

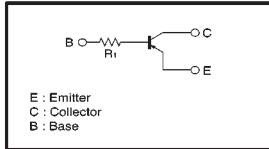
# Digital transistor (built in resistor)

## 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



### ●Absolute maximum ratings (Ta=25°C)

Parameter	Symbol	Limits	Unit
Collector-base voltage	V <sub>CB0</sub>	-50	V
Collector-emitter voltage	V <sub>CE0</sub>	-50	V
Emitter-base voltage	V <sub>EB0</sub>	-5~+10	V
Collector current	I <sub>c</sub>	-100	mA
Collector Power dissipation	P <sub>c</sub>	200	mW
Junction temperature	T <sub>J</sub>	150	°C
Storage temperature	T <sub>stg</sub>	-55~+150	°C

### ●Package, marking, and packaging specifications

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

### ●Electrical characteristics (Ta=25°C)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Collector-base breakdown voltage	BV <sub>CB0</sub>	-50	—	—	V	I <sub>c</sub> =-50 μA
Collector-emitter breakdown voltage	BV <sub>CE0</sub>	-50	—	—	V	I <sub>c</sub> =-1mA
Emitter-base breakdown voltage	BV <sub>EB0</sub>	-5	—	—	V	I <sub>E</sub> =-50 μA
Collector cutoff current	I <sub>CB0</sub>	—	—	-0.5	μA	V <sub>CB</sub> =-50V
Emitter cutoff current	I <sub>EB0</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> /I <sub>E</sub> =-10mA/-1mA
DC current transfer ratio	h <sub>FE</sub>	100	250	600	—	I <sub>c</sub> =-1mA, V <sub>CE</sub> =-5V
Input resistance	R <sub>i</sub>	0.7	1	1.3	kΩ	—
Transition frequency	f <sub>r</sub>	—	250	—	MHz	V <sub>CB</sub> =-10V, I <sub>E</sub> =5mA, f=100MHz

\* Transition frequency of the device.

(SPEC-A113T)

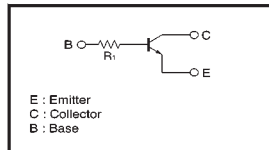
# Digital transistor (built-in resistor)

## 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



### ●Absolute maximum ratings (Ta=25°C)

Parameter	Symbol	Limits	Unit
Collector-base voltage	V <sub>CB0</sub>	50	V
Collector-emitter voltage	V <sub>CE0</sub>	50	V
Emitter-base voltage	V <sub>EB0</sub>	5	V
Collector current	I <sub>c</sub>	100	mA
Collector Power dissipation	P <sub>c</sub>	200	mW
Junction temperature	T <sub>J</sub>	150	°C
Storage temperature	T <sub>stg</sub>	-55~+150	°C

### ●Package, marking, and packaging specifications

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

### ●Electrical characteristics (Ta=25°C)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Collector-base breakdown voltage	BV <sub>CB0</sub>	50	—	—	V	I <sub>c</sub> =50 μA
Collector-emitter breakdown voltage	BV <sub>CE0</sub>	50	—	—	V	I <sub>c</sub> =1mA
Emitter-base breakdown voltage	BV <sub>EB0</sub>	5	—	—	V	I <sub>E</sub> =50 μA
Collector cutoff current	I <sub>CB0</sub>	—	—	0.5	μA	V <sub>CB</sub> =50V
Emitter cutoff current	I <sub>EB0</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> /I <sub>E</sub> =5mA/0.25mA
DC current transfer ratio	h <sub>FE</sub>	100	250	600	—	I <sub>c</sub> =1mA, V <sub>CE</sub> =5V
Input resistance	R <sub>i</sub>	1.54	2.2	2.86	kΩ	—
Transition frequency	f <sub>r</sub>	—	250	—	MHz	V <sub>CB</sub> =10V, I <sub>E</sub> =-5mA, f=100MHz

\* Transition frequency of the device.

(SPEC-C123T)