

Ambient Light Sensor

Description

GT442-ALS-Z2 ambient light sensor plays a key role in power savings strategies by controlling LCD display intensity and keypad backlighting of mobile devices and in commercial on/off-lighting operation.

It is sensitive to visible light much like the human eye and has Peak sensitivity at 520 nm, Is photo -IC daylight sensor with Optical filterless . it has both low drive voltage and output in Proportion to illumination, and it has not sensitivity in a long Wavelength domain.

Molded in clear epoxy , untinted PCB based SMD package.

Features

- High sensitivity, IPCE = 500 μ A (EV = 100 lx)
- Adapted to human eye responsivity
- Lead (Pb)-free component in accordance with RoHS
- Floor life:168h,MSL3,acc.J-STD-020

Applications

Ambient light sensor for control of display backlight dimming in LCD displays and keypad backlighting of mobile devices and in commercial on/off-lighting operation.

- Notebook computers
- PDA's
- Cameras

Naming rules for product type

“GT442-ALS-Z2”

GT442: Product Packaging Form

ALS-Z2: Ambient light sensor with analog output

Absolute Maximum Ratings (Ta=25°C)

Item	Symbol	Ratings	Unit	Remarks
Supply voltage	Vcc	-0.5~10	v	-
Operating temp*1	Topr	-20~+85	°C	-
Storage temp	Tstg	-30~+100	°C	-
Soldering temp	Tsol	260	°C	

Note:*1.Vcc=5V,RL=100Ω**Recommendable operating voltage** (Ta=25°C)

Item	Symbol	Ratings	Unit	Remarks
Supply voltage	Vcc	1.8-6.0	v	-

Electro-optical characteristics (VCC=5V、A light source、Ta=25°C)

Item	Symbol	condition	Min	Typ	Max	Unit
Dark current	Id	E = 0 lx, Vce=5.0v			200	nA
Light current	IL	Ev = 10 lx, A, ※1	40	50	70	μA
Light current	IL	Ev = 1.5 lx, A, ※1	4.5	5.5	8	μA
Peak wavelength	λ_p			520		nm
Spectral sensitivity	λ		400		750	nm
Half angle	$\Delta \theta$			$\pm 65^\circ$		deg

※ 1 The inspection process shall substitute for LED(2856k)

Typical Characteristics

Spectrum sensitivity

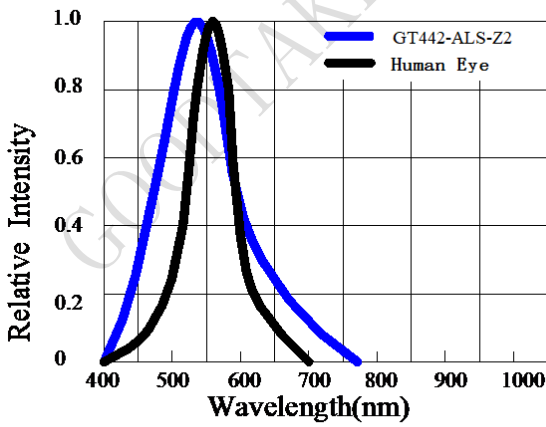
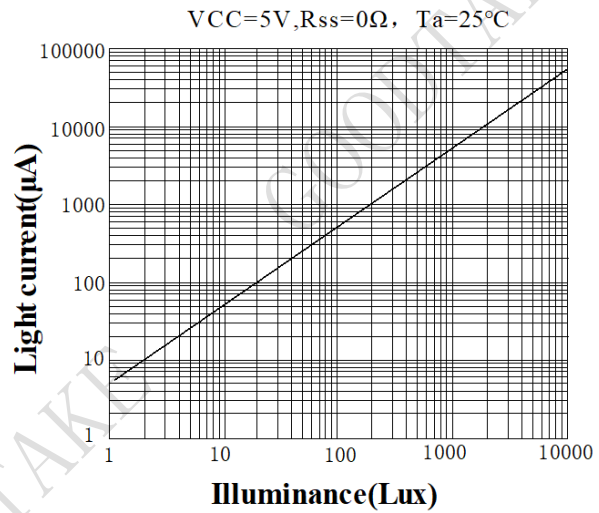
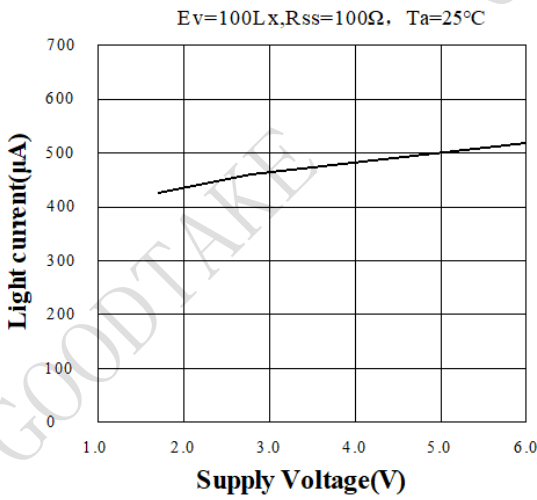


