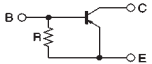
# Digital transistors (built-in resistor)

## DTA144GUA / DTA144GKA

### ●Features

1) The built-in bias resistors consist of thin-film resistors with complete isolation to allow positive biasing of the input, and parasitic effects are almost completely eliminated.
2) Only the on / off conditions need to be set for operation, making device design easy.
3) Higher mounting densities can be achieved.

### ●Circuit schematic




E : Emitter
C : Collector
B : Base

### ●Absolute maximum ratings (Ta=25℃)

| 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 | Tj | 150 | ℃ |
| Storage temperature | Tstg | −55～+150 | ℃ |

### ●Package, marking, and packaging specifications

| Part No. | DTA144GUA | DTA144GKA |
|---|---|---|
| Package | UMT3 | SMT3 |
| Marking | K16 | K16 |
| Packaging code | T106 | T146 |
| Basic ordering unit (pieces) | 3000 | 3000 |

### ●Electrical characteristics (Ta=25℃)

| Parameter | Symbol | Min. | Typ. | Max. | Unit | Conditions |
|---|---|---|---|---|---|---|
| Collector-base breakdown voltage | $BV_{CBO}$ | −50 | — | — | V | $I_C$=−50 μA |
| Collector-emitter breakdown voltage | $BV_{CEO}$ | −50 | — | — | V | $I_C$=−1mA |
| Emitter-base breakdown voltage | $BV_{EBO}$ | −5 | — | — | V | $I_E$=−160 μA |
| Collector cutoff current | $I_{CBO}$ | — | — | −0.5 | μA | $V_{CB}$=−50V |
| Emitter cutoff current | $I_{EBO}$ | −65 | — | −130 | μA | $V_{EB}$=−4V |
| Collector-emitter saturation voltage | $V_{CE(sat)}$ | — | — | −0.3 | V | $I_C$=−10mA , $I_B$=−0.5mA |
| DC current transfer ratio | $h_{FE}$ | 68 | — | — | — | $I_C$=−5mA , $V_{CE}$=−5V |
| Emitter-base resistance | R | 32.9 | 47 | 61.1 | kΩ | — |
| Transition frequency | fr | — | 250 | — | MHz | $V_{CE}$=−10V , $I_E$=5mA , f=100MHz ＊ |