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

DTC124GUA / DTC124GKA

● Applications
Inverter, Interface, Driver

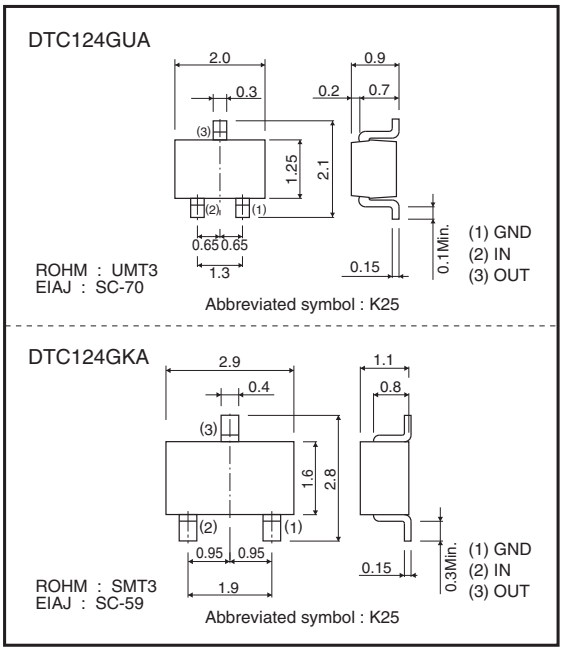
● Features
1)The built-in bias resistors consist of thin-film resistors with complete isolation to allow positive biasing of the input, and parasitic effects are almost completely eliminated.
2)Only the on / off conditions need to be set for operation, making the device design easy.
3)Higher mounting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

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

● Packaging specifications

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

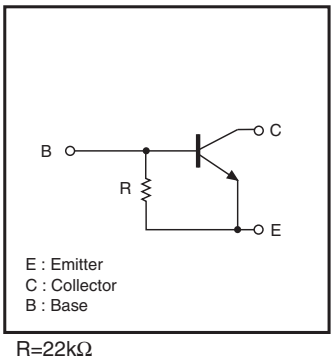
● Dimensions (Unit : mm)



● 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
Junction temperature	Tj	150	°C
Storage temperature	Tstg	−55 to +150	°C

● 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

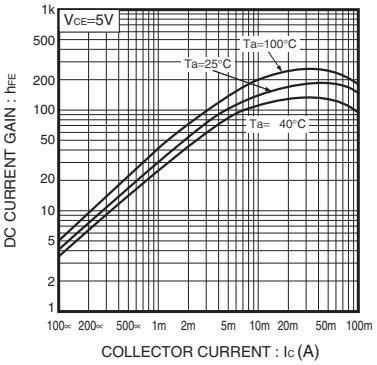


Fig.1 DC current gain vs. Collector current

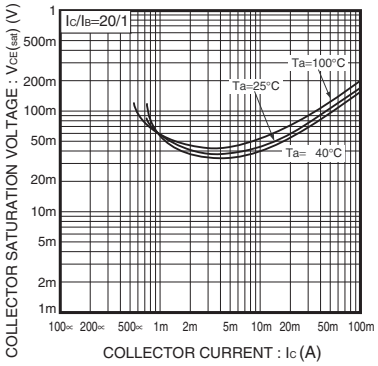


Fig.2 Collector-Emitter saturation voltage vs. Collector current

Notes

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