# BV-S605U5A

Order Code: BV-S605U5A

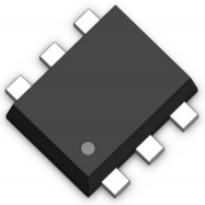
**Transient Voltage Suppressor**

Version: A0 2022-02-24

## Features

- IEC 61000-4-2(ESD)±20KV(air), ±20KV(contact)
- IEC 61000-4-4 (EFT) 40A (5/50nS)
- IEC61000-4-5(Lightning MAX) 4A (8/20μS)
- 60Watts max peak pulse power
- Small package: SOT563
- Moisture sensitivity level: Level 1

## Exterior

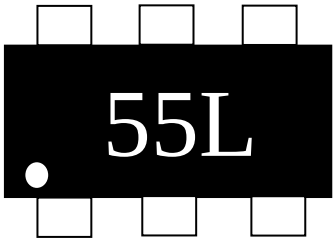


SOT563

## Application Information

- USB
- HDMI
- DVI
- IEEE 1394
- Monitors and Flat Panel Displays
- Notebooks

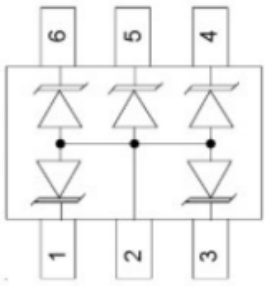
## Package (top view)




## Agency Approvals

| Icon | Description |
|---|---|
| RoHS | Compliance with 2011/65/EU |
| HF | Compliance withIEC61249-2-21:2003 |

## Schematic Symbol




## Part Number and Electrical Parameter

| Part Number | $I_{DRM}$@$V_{DRM}$ | | $V_{BR}$①@$I_R$ | | Vc@Ipp ② | | Vc@Ipp ② | | $R_{DYN}$@ TLP③ | $V_C$@Ipp TLP③ | | $C_O$④ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | μA | V | V | mA | V | A | V | A | Ω | V | A | pF |
| | MAX | | MIN | | MAX | | MAX | | TYP | TYP | | MAX |
| BV-S605U5A | 1 | 5 | 6 | 1 | 10 | 1 | 15 | 4 | 0.8 | 22 | 16 | 1.5 |

Absolute maximum ratings measured at T= 25°C RH = 45%-75% (unless otherwise noted).

① $I_{DRM}$ is measured at $V_{DRM}$ =5V, $V_{BR}$ is measured at $I_R$=1mA，Pin1,3,4,5,6 to Pin2

② Surge Waveform: 8/20μS, Pin1,3,4,5,6 to Pin2

③ TLP parameter: Z0 = 50Ω, $t_p$ = 100ns, $t_r$ = 1ns, $R_{DYN}$ is calculated from 4A to16A

④ Off-state capacitance is measured in $V_{DC}$=0V, $V_{RMS}$=0.3V, f=1MHZ, Pin1,3,4,5,6 to Pin2

## Transient Voltage Suppressor

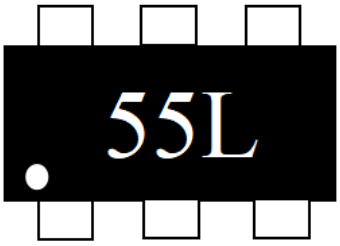
Version: A0 2022-02-24

### Part Numbering System

| BV | S6 | 05 | U | 5 | A |
|---|---|---|---|---|---|
| (1) | (2) | (3) | (4) | (5) | (6) |

(1) Bencent Transient Voltage Suppressor
(2) Package:SOT563
(3) Off-state Voltage: 5V
(4) Low capacitance
(5) 5 Lines protection
(6)Bencent intenal code

