## ALTERNATION HISTORY RECORDS变更记录

| **Date** 日期 | Version 版本 | **Mark** 标记 | **Page** 页码 | **Description** 描述 | **Drafter** 制定者 | Approver 审批者 |
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# 1. Features

The Gas Discharge Tube (GDT) is a protective device which is filled with certain proportion of noble gas, or mixed gas or other discharge media in the space between metal electrodes and metalized ceramics, and then sealed at high temperature to form a single gap or multi-gap switch type protective device. When the protected circuit or equipment suffers to surge, GDT will change from high impedance state to low impedance state and release the surge energy to reduce the residual voltage of the circuit, and then protect the equipment or human body from the hazard of transient over voltage.

Fast Response
Stable Performance Over Surface Life
High Current Rating
Low Capacitance
High Insulation Resistance
RoHS & REACH Compliant

# 2. Part Number System

AL 4532 -1200 TR

- AL — LOGO(2.1)
- 4532 — Series (2.2)
- 1200 — DC(2.3)
- TR — Tape & Reel (2.4)

2.1 LOGO Name：

| Code | AL |
|---|---|
| LOGO | Aillen |

2.2 Size:

| Code | 4532 |
|---|---|
| Size | 4.5*3.2 |

2.3 DC Breakdown Voltage:

| Code | 230 | 1200 | 3600 |
|---|---|---|---|
| Voltage(VDC) | **230**±20% | 1200±20% | 3600±20% |

2.4 Package

| Code | TR |
|---|---|
| Package | Tape & Reel |

## *3.* Product Information

3.1 Product Structure :

the vacuum component is filled with the fit Noble or mixed gas between the metal electrode and the metallized ceramic and welding them together by the high temperature and whether subjoin the wire and connection shape according to customer's requirement.

3.2 Main Material :

Electrode, Ceramic, Brazing material, Lead foot(SMD No Lead foot)

3.2Appearance:

Without dirt and crack, marking should be clear

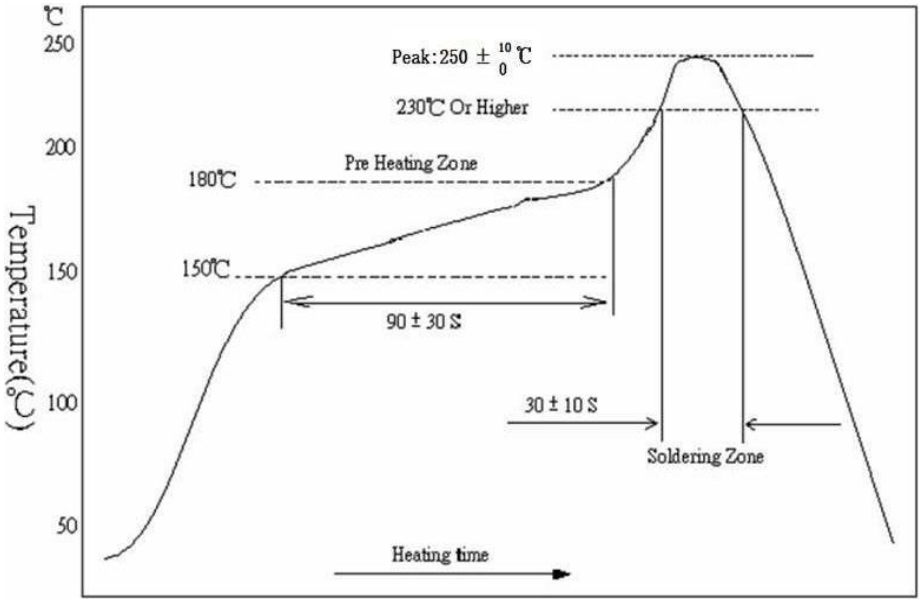
3.3 Plating :

Electrode：☑Plating Tin; □Plating nickel； Lead foot：☑Plating Tin;

