

OPTO-SENSOR

Kingbright opto-sensors can be used in many industries, including manufacturing, automation, robotic and automotive applications. Our opto-sensor offers accuracy, reliability and versatility in various size and packages.



47 /
Light Sensor

47 /
Photointerrupter

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Photocoupler


LIGHT SENSOR

Part Number	Lens Type		Dimensions	
APS3227SP1C-P22	Water Clear		3.2 mm x 2.7 mm x 1.1 mm (Ambient Light Sensor)	

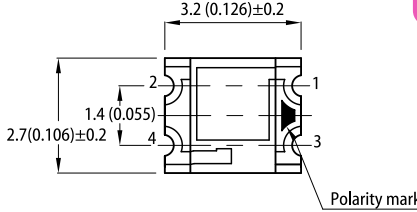
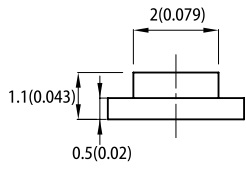
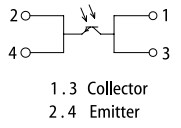
Electrical and Radiant Characteristics (Ta =25°C, Unless Otherwise Specified)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test Condition
Collector Emitter Breakdown Voltage	$B_{V_{CE0}}$	60	-	-	V	$I_{ce0}=100\mu A$
Emitter Collector Breakdown Voltage	$B_{V_{ec0}}$	4	-	-	V	$I_{eco}=100\mu A$
Collector dark current	I_D	-	10	100	nA	$V_{CE}=5V, E_v=0Lx$
Light Current (1)	I_{PH1}	-	6	-	μA	$V_{CE}=5V, E_v=100Lx^{(1)}$
Light Current (2)	I_{PH2}	-	130	-	μA	$V_{CE}=5V, E_v=1000Lx^{(1)}$
Light Current (3)	I_{PH3}	-	950	-	μA	$V_{CE}=5V, E_v=1000Lx^{(2)}$
Light Current (4)	I_{PH4}	-	420	-	μA	$V_{CE}=5V, E_v=1000Lx^{(3)}$
Saturation Output Voltage	V_O	4.5	4.7	-	V	$V_{CE}=5V, E_v=1000Lx^{(1)}$ $R_L=75K\Omega$
Wavelength of peak sensitivity	λ_p	-	580	-	nm	-
Response Wavelength	λ	390	-	700	nm	>10% Response
Collector Emitter Saturation Voltage	$V_{CE(sat)}$	-	-	0.4	V	$I_C=10mA$

Notes:
 1. White Fluorescent light (Color Temperature = 6200K) is used as light source.
 2. Illuminance by CIE standard illuminant-A/2856K, incandescent lamp.
 3. Sunlight (Color Temperature = 4600K) is used as light source.

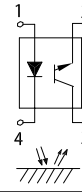
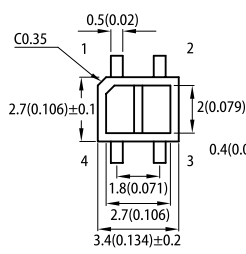
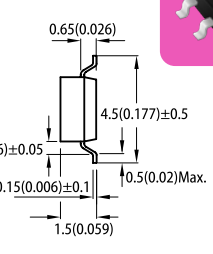
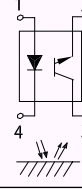
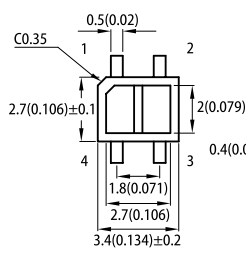
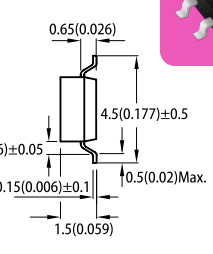
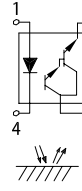
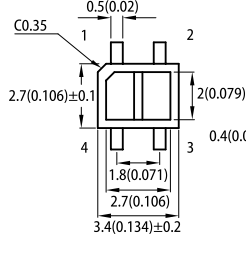
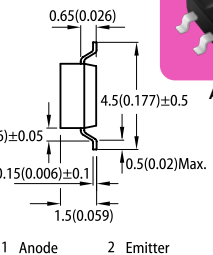


