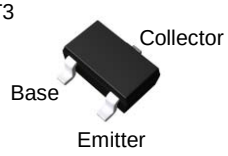
DTB114GK

PNP -500mA -50V Digital Transistors (Bias Resistor Built-in Transistors) Datasheet

Parameter	Value
V_{CEO}	–50V
I_C	–500mA
R	10kΩ

●Outline

SMT3

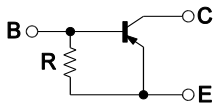


DTB114GK
SOT-346 (SC-59)

●Features

1) Built-In Biasing Resistors
2) Built-in bias resistors enable the configuration of an inverter circuit without connecting external input resistors (see inner circuit).
3) The bias resistors consist of thin-film resistors with complete isolation to allow negative biasing of the input. They also have the advantage of completely eliminating parasitic effects.
4) Complementary NPN Types :DTD114GK
5) Lead Free/RoHS Compliant.

●Inner circuit



●Application

Switching circuit, Inverter circuit, Interface circuit, Driver circuit

●Packaging specifications

Part No.	Package	Package size (mm)	Taping code	Reel size (mm)	Tape width (mm)	Basic ordering unit (pcs)	Marking
DTB114GK	SMT3	2928	T146	180	8	3,000	L14

●**Absolute maximum ratings** (Ta = 25°C)

Parameter	Symbol	Values	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_d *2	200	mW
Junction temperature	T_j	150	°C
Range of storage temperature	T_{stg}	–55 to +150	°C

●**Electrical characteristics**(Ta = 25°C)

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Collector-base breakdown voltage	BV_{CBO}	I_C= –50μA	–50	-	-	V
Collector-emitter breakdown voltage	BV_{CEO}	I_C= –1mA	–50	-	-	V
Emitter-base breakdown voltage	BV_{EBO}	I_E= –720μA	–5	-	-	V
Collector cut-off current	I_{CBO}	V_{CB} = –50V	-	-	–0.5	μA
Emitter cut-off current	I_{EBO}	V_{EB} = –4V	–300	-	–580	μA
Collector-emitter saturation voltage	$V_{CE(sat)}$	I_C / I_B= –50mA / –2.5mA	-	-	–0.3	V
DC current gain	h_{FE}	V_{CE}= –5V , I_C= –50mA	56	-	-	-
Emitter-base resistance	R	-	7	10	13	kΩ
Transition frequency	f_T *1	V_{CE} = –10V, I_E = 50mA, f = 100MHz	-	200	-	MHz

*1 Characteristics of built-in transistor

*2 Each terminal mounted on a reference footprint

●**Electrical characteristic curves**(Ta = 25°C)

