



P8-0005

■ Description

The GBD-A1C is a low cost photo transistor, with a current output which is directly proportional to the light level. It is sensitive to visible and near infrared radiation..

The output current can be converted to a voltage by connecting it in series with a resistor. The dynamic range is determined by the external resistor and power supply (10K and 5V gives a range of 0 to over 200 Lux, but it can be over 1000 Lux with a 1K resistor). The internal dark current cancellation enables high accuracy over the full temperature range, even at low light levels.

■ Features

- RoHS compliant and complete CdS replaceable
- High IR rejection
- Current output highly linear V.S. light level
- Near human eye photopic response
- Integrated high gain photo-current amplifier
- Dark-current cancellation
- Temperature stable



■ Applications

- Dawn/dusk sensing
- Surveillance Camera
- Display backlighting in LCD monitors/
mobile phones/laptops
- Street light

■ Product Summary

Usable Light Range	Typ I _{PSS} (uA)	Φ(deg)	λ0.5(nm)
0 ~ 1000 Lux	250 (R _{ss} =10K)	120	300 to 1100

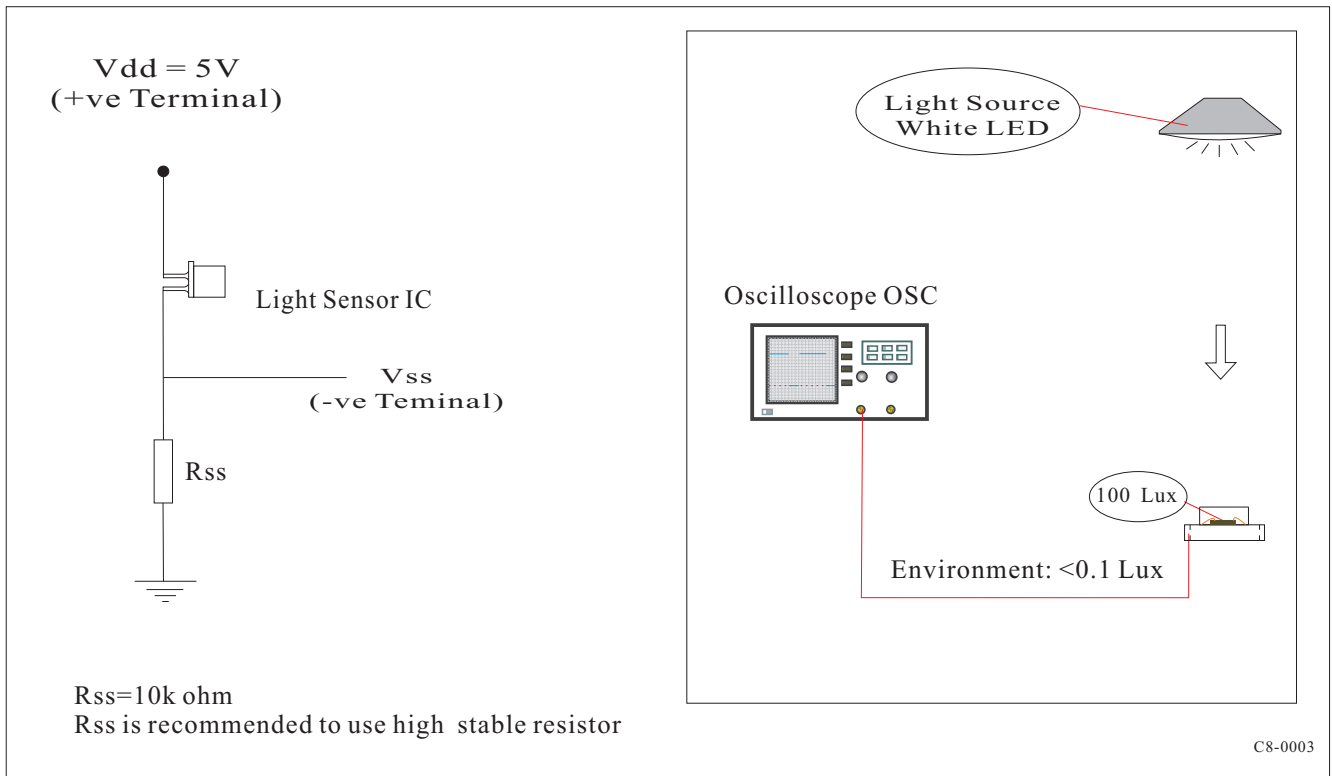
■ Ordering Information

Packaging	Each Bulk	MOQ	Package Form
Bulk	3000 PCS	1000 PCS	5mm (T1 $\frac{3}{4}$)

