

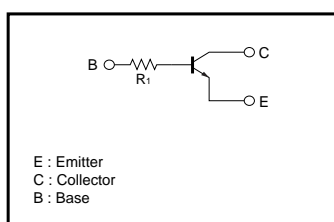
# Digital transistor (built-in resistor)

## DTC125TUA / DTC125TKA / DTC125TSA

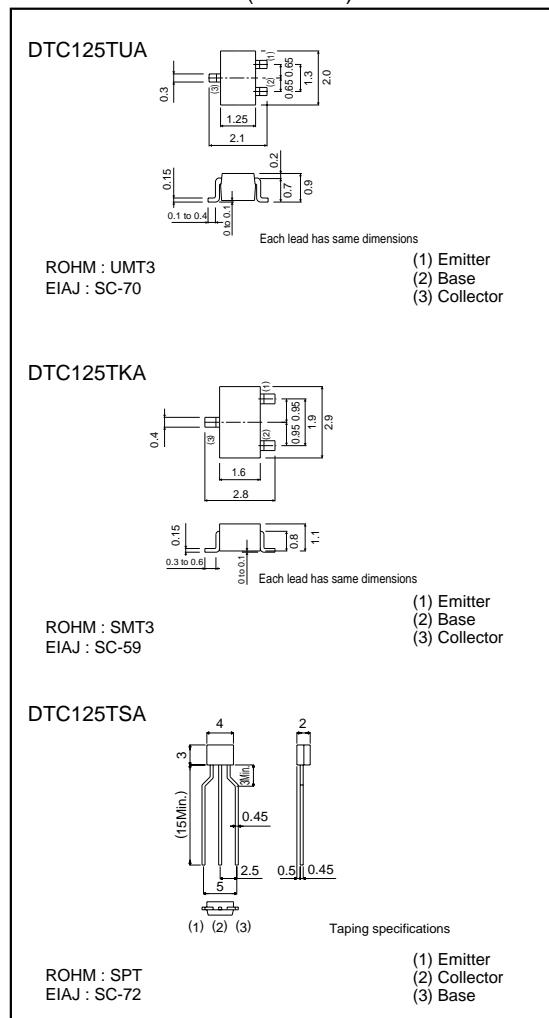
### ●Features

- 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



### ●External dimensions (Unit : mm)



### ●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	DTC125TUA / DTC125TKA DTC125TSA	200	mW
		300	
Junction temperature	T <sub>j</sub>	150	°C
Storage temperature	T <sub>stg</sub>	-55 to +150	°C

# DTC125TUA / DTC125TKA / DTC125TSA

## Transistors

### ●Package, marking, and packaging specifications

Part No.	DTC125TUA	DTC125TKA	DTC125TSA
Package	UMT3	SMT3	SPT
Marking	0A	0A	–
Packaging code	T106	T146	TP
Basic ordering unit (pieces)	3000	3000	5000

### ●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> =50μA
Collector-emitter breakdown voltage	BV <sub>CEO</sub>	50	–	–	V	I <sub>c</sub> =1mA
Emitter-base breakdown voltage	BV <sub>EBO</sub>	5	–	–	V	I <sub>E</sub> =50μA
Collector cutoff current	I <sub>CB0</sub>	–	–	0.5	μA	V <sub>CB</sub> =50V
Emitter 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> =0.5mA, I <sub>B</sub> =0.05mA
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>1</sub>	140	200	260	kΩ	–
Transition frequency	f <sub>r</sub>	–	250	–	MHz	V <sub>CE</sub> =10V, I <sub>E</sub> =–5mA, f=100MHz *

\*Transition frequency of the device.

### ●Electrical characteristic curves

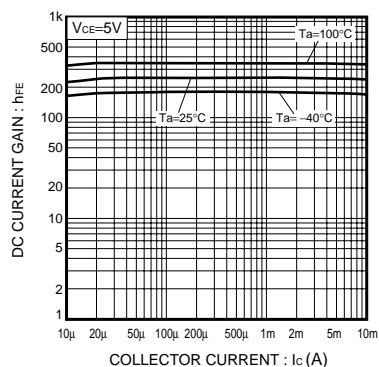


Fig.1 DC current gain vs. Collector current

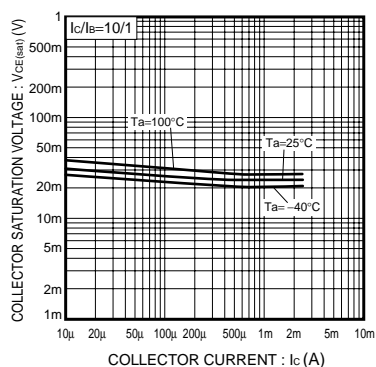


Fig.2 Collector-Emitter saturation voltage vs. Collector current

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