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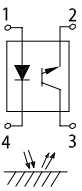

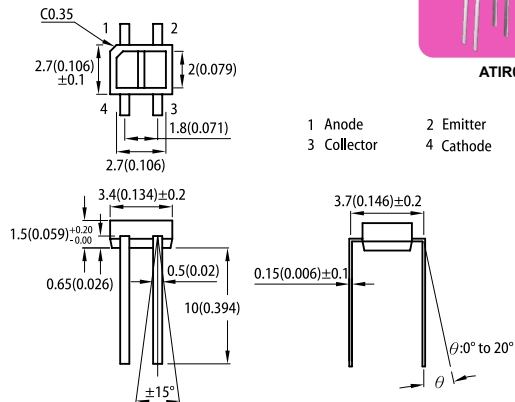
Units: mm (inch)
Tolerance: ± 0.1 (0.004)

PHOTOINTERRUPTER – REFLECTIVE TYPE

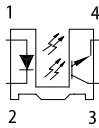

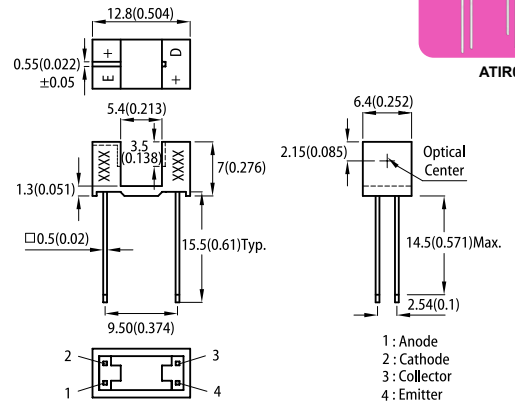
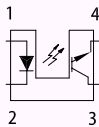

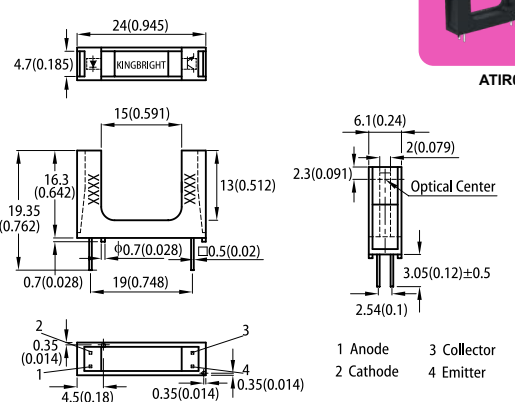
Part Number	IC (μA)				$V_{CE(sat)}$ (V)			Response Time(μs) Typ.			Pin Configuration	Dimensions
	Min.	Typ.	Max.	Test Condition	Typ.	Max.	Condition	T_r	T_f	Test Condition		
ATIR0711S	10	-	400	$I_F=4mA$ $V_{CE}=2V$	-	-	-	20	20	$V_{CE}=2V$ $I_C=100\mu A$ $R_L=1K\Omega$ $d=1mm$		  <p>ATIR0711S</p> <p>Units: mm (inch) Tolerance: ± 0.25 (0.01)</p>
ATIR0711S-F	100	-	250	$I_F=4mA$ $V_{CE}=2V$	-	-	-	20	20	$V_{CE}=2V$ $I_C=100\mu A$ $R_L=1K\Omega$ $d=1mm$		  <p>ATIR0711S-F</p> <p>Units: mm (inch) Tolerance: ± 0.25 (0.01)</p>
ATIR0721DS	-	10000	-	$I_F=4mA$ $V_{CE}=2V$	-	-	-	80	70	$V_{CE}=2V$ $I_C=10mA$ $R_L=100\Omega$ $d=1mm$		  <p>ATIR0721DS</p> <p>Units: mm (inch) Tolerance: ± 0.25 (0.01)</p>

All dimensions are in millimeters (inches)

