Photo IC type high sensitive light sensor

NaPiCa

Through-hole type

Features

- Built-in optical filter : visibility characteristics close to human visibility
- Liner photocurrent output proportionating to the brightness of surrounding environment
- Environmentally-friendly silicon chip
- RoHS compliant

Typical Applications

- Automatic lighting of lighting apparatus (domestic lighting, security light)
- Day and night power saving operation of domestic appliances
- Brightness detection of wall clocks (radio clocks)

Types

Standard packing : Tape and reel package Through-hole type : Carton : 2,000 pcs.; Case: 2,000 pcs.
Baggage package Through-hole type : Carton : 500 pcs.; Case: 1,000 pcs.

Type (shape)	Photocurrent	Part No.	
		Tape and reel package	Baggage package
Through-hole type	260 μA*	AMS302T	AMS302

Note: *Ev = 100 lx (Ev : Brightness, Fluorescent lamp is used as light source)

Ratings

- Absolute maximum ratings (Measuring condition: ambient temperature: 25 °C 77 °F)

Item	Symbol	Absolute maximum ratings	Remarks
Reverse voltage	V_R	−0.5 V.DC to 8 V.DC	–
Photocurrent	I_L	5 mA	–
Power dissipation	P	40 mW	–
Operating temperature	T_{opr}	−30 °C to 85 °C −22 °F to +185 °F	Non-condensing at low temperatures
Storage temperature	T_{stg}	−40 °C to 100 °C −40 °F to +212 °F	Non-condensing at low temperatures

- Recommended operating condition

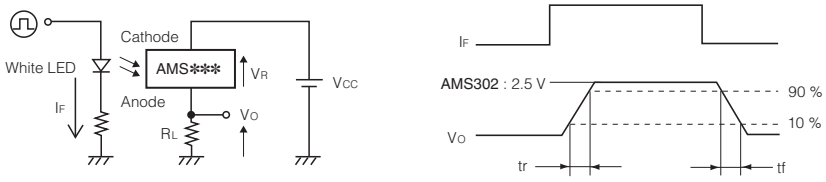
Item		Symbol	AMS302	Remarks
Reverse voltage	Minimum	V_R	1.5 V.DC	–
	Maximum		6 V.DC	–

● Electrical and optical characteristics (Measuring condition: ambient temperature: 25 °C 77 °F)

Item			Symbol	AMS302	Condition
Peak sensitivity wavelength		–	λ_p	580 nm	–
Photocurrent 1		Minimum	I_{L1}	9.1 μA	V_R=5 V.DC, E_v=5 lx *1
		Typical		13 μA	
		Maximum		16.9 μA	
Photocurrent 2		Minimum	I_{L2}	182 μA	V_R=5 V.DC, E_v=100 lx *2
		Typical		260 μA	
		Maximum		338 μA	
Photocurrent 3		Typical	I_{L3}	500 μA	V_R=5 V.DC, E_v=100 lx *2
Dark current		Maximum	I_D	0.3 μA	V_R=5 V.DC, E_v=0 lx
Switching time	Rise time	Typical	t_r	8.5 ms	V_{cc}=5.0 V.DC, V_0=2.5 V.DC, R_L=5 kΩ
	Fall time	Typical	t_f	8.5 ms	

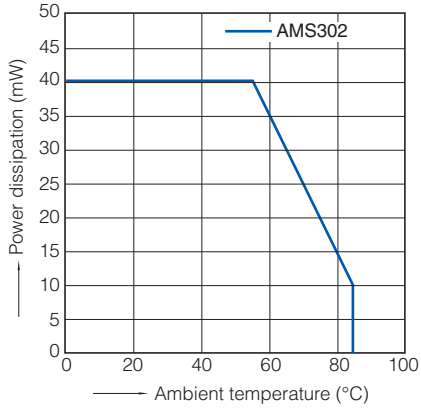
Note : ✻1 Fluorescent lamp is used as light source. Ev = Brightness
✻2 CIE standard illuminant 'A' is used as light source.

[Measuring method for switching time]

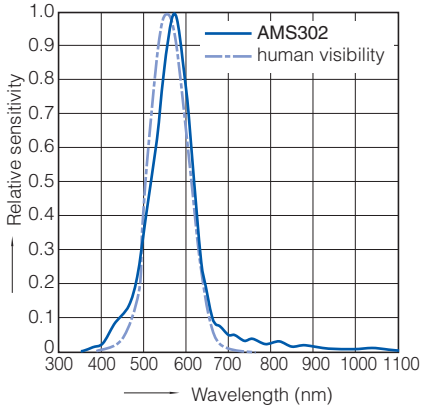


Reference Data

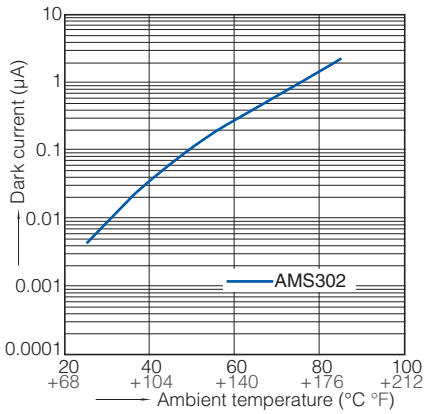
1. Power dissipation vs. ambient temperature characteristics



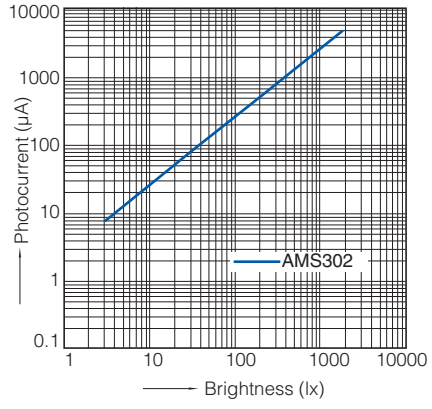
2. Relative sensitivity vs. wavelength characteristics
Reverse voltage : 5 V.DC
Ambient temperature : 25 °C 77 °F



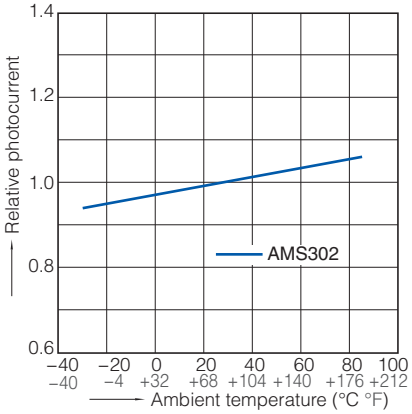
3. Dark current vs. ambient temperature characteristics
Reverse voltage : 5 V.DC



4. Photocurrent vs. brightness characteristics
Light source : Fluorescent lamp
Reverse voltage : 5 V.DC
Ambient temperature : 25 °C 77 °F



5. Relative photocurrent vs. ambient temperature characteristics
Light source : Fluorescent lamp, Brightness : 100 lx
Reverse voltage : 5 V.DC



5. Relative photocurrent vs. reverse voltage characteristics
Light source : Fluorescent lamp, Brightness : 100 lx
Ambient temperature : 25 °C 77 °F