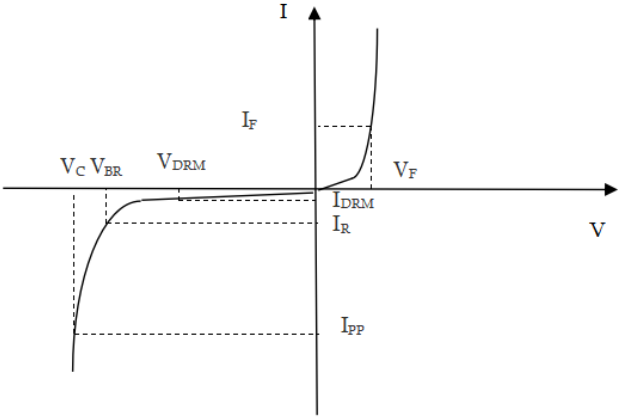
### Mark




55L :Part Number

### V-I Curve

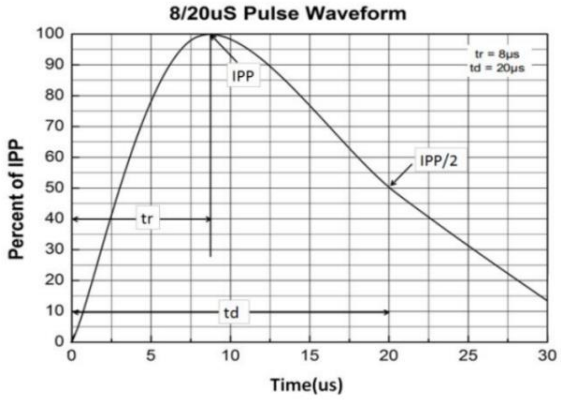
| Parameters | Definition |
|---|---|
| $V_C$ | Clamping Voltage |
| $I_{pp}$ | Surge Waveform 8/20μs |
| $V_{DRM}$ | Stand-off Voltage |
| $V_{BR}$ | Breakdown Voltage |
| $I_{DRM}$ | Reverse Leakage Current |
| $I_R$ | Test Current |
| $V_F$ | Forward On-state Voltage |
| Ppp | Peak Pulse Power Dissipation |

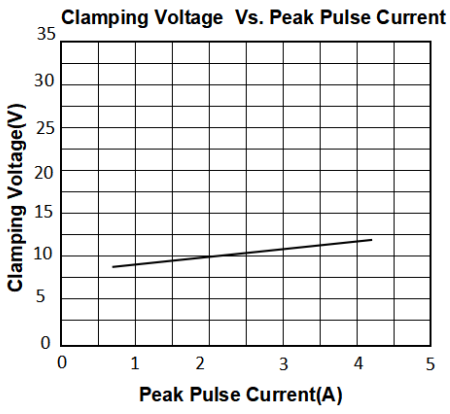



### Thermal Considerations

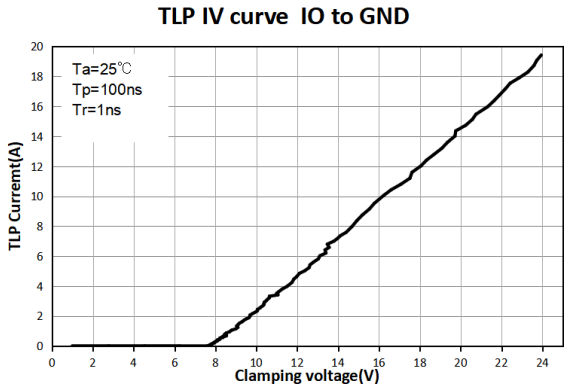
| symbol | Parameter | Value | Unit |
|---|---|---|---|
| $T_J$ | Operating Junction Temperature Range | -55 to+125 | ℃ |
| $T_S$ | Storage Temperature Range | -55 to+150 | ℃ |

