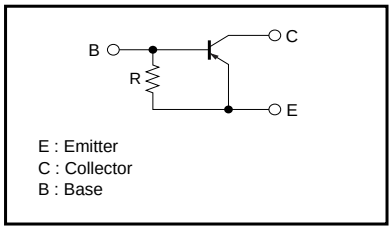
Digital transistors (built-in resistor)

DTB114GK

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

●Circuit schematic



●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	–500	mA
Collector power dissipation	Pc	200	mW
Junction temperature	Tj	150	℃
Storage temperature	Tstg	–55 to +150	℃

●Package, marking, and packaging specifications

Part No.	DTB114GK
Package	SMT3
Marking	L14
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_{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= –720μA
Collector cutoff current	I_{CBO}	–	–	–0.5	μA	V_{CB}= –50V
Emitter cutoff current	I_{EBO}	–300	–	–580	μA	V_{EB}= –4V
Collector-emitter saturation voltage	$V_{CE(sat)}$	–	–	–0.3	V	I_C/I_B= –50mA/–2.5mA
DC current transfer ratio	h_{FE}	56	–	–	–	I_C= –50mA , V_{CE}= –5V
Emitter-base resistance	R	7	10	13	kΩ	–
Transition frequency	f_T	–	200	–	MHz	V_{CE}= –10V , I_E= 50mA , f= 100MHz ∗

∗ Transition frequency of the device.

●**Electrical characteristics curves**

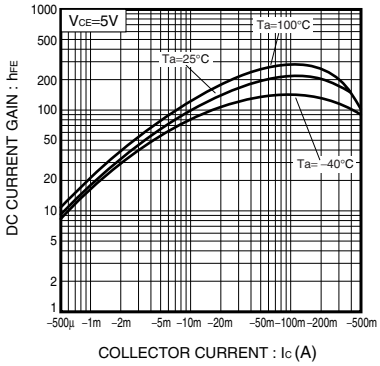


Fig.1 DC current transfer ratio vs. Collector current

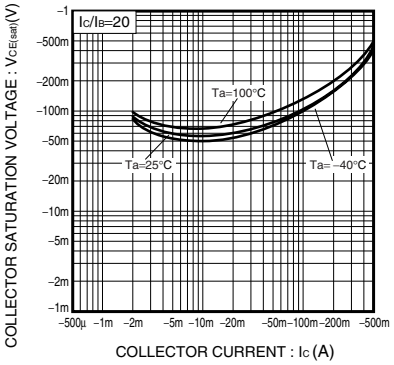


Fig.2 Collector-Emitter saturation voltage vs. Collector current

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