Fig.1 Spectral intensity

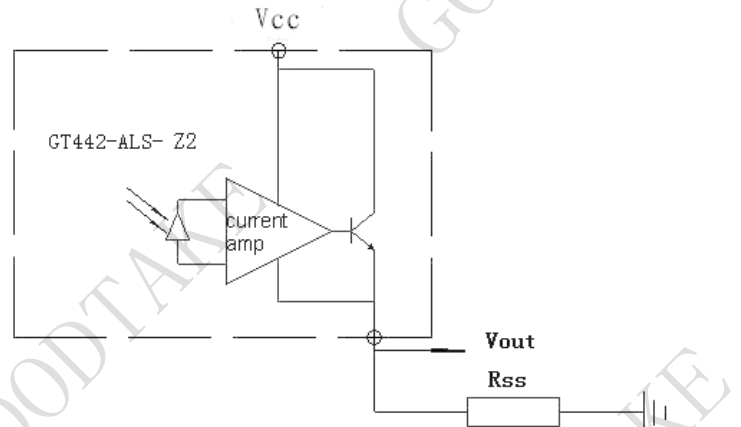
Light current & illuminance



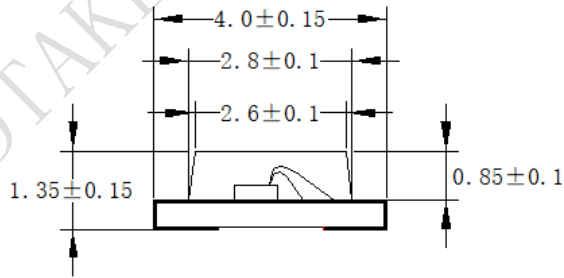
Light current & supply voltage



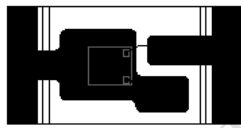
Application circuit



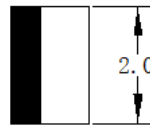
Package Outline



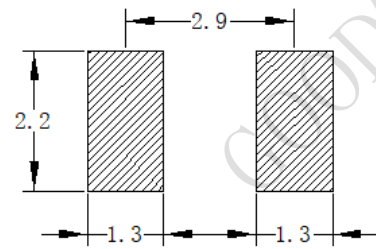
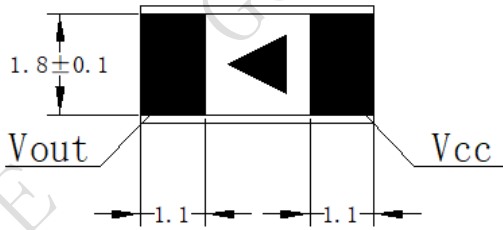
Vout



