

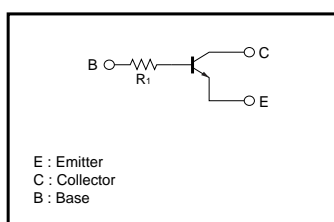
Digital transistor (built-in resistor)

DTC125TUA / DTC125TKA / DTC125TSA

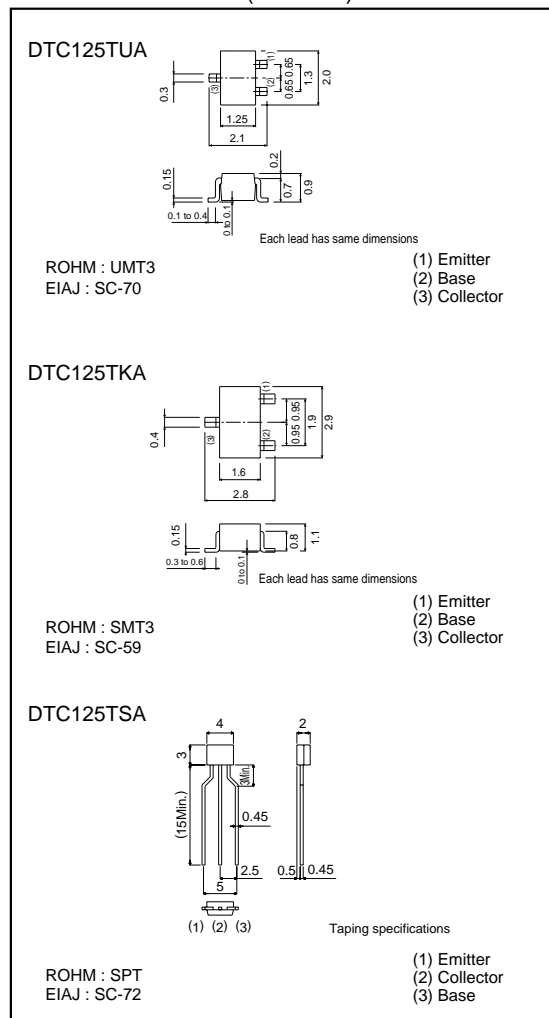
●Features

- 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 _{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
		300	
Junction temperature	T _j	150	°C
Storage temperature	T _{stg}	-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 _{CB0}	50	–	–	V	I _c =50μA
Collector-emitter breakdown voltage	BV _{CEO}	50	–	–	V	I _c =1mA
Emitter-base breakdown voltage	BV _{EBO}	5	–	–	V	I _E =50μA
Collector cutoff current	I _{CB0}	–	–	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 =0.5mA, I _B =0.05mA
DC current transfer ratio	h _{FE}	100	250	600	–	I _c =1mA, V _{CE} =5V
Input resistance	R ₁	140	200	260	kΩ	–
Transition frequency	f _r	–	250	–	MHz	V _{CE} =10V, I _E =–5mA, f=100MHz *

*Transition frequency of the device.

●Electrical characteristic curves

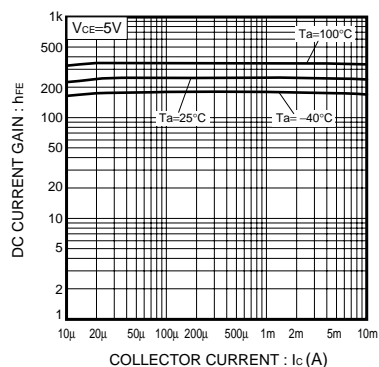


Fig.1 DC current gain vs. Collector current

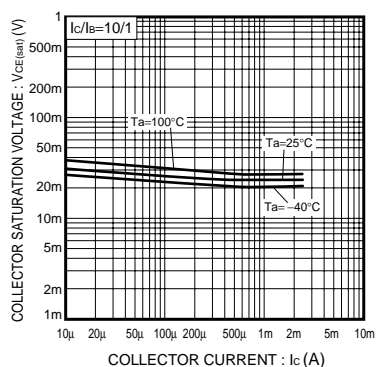


Fig.2 Collector-Emitter saturation voltage vs. Collector current

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