

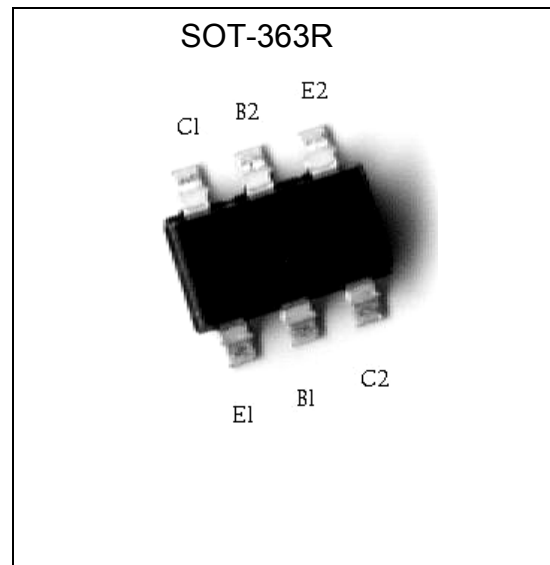
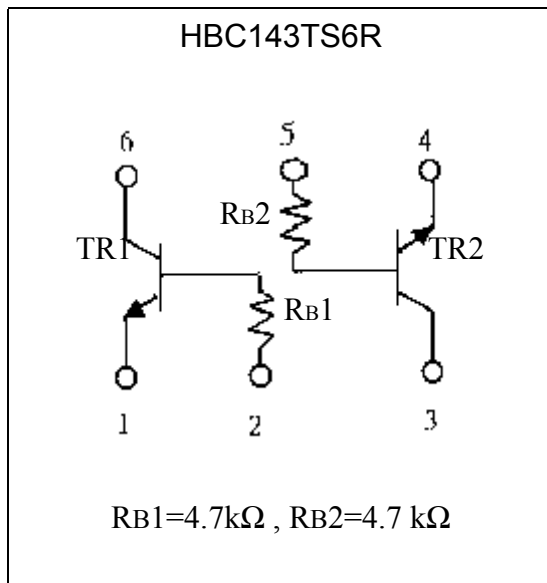
**Dual NPN Digital Transistors**

# HBC143TS6R

**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.
- Two DTC143T chips in a SOT-363 package.
- Mounting by SOT-323 automatic mounting machines is possible.
- Mounting cost and area can be cut in half.
- Transistor elements are independent, eliminating interference
- Complements the HBA143TS6R

**Equivalent Circuit**



**Absolute Maximum Ratings** (Each Transistor, TA=25°C)

| Parameter                     | Symbol           | Limits     | Unit |
|-------------------------------|------------------|------------|------|
| Collector-Base Voltage        | V <sub>CBO</sub> | 50         | V    |
| Collector-Emitter Voltage     | V <sub>CEO</sub> | 50         | V    |
| Emitter-Base Voltage          | V <sub>EBO</sub> | 5          | V    |
| Collector Current             | I <sub>C</sub>   | 100        | mA   |
| Power Dissipation(per device) | P <sub>d</sub>   | 200 (Note) | mW   |
| Junction Temperature          | T <sub>j</sub>   | 150        | °C   |
| Storage Temperature           | T <sub>stg</sub> | -55~+150   | °C   |

Note : 150mW per element must not be exceeded.

