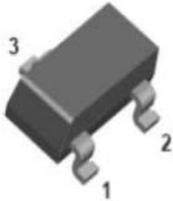
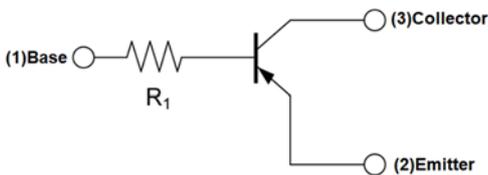


## PNP Digital Transistors (Built-in Resistors)



SOT-323



### 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       |           |                  |                      | 93          |
| Collector-base voltage    | $V_{CBO}$ | V                | $I_C=-50\mu\text{A}$ | -50         |
| Collector-emitter voltage | $V_{CEO}$ | V                | $I_C=-1\text{mA}$    | -50         |
| Emitter-base voltage      | $V_{EBO}$ | V                | $I_E=-50\mu\text{A}$ | -5          |
| Collector current         | $I_C$     | mA               |                      | -100        |
| Power dissipation         | $P_D$     | mW               |                      | 200         |
| Junction temperature      | $T_J$     | $^\circ\text{C}$ |                      | -55 to +150 |
| Storage temperature       | $T_{STG}$ | $^\circ\text{C}$ |                      | -55 to +150 |



# DTA143TUA

RoHS  
COMPLIANT

## ■ Electrical Characteristics (Ta=25°C Unless otherwise specified)

| Item                                 | Symbol        | Unit       | Conditions                       | Min  | Typ | Max  |
|--------------------------------------|---------------|------------|----------------------------------|------|-----|------|
| Collector-base breakdown voltage     | $V_{(BR)CBO}$ | V          | $I_C=-50\mu A$                   | -50  |     |      |
| Collector-emitter breakdown voltage  | $V_{(BR)CEO}$ | V          | $I_C=-1mA$                       | -50  |     |      |
| Emitter-base breakdown voltage       | $V_{(BR)EBO}$ | V          | $I_E=-50\mu A$                   | -5   |     |      |
| Collector-base cut-off current       | $I_{CBO}$     | $\mu A$    | $V_{CB}=-50V$                    |      |     | -0.5 |
| Emitter-base cut-off current         | $I_{EBO}$     | $\mu A$    | $V_{EB}=-4V$                     |      |     | -0.5 |
| DC current gain                      | $h_{FE}$      |            | $V_{CE}=-5V, I_C=-1mA$           | 100  |     | 600  |
| Input resistance                     | $R_1$         | k $\Omega$ |                                  | 3.29 | 4.7 | 6.11 |
| Collector-emitter saturation voltage | $V_{CE(sat)}$ | V          | $I_C=-10mA, I_B=-0.5mA$          |      |     | -0.3 |
| Transition frequency                 | $f_T$         | MHz        | $V_{CE}=10V, I_E=-5mA, f=100MHz$ |      | 250 |      |

## ■ Thermal Characteristics

| Parameter                               | Symbol                 | Unit          | Value |
|---|------------------------|---------------|-------|
| Thermal resistance, junction-to-ambient | $R_{\theta J-A}^{(1)}$ | $^{\circ}C/W$ | 625   |
| Thermal resistance, junction-to-case    | $R_{\theta J-C}^{(1)}$ | $^{\circ}C/W$ | 500   |

Note:

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

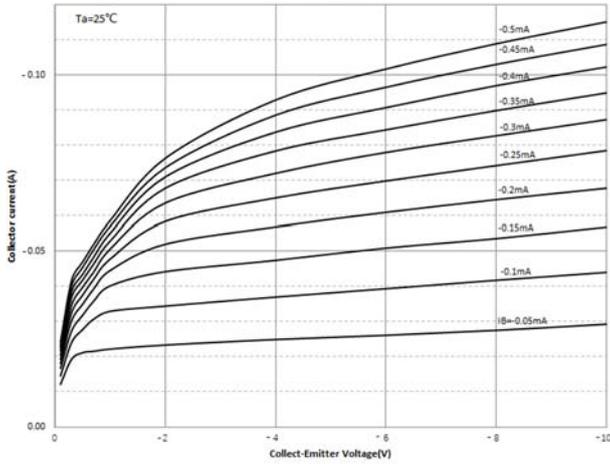
## ■ Ordering Information

| Preferred P/N | Packing code | Unit weight(g)    | Minimum package(pcs) | Inner box quantity(pcs) | Outer carton quantity(pcs) | Delivery mode |
|---------------|--------------|-------------------|----------------------|-------------------------|----------------------------|---------------|
| DTA143TUA     | F2           | Approximate 0.005 | 3000                 | 30000                   | 120000                     | 7" reel       |

