

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

DTB113EK

Applications

Inverter, Interface, Driver

Features

- Built-in bias resistors enable theconfiguration 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.
- 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)

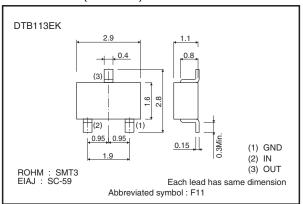
Packaging specifications

	Package	SMT3
	Packaging type	Taping
	Code	T146
Part No.	Basic ordering unit (pieces)	3000
DTB113EK		0

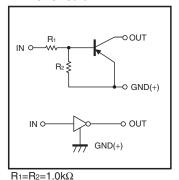
● Absolute maximum ratings (Ta=25°C)

Parameter	Cumbal	Limits	Unit	
Farameter	Symbol	DTB113EK		
Supply voltage	Vcc	-50	V	
Input voltage	VIN	-10 to +10	V	
Output current	lc	-500	mA	
Power dissipation	Po	200	mW	
Junction temperature	Tj	150	°C	
Storage temperature	Tstg	-55 to +150	°C	

• Dimensions (Unit : mm)



• Inner circuit



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DTB113EK Data Sheet

• Electrical characteristics (Ta=25°C)

Parameter	Symbol	Min.	Тур.	Max.	Unit	Conditions
Input voltage	VI(off)	_	-	-0.5	V	Vcc=-5V, Io=-100μA
	V _{I(on)}	-3	-	_	V	Vo=-0.3V, Io=-20mA
Output voltage	V _{O(on)}	-	-0.1	-0.3	V	Io/I _I =-50mA/-2.5mA
Input current	lı	_	_	-7.2	mA	V _I =-5V
Output current	IO(off)	-	-	-0.5	μΑ	Vcc=-50V, Vi=0V
DC current gain	Gı	33	-	_	-	Vo=-5V, Io=-50mA
Input resistance	R ₁	0.7	1	1.3	kΩ	-
Resistance ratio	R2/R1	0.8	1	1.2	-	-
Transition frequency	f⊤ *	-	200	_	MHz	Vc=-10V, I=50mA, f=100MHz

^{*} Characteristics of built-in transistor

• Electrical characteristic curves

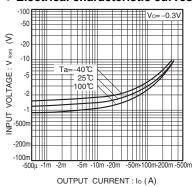


Fig.1 Input voltage vs. output current (ON characteristics)

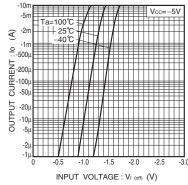


Fig.2 Output current vs. input voltage (OFF characteristics)

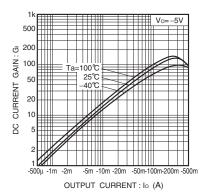


Fig.3 DC current gain vs. output

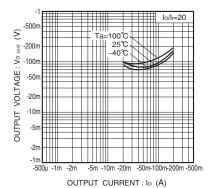


Fig.4 Output voltage vs. output current

Notes

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