

100mA / 50V Digital transistors (with built-in resistors)

DTC124GUA / DTC124GKA

● Applications

Inverter, Interface, Driver

● 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 the device design easy.
- 3)Higher mounting densities can be achieved.

● Structure

NPN epitaxial planar silicon transistor
(Resistor built-in type)

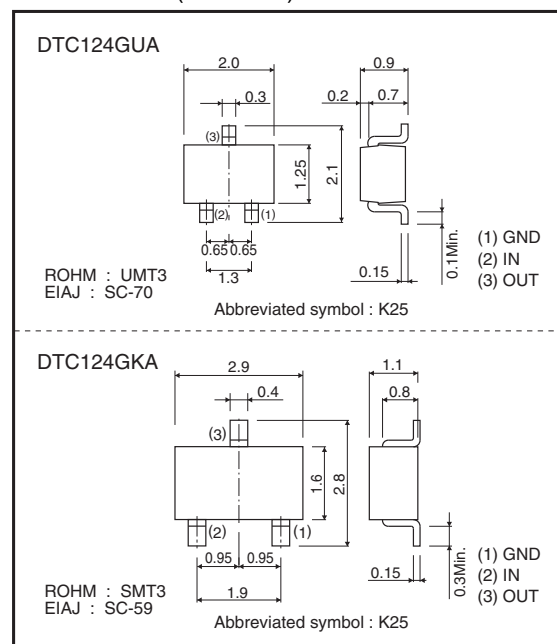
● Packaging specifications

Part No.	Package	UMT3	SMT3
	Packaging type	Taping	Taping
	Code	T106	T146
	Basic ordering unit (pieces)	3000	3000
DTC124GUA		○	—
DTC124GKA		—	○

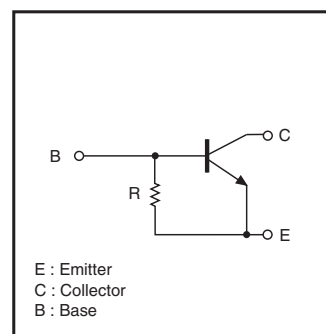
● Absolute maximum ratings (Ta=25°C)

Parameter	Symbol	Limits	Unit
Collector-base voltage	V _{CB0}	50	V
Collector-emitter voltage	V _{CE0}	50	V
Emitter-base voltage	V _{EB0}	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 to +150	°C

● Dimensions (Unit : mm)



● Inner circuit



R=22kΩ

● Electrical characteristics (Ta=25°C)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Collector-base breakdown voltage	BV _{CBO}	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 =330μA
Collector cutoff current	I _{CBO}	—	—	0.5	μA	V _{CB} =50V
Emitter cutoff current	I _{EBO}	140	—	260	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}	56	—	—	—	I _C =5mA, V _{CE} =5V
Emitter-base resistance	R	15.4	22	28.6	kΩ	—
Transition frequency	f _T *	—	250	—	MHz	V _{CE} =10V, I _E =-5mA, f=100MHz

* Characteristics of built-in transistor

● Electrical characteristic curves

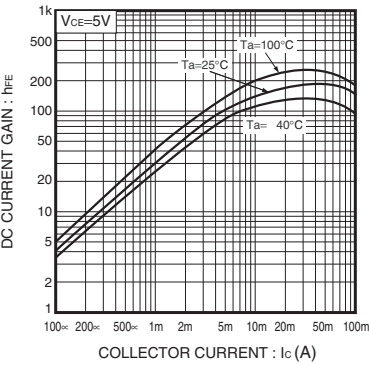


Fig.1 DC current gain vs. Collector current

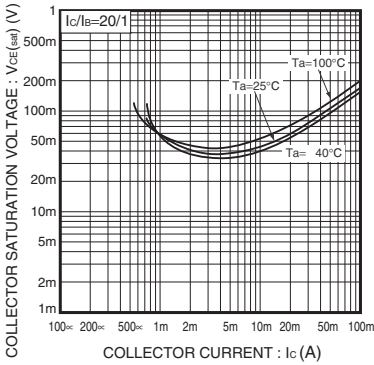


Fig.2 Collector-Emitter saturation voltage vs. Collector current

Notes

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