3.4 Marking:

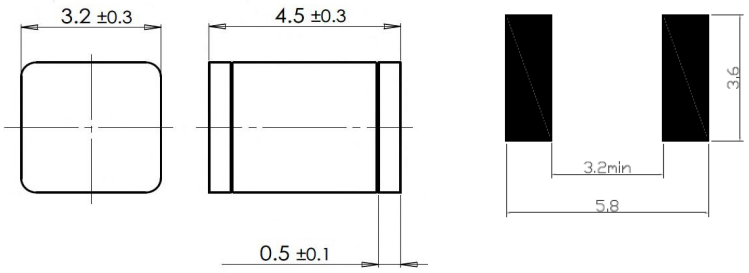
Blue

3.5 Reflow Profile

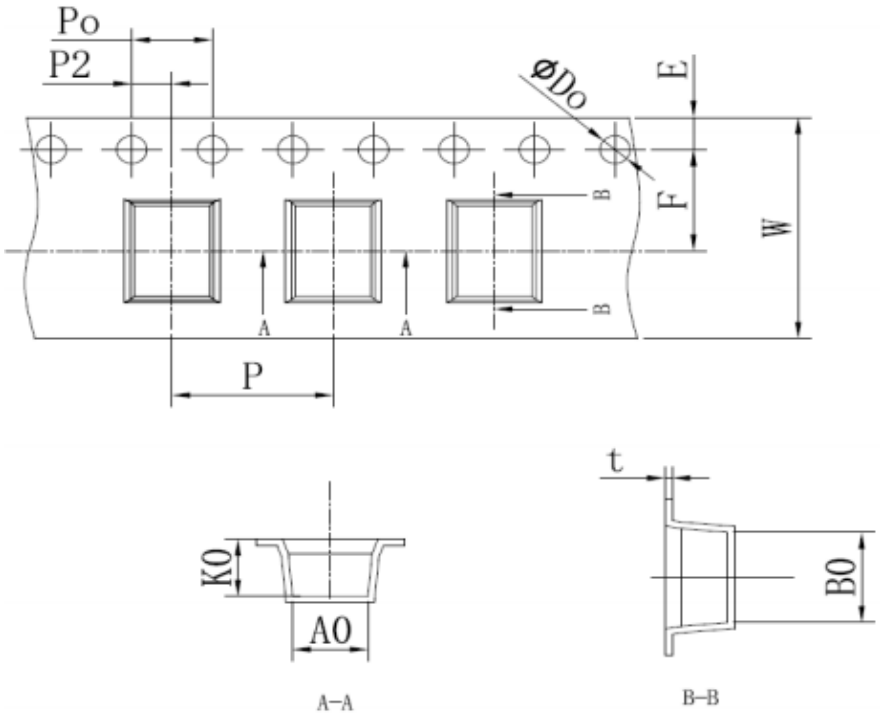


## 3.6 Dimensions

Unit: mm




## 3. 7 Packing




| Item | A0 | B0 | K0 | P | W | E |
|---|---|---|---|---|---|---|
| **Dimensions/mm** | **3.7±0.1** | **4.9±0.1** | **3.5±0.1** | **8.0±0.1** | **12.0±0.3** | **1.75±0.1** |
| **Item** | F | D0 | P0 | P2 | t | |
| **Dimensions/mm** | **5.5±0.1** | **1.5+0.1/-0** | **4.0±0.1** | **2.0±0.1** | **0.4±0.05** | |

## 4 Specifications( accordance with ITU-T Rec. K.12 and IEC 61643-311.)

| Model Name | DC Breakdown Voltage (V) 100~2000V/S | Maximum Impulse Breakdown Voltage (V) 1000V/μs | Impulse Discharge Current 8/20μs (KA) | |
|---|---|---|---|---|
| | | | 1time | 20time |
| 4532-1200 | 1200±20% | 1800 | 4 | 3 |

| Model Name | Alternating Discharge Current (A) 50Hz 1Sec 10times | Impulse Life (times) 8/20μs 100A | Minimum Insulation Resistance （GΩ） Note 1 | Maximum Capacitance （pf） 1MHz |
|---|---|---|---|---|
| 4532-1200DLF | 3 | 300 | 1 | 0.5 |

Note 1: Insulation resistance test condition：

| DC Breakdown Voltage | ≤150V | 151~400V | 401~1000V | 1001~2000V | ≥2001V |
|---|---|---|---|---|---|
| DC Measuring Voltage | 50V | 100V | 250V | 500V | 1000V |

Note 2： At delivery AQL 0.65 Level II,IN ISO 2859.