### Typical Characteristics



**Transient Voltage Suppressor**

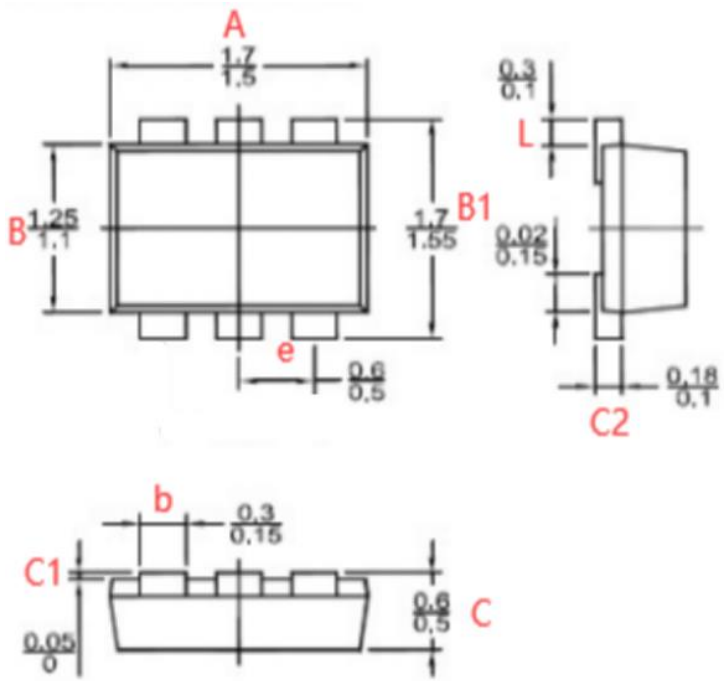



## Environmental Characteristics

| Testing items | Technical standards |
|---|---|
| High Temperature Reverse Bias Test | Temperature: 150±5℃ Bias=80%$V_{DRM}$.<br>Time:168H |
| High Temperature Storage Test | Temperature: 150℃<br>Time:168H |
| High-low Temperature Cycle test | Temperature: From -55℃ to 125℃<br>Dwell time ： 30min,100cycles |
| High Temperature &High Humidity Test | Temperature: 85℃Humidity:85%<br>Time:168H |
| Pressure cooker Test | Temperature: 121℃，2atm. Humidity:100%<br>Time:24H |
| Resistance of soldering heat | Temperature: 260±5℃<br>Time of dip soldering：10s，3times |

Note: The above testing items can be specified by customer's special request

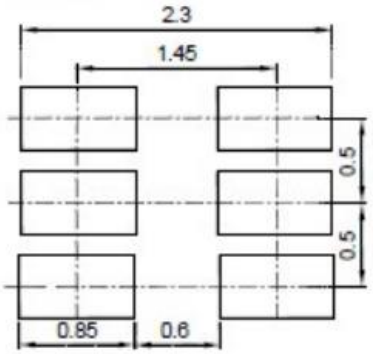
## Product Dimensions




| REF | mm | inch |
|---|---|---|
| A | 1.5-1.7 | 0.059-0.067 |
| B | 1.1-1.25 | 0.043-0.049 |
| B1 | 1.55-1.7 | 0.061-0.067 |
| C | 0.5-0.6 | 0.02-0.024 |
| C1 | 0-0.05 | 0-0.02 |
| C2 | 0.1-0.18 | 0.004-0.007 |
| L | 0.1-0.3 | 0.004-0.012 |
| b | 0.15-0.3 | 0.006-0.012 |
| e | 0.5-0.6 | 0.02-0.024 |

