

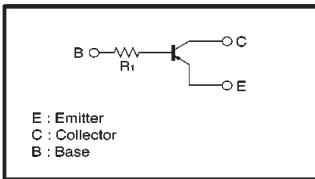
Digital transistor (built in resistor)

DTA113TKA

●Features

- 1) Built-in bias resistors enable the configuration of an inverter circuit without connecting external input resistors.
- 2) The bias resistors consist of thin-film resistors with complete isolation to allow positive biasing of the input, and parasitic effects are almost completely eliminated.
- 3) Only the on / off conditions need to be set for operation, making device design easy.
- 4) Higher mounting densities can be achieved.

●Circuit schematic



●Electrical characteristics (Ta=25°C)

| Parameter | Symbol | Min. | Typ. | Max. | Unit | Conditions |
|--------------------------------------|---------------|------|------|------|------------|--|
| Collector-base breakdown voltage | BV_{CBO} | -50 | — | — | V | $I_C = -50 \mu A$ |
| Collector-emitter breakdown voltage | BV_{CEO} | -50 | — | — | V | $I_C = -1 mA$ |
| Emitter-base breakdown voltage | BV_{EBO} | -5 | — | — | V | $I_E = -50 \mu A$ |
| Collector cutoff current | I_{CBO} | — | — | -0.5 | μA | $V_{CB} = -50V$ |
| Emitter cutoff current | I_{EBO} | — | — | -0.5 | μA | $V_{EB} = -4V$ |
| Collector-emitter saturation voltage | $V_{CE(sat)}$ | — | — | -0.3 | V | $I_C/I_E = -10mA/-1mA$ |
| DC current transfer ratio | h_{FE} | 100 | 250 | 600 | — | $I_C = -1mA, V_{CE} = -5V$ |
| Input resistance | R_1 | 0.7 | 1 | 1.3 | k Ω | — |
| Transition frequency | f_T | — | 250 | — | MHz | $V_{CB} = -10V, I_E = 5mA, f = 100MHz$ |

* Transition frequency of the device.

(SPEC-A113T)

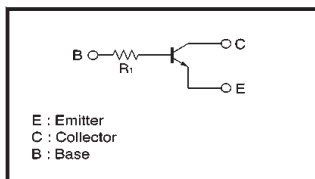
Digital transistor (built-in resistor)

DTC123TKA

●Features

- 1) Built-in bias resistors enable the configuration of an inverter circuit without connecting external input resistors.
- 2) The bias resistors consist of thin-film resistors with complete isolation to allow negative biasing of the input, and parasitic effects are almost completely eliminated.
- 3) Only the on / off conditions need to be set for operation, making device design easy.
- 4) Higher mounting densities can be achieved.

●Circuit schematic



●Electrical characteristics (Ta=25°C)

| Parameter | Symbol | Min. | Typ. | Max. | Unit | Conditions |
|--------------------------------------|---------------|------|------|------|------------|--|
| Collector-base breakdown voltage | BV_{CBO} | 50 | — | — | V | $I_C = 50 \mu A$ |
| Collector-emitter breakdown voltage | BV_{CEO} | 50 | — | — | V | $I_C = 1mA$ |
| Emitter-base breakdown voltage | BV_{EBO} | 5 | — | — | V | $I_E = 50 \mu A$ |
| Collector cutoff current | I_{CBO} | — | — | 0.5 | μA | $V_{CB} = 50V$ |
| Emitter cutoff current | I_{EBO} | — | — | 0.5 | μA | $V_{EB} = 4V$ |
| Collector-emitter saturation voltage | $V_{CE(sat)}$ | — | — | 0.3 | V | $I_C/I_E = 5mA/0.25mA$ |
| DC current transfer ratio | h_{FE} | 100 | 250 | 600 | — | $I_C = 1mA, V_{CE} = 5V$ |
| Input resistance | R_1 | 1.54 | 2.2 | 2.86 | k Ω | — |
| Transition frequency | f_T | — | 250 | — | MHz | $V_{CB} = 10V, I_E = -5mA, f = 100MHz$ |

* Transition frequency of the device.

(SPEC-C123T)

●Absolute maximum ratings (Ta=25°C)

| Parameter | Symbol | Limits | Unit |
|-----------------------------|-----------|----------|------|
| Collector-base voltage | V_{CBO} | -50 | V |
| Collector-emitter voltage | V_{CEO} | -50 | V |
| Emitter-base voltage | V_{EBO} | -5~+10 | V |
| Collector current | I_C | -100 | mA |
| Collector Power dissipation | P_C | 200 | mW |
| Junction temperature | T_J | 150 | °C |
| Storage temperature | T_{stg} | -55~+150 | °C |

●Package, marking, and packaging specifications

| | |
|------------------------------|-----------|
| Part No. | DTA113TKA |
| Package | SMT3 |
| Marking | 91 |
| Packaging code | T146 |
| Basic ordering unit (pieces) | 3000 |

●Absolute maximum ratings (Ta=25°C)

| Parameter | Symbol | Limits | Unit |
|-----------------------------|-----------|----------|------|
| Collector-base voltage | V_{CBO} | 50 | V |
| Collector-emitter voltage | V_{CEO} | 50 | V |
| Emitter-base voltage | V_{EBO} | 5 | V |
| Collector current | I_C | 100 | mA |
| Collector Power dissipation | P_C | 200 | mW |
| Junction temperature | T_J | 150 | °C |
| Storage temperature | T_{stg} | -55~+150 | °C |

●Package, marking, and packaging specifications

| | |
|------------------------------|-----------|
| Part No. | DTC123TKA |
| Package | SMT3 |
| Marking | 02 |
| Packaging code | T146 |
| Basic ordering unit (pieces) | 3000 |