

DTB114EK

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

Parameter	Value
V _{CC}	-50V
I _{C(MAX.)}	-500mA
R ₁	10kΩ
R ₂	10kΩ

Features

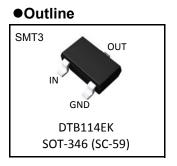
- 1) Built-In Biasing Resistors, $R_1 = R_2 = 10k\Omega$.
- Built-in bias resistors enable the configuration of an inverter circuit without connecting external input resistors (see equivalent circuit).
- The bias resistors consist of thin-film resistors with complete isolation to allow negative biasing of the input. They also have the advantage of completely eliminating parasitic effects.
- 4) Only the on/off conditions need to be set for operation, making the circuit design easy.
- 5) Complementary NPN Types Available.(DTD114EK)
- 6) Lead Free/RoHS Compliant.

Application

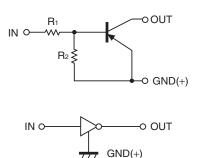
- Inverter circuit
- Interface circuit
- Driver circuit

Packaging specifications

Part No.	Package	Package size (mm)	Taping code	Reel size (mm)	Tape width (mm)	Basic ordering unit (pcs)	Marking
DTB114EK	SMT3	2928	T146	180	8	3,000	F14



Inner circuit



Datasheet

•Absolute maximum ratings (Ta = 25°C)

Parameter	Symbol	Values	Unit
Supply voltage	V _{CC}	-50	V
Input voltage	V _{IN}	-40 to +10	V
Output current	Ι _C	-500	mA
Power dissipation	P_{D}^{*2}	200	mW
Junction temperature	Τ _j	150	°C
Range of storage temperature	T _{stg}	-55 to +150	°C

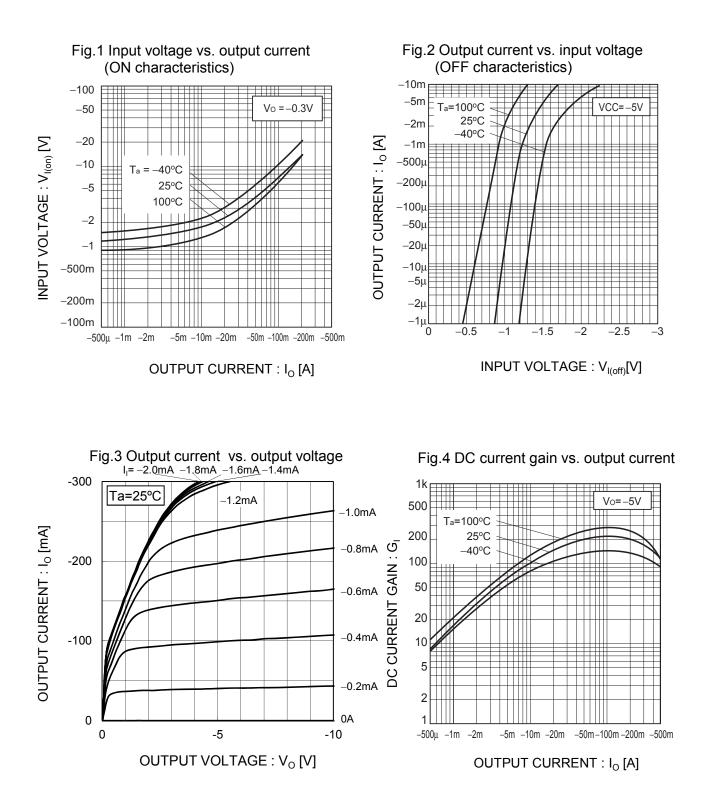
•Electrical characteristics(Ta = 25°C)

Parameter	Symbol	Conditions	Min.	Тур.	Max.	Unit
1) Built-In Biasing Resistors, R_1	V _{I(off)}	$V_{CC} = -5V, I_{O} = -100 \mu A$	-	-	-0.5	V
= R_2 = 10k Ω .	V _{I(on)}	$V_0 = -0.3V, I_0 = -10mA$	-3	-	-	v
Output voltage	V _{O(on)}	I _O / I _I = -50mA / -2.5mA	-	-0.1	-0.3	V
Input current	I _I	V ₁ = -5V	-	-	-0.88	mA
Output current	I _{O(off)}	$V_{CC} = -50V, V_1 = 0V$	-	-	-0.5	μA
DC current gain	G _I	$V_0 = -5V, I_0 = -50mA$	56	-	-	-
Input resistance	R ₁	-	7	10	13	kΩ
Resistance ratio	R_2/R_1	-	0.8	1	1.2	-
Transition frequency	f _T *1	V _{CE} = -10V, I _E = 50mA, f = 100MHz	-	250	-	MHz

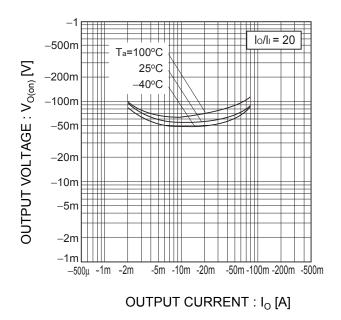
*1 Characteristics of built-in transistor

*2 Each terminal mounted on a reference footprint

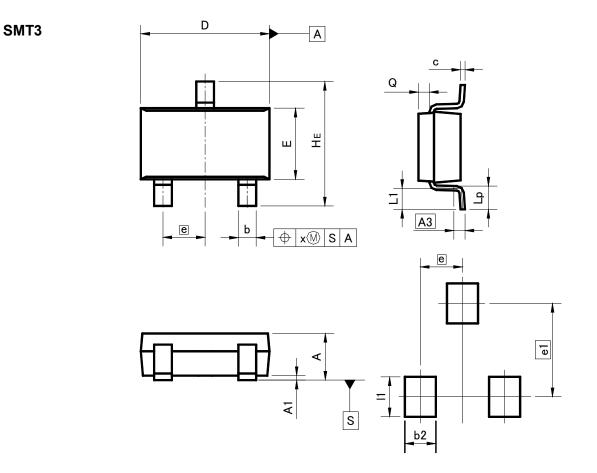
•Electrical characteristic curves(Ta = 25°C)



•Electrical characteristic curves(Ta = 25°C)



•Dimensions (Unit : mm)



Patterm of terminal position areas

DIM	MILIM	ETERS	INC	HES
DIM	MIN	MAX	MIN	MAX
Α	1.00	1.30	-	0.051
A1	0.00	0.10	0	0.004
A3	0.:	25	0.0	01
b	0.35	0.50	0.014	0.02
с	0.09	0.25	0.004	0.01
D	2.80	3.00	0.11	0.118
Ш	1.50	1.80	0.059	0.071
e	0.5	95	0.0	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
У	_	0.10	_	0.004

DIM	MILIM	ETERS	INC	HES
DIN	MIN	MAX	MIN	MAX
e1	2.	10	0.	08
b2		0.60	-	0.024
1	_	0.90	-	0.035

Dimension in mm/inches

	Notes
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