■ Absolute Maximum Ratings(T_a=25°C)

Parameter	Symbol	Rating	Unit
Supply Input Voltage(V _{dd})		-0.3 to 10	V
Operating Temperature	T _o	-40 to +85	°C
Storage Temperature	T _{stg}	-40 to +100	°C

Test Circuit

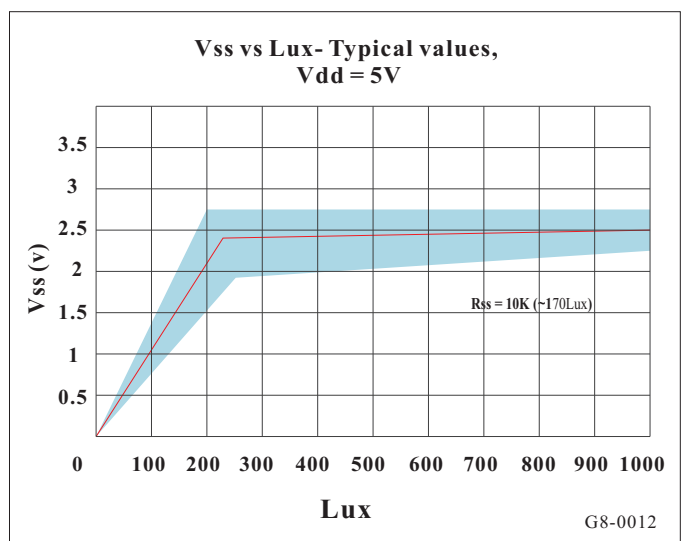
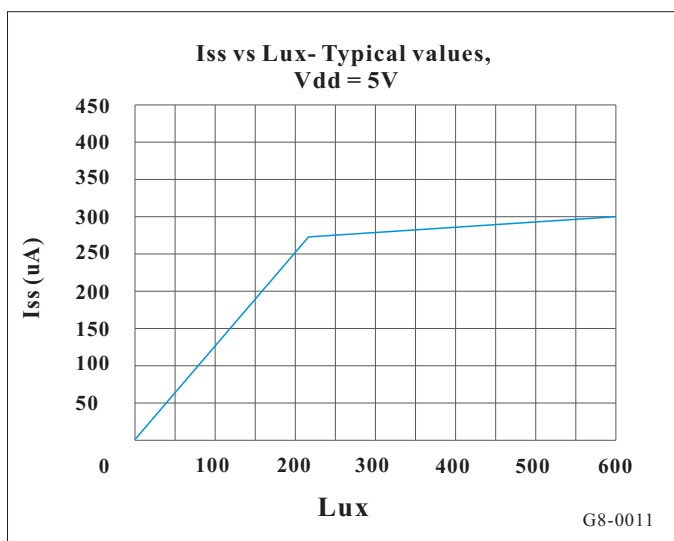
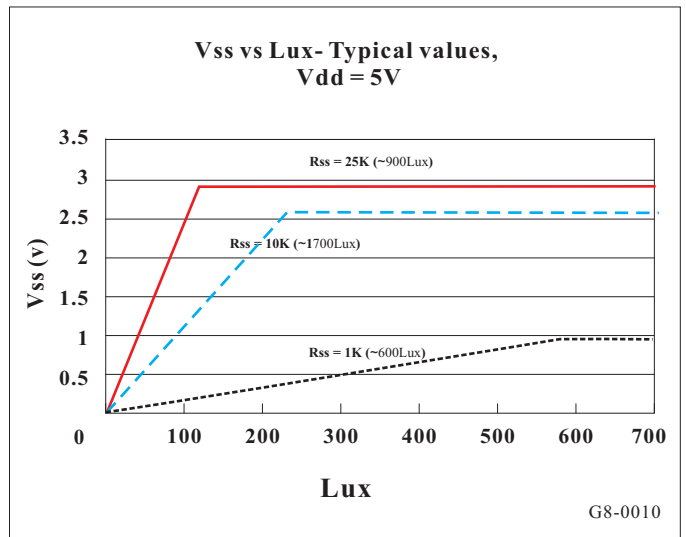
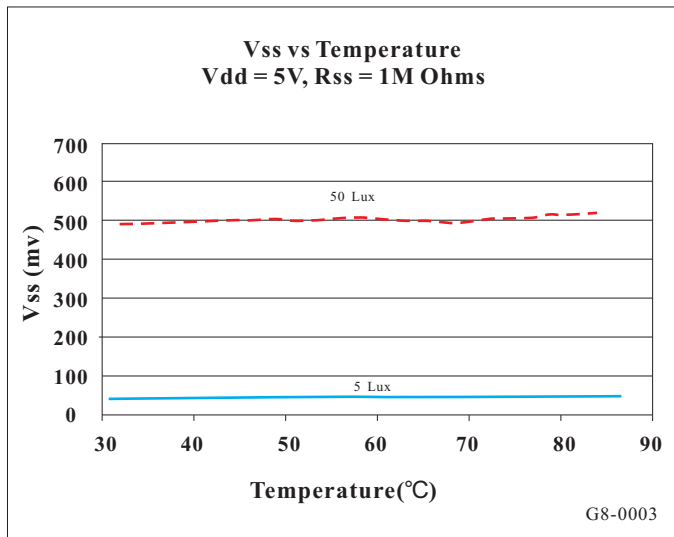
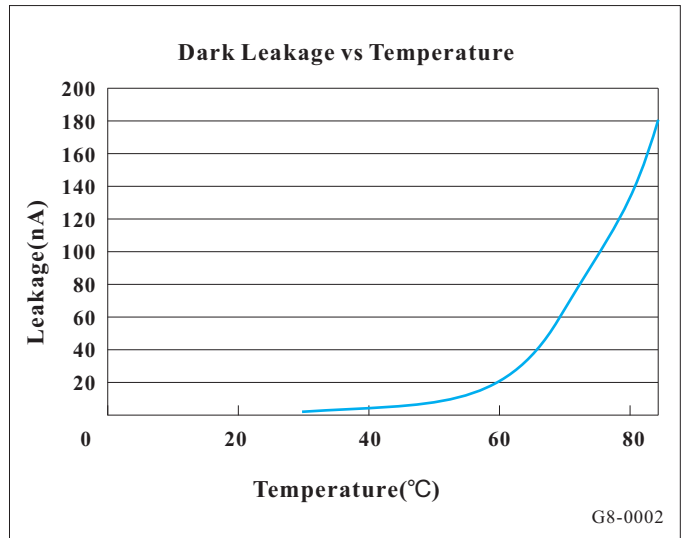
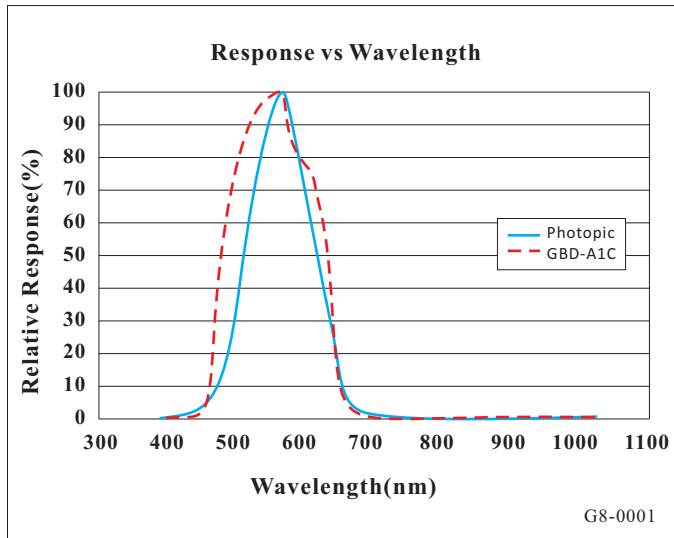