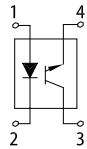

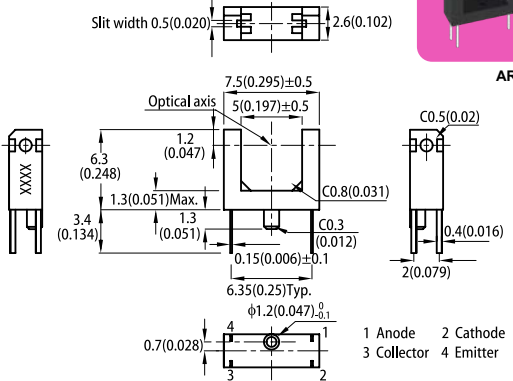
PHOTOINTERRUPTER – REFLECTIVE TYPE

Part Number	IC (μA)				V _{CE(sat)} (V)			Response Time(μs) Typ.			Pin Configuration	Dimensions
	Min.	Typ.	Max.	Test Condition	Typ.	Max.	Condition	Tr	Tf	Test Condition		
ATIR0811S	10	-	400	I _F =4mA V _{CE} =2V	-	-	-	20	20	V _{CE} =2V I _C =100μA R _L =1KΩ d=1mm		<p>ATIR0811S</p>  <p>ATIR0811S</p> <p>1 Anode 2 Emitter 3 Collector 4 Cathode</p>  <p>Units: mm (inch) Tolerance: ± 0.25 (0.01)</p>

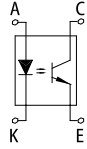

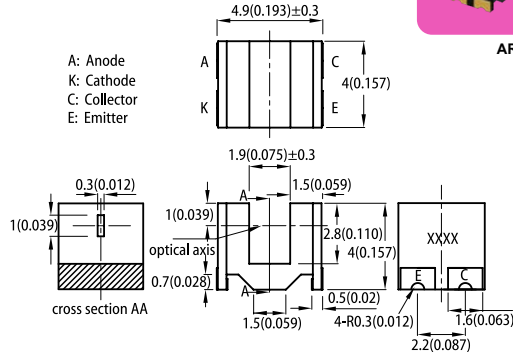
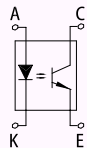

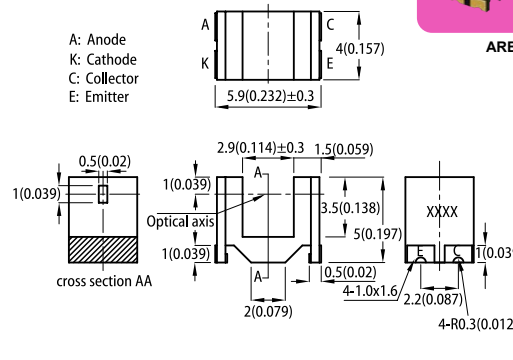
PHOTOINTERRUPTER - TRANSMISSIVE TYPE

Part Number	CTR(%)				V _{CE(sat)} (V)			Response Time(μs) Typ.			Pin Configuration	Dimensions
	Min.	Typ.	Max.	Test Condition	Typ.	Max.	Condition	Tr	Tf	Test Condition		
ATIR0511S	-	10	-	I _F =20mA V _{CE} =5V	-	0.4	I _C =1mA I _F =40mA	5	4	V _{CE} =2V I _C =2mA R _L =100Ω		<p>ATIR0511S</p>  <p>ATIR0511S</p> <p>1: Anode 2: Cathode 3: Collector 4: Emitter</p>  <p>Units: mm (inch) Tolerance: ± 0.25 (0.01)</p>
ATIR0911S	-	9.5	-	I _F =20mA V _{CE} =5V	-	0.4	I _C =1mA I _F =40mA	5	4	V _{CE} =2V I _C =2mA R _L =100Ω		<p>ATIR0911S</p>  <p>ATIR0911S</p> <p>1 Anode 3 Collector 2 Cathode 4 Emitter</p>  <p>Units: mm (inch) Tolerance: ± 0.25 (0.01)</p>