Vcc



2.0



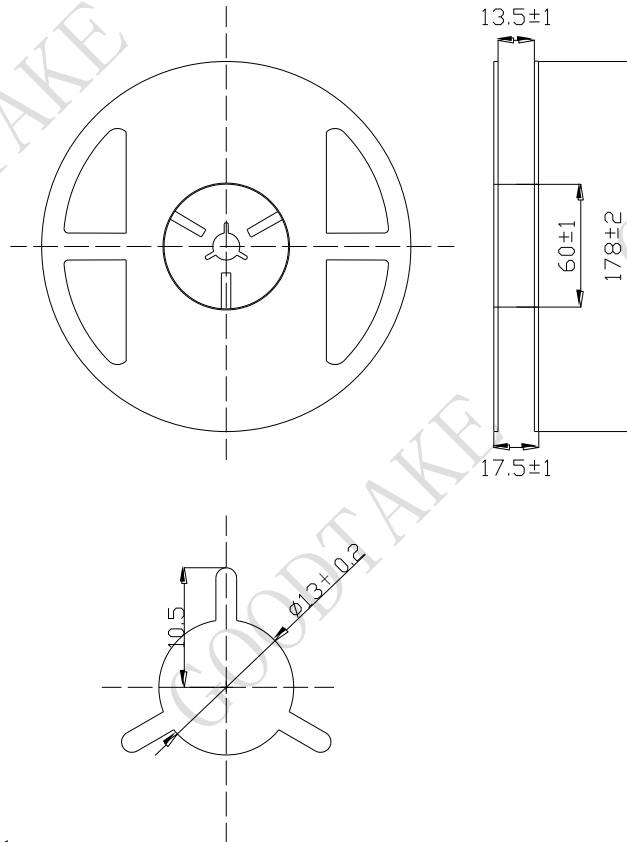
Recommended Solder Pad

NOTE:

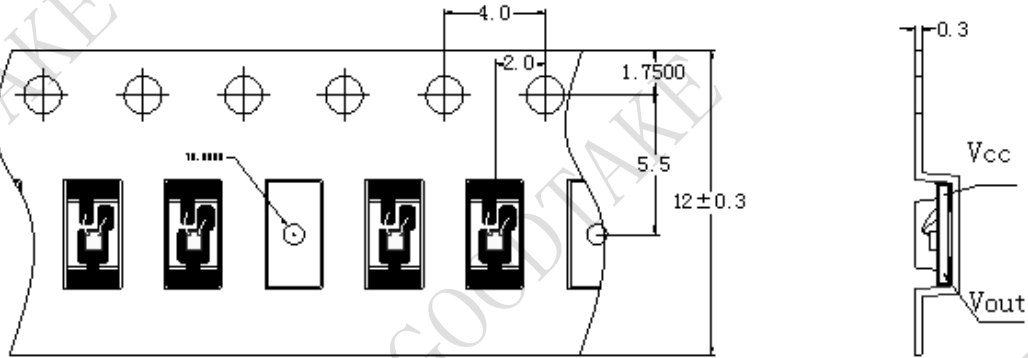
- 1. All dimensions are in millimeters
- 2. Tolerance is ± 0.2 unless otherwise noted

Taping Specifications

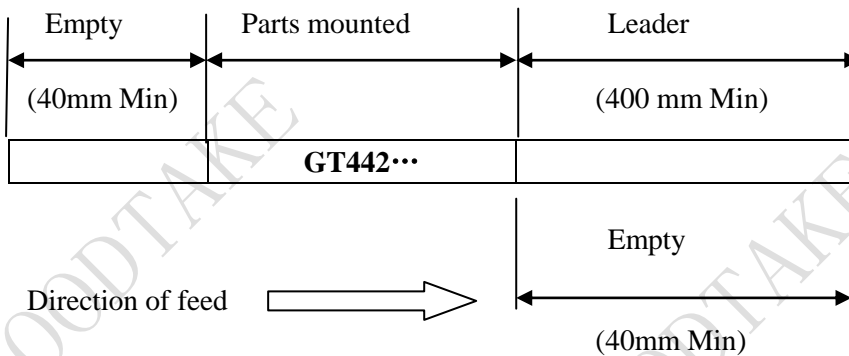
(1) Shape and dimensions of reels: unit in mm



