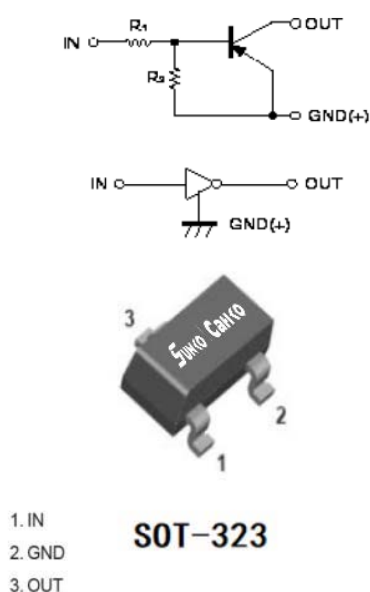


## DTA123YUA

### PNP Digital Transistors (Built-in Resistors)



#### Features

- Moisture sensitivity level 1
- General switching and amplification
- Surface mount package ideally suited for automatic insertion

#### Application

- Signal amplification
- Switching circuit

#### Mechanical data

- **Package:** SOT-323
- **Terminals:** Tin plated leads, solderable per J-STD-002 and JESD22-B102

#### ■ Maximum Ratings ( $T_a=25^\circ\text{C}$ Unless otherwise specified)

| Item                           | Symbol    | Unit             | Conditions | Value       |
|--------------------------------|-----------|------------------|------------|-------------|
| Device marking code            |           |                  |            | 52          |
| Collector-base voltage         | $V_{CC}$  | V                |            | -50         |
| Collector-emitter voltage      | $V_{IN}$  | V                |            | -12 to +5   |
| Collector current              | $I_O$     | mA               |            | -100        |
| Power dissipation              | $P_D$     | mW               |            | 200         |
| Operation junction temperature | $T_J$     | $^\circ\text{C}$ |            | -55 to +150 |
| Storage temperature            | $T_{STG}$ | $^\circ\text{C}$ |            | -55 to +150 |

## DTA123YUA

### ■ Electrical Characteristics (T<sub>a</sub>=25°C Unless otherwise specified)

| Item                 | Symbol                         | Unit | Conditions                                           | Min  | Typ | Max  |
|----------------------|--------------------------------|------|------------------------------------------------------|------|-----|------|
| Input voltage        | V <sub>I(off)</sub>            | V    | V <sub>CC</sub> =-5V, I <sub>c</sub> =-100uA         | -0.3 |     |      |
|                      | V <sub>I(on)</sub>             | V    | V <sub>O</sub> =-0.3V, I <sub>c</sub> =-20mA         |      |     | -3   |
| Output voltage       | V <sub>O(on)</sub>             | V    | I <sub>o</sub> /I <sub>i</sub> =-10mA/-0.5 mA        |      |     | -0.3 |
| Input current        | I <sub>I</sub>                 | mA   | V <sub>I</sub> =-5V                                  |      |     | -3.8 |
| Output current       | I <sub>O(off)</sub>            | uA   | V <sub>CC</sub> =-50V, V <sub>I</sub> =0             |      |     | -0.5 |
| DC current gain      | G <sub>I</sub>                 |      | V <sub>O</sub> =-5V, I <sub>o</sub> =-10mA           | 33   |     |      |
| Input resistance     | R <sub>1</sub>                 | kΩ   |                                                      | 1.54 | 2.2 | 2.86 |
| Resistance ratio     | R <sub>2</sub> /R <sub>1</sub> |      |                                                      | 3.6  | 4.5 | 5.5  |
| Transition frequency | f <sub>T</sub>                 | MHz  | V <sub>O</sub> =-10V, I <sub>o</sub> =-5mA, f=100MHz |      | 250 |      |

### ■ Thermal Characteristics

| Parameter                               | Symbol                           | Unit | Value |
|-----------------------------------------|----------------------------------|------|-------|
| Thermal resistance, junction-to-ambient | R <sub>θJ-A</sub> <sup>(1)</sup> | °C/W | 625   |
| Thermal resistance, junction-to-case    | R <sub>θJ-C</sub> <sup>(1)</sup> | °C/W | 500   |