PHOTOINTERRUPTER - TRANSMISSIVE TYPE

Part Number	CTR(%)				V _{CE(sat)} (V)			Response Time(μs) Typ.			Pin Configuration	Dimensions
	Min.	Typ.	Max.	Test Condition	Typ.	Max.	Condition	Tr	Tf	Test Condition		
ARA021	2.5	-	50	I _F =10mA V _{CE} =2V	0.1	0.4	I _C =0.25mA I _F =20mA	15	15	V _{CE} =5V R _L =1KΩ I _C =1mA		<p>ARA021</p>   <p>Slit width 0.5(0.020)</p> <p>2.6(0.102)</p> <p>7.5(0.295)±0.5</p> <p>Optical axis</p> <p>5(0.197)±0.5</p> <p>1.2(0.047)</p> <p>6.3(0.248)</p> <p>1.3(0.051)Max.</p> <p>3.4(0.134)</p> <p>1.3(0.051)</p> <p>0.15(0.006)±0.1</p> <p>6.35(0.25)Typ.</p> <p>φ1.2(0.047)_{0.1}</p> <p>0.7(0.028)</p> <p>1 2 3 4</p> <p>1 Anode 2 Cathode 3 Collector 4 Emitter</p> <p>Units: mm (inch) Tolerance: ± 0.15 (0.006)</p>

PHOTOINTERRUPTER - TRANSMISSIVE TYPE

Part Number	I _C (μA)				V _{CE(sat)} (V)			Response Time(μs) Typ.			Pin Configuration	Dimensions
	Min.	Typ.	Max.	Test Condition	Typ.	Max.	Condition	Tr	Tf	Test Condition		
ARB011	50	650	-	I _F =5mA V _{CE} =5V	0.1	0.4	I _C =50μA I _F =20mA	8	10	V _{CE} =5V R _L =1KΩ I _C =100μA		<p>ARB011</p>   <p>A: Anode K: Cathode C: Collector E: Emitter</p> <p>4.9(0.193)±0.3</p> <p>A C K E</p> <p>4(0.157)</p> <p>1.9(0.075)±0.3</p> <p>1.5(0.059)</p> <p>0.3(0.012)</p> <p>1(0.039)</p> <p>1(0.039)</p> <p>optical axis</p> <p>0.7(0.028)</p> <p>2.8(0.110)</p> <p>4(0.157)</p> <p>cross section AA</p> <p>1.5(0.059)</p> <p>4-R0.3(0.012)</p> <p>0.5(0.02)</p> <p>1.6(0.063)</p> <p>2.2(0.087)</p> <p>Units: mm (inch) Tolerance: ± 0.15 (0.006)</p>
ARB031A	50	150	500	I _F =5mA V _{CE} =5V	0.1	0.4	I _C =50μA I _F =20mA	8	10	V _{CE} =5V R _L =1KΩ I _C =100μA		<p>ARB031A</p>   <p>A: Anode K: Cathode C: Collector E: Emitter</p> <p>A C K E</p> <p>4(0.157)</p> <p>5.9(0.232)±0.3</p> <p>2.9(0.114)±0.3</p> <p>1.5(0.059)</p> <p>0.5(0.02)</p> <p>1(0.039)</p> <p>1(0.039)</p> <p>Optical axis</p> <p>1(0.039)</p> <p>3.5(0.138)</p> <p>5(0.197)</p> <p>cross section AA</p> <p>2(0.079)</p> <p>4-1.0x1.6</p> <p>0.5(0.02)</p> <p>2.2(0.087)</p> <p>1(0.039)</p> <p>4-R0.3(0.012)</p> <p>Units: mm (inch) Tolerance: ± 0.15 (0.006)</p>

All dimensions are in millimeters (inches)