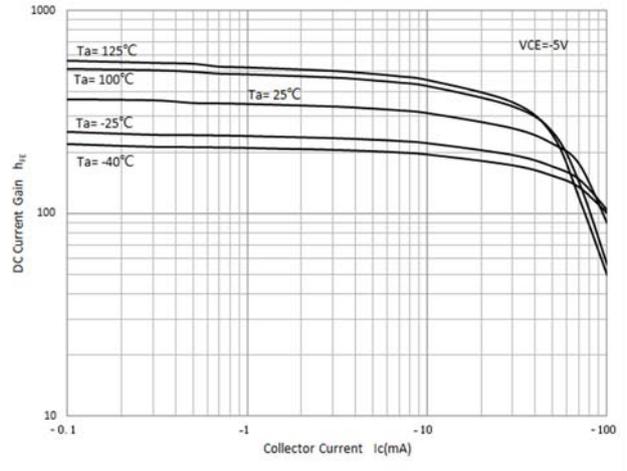


## ■ Characteristics

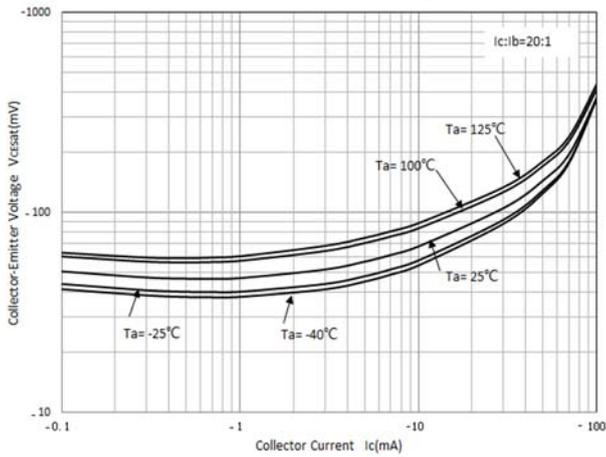
Static Characteristics



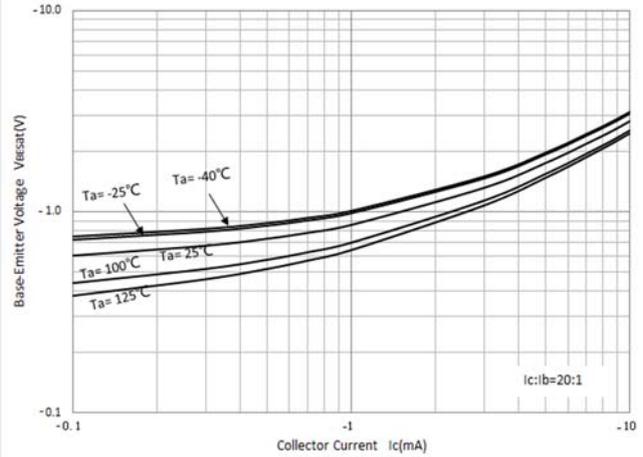
DC Current Gain



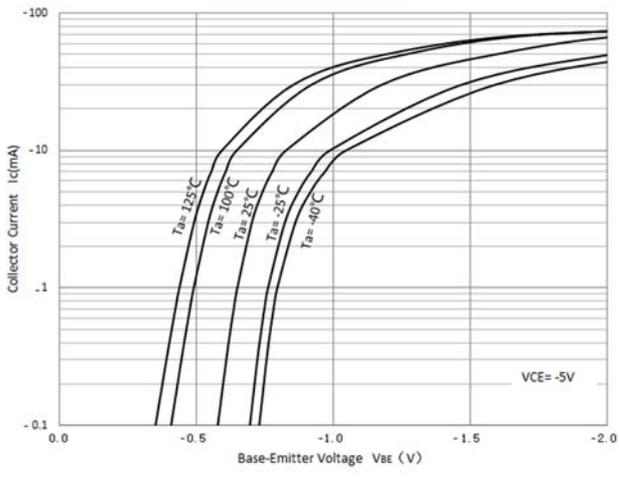
Collector-Emitter Saturation Voltage



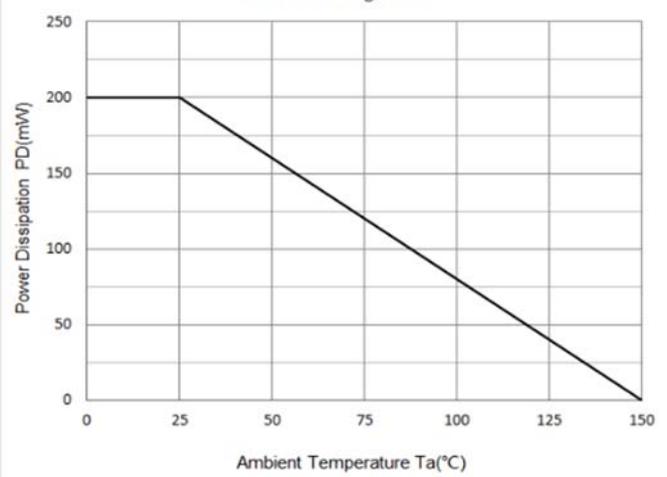
Base-Emitter Saturation Voltage



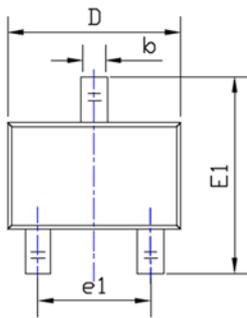
Base-Emitter On Voltage



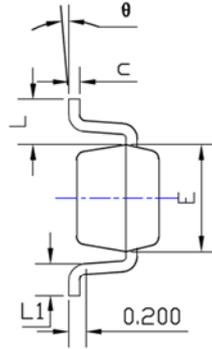
Power Derating Curve



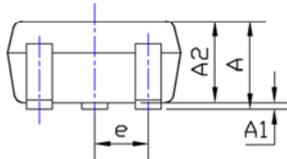
## ■ Outline Dimensions



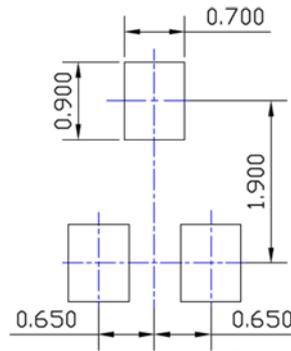
TOP VIEW



SIDE VIEW



SIDE VIEW



UNIT: mm

SUGGESTED SOLDER PAD LAYOUT

| 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 |
| theta  | 0°         | 8°    | 0°         | 8°    |

**NOTE:**

1. PACKAGE BODY SIZES EXCLUDE MOLD FLASH AND GATE BURRS.
2. TOLERANCE 0.1mm UNLESS OTHERWISE SPECIFIED.
3. THE PAD LAYOUT IS FOR REFERENCE PURPOSES ONLY.

Note:

1. All dimensions are in millimeters (mm) unless otherwise specified.  
