

# LT-GDM-15

## Ground-Detecting Module

### Product Specifications

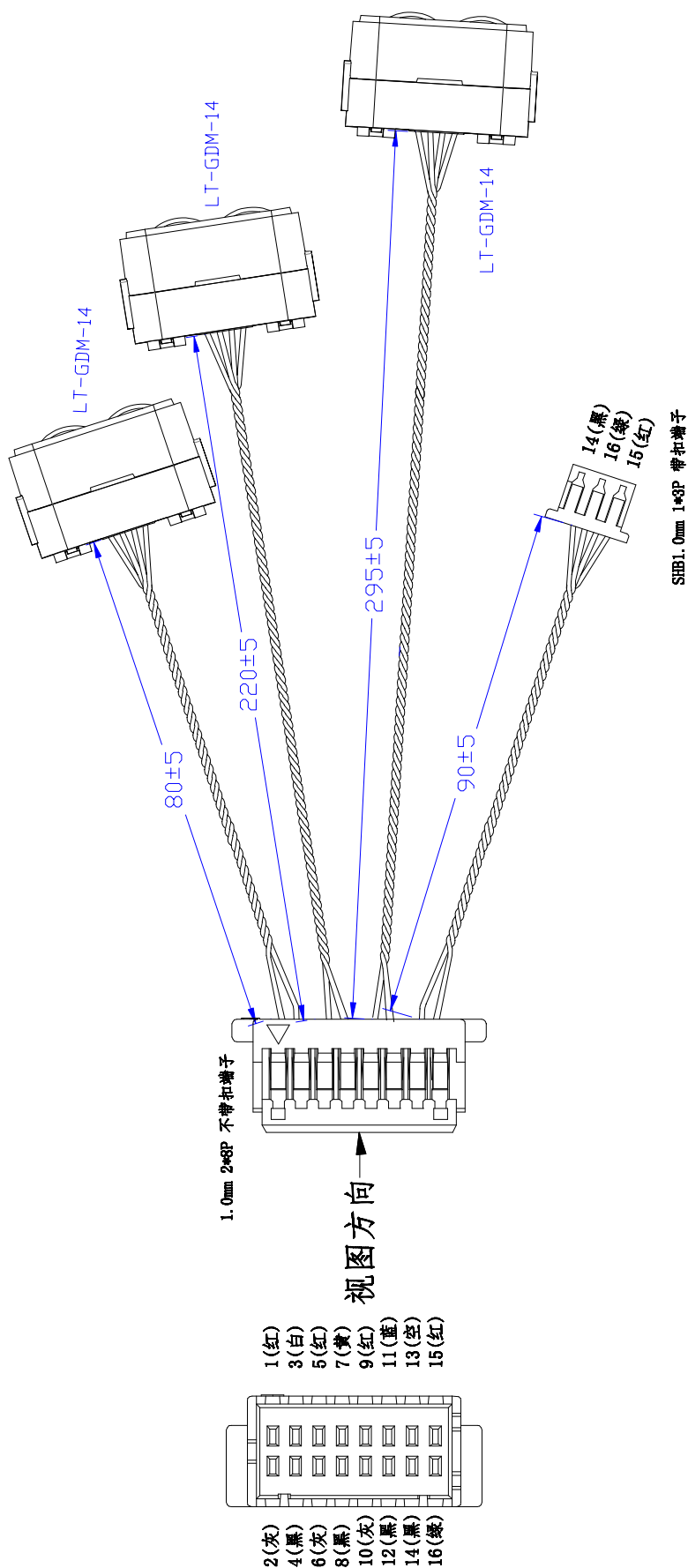
SPEC. NO. : SZ23121202  
DATE : 2023/12/12  
REV. : A/0

Approved By:

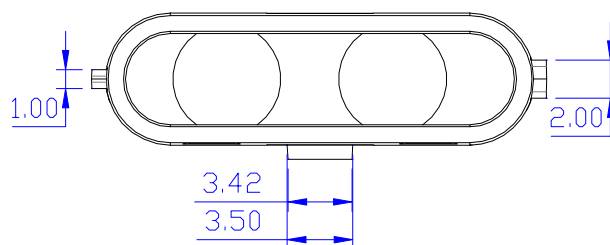
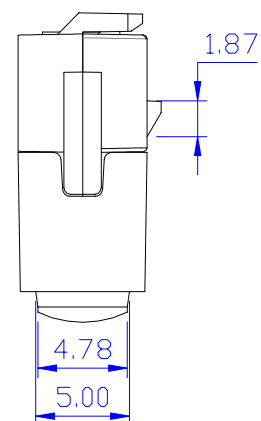
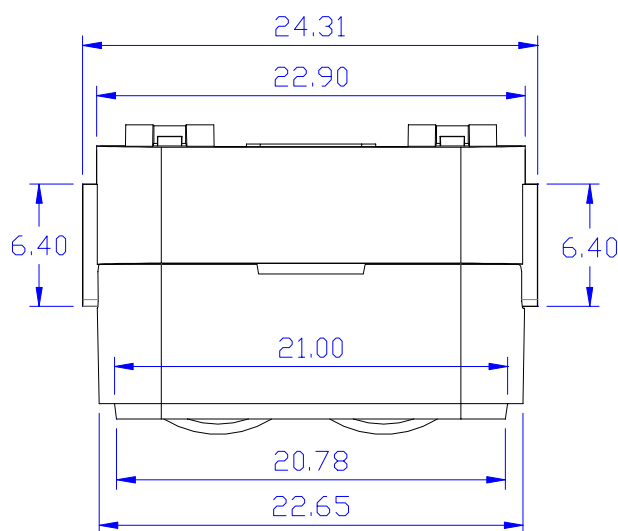
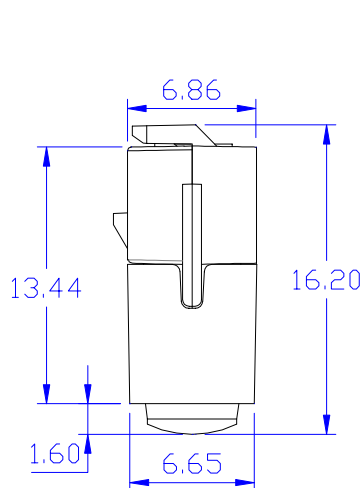
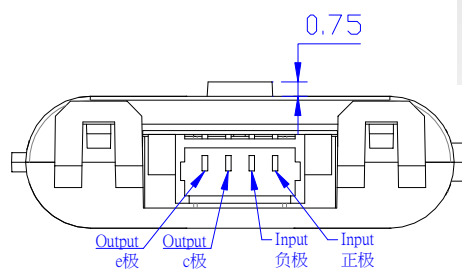
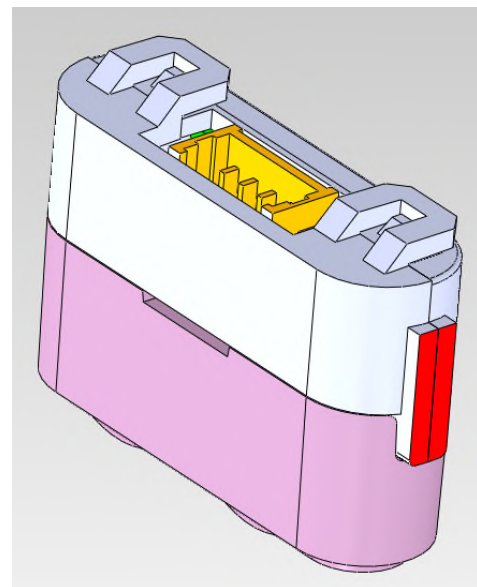
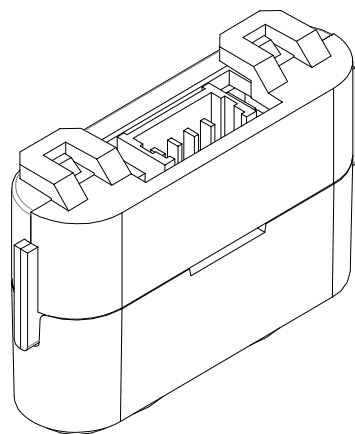
Checked By:

Prepared By:

### Dimensions of Module



### Dimensions of the Single Module



#### Notes:

1. All dimensions are in millimeters.
2. Tolerance is  $\pm 0.50\text{mm}$  unless otherwise noted.
3. The size marked on the drawing is Ground-Detecting Module.
4. Specifications are subject to change without notice.

### Features

- ◆ Pb free product—RoHS compliant
- ◆ Fast response time
- ◆ High sensitivity
- ◆ Invisible wavelength  $\lambda_p=940\text{nm}$
- ◆ Integration structure

### Typical Applications

- ◆ Intelligent Sweeping Robot

### Absolute Maximum Ratings at $T_a=25^\circ\text{C}$

| Parameter                     |                             | Symbol    | Ratings                                    | Unit             |
|-------------------------------|-----------------------------|-----------|--------------------------------------------|------------------|
| Input                         | Power Dissipation           | $P_d$     | 170                                        | mW               |
|                               | Reverse Voltage             | $V_R$     | 5                                          | V                |
|                               | Forward Current             | $I_F$     | 100                                        | mA               |
|                               | Peak Forward Current*1      | $I_{FP}$  | 250                                        | mA               |
| Output                        | Collector Power Dissipation | $P_c$     | 75                                         | mW               |
|                               | Collector Current           | $I_C$     | 20                                         | mA               |
|                               | Collector-Emitter Voltage   | $V_{CEO}$ | 30                                         | V                |
|                               | Emitter-Collector Voltage   | $V_{ECO}$ | 5                                          | V                |
| Electrostatic Discharge (HBM) |                             | ESD       | 4000                                       | V                |
| Operating Temperature Range   |                             | $T_{opr}$ | $-25^\circ\text{C}$ to $+65^\circ\text{C}$ | $^\circ\text{C}$ |
| Storage Temperature Range     |                             | $T_{stg}$ | $-40^\circ\text{C}$ to $+85^\circ\text{C}$ | $^\circ\text{C}$ |

Note: 1. Pulse width $\leq 0.1\text{msec}$ , duty cycle $\leq 1/10$ .

