

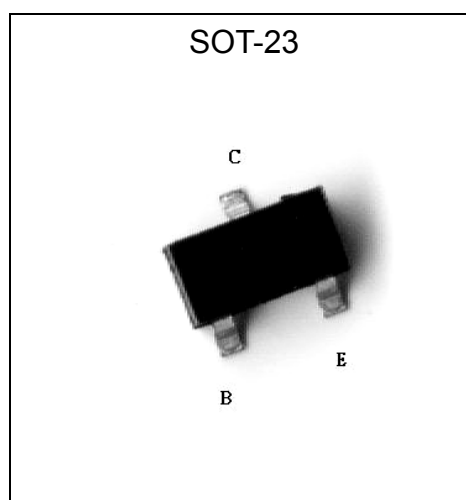
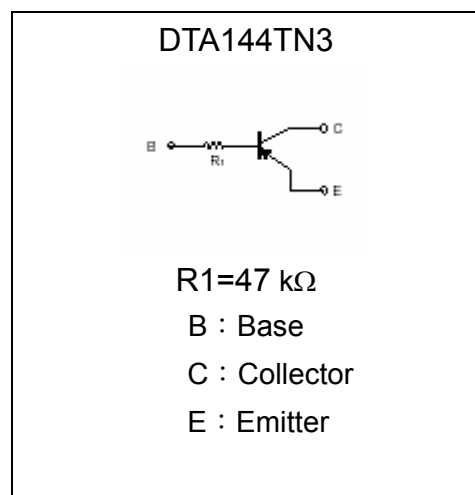
## General Purpose PNP Digital Transistors (Built-in Resistor)

# DTA144TN3

### Features

- Built-in bias resistors enable the configuration of an inverter circuit without connecting external input resistors (see equivalent circuit).
- The bias resistors consist of thin-film resistors with complete isolation to allow negative biasing of the input. They also have the advantage of almost completely eliminating parasitic effects.
- Only the on/off conditions need to be set for operation, making device design easy.
- Complements the DTC144TN3

### Equivalent Circuit



### Absolute Maximum Ratings (Ta=25°C)

| Parameter                 | Symbol | Limits   | Unit |
|---------------------------|--------|----------|------|
| Collector-Base Voltage    | VCBO   | -50      | V    |
| Collector-Emitter Voltage | VCEO   | -50      | V    |
| Emitter-Base Voltage      | VEBO   | -5       | V    |
| Collector Current         | IC     | -100     | mA   |
| Power Dissipation         | Pd     | 200      | mW   |
| Junction Temperature      | Tj     | 150      | °C   |
| Storage Temperature       | Tstg   | -55~+150 | °C   |

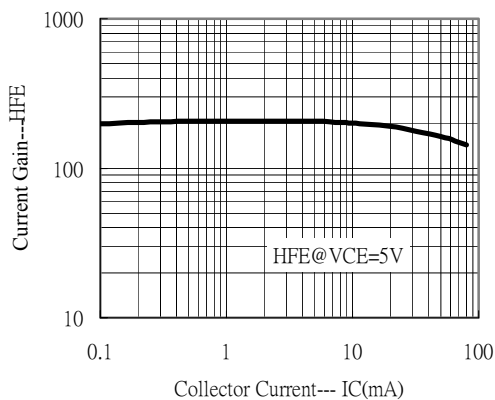
**Electrical Characteristics** (Ta=25°C)

| Parameter                            | Symbol   | Min. | Typ. | Max. | Unit | Test Conditions              |
|--------------------------------------|----------|------|------|------|------|------------------------------|
| Collector-Base Breakdown Voltage     | VCBO     | -50  | -    | -    | V    | IC=-50uA                     |
| Collector-Emitter Breakdown Voltage  | VCEO     | -50  | -    | -    | V    | IC=-1mA                      |
| Emitter-Base Breakdown Voltage       | VEBO     | -5   | -    | -    | V    | IE=-50uA                     |
| Collector-Base Cutoff Current        | ICBO     | -    | -    | -0.5 | uA   | VCB=-50V                     |
| Emitter-Base Cutoff Current          | IEBO     | -    | -    | -0.5 | uA   | VEB=-4V                      |
| Collector-Emitter Saturation Voltage | VCE(sat) | -    | -0.1 | -0.3 | V    | IC=-5mA, IB=-0.5mA           |
| DC Current Gain                      | hFE      | 100  | -    | 600  | -    | VCE=-5V, IC=-1mA             |
| Input Resistance                     | R        | 32.9 | 47   | 61.1 | kΩ   | -                            |
| Transition Frequency                 | fT       | -    | 250  | -    | MHz  | VCE=-10V, IE=-5mA, f=100MHz* |

