

Digital transistors (built-in resistors)

DTB133HK / DTB133HS

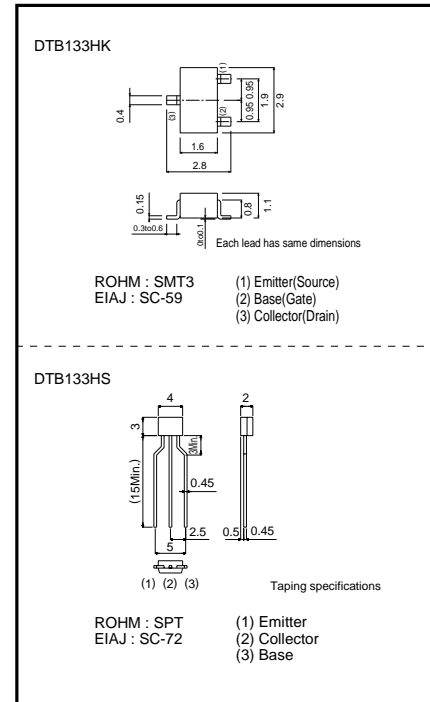
●Features

- 1) Built-in bias resistors enable the configuration of an inverter circuit without connecting external input resistors.
- 2) The bias resistors consist of thin-film resistors with complete isolation to allow positive biasing of the input, and parasitic effects are almost completely eliminated.
- 3) Only the on/off conditions need to be set for operation, making device design easy.
- 4) Higher mounting densities can be achieved.

●Absolute maximum ratings (Ta = 25°C)

Parameter	Symbol	Limits	Unit
Supply voltage	V _{CC}	-50	V
Input voltage	V _I	-20	V
		6	
Output current	I _C	-500	mA
Power dissipation	DTB133HK	200	mW
	DTB133HS	300	
Junction temperature	T _J	150	°C
Storage temperature	T _{stg}	-55~150	°C

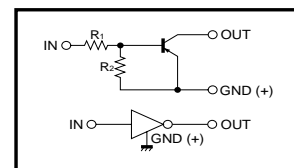
●External dimensions (Units : mm)



●Package, marking, and packaging specifications

Part No.	DTB133HK	DTB133HS
Package	SMT3	SPT
Marking	G98	-
Packaging code	T146	TP
Basic ordering unit (pieces)	3000	5000

●Circuit schematic



●Electrical characteristics (Ta = 25°C)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Input voltage	V _{I(off)}	-	-	-0.3	V	V _{CC} = -5V, I _O = -100μA
	V _{I(on)}	-2	-	-		V _O = -0.3V, I _O = -20mA
Output voltage	V _{O(on)}	-	-0.1	-0.3	V	I _O = -50mA, I _I = -2.5mA
Input current	I _I	-	-	-2.4	mA	V _I = -5V
Output current	I _{O(off)}	-	-	-0.5	μA	V _{CC} = -50V, V _I = 0V
DC current gain	G _I	56	-	-	-	I _O = -50mA, V _O = -5V
Input resistance	R ₁	2.31	3.3	4.29	kΩ	-
Resistance ratio	R ₂ /R ₁	2.4	3	3.7	-	-
Transition frequency	f _T	-	200	-	MHz	V _{CE} = -10V, I _E = 5mA, f = 100MHz *

* Transition frequency of the device.