(2) Dimensions of tape

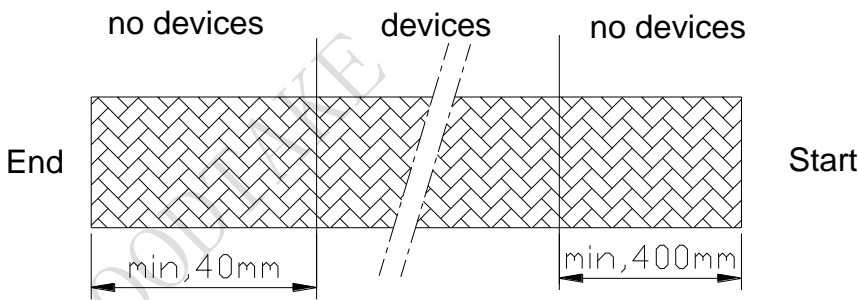


(3) Configuration of tape



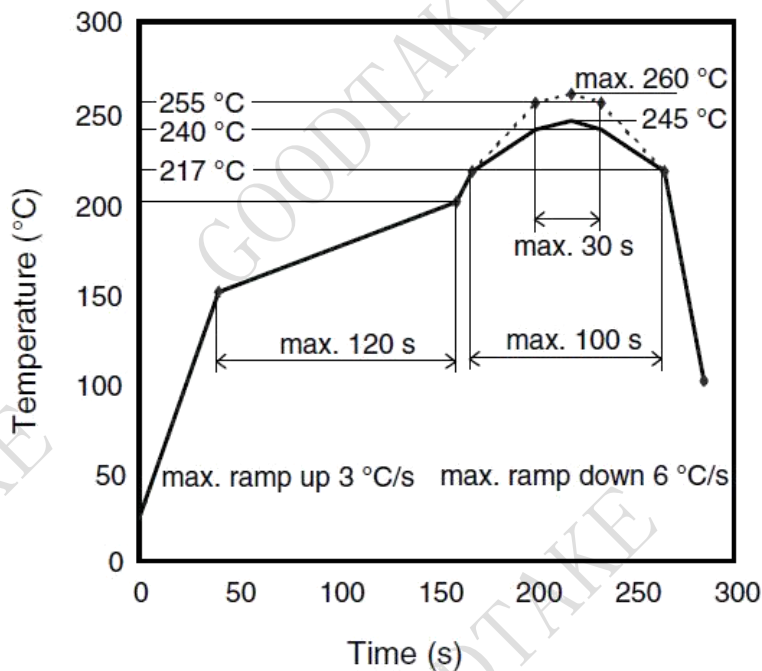
(4) Quantity: 2,000pcs/ reel

Leader And Trailer Dimensions



Soldering Condition

1. Pb-free Soldering Profile



- 2. Reflow soldering should not be done more than two times.
- 3. When soldering, do not put stress on the LEDs during heating.
- 4. After soldering, do not warp the circuit board to avoid mechanical stress.

5. Manual Soldering

Use only temperature-controlled soldering station with 25 watt iron or less, maximum tip temperature always below 350°C. By putting the solder tip so it touches both the PC board pad (applied with solder) and the device’s terminal pin, finish soldering within 3 seconds each time, leave two seconds and more intervals before doing another soldering. Be careful the iron tip should not touch the device package body to avoid damage.

6. Soft Reminder:

Damage to the SMD device always begins with uncontrolled manual soldering.

Antistatic dry packing

Opto devices in SMD package may be sensitive to moisture. Devices are taped & reeled, sealed in antistatic bag with silica gel desiccants.

Do not open the sealed moisture-proof bag before ready to use. If sealing is void, baking treatment may be required.

Storage

Shelf life – Devices should be stored in its original packing, in a controlled environment of temperature less than 40 °C and relative humidity below 90%.

Suggested shelf life is 12 months in its original packing.

Floor life – Time between soldering and removing from moisture barrier bags must not exceed the time indicated in J-STD-020.

Moisture sensitivity: level 3

Floor life: 168h

Conditions: $T_{amb} < 30^{\circ}\text{C}$, $\text{RH} < 60\%$

Drying (Baking Process)

If original packing is voided (such as faded silica gel or exceeded storage time), baking treatment should be performed with the following conditions:- $T_{storage} = 40 + 5^{\circ}\text{C}$, $\text{RH} < 5\%$, time = 192 hours.