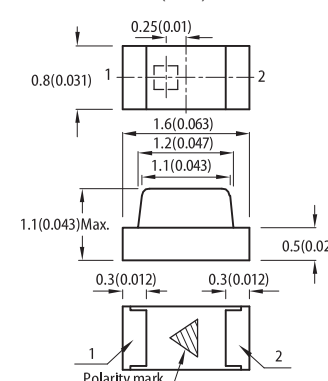
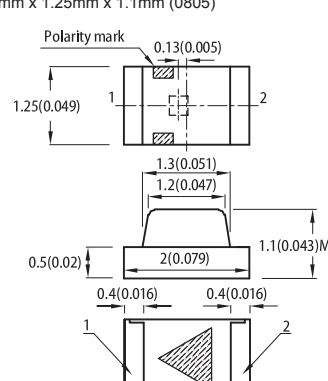
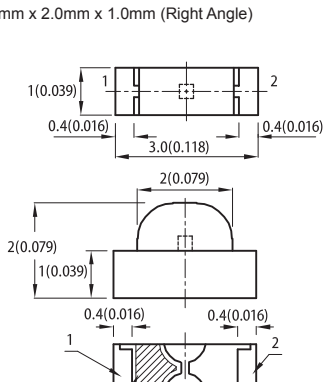
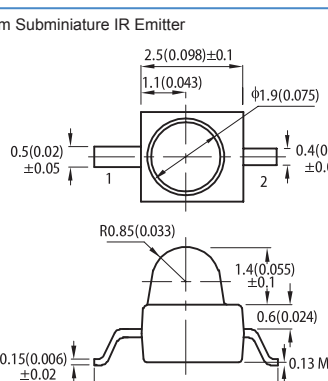
47 /  
Infrared Emitting Diode



49 /  
Phototransistor




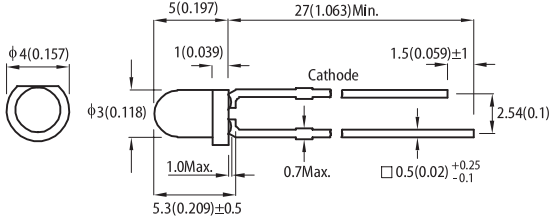

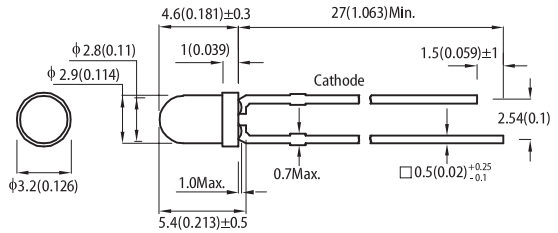

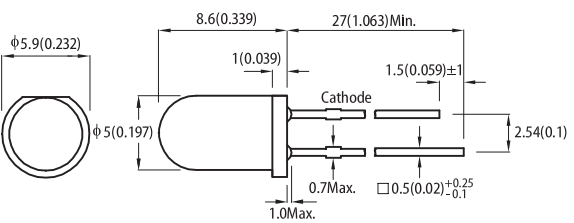
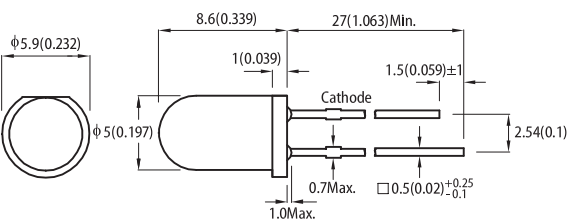
INFRARED EMITTING DIODE

Part Number	Material	$\lambda_P$ (nm)	Lens Type	Po (mW/sr) @20mA *50mA		Viewing Angle	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 2.0mm x 1.0mm (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		
L-34SF4C	GaAlAs	● 880	water clear	3	16	50°	Units: mm (inch) Tolerance: ± 0.25 (0.01)
				*5	*20		
L-7104F3C	GaAs	● 940	water clear	3	8	30°	T-1 (3mm) Round  L-7104
				*12	*25		
L-7104F3BT	GaAs	● 940	blue transparent	3	8	30°	
				*12	*25		
L-7113F3C	GaAs	● 940	water clear	8	20	20°	T-1 3/4 (5mm) Round  L-7113
				*25	*50		
L-7113F3BT	GaAs	● 940	blue transparent	8	20	20°	
				*25	*50		
L-7113SF4C	GaAlAs	● 880	water clear	6	15	20°	Units: mm (inch) Tolerance: ± 0.25 (0.01)
				*12	*25		
L-7113SF6C	GaAlAs	● 860	water clear	18	40	20°	
				*55	*100		
L-7113SF7C	GaAlAs	● 850	water clear	12	30	20°	Units: mm (inch) Tolerance: ± 0.25 (0.01)
				*40	*90		

