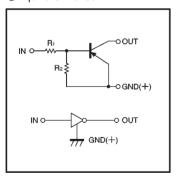
# Digital transistors (built-in resistors) DTB143EK / DTB143EC / DTB143ES

### Features

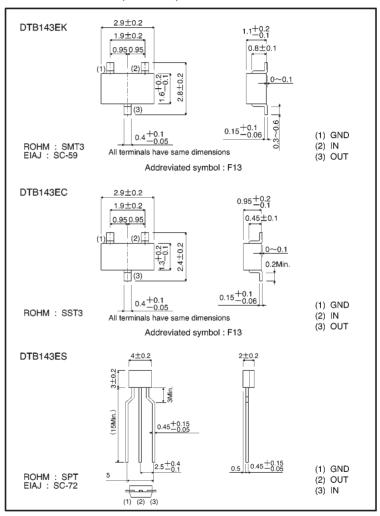
- Built-in bias resistors enable the configuration of an inverter circuit without connecting external input resistors (see equivalent circuit).
- The bias resistors consist of thinfilm resistors with complete isolation to allow positive biasing of the input. They also have the advantage of almost completely eliminating parasitic effects.
- Only the on/off conditions need to be set for operation, making device design easy.

# ●Structure PNP digital transistor (Built-in resistor type)

## Equivalent circuit



### External dimensions (Units: mm)



(96-304-B143E)



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

Parameter	Cumbal	Limi	Unit		
	Symbol	К	С	S	Offic
Supply voltage	Vcc	<b>-50</b>			٧
Input voltage	Vin	_	V		
Output current	lc	-500			mA
Power dissipation	Pd	200		300	mW
Junction temperature	Tj	150			°
Storage temperature	Tstg	<b>−55~</b> +150			°C

# ●Electrical characteristics (Ta = 25°C)

Parameter	Symbol	Min.	Тур.	Max.	Unit	Conditions	
Input voltage	VI(off)	_	_	-0.5	.,	Vcc=-5V, Io=-100 μA	
	VI(on)	-3	_	_	V	Vo=-0.3V, Io=-20mA	
Output voltage	VO(on)	_	_	-0.3	V	I <sub>O</sub> /I <sub>I</sub> =-50mA/-2.5mA	
Input current	lı	_	_	-1.8	mA	V <sub>I</sub> =-5V	
Output current	IO(off)	_	_	-0.5	μΑ	Vcc=-50V, Vi=0V	
DC current gain	Gı	47	_	_	_	Vo=-5V, lo=-50mA	
Input resistance	Rı	3.29	4.7	6.11	kΩ	_	
Resistance ratio	R2/R1	0.8	1	1.2	_	_	
Transition frequency	fτ	_	200	_	MHz	VcE=-10V, IE=5mA, f=100MHz *	

<sup>\*</sup> Transition frequency of the device

# Packaging specifications

	Package	SMT3	SST3	SPT
	Package type	Taping	Taping	Taping
	Code		T116	TP
Part No.	Basic ordering unit (pieces)	3000	3000	5000
DTB143EK		0	_	_
DTB143EC		_	0	_
DTB143ES		_	_	0

### Electrical characteristic curves

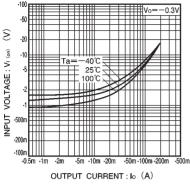


Fig.1 Input voltage vs. output current (ON characteristics)

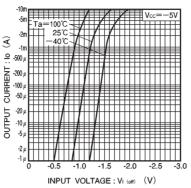


Fig.2 Output current vs. input voltage (OFF characteristics)

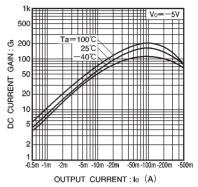


Fig.3 DC current gain vs. output current

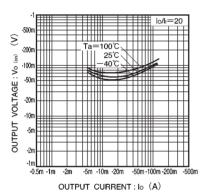


Fig.4 Output voltage vs. output current