

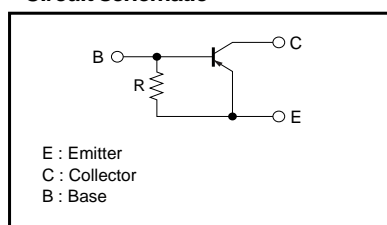
Digital transistors (built-in resistor)

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	P_C	200	mW
Junction temperature	T_J	150	°C
Storage temperature	T_{stg}	-55 to +150	°C

●Package, marking, and packaging specifications

Part No.	DTB114GK
Package	SMT3
Marking	L14
Packaging code	T146
Basic ordering unit (pieces)	3000

Transistors

●Electrical characteristics (Ta=25°C)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Collector-base breakdown voltage	BV_{CBO}	-50	—	—	V	$I_C = -50\mu A$
Collector-emitter breakdown voltage	BV_{CEO}	-50	—	—	V	$I_C = -1mA$
Emitter-base breakdown voltage	BV_{EBO}	-5	—	—	V	$I_E = -720\mu A$
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	$k\Omega$	—
Transition frequency	f_T	—	200	—	MHz	$V_{CE} = -10V, I_E = 50mA, f = 100MHz$ *

* Transition frequency of the device.

●Electrical characteristics curves

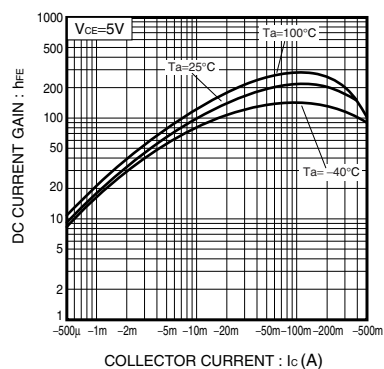


Fig.1 DC current transfer ratio vs. Collector current

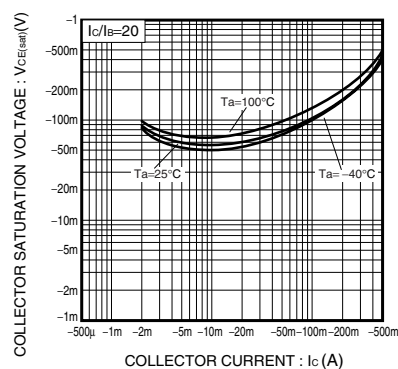


Fig.2 Collector-Emitter saturation voltage vs. Collector current

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