NOTE:

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

PHOTOTRANSISTOR

Part Number	Lens Type	Dimensions
KP-1608P1C	water clear	1.6mm x 0.8mm x 1.1mm (0603)
KP-2012P3C	water clear	2.0mm x 1.25mm x 1.1mm (0805)
KP-3216P3C	water clear	3.2mm x 1.6mm x 1.1mm (1206)
KPA-3010P3C	water clear	3.0mm x 2.0mm x 1.0mm (Right Angle)
L-3DP3BT	blue transparent	
L-7113P3C	water clear	

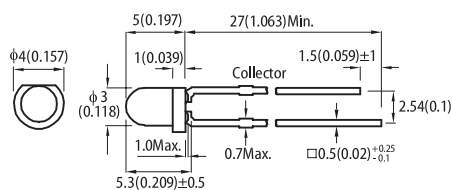
Electrical and Radiant Characteristics  $T_A = 25^\circ\text{C}$

Parameter	Symbol	Part Number	Min.	Typ.	Max.	Unit	Test Condition
Collector-to-Emitter Breakdown Voltage	$V_{BR\ CEO}$	-	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	$I_{(ON)}$	KP-1608P1C	0.1	0.3	-	mA	$V_{CE}=5\text{V}$ , $E_e=1\text{mW}/\text{cm}^2$ $\lambda=940\text{nm}$
		KP-2012P3C	0.2	0.4			
		KP-3216P3C	0.2	0.4			
		KPA-3010P3C	0.2	0.4			
		L-3DP3BT	0.1	0.2			
		L-7113P3C	0.5	2.5			

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	$-40^\circ\text{C} \sim +85^\circ\text{C}$
L-3DP3BT L-7113P3C Lead Soldering Temperature (>5mm For 5 sec)	$260^\circ\text{C}$

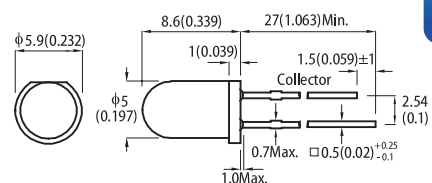
T-1 (3mm) Phototransistor



L-3D

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

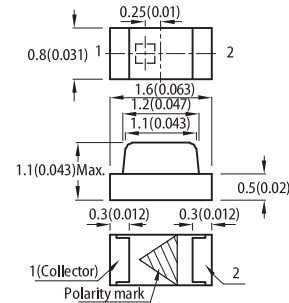
T-1 3/4 (5mm) Phototransistor



L-7113

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

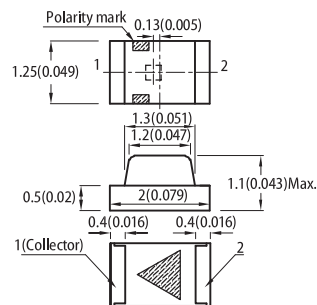
1.6mm x 0.8mm x 1.1mm (0603)



KP-1608

Units: mm (inch)  
Tolerance:  $\pm 0.1$  (0.004)

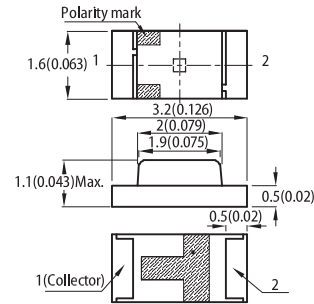
2.0mm x 1.25mm x 1.1mm (0805)



KP-2012

Units: mm (inch)  
Tolerance:  $\pm 0.1$  (0.004)

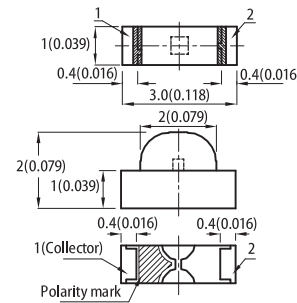
3.2mm x 1.6mm x 1.1mm (1206)



KP-3216

Units: mm (inch)  
Tolerance:  $\pm 0.2$  (0.008)

3.0mm x 2.0mm x 1.0mm (Right Angle)



KPA-3010

Units: mm (inch)  
Tolerance:  $\pm 0.15$  (0.006)