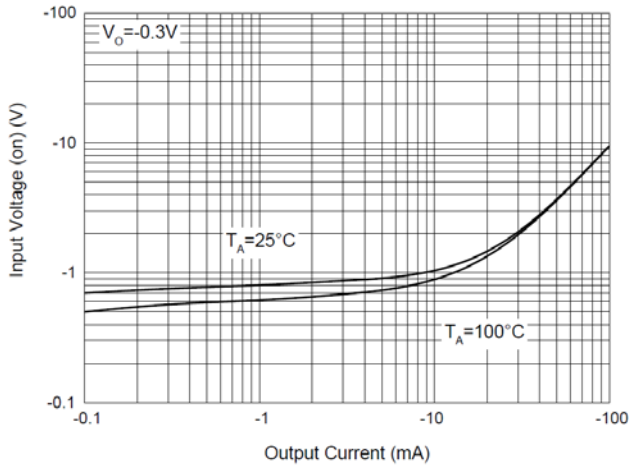
#### Note:

(1) Device mounted on PCB, single-sided copper, with standard footprint

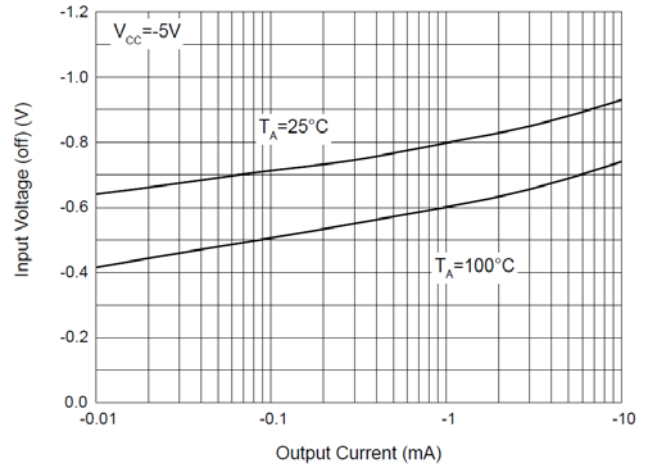
## DTA123YUA

### ■ Characteristics

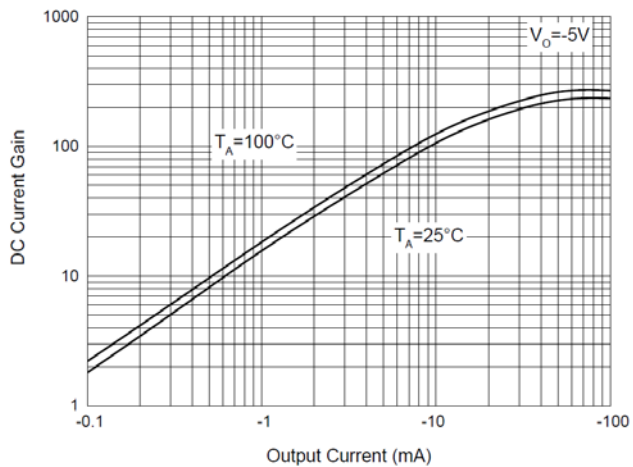
**Fig 1: Input Voltage (On) Characteristics**



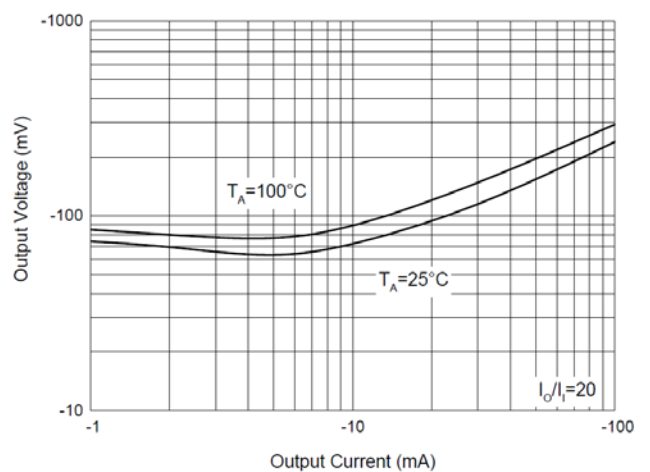
**Fig 2: Input Voltage (Off) Characteristic**



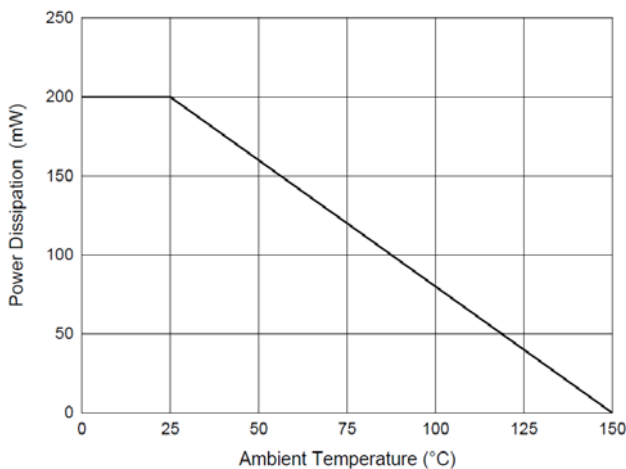
**Fig 3: DC Current Gain Characteristics**