## 5 Glossary （IEC 61643-311;GB/T18802.311）

### 5.1 Gas Discharge Tube

A gap, or several gaps, in an enclosed discharge medium, other than air at atmospheric pressure, designed to protect apparatus or personnel, or both, from high transient voltages.

### 5.2 DC Breakdown（Spark-over） Voltage(Vs)

The GDT shall be placed for at least 15min when no voltage is applied, the test shall be conducted at a voltage rise rate of 100v/s~2000v/s under this circumstances.

### 5.3 Maximum Impulse Breakdown Voltage (Vsi)

The maximum voltage rise rate of the measured terminal measured by GDT is 100V/μs, 1000V/μs, or 5000V/μs.

**5.4 Maximum Impulse Discharge Current**

GDT can withstand 1 time, More than once or positive and negative each N times of the maximum impact current value (current waveform 8/20μS or 10/350μS), More than once or N times of impact each interval of 3 minutes.

**5.5 Impulse Withstanding Voltage Capacity**

At the rated maximum discharge current (open circuit voltage waveform 10x700μs), the GDT shall be able to withstand plus or minus 5 times each at an interval of 3 minutes

**5.6 Nominal Discharge Current**

Apply rated RMS of ac current of 50Hz*1 second multiply 10 times (each interval is 3 minutes) or Single 9cycles to the product.

**5.6 Follow On Current**

An alternating current is applied to the standard test circuit (power frequency current is limited by resistance), and a shock current is applied to the GDT product so that it is on, while the current flowing through the GDT product is provided by the connected AC power supply.

**5.7 Breakdown time**

A voltage source with a fixed voltage gradient (1000V/uS or 5000V/uS) is applied to both ends of the GDT to measure the response time (there is a delay time between the moment when the transient overvoltage starts acting on both ends of the discharge tube and the actual discharge time of the product)

**5.8 Maximum continuous operating voltage**

Maximum continuous AC/DC voltage that can be applied when the product is in normal operation.

**5.9 Impulse Life**

The GDT can withstand rated times of current shock (current waveform: 8/20μs, 10/1000μs or 5/320μs),The interval of each shock is 3 minutes.

**5.10 DC Holdover Voltage**

Under the specified circuit conditions, GDT after a shock discharge, it from the conduction and restore to the high impedance state of the applied DC voltage (DC test voltage is divided into 52V/80V and 135V three grades).

**5.11 Minimum Insulation Resistance**

A rated voltage is applied between the two endpoints of the GDT to measure the resistance.

**5.12 Maximum Capacitance**

Measure the capacitance between the two ends of the GDT using a test frequency of 1MHz and a test voltage of 0.5V.

**5.13 Arc Voltage**

The voltage measured across the tube while in lowest impedance state or arc mode.

**5.14 Glow Voltage**

The peak value of the voltage drop across the GDT when a glow-current is flowing.

**5.15 AC/DC withstand Voltage**

By applying a certain voltage (AC/DC) to the product through high voltage equipment test, to ensure that the product is not broken down.

## 6 Technical Term or Test methods

**6.1 Storage onditions（-40℃~105℃）**

Storage conditions without voltage applied

Please store products in the environments of dry,ventilation and no-corrosion,period One year.

**6.2 Operational temperature（-40℃~105℃）**

Gas discharge tubes shall be capable of withstanding during operational conditions without damage

**6.3 Test methods:**

Unless otherwise specified, all tests are made under environmental conditions as given below, Temperature:15~35℃,Relative humidity:25~80%RH.

## 7 Warning

**7.1** Do not operate gas discharge tube in power supply networks, whose maximum operation voltage exceeds the minimum spark-overvoltage of the gas discharge tube.

**7.2** Gas discharge tube may become hot in the event of longer periods of current stress (burn risk).In the event of overload the connectors may fail or the component may be destroyed.

**7.3** If the contacts of the surge arresters are defective, current load can cause sparks and loud noises.

**7.4** Gas discharge tube must be handled with care and must not be dropped

**7.5** Do not continue to use damaged gas discharge tube.

## 8 Validity

**8.1** If the content of these specifications is inadequate or need revising, it will be revised after both parties' agreement.

**8.2** The specifications can be used temporarily during the period of approval. If you have no any objection or not return one hardcopy to us within one month, these specifications will be operated as a valid document. If any change, we will inform you.