

–500mA / –50V Digital transistors (with built-in resistors)

DTB114GK

●Applications

Inverter, Interface, Driver

●Feature

- 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.

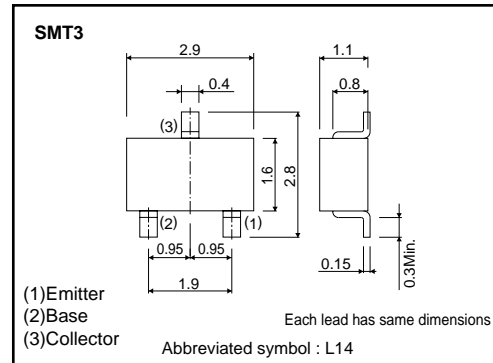
●Structure

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

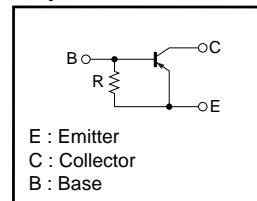
●Packaging specifications

Part No.	Package	SMT3
	Packaging type	Taping
	Code	T146
	Basic ordering unit (pieces)	3000
DTB114GK		○

●External dimensions (Unit : mm)



●Equivalent circuit



R=10kΩ (typ.)

●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	–500	mA
Collector power dissipation	P _d *	200	mW
Junction temperature	T _j	150	°C
Storage temperature	T _{stg}	–55 to +150	°C

* Each pin mounted on the recommended land

Transistors

●Electrical characteristics (Ta=25°C)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Collector-base breakdown voltage	BV_{CB0}	-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}	-	-	-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	-	-	-	$I_C = -50mA, V_{CE} = -5V$
Input resistance	R	7	10	13	$k\Omega$	-
Transition frequency	f_T *	-	200	-	MHz	$V_{CE} = -10V, I_E = 50mA, f = 100MHz$

*Characteristics of built-in transistor

●Electrical characteristics curves

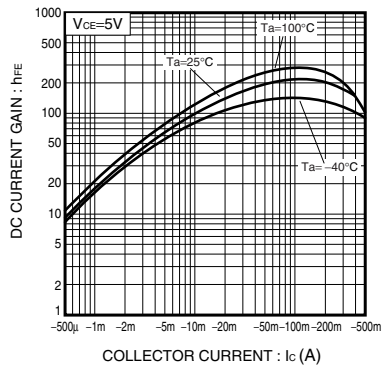


Fig.1 DC current transfer ratio vs. Collector current

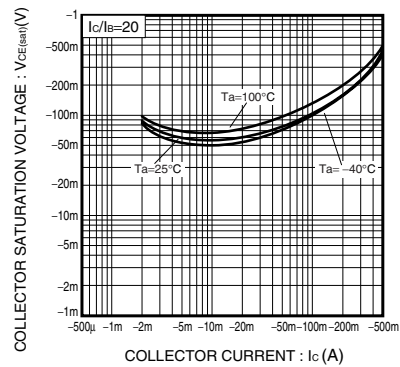


Fig.2 Collector-Emitter saturation voltage vs. Collector current

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