**Fig 4: Output Voltage Characteristics**



**Fig 5: P<sub>D</sub>-T<sub>a</sub> Curve**

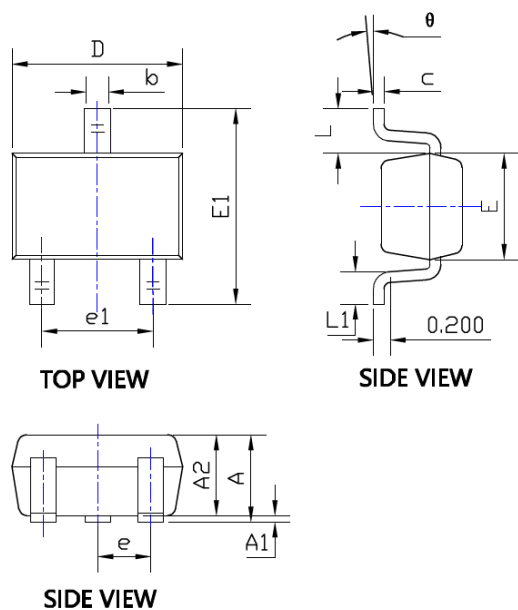


## DTA123YUA

### ■ Ordering Information

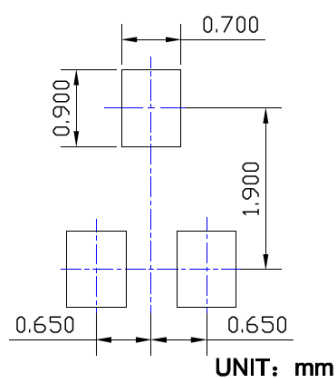
| Preferred P/N | Packing code | Unit weight(g)    | Minimum package(pcs) | Inner box quantity(pcs) | Outer carton quantity(pcs) | Delivery mode |
|---------------|--------------|-------------------|----------------------|-------------------------|----------------------------|---------------|
| DTA123YUA     | F2           | Approximate 0.005 | 3000                 | 30000                   | 120000                     | 7" reel       |

### ■ Outline Dimensions



| SYMBOL | DIMENSIONS |       |            |       |
|--------|------------|-------|------------|-------|
|        | INCHES     |       | Millimeter |       |
|        | MIN.       | MAX.  | MIN.       | MAX.  |
| A      | 0.035      | 0.043 | 0.900      | 1.100 |
| A1     | 0.000      | 0.004 | 0.000      | 0.100 |
| A2     | 0.035      | 0.039 | 0.900      | 1.000 |
| b      | 0.006      | 0.016 | 0.150      | 0.400 |
| c      | 0.004      | 0.010 | 0.100      | 0.250 |
| D      | 0.071      | 0.087 | 1.800      | 2.200 |
| E      | 0.045      | 0.053 | 1.150      | 1.350 |
| E1     | 0.085      | 0.096 | 2.150      | 2.450 |
| e      | 0.026TYP   |       | 0.650TYP   |       |
| e1     | 0.047      | 0.055 | 1.200      | 1.400 |
| L      | 0.021REF   |       | 0.525REF   |       |
| L1     | 0.010      | 0.018 | 0.260      | 0.460 |
| θ      | 0°         | 8°    | 0°         | 8°    |

### ■ Suggested Pad Layout



## DTA123YUA

---

### Disclaimer

The information presented in this document is for reference only. Shanghai Sunco Electronics Co., Ltd reserves the right to make changes without notice for the specification of the products displayed herein to improve reliability, function, or design or otherwise.

The product listed herein is designed to be used with ordinary electronic equipment or devices, and not designed to be used with equipment or devices which require high level of reliability and the malfunction of which would directly endanger human life (such as medical instruments, transportation equipment, aerospace machinery, nuclear-reactor controllers, fuel controllers and other safety devices), Russiansunco or anyone on its behalf, assumes no responsibility or liability for any damages resulting from such improper use of sale.

This publication supersedes & replaces all information previously supplied. For additional information, please visit our website [http:// www.russiansunco.com](http://www.russiansunco.com) , or consult your nearest Russiansunco's sales office for further assistance.