### Electrical Optical Characteristics at Ta=25℃

| Input           |             |      |      |      |         |                |
|-----------------|-------------|------|------|------|---------|----------------|
| Parameter       | Symbol      | Min. | Typ. | Max. | Unit    | Test Condition |
| Peak Wavelength | $\lambda_p$ | ---  | 940  | ---  | nm      | $I_F=50mA$     |
| Forward Voltage | $V_F$       | ---  | 1.35 | 1.60 | V       | $I_F=50mA$     |
| Reverse Current | $I_R$       | ---  | ---  | 10   | $\mu A$ | $V_R=5V$       |

| Output                               |               |      |      |      |         |                                            |
|--------------------------------------|---------------|------|------|------|---------|--------------------------------------------|
| Parameter                            | Symbol        | Min. | Typ. | Max. | Unit    | Test Condition                             |
| Collector-Emitter Breakdown Voltage  | $BV_{CEO}$    | 30   | ---  | ---  | V       | $I_C=0.1mA$<br>$E_e=0mW/cm^2$              |
| Emitter-Collector Breakdown Voltage  | $BV_{ECO}$    | 5    | ---  | ---  | V       | $I_E=0.1mA$<br>$E_e=0mW/cm^2$              |
| Collector-Emitter Saturation Voltage | $V_{CE(SAT)}$ | ---  | ---  | 0.4  | V       | $I_C=2mA$<br>$E_e=1.0mW/cm^2$              |
| Rise Time                            | $T_r$         | ---  | 15   | ---  | $\mu s$ | $V_{CC}=5V$<br>$R_L=1K\Omega$<br>$I_C=1mA$ |
| Fall Time                            | $T_f$         | ---  | 15   | ---  | $\mu s$ |                                            |
| Collector Dark Current               | $I_{CEO}$     | ---  | ---  | 100  | nA      | $V_{CE}=10V$<br>$E_e=0mW/cm^2$             |
| On State Collector Current           | $I_{C(ON)}$   | 1.0  | 5.0  | ---  | mA      | $V_{CE}=5V$<br>$I_F=20mA$                  |

### ADC value standard (Standard machine provided by customer)

- 1、The distance from the Ground-Detecting Module to the black carpet is 31.0mm;
- 2、The distance from the Ground-Detecting Module to the white interface is 101.0mm;
- 3、The black ADC value ranges: 40-200;
- 4、The white ADC value ranges: 5-25.

PACKAGE

LIGHT

深圳莱特光电股份有限公司

Light Electronics CO., LTD.

RoHS

TYPE NO. : \_\_\_\_\_

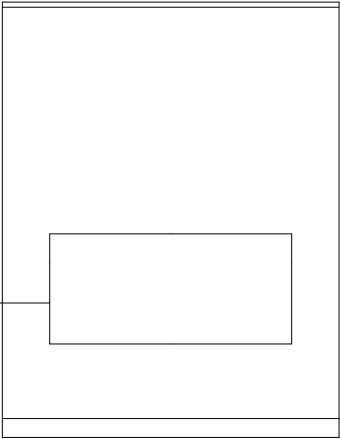
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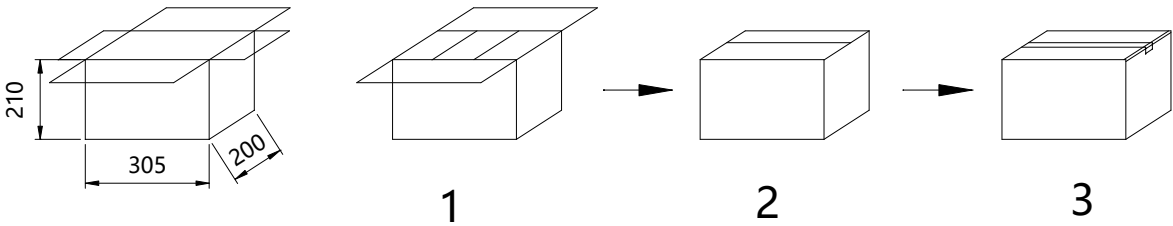
DATE CODE: \_\_\_\_\_

REMARKS: \_\_\_\_\_

LOT NO. : \_\_\_\_\_



Bag



| Bag volume<br>(pcs / Bag) | Outer Carton volume<br>(Bags / Carton) |
|---------------------------|----------------------------------------|
| TBD                       | TBD                                    |