PHOTOCOUPLER

Part Number	CTR(%)				V _{CE(sat)} (V)			Response Time(μs) Typ.			Pin Configuration	Dimensions
	Min.	Typ.	Max.	Test Condition	Typ.	Max.	Condition	Tr	Tf	Test Condition		
AB814B	120	-	300	I _F =±1mA V _{CE} =5V	0.1	0.2	I _F =±20mA I _C =1mA	4	3	V _{CE} =2V I _C =2mA R _L =100Ω		<p>AB814B</p> <p>Units: mm (inch) Tolerance: ± 0.5 (0.02)</p>
AB814B-B	120	-	300	I _F =±1mA V _{CE} =5V	0.1	0.2	I _F =±20mA I _C =1mA	4	3	V _{CE} =2V I _C =2mA R _L =100Ω		<p>AB814B-B</p> <p>Units: mm (inch) Tolerance: ± 0.5 (0.02)</p>
AB817A-B	80	-	160	I _F =5mA V _{CE} =5V	0.1	0.2	I _F =20mA I _C =1mA	4	3	V _{CE} =2V I _C =2mA R _L =100Ω		<p>AB817A-B, AB817B-B, AB817D-B</p> <p>Units: mm (inch) Tolerance: ± 0.5 (0.02)</p>
AB817B-B	130	-	260	I _F =5mA V _{CE} =5V	0.1	0.2	I _F =20mA I _C =1mA	4	3	V _{CE} =2V I _C =2mA R _L =100Ω		<p>AB817B-B</p> <p>Units: mm (inch) Tolerance: ± 0.5 (0.02)</p>
AB817D-B	300	-	600	I _F =5mA V _{CE} =5V	0.1	0.2	I _F =20mA I _C =1mA	4	3	V _{CE} =2V I _C =2mA R _L =100Ω		<p>AB817D-B</p> <p>Units: mm (inch) Tolerance: ± 0.5 (0.02)</p>

PHOTOCOUPLER

Part Number	CTR(%)				V _{CE(sat)} (V)			Response Time(μs) Typ.			Pin Configuration	Dimensions
	Min.	Typ.	Max.	Test Condition	Typ.	Max.	Condition	Tr	Tf	Test Condition		
AB356N2T	130	-	260	I _F =5mA V _{CE} =5V	0.1	0.2	I _F =20mA I _C =1mA	6	8	V _{CE} =2V I _C =2mA R _L =100Ω		<p>AB356N2T,AB356N6T</p> <p>2.54(0.1)±0.25 4.4(0.173)±0.2 7.0(0.276)^{+0.2}_{-0.2} 0.4(0.016)±0.1</p> <p>AB356NT</p> <p>1 Anode 3 Emitter 2 Cathode 4 Collector</p>
AB356N6T	130	-	400	I _F =5mA V _{CE} =5V	0.1	0.2	I _F =20mA I _C =1mA	6	8	V _{CE} =2V I _C =2mA R _L =100Ω		<p>3.6(0.142)±0.3 2.6(0.102)±0.2 0.1(0.004)±0.1 6.0° 0.2(0.008)±0.05 5.3(0.209)±0.3 0.5(0.020)^{+0.4}_{-0.2}</p>
AB357NT	50	-	600	I _F =5mA V _{CE} =5V	-	0.2	I _F =20mA I _C =1mA	4	3	V _{CE} =2V I _C =2mA R _L =100Ω		<p>AB357NT</p> <p>2.54(0.1)±0.25 4.4(0.173)±0.2 7.0(0.276)^{+0.2}_{-0.2} 0.4(0.016)±0.1</p> <p>AB357NT</p> <p>1 Anode 3 Emitter 2 Cathode 4 Collector</p> <p>3.6(0.142)±0.3 2.6(0.102)±0.2 0.1(0.004)±0.1 6.0° 0.2(0.008)±0.05 5.3(0.209)±0.3 0.5(0.020)^{+0.4}_{-0.2}</p>
AB354NT	20	-	300	I _F =±1mA V _{CE} =5V	0.1	0.2	I _F =±20mA I _C =1mA	4	3	V _{CE} =2V I _C =2mA R _L =100Ω		<p>AB354NT</p> <p>2.54(0.1)±0.25 4.4(0.173)±0.2 7.0(0.276)^{+0.2}_{-0.2} 0.4(0.016)±0.1</p> <p>AB354NT</p> <p>1 Anode,Cathode 3 Emitter 2 Cathode,Anode 4 Collector</p> <p>3.6(0.142)±0.3 2.6(0.102)±0.2 0.1(0.004)±0.1 6.0° 0.2(0.008)±0.05 5.3(0.209)±0.3 0.5(0.020)^{+0.4}_{-0.2}</p>

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