

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

勝特力材料 886-3-5753170
 勝特力电子(上海) 86-21-34970699
 勝特力电子(深圳) 86-755-83298787
[Http://www.100y.com.tw](http://www.100y.com.tw)

DTB143EK

● Applications

Inverter, Interface, Driver

● Features

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

● Structure

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

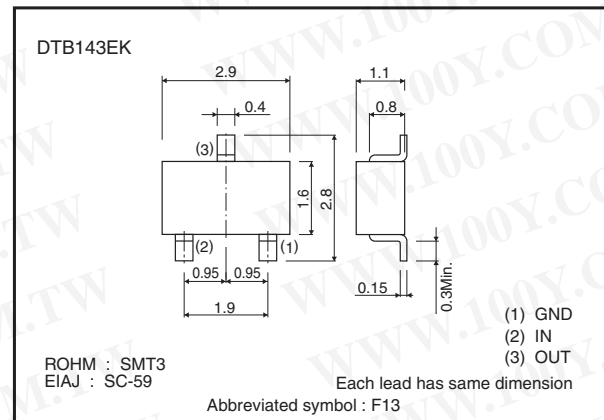
● Packaging specifications

Package	SMT3
Package type	Taping
Code	T146
Basic ordering unit (pieces)	3000
Part No.	DTB143EK

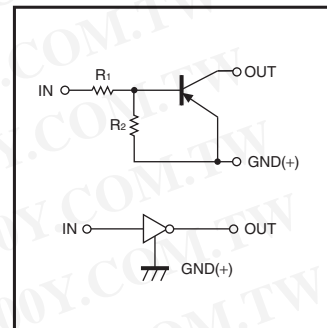
● Absolute maximum ratings (Ta=25°C)

Parameter	Symbol	Limits	
		DTB143EK	Unit
Supply voltage	V _{CC}	-50	V
Input voltage	V _{IN}	-30 to +10	V
Output current	I _C	-500	mA
Power dissipation	P _d	200	mW
Junction temperature	T _J	150	°C
Storage temperature	T _{stg}	-55 to +150	°C

● Dimensions (Unit : mm)



● Inner circuit



R₁=R₂=4.7kΩ

● Electrical characteristics (Ta=25°C)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Input voltage	$V_{I(off)}$	-	-	-0.5	V	$V_{CC} = -5V, I_o = -100\mu A$
	$V_{I(on)}$	-3	-	-		$V_o = -0.3V, I_o = -20mA$
Output voltage	$V_{O(on)}$	-	-0.1	-0.3	V	$I_o/I_i = -50mA/-2.5mA$
Input current	I_i	-	-	-1.8	mA	$V_i = -5V$
Output current	$I_{O(off)}$	-	-	-0.5	μA	$V_{CC} = -50V, V_i = 0V$
DC current gain	G_i	47	-	-	-	$V_o = -5V, I_o = -50mA$
Input resistance	R_1	3.29	4.7	6.11	k Ω	-
Resistance ratio	R_2/R_1	0.8	1	1.2	-	-
Transition frequency	f_T *	-	200	-	MHz	$V_{CE} = -10V, I_E = 50mA, f = 100MHz$

* Characteristics of built-in transistor

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● Electrical characteristic curves

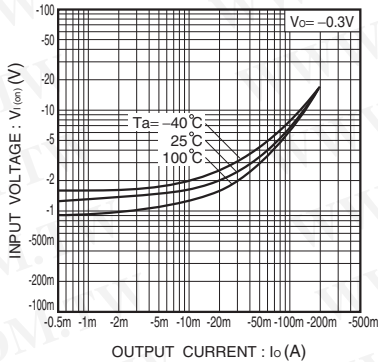


Fig.1 Input voltage vs. output current (ON characteristics)

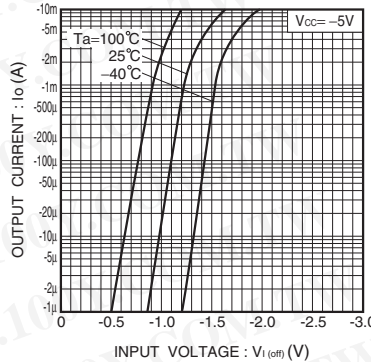


Fig.2 Output current vs. input voltage (OFF characteristics)

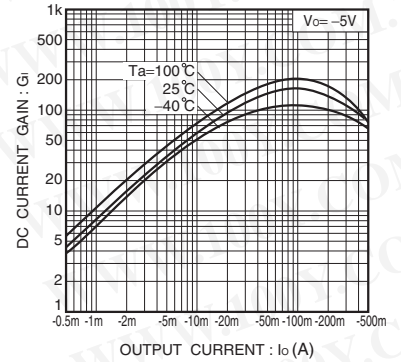


Fig.3 DC current gain vs. output current

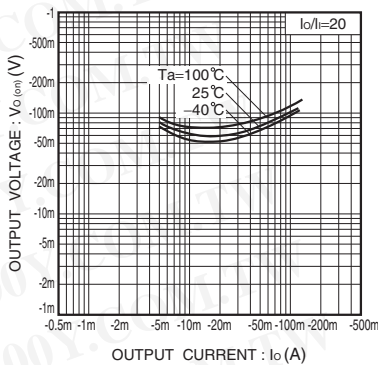


Fig.4 Output voltage vs. output current

Notes

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