

Photo IC type high sensitive light sensor N a P i C a



Through-hole type

Features

- Built-in optical filter : visibility characteristics close to human visibility
- Linear 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 μ A*	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	-

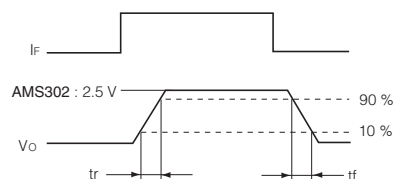
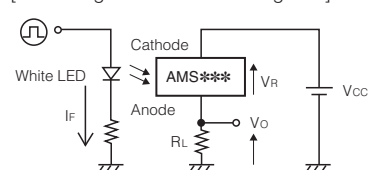
- Electrical and optical characteristics (Measuring condition: ambient temperature: 25 °C 77 °F)

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

Note : *¹ Fluorescent lamp is used as light source. E_v = Brightness

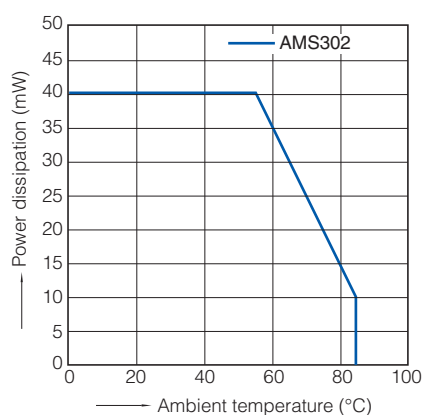
*² CIE standard illuminant 'A' is used as light source.

[Measuring method for switching time]



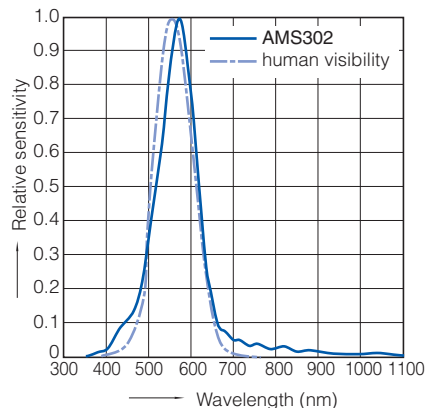
Reference Data

- Power dissipation vs. ambient temperature characteristics



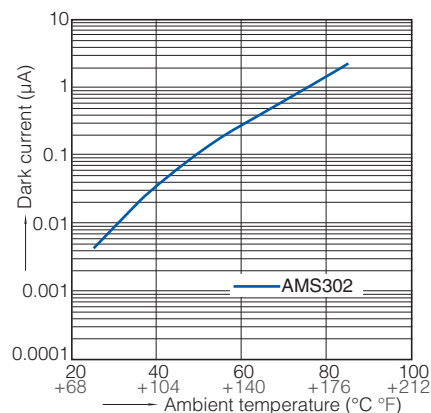
- Relative sensitivity vs. wavelength characteristics

Reverse voltage : 5 V.DC
Ambient temperature : 25 °C 77 °F



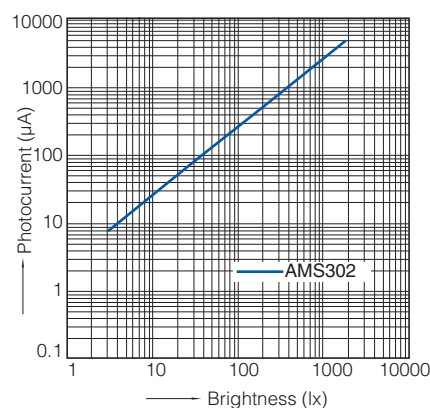
- Dark current vs. ambient temperature characteristics

Reverse voltage : 5 V.DC



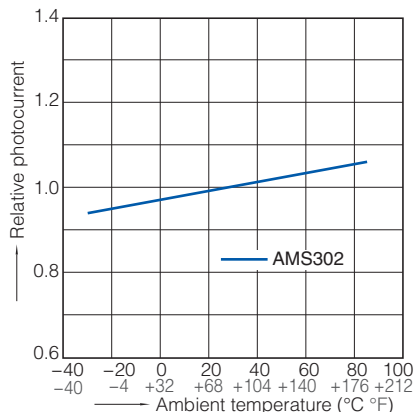
- Photocurrent vs. brightness characteristics

Light source : Fluorescent lamp
Reverse voltage : 5 V.DC
Ambient temperature : 25 °C 77 °F



- Relative photocurrent vs. ambient temperature characteristics

Light source : Fluorescent lamp, Brightness : 100 lx
Reverse voltage : 5 V.DC



- Relative photocurrent vs. reverse voltage characteristics

Light source : Fluorescent lamp, Brightness : 100 lx
Ambient temperature : 25 °C 77 °F