**Electrical Characteristics** (Each Transistor, TA=25°C)

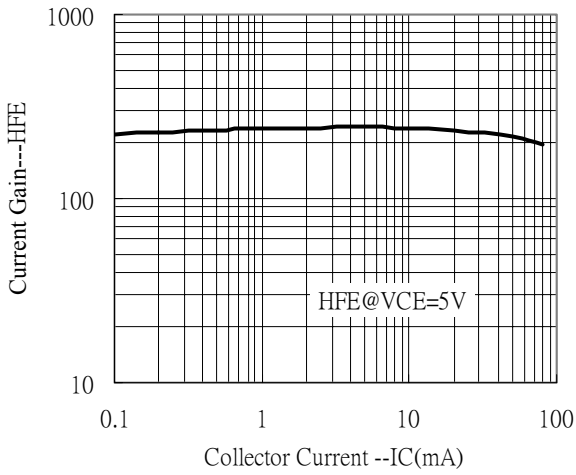
| Parameter                            | Symbol               | Min. | Typ. | Max. | Unit | Test Conditions                                       |
|--------------------------------------|----------------------|------|------|------|------|---|
| Collector-Base Breakdown Voltage     | V <sub>CBO</sub>     | 50   | -    | -    | V    | I <sub>C</sub> =50μA                                  |
| Collector-Emitter Breakdown Voltage  | V <sub>CEO</sub>     | 50   | -    | -    | V    | I <sub>C</sub> =1mA                                   |
| Emitter-Base Breakdown Voltage       | V <sub>EBO</sub>     | 5    | -    | -    | V    | I <sub>E</sub> =50μA                                  |
| Collector-Base Cutoff Current        | I <sub>CBO</sub>     | -    | -    | 0.5  | μA   | V <sub>CB</sub> =50V                                  |
| Emitter-Base Cutoff Current          | I <sub>EBO</sub>     | -    | -    | 0.5  | μA   | V <sub>EB</sub> =4V                                   |
| Collector-Emitter Saturation Voltage | V <sub>CE(sat)</sub> | -    | -    | 0.3  | V    | I <sub>C</sub> =5mA, I <sub>B</sub> =0.25mA           |
| DC Current Gain                      | h <sub>FE</sub>      | 100  | -    | 600  | -    | V <sub>CE</sub> =5V, I <sub>C</sub> =1mA              |
| Input Resistance                     | R                    | 3.29 | 4.7  | 6.11 | kΩ   | -   |
| Transition Frequency                 | f <sub>T</sub>       | -    | 250  | -    | MHz  | V <sub>CE</sub> =10V, I <sub>C</sub> =5mA, f=100MHz * |