Electrical Specification

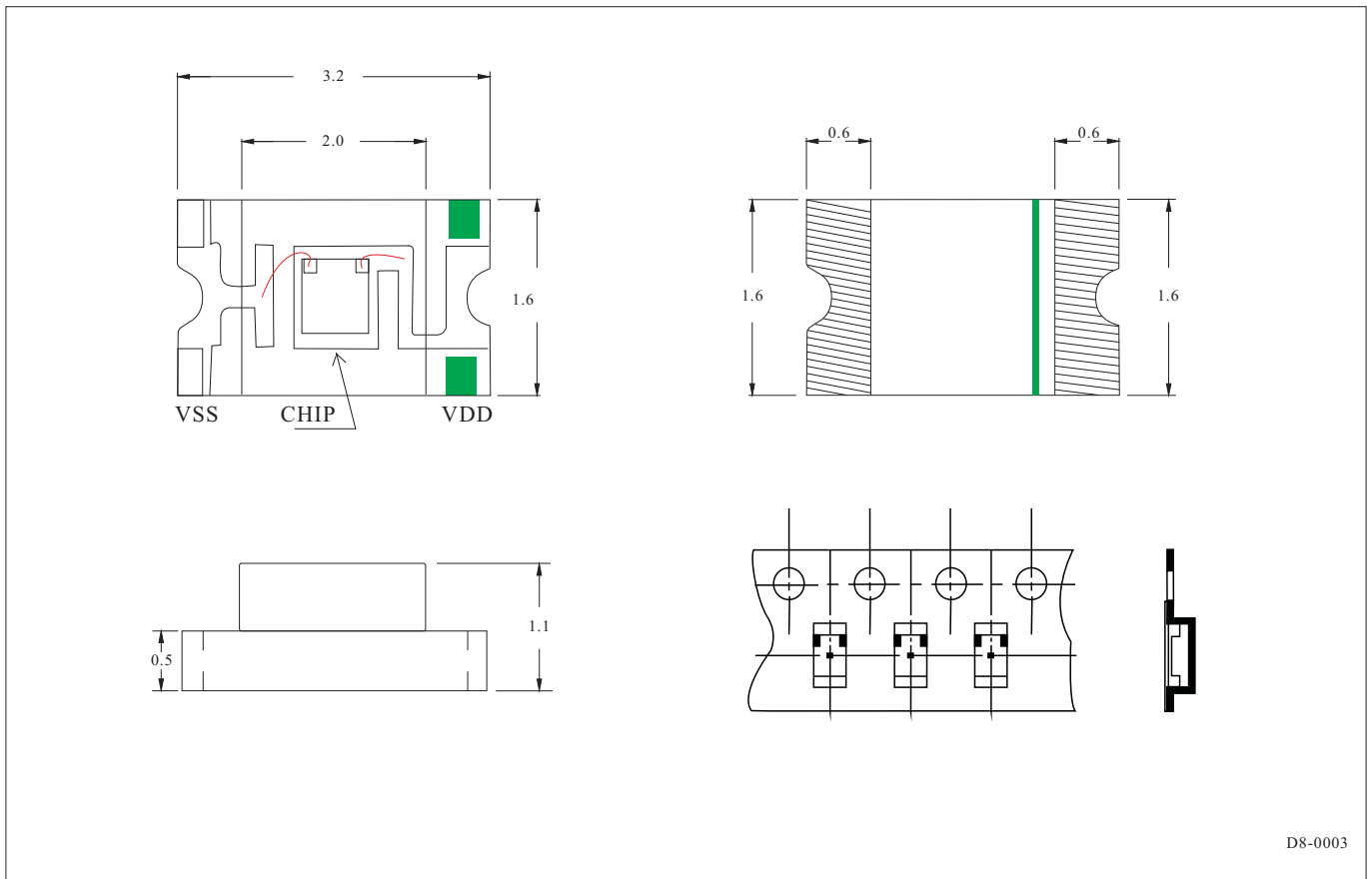
The following parameters apply over the operating temperature -40°C to +85°C, and with Rss=10K Ohms, Vdd=5V, as per C8-0001