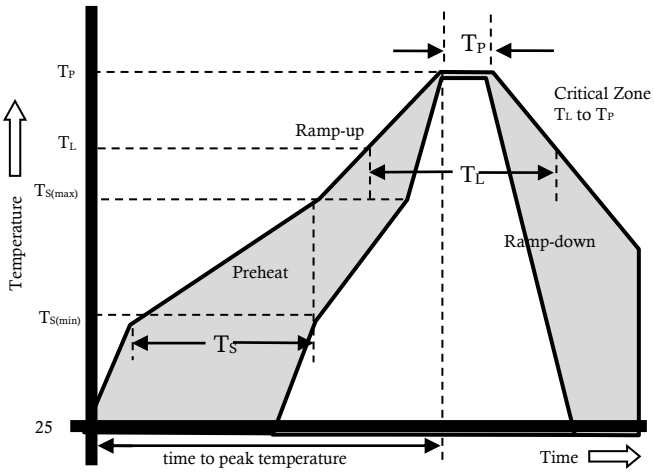
**Transient Voltage Suppressor**

## Recommended Soldering Pad

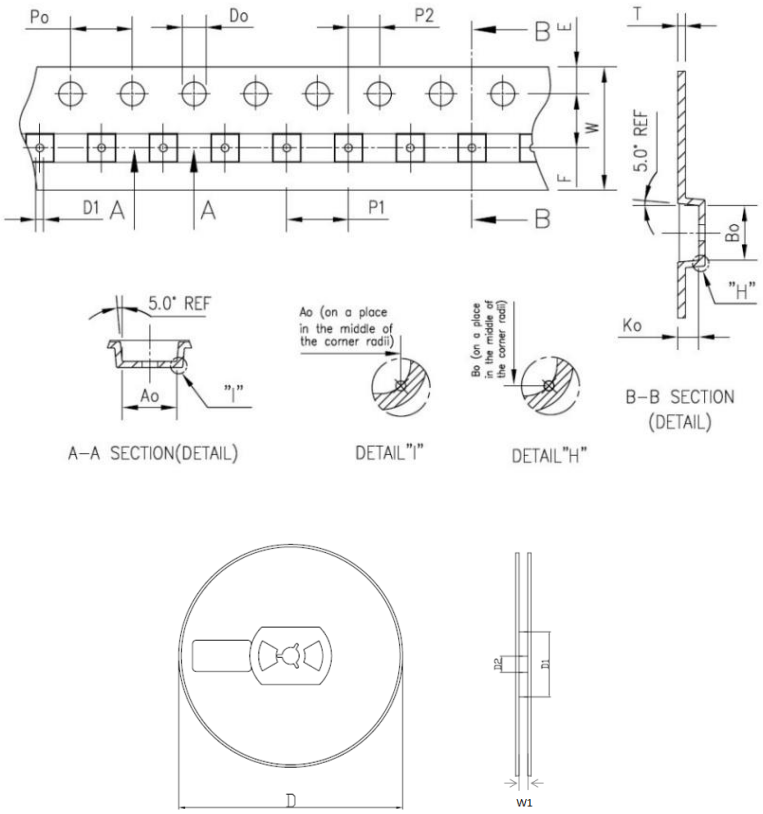



## Reflow Profile

| Reflow Condition | | Pb-Free assembly |
|---|---|---|
| Pre Heat | Temperature Min | 150°C |
| | Temperature Max | 200°C |
| | Time （Min to Max） | 60 – 180 secs |
| Average ramp up rate（Liquid）<br>Tamp（$T_L$） to peal | | 3°C/s Max |
| $T_S$(max) to $T_L$ - Ramp-up Rate | | 3°C/s Max |
| Reflow | - Temperature ($T_L$) (Liquid) | 217°C |
| | - Temperature ($T_L$) | 60 – 150 secs |
| Peak Temperature ($T_P$) | | 260+0/-5 °C |
| Time within 5°C of actual peak Temperature ($T_P$) | | 30secs |
| Ramp-down Rate | | 6°C/s Max |
| Time 25°C to peak Temperature ($T_P$) | | 8 mins Max. |
| Do not exceed | | 260°C |



## Package Reel Information







| REF | mm | inch |
|---|---|---|
| Ao | 1.78±0.05 | 0.070±0.002 |
| Bo | 1.78±0.05 | 0.070±0.002 |
| Ko | 0.69±0.05 | 0.027±0.002 |
| Po | 4.0±0.10 | 0.157±0.004 |
| P1 | 4.0±0.10 | 0.157±0.004 |
| P2 | 2.0±0.05 | 0.079±0.002 |
| T | 0.20±0.02 | 0.008±0.001 |
| E | 1.75±0.10 | 0.069±0.004 |
| F | 3.50±0.05 | 0.138±0.002 |
| Do | 1.50+0.05 | 0.059±0.002 |
| D1 | 0.50±0.05 | 0.020±0.002 |
| W | 8.00±0.30 | 0.315±0.012 |
| D | 178.00+/-2.00 | 7.008±0.079 |
| D1 | 55.00+/-3.00 | 2.165±0.118 |
| D2 | 13.00+/-1.0 | 0.512±0.039 |
| W1 | 9.50+/-1.00 | 0.374±0.039 |

| OUTLINE | REEL (PCS) | PER CARTON (PCS) | REEL DIAMETERS (mm) | CARTON SIZE(mm) | | |
|---|---|---|---|---|---|---|
| | | | | L | W | H |
| TAPING | 3000 | 90,000 | 178 | 380 | 220 | 205 |