\* Transition frequency of the device

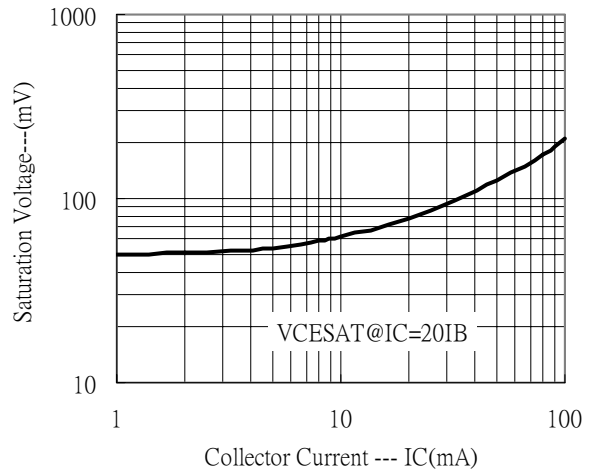


### Characteristic Curves

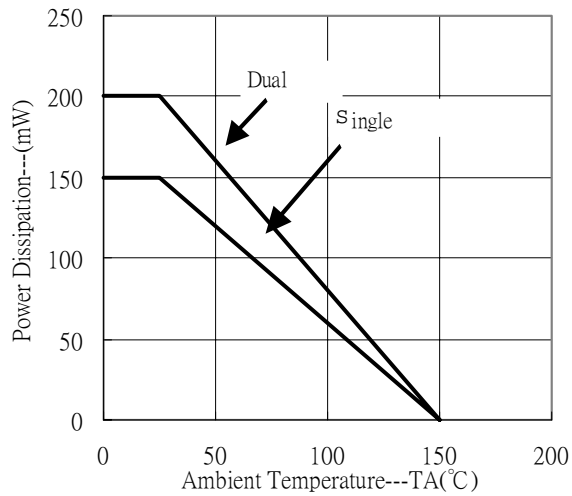
Current Gain vs Collector Current



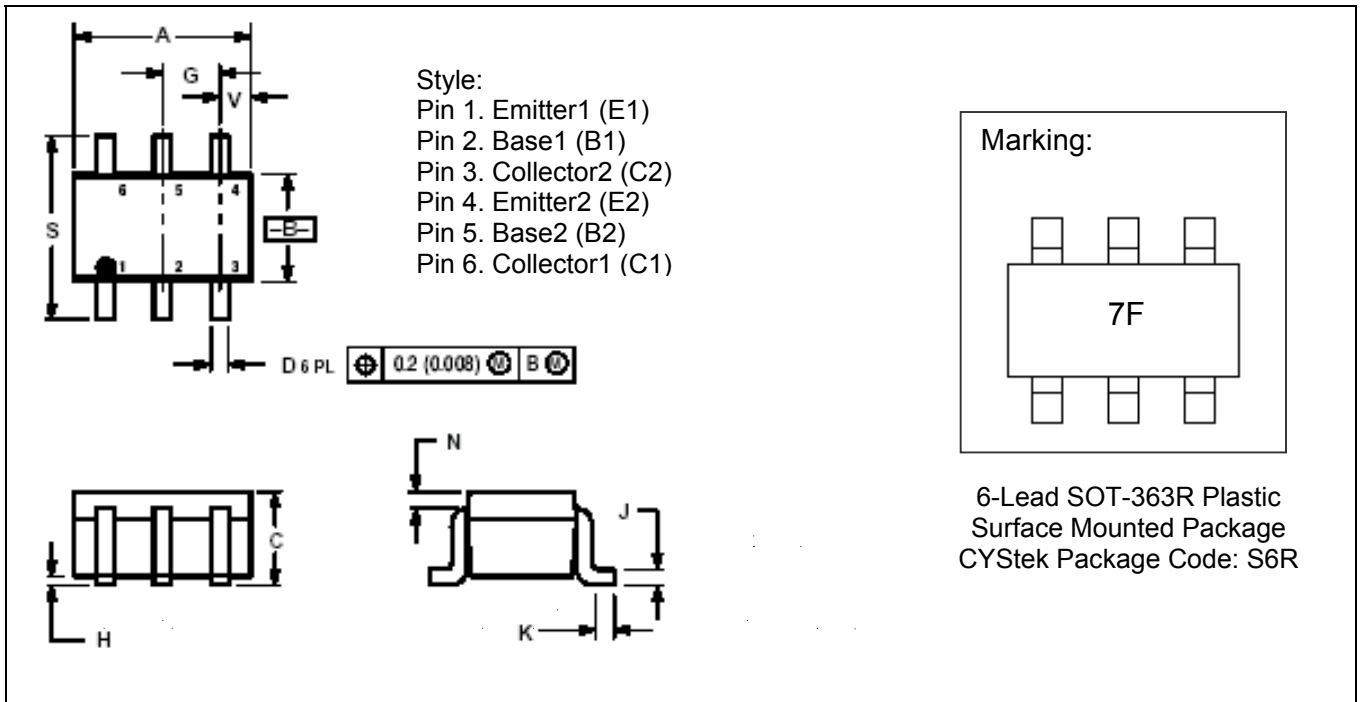
Saturation Voltage vs Collector Current



Power Derating Curves



**SOT-363R Dimension**



\*:Typical

| DIM | Inches   |       | Millimeters |      | DIM | Inches    |       | Millimeters |      |
|-----|----------|-------|-------------|------|-----|-----------|-------|-------------|------|
|     | Min.     | Max.  | Min.        | Max. |     | Min.      | Max.  | Min.        | Max. |
| A   | 0.071    | 0.087 | 1.8         | 2.2  | J   | 0.004     | 0.010 | 0.1         | 0.25 |
| B   | 0.045    | 0.053 | 1.15        | 1.35 | K   | 0.004     | 0.012 | 0.1         | 0.30 |
| C   | 0.031    | 0.043 | 0.8         | 1.1  | N   | 0.008 REF |       | 0.20 REF    |      |
| D   | 0.004    | 0.012 | 0.1         | 0.3  | S   | 0.079     | 0.087 | 2.00        | 2.20 |
| G   | 0.026BSC |       | 0.65BSC     |      | Y   | 0.012     | 0.016 | 0.30        | 0.40 |
| H   | -        | 0.004 | -           | 0.1  |     |           |       |             |      |

Notes : 1.Controlling dimension : millimeters.  
 2.Maximum lead thickness includes lead finish thickness, and minimum lead thickness is the minimum thickness of base material.  
 3.If there is any question with packing specification or packing method, please contact your local CYStek sales office.

**Material :**

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

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