Fig.1 Grounded emitter propagation characteristics

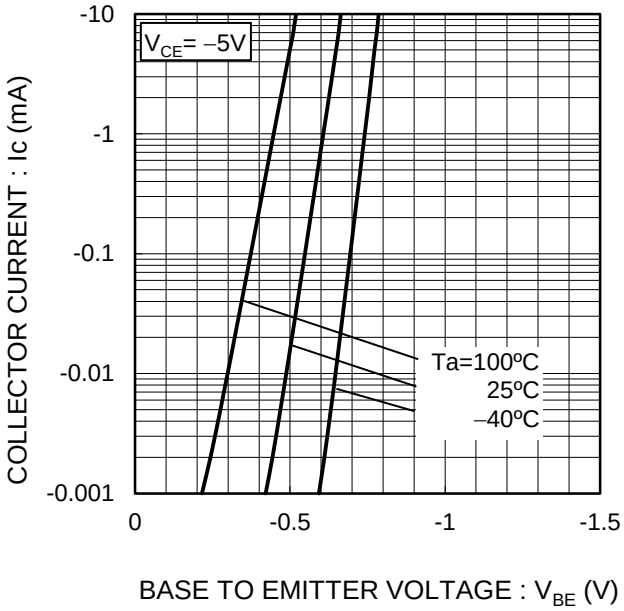


Fig.2 Grounded emitter output characteristics

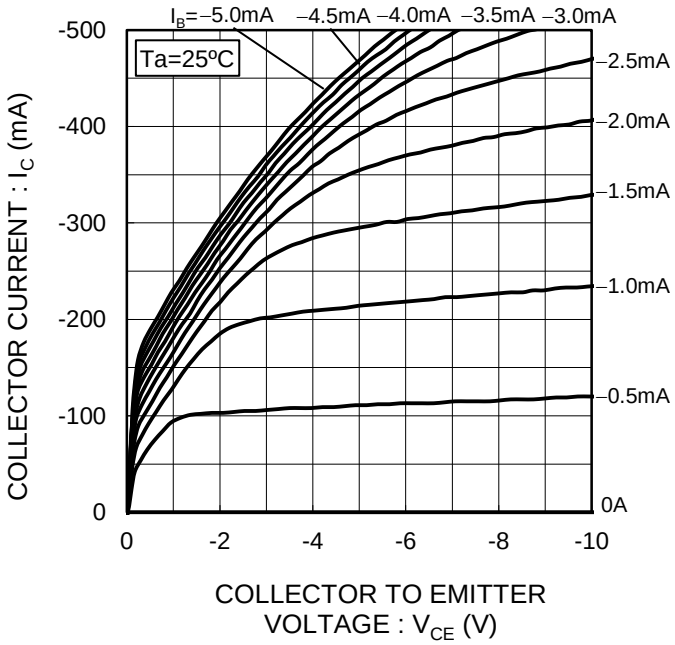


Fig.3 DC Current gain vs. Collector Current

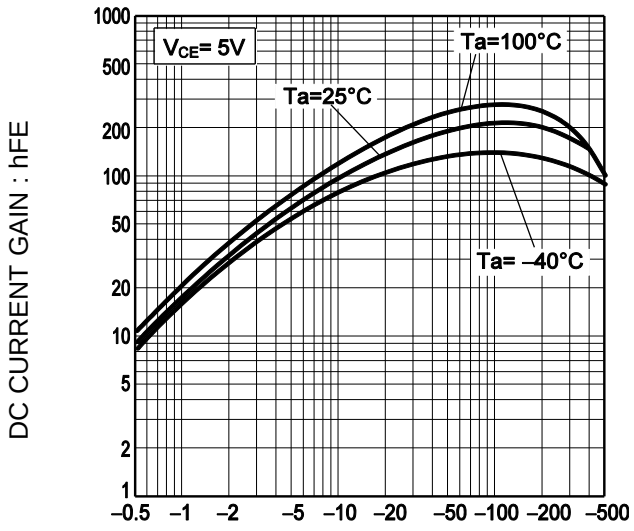
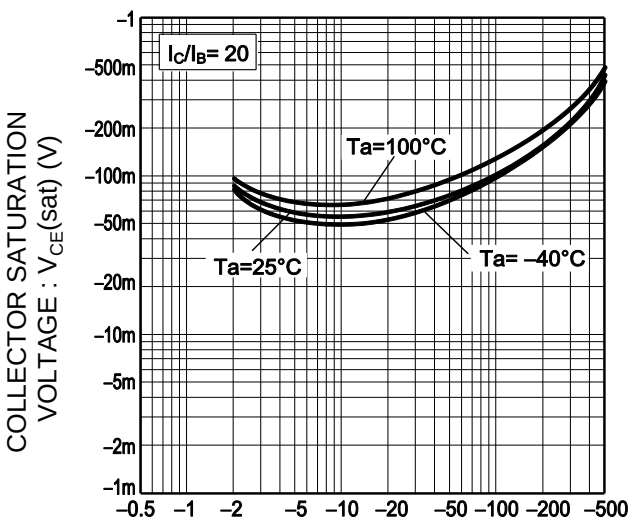
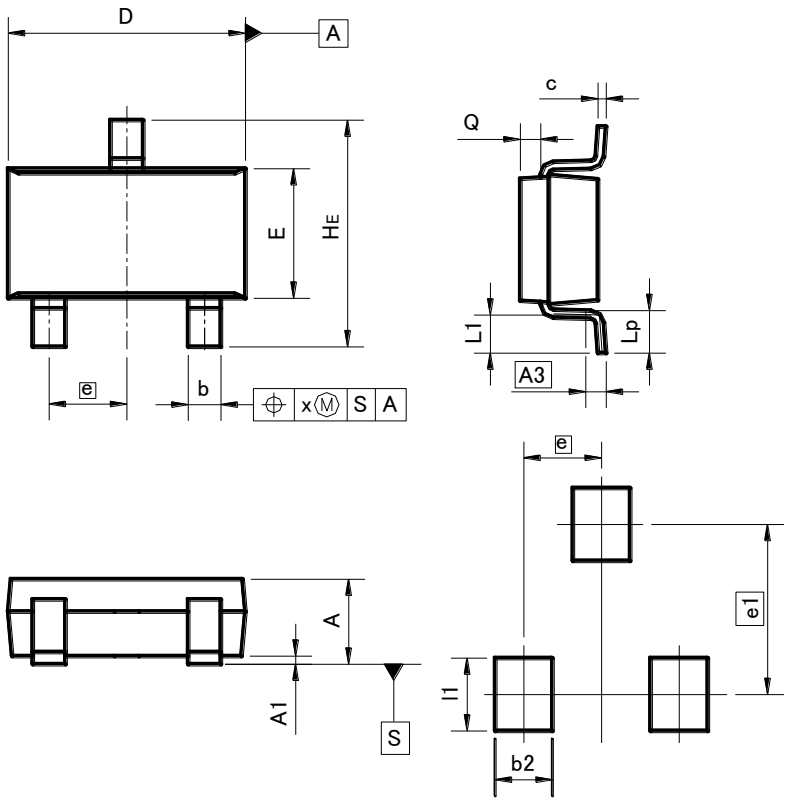


Fig.4 Collector-emitter saturation voltage vs. Collector Current



●**Dimensions** (Unit : mm)

SMT3



Patterm of terminal position areas

DIM	MILIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	1.00	1.30	–	0.051
A1	0.00	0.10	0	0.004
A3	0.25		0.01	
b	0.35	0.50	0.014	0.02
c	0.09	0.25	0.004	0.01
D	2.80	3.00	0.11	0.118
E	1.50	1.80	0.059	0.071
e	0.95		0.04	
HE	2.60	3.00	0.102	0.118
L1	0.30	0.60	0.012	0.024
Lp	0.40	0.70	0.016	0.028
Q	0.20	0.30	0.008	0.012
x	–	0.10	–	0.004
y	–	0.10	–	0.004

DIM	MILIMETERS		INCHES	
	MIN	MAX	MIN	MAX
e1	2.10		0.08	
b2		0.60	–	0.024
l1	–	0.90	–	0.035

Dimension in mm/inches

Notes

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