[所有尺寸均以毫米为单位, 除非另有说明]
2. General tolerances:  $\pm 0.10\text{mm}$  unless otherwise specified.  
[通用公差为 $\pm 0.10\text{mm}$ , 除非另有说明]
3. Dimensions and tolerances per ASME Y14.5M-2018.  
[尺寸和公差遵循 ASME Y14.5M-2018 标准]
4. All dimensions shown are exclusive of burrs and gate residues.  
Burrs and gate vestiges shall not exceed 0.15 mm in maximum.  
[所有尺寸均不包括毛刺和浇口残留。毛刺与浇口残留的尺寸最大不得超过 0.15mm]
5. Dimension b does not include dambar protrusion of max 0.100 mm per side.  
[尺寸b不包括单边最大0.100 MM的中筋凸出部分]
6. Dimensions D and E are the overall extreme outer dimensions of the mold compound. These dimensions exclude mold flash, lead flash, protrusions and burrs but include the maximum allowable mold mismatch.  
[D和E是塑封体的外部极限尺寸, 不包括包封溢料、内引线溢料、凸出部分以及胶体毛刺, 但是包含了包封错位的最大尺寸]
7. Formed leads shall be planar with respect to one another within a maximum of 0.076 mm relative to the seating plane.  
[成型的管脚应为同一平面, 共面性最大为0.1mm]
8. ★It is the key size.  
[★ 标记为关键尺寸]



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