Parameter	Symbol	Min	Typ	Max	Units	Test Conditions
Infra Red Response			1	5	% of peak	900 nm
Operational voltage	Vdd-Vss		2.0	2.6	v	I _{ss} = 250 uA
			1.5	2	v	I _{ss} = 100 uA
Light Current (+/-50%)	I _{ss}	125	250	375	uA	200 Lux
		62.5	125	187.5	uA	100 Lux
		6.25	12.5	18.75	uA	10 Lux
Dark Current	I _(dark)		<1	10	nA	0 Lux, Ta = 25°C
			150	200	nA	0 Lux, Ta = 85°C
Gain linearity		-10		10	%	
Peak Spectral Response			520		nm	
Sensitive Area			0.054		mm ²	

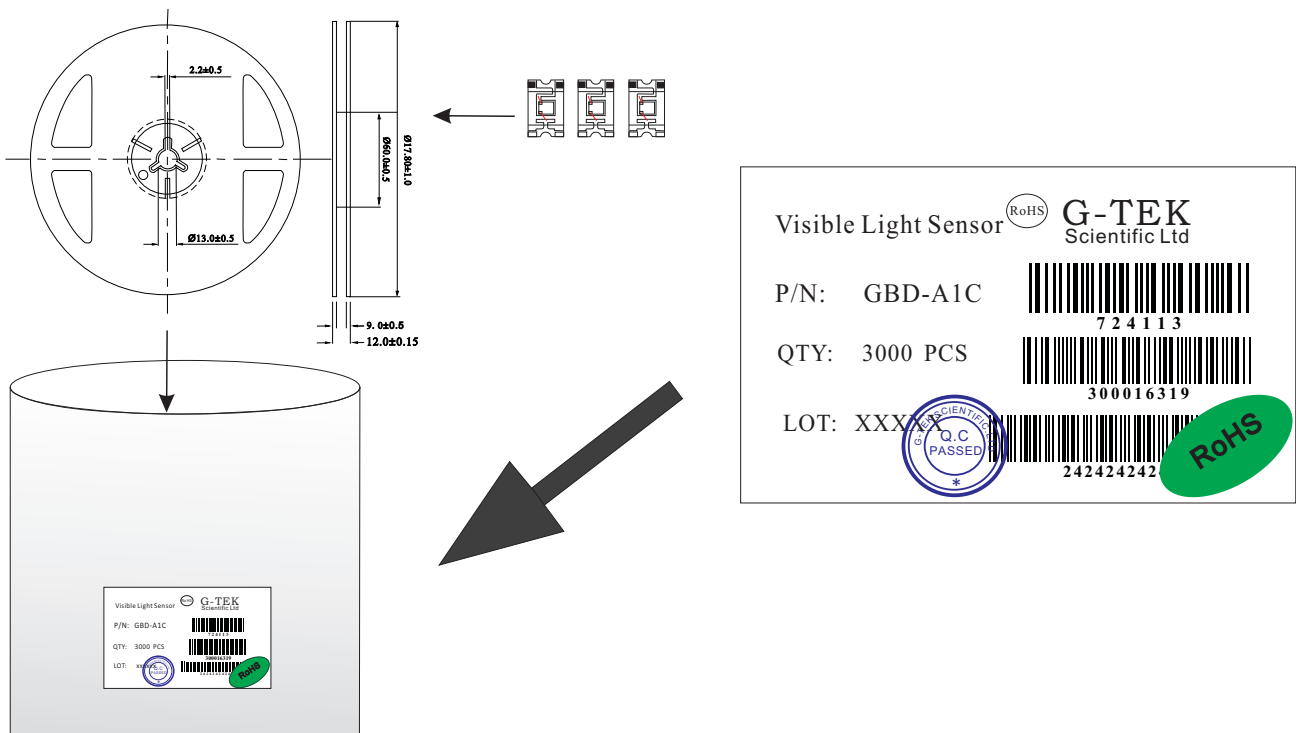
▪ Charts



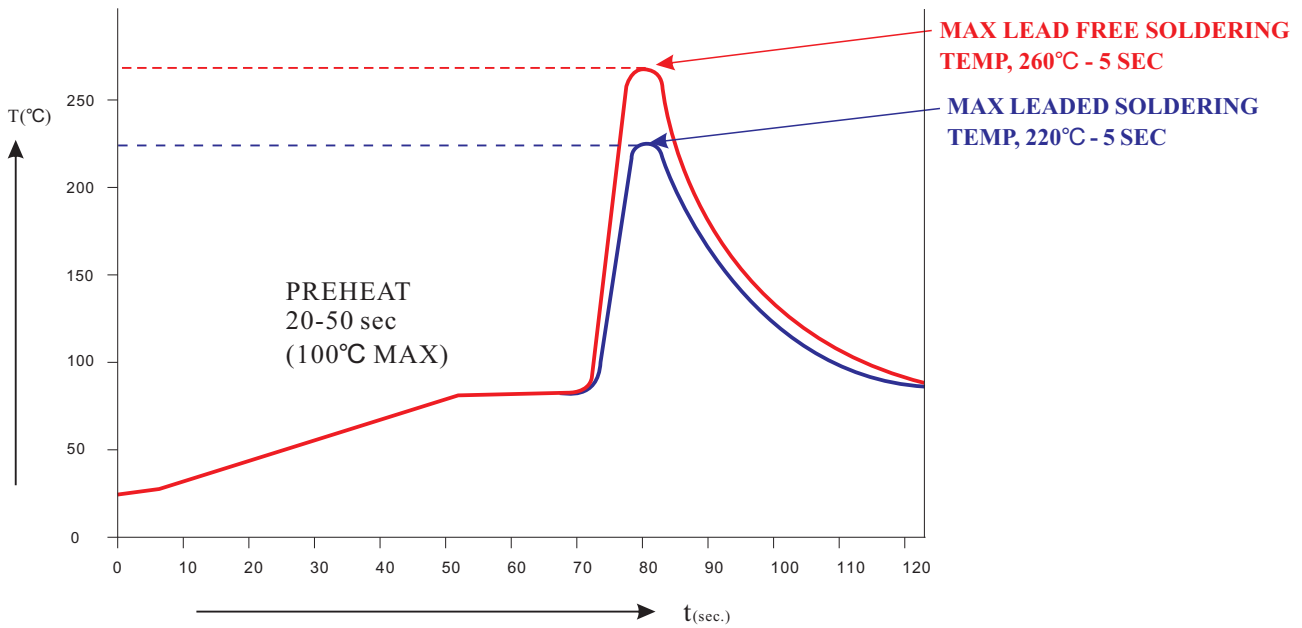
■ Dimensions



■ Packaging and Labeling Plan



■ **Wave Solder Profile**



G8-0007

Recommended Lead Free Wave Soldering Profile	
Preheat Temperature: 100°C Max	Peak Temperature: 260°C Max.
Preheat Time: 20~50 Seconds	Solder Time Above 217°C: 5 Seconds Max.
Note: Turn Off top heater at preheat to prevent the lamp body directly exposed to the heat source.	

■ **Disclaimer**

ALL PRODUCT, PRODUCT SPECIFICATIONS AND DATA ARE SUBJECT TO CHANGE WITHOUT NOTICE TO IMPROVE RELIABILITY, FUNCTION OR DESIGN OR OTHERWISE.

■ **Material Category Policy**

We declare that this part is ROHS 2002/95/EC compliant, based on our understanding of the directive.

This part is manufactured where the banned substances would not be used during processing .

G-Tek Scientific Ltd will perform periodic screening based on the determined risks, and are developing procedures as part of our management system to ensure compliance.