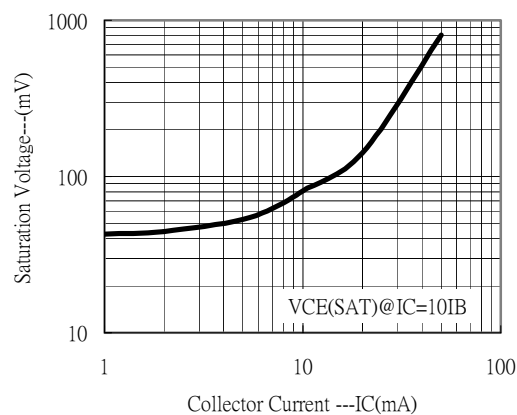
\* Transition frequency of the device

**Characteristic Curves**

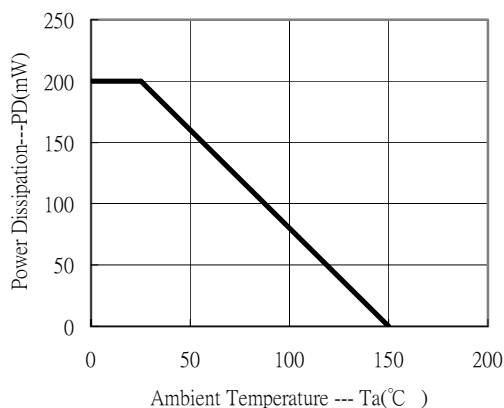
Current Gain vs Collector Current



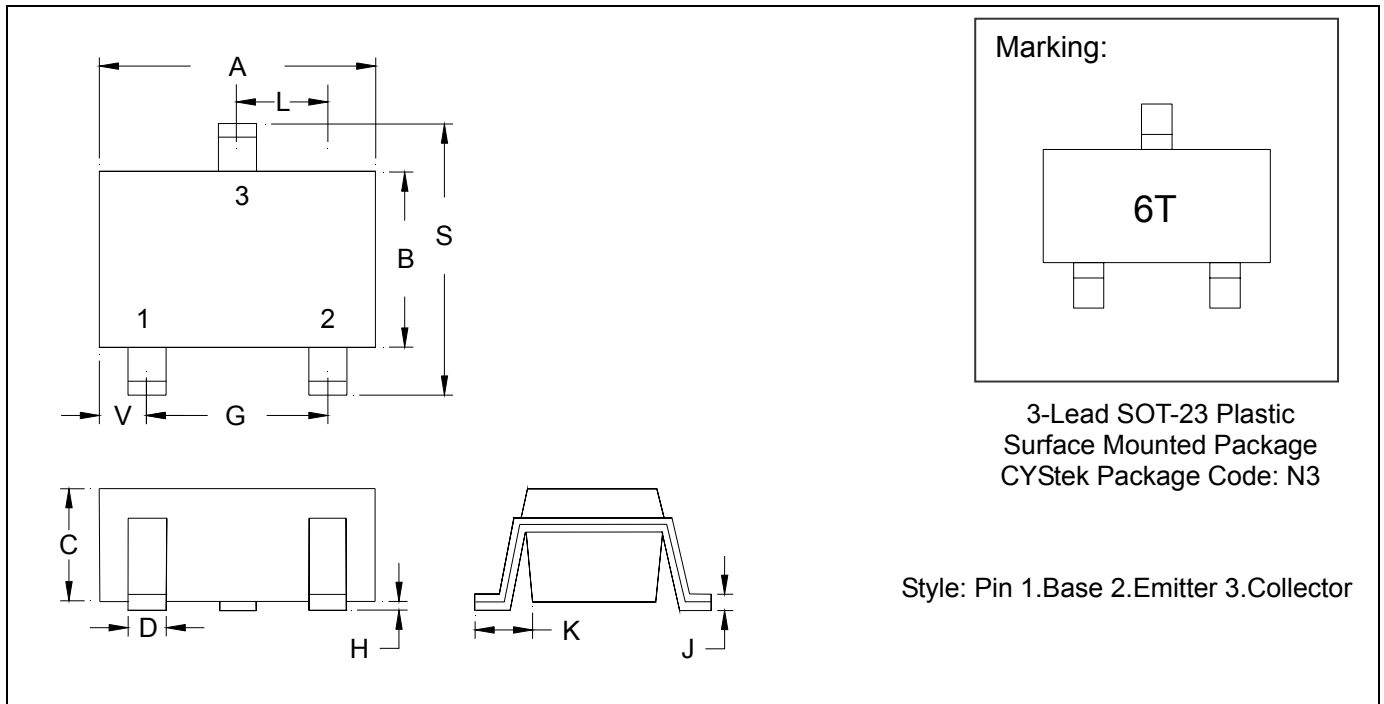
Saturation Voltage vs Collector Current



PD - Ta



## SOT-23 Dimension



\*: Typical

| DIM | Inches |        | Millimeters |      | DIM | Inches |        | Millimeters |       |
|-----|--------|--------|-------------|------|-----|--------|--------|-------------|-------|
|     | Min.   | Max.   | Min.        | Max. |     | Min.   | Max.   | Min.        | Max.  |
| A   | 0.1102 | 0.1204 | 2.80        | 3.04 | J   | 0.0034 | 0.0070 | 0.085       | 0.177 |
| B   | 0.0472 | 0.0630 | 1.20        | 1.60 | K   | 0.0128 | 0.0266 | 0.32        | 0.67  |
| C   | 0.0335 | 0.0512 | 0.89        | 1.30 | L   | 0.0335 | 0.0453 | 0.85        | 1.15  |
| D   | 0.0118 | 0.0197 | 0.30        | 0.50 | S   | 0.0830 | 0.1083 | 2.10        | 2.75  |
| G   | 0.0669 | 0.0910 | 1.70        | 2.30 | V   | 0.0098 | 0.0256 | 0.25        | 0.65  |
| H   | 0.0005 | 0.0040 | 0.013       | 0.10 |     |        |        |             |       |

Notes: 1.Dimension and tolerance based on our Spec. dated Feb. 18,2002.

2.Controlling dimension: millimeters.

3.Maximum lead thickness includes lead finish thickness, and minimum lead thickness is the minimum thickness of base material.

4.If there is any question with packing specification or packing method, please contact your local CYCtek sales office.

### Material:

- Lead: 42 Alloy; solder plating
- Mold Compound: Epoxy resin family, flammability solid burning class: UL94V-0

### Important Notice:

- All rights are reserved. Reproduction in whole or in part is prohibited without the prior written approval of CYStek.
- CYStek reserves the right to make changes to its products without notice.
- CYStek **semiconductor products are not warranted to be suitable for use in Life-Support Applications, or systems.**
- CYStek assumes no liability for any consequence of customer